

Torsionally Rigid Gear Couplings

ZAPEX ZW Series

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FLENDER Standard Couplings


Torsionally Rigid Gear Couplings – ZAPEX ZW Series

General information

Overview



Coupling suitable for use in potentially explosive atmospheres.
Complies with the current ATEX Directive for:

CE  II 2 GD c 120 °C (T4)
 $-20\text{ °C} \leq T_a \leq +80\text{ °C}$

CE  I M2

4

Benefits

ZAPEX gear couplings link machine shafts and compensate for shaft misalignment with weak restorative forces. High transmissible torque combined with compactness and light weight are characteristic of ZAPEX couplings. ZAPEX coupling types are constructed on a modular principle.

This means that application-specific solutions can be delivered quickly. ZAPEX couplings require very little maintenance. Regular grease or oil changes at the prescribed intervals prolongs the service life of the coupling.

Application

ZAPEX couplings are especially suited for operation in harsh operating conditions, such as drives in the iron smelting or cement industry. ZAPEX couplings are suitable for reverse operation and horizontal mounting positions and, in the case of type ZWNV, for vertical mounting positions.

Design

A ZAPEX coupling comprises two hub sections with external teeth which are mounted on the machine shafts. Each set of external teeth engages in a flanged socket with mating internal teeth. The flanged sleeves are connected via two flanges with close-fitting bolts.

The teeth are lubricated with oil or grease. On the ZAPEX type ZW, DUO sealing rings are used to seal the tooth space. The DUO sealing rings prevent the lubricant from escaping and dirt from entering the tooth space. The parallel keyways must be sealed during assembly to prevent lubricant from escaping.

Customized hub designs are described after the types.

ZAPEX ZW gear coupling types

Type	Description
ZWN	Standard type
ZZS	with adapter
ZZW	with intermediate shaft
ZWH	with coupling sleeve
ZWBT	with offset brake disk
ZWBG	with straight brake disk
ZWB	with brake drum
ZWTR	for rope drums
ZBR	with shear pins
ZWS	Clutch
ZWNV	Vertical type
ZWSE	Simple clutch-coupling combination

Further application-related coupling types are available. Dimension sheets for and information on these are available on request.

Function

The torque is transmitted through the coupling teeth. The teeth are crowned, so angular displacement per tooth plane is possible. Radial displacement can be compensated for via the space VA between the tooth planes. The internal teeth of the flanged sleeves are significantly wider than the external teeth of the hub parts, permitting a relatively high axial misalignment.

A small angular misalignment on the coupling teeth results in an advantageous distribution of the lubricant film and a very low wear rate. This favorable condition can be deliberately set by aligning the drive with the machine shafts with a slight radial misalignment.

FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZW Series

General information

Technical data

Power ratings

Size	Rated torque	Maximum torque	Overload torque	Fatigue torque	Torsional stiffness	Permitted axial shaft misalignment
	T_{KN} Nm	T_{Kmax} Nm	T_{KOL} Nm	T_{KW} Nm	ZW C_{Tdyn} kNm/rad	ΔK_a mm
112	1300	2600	5200	520	2000	1.0
128	2500	5000	10000	1000	3600	1.0
146	4300	8600	17200	1720	6900	1.0
175	7000	14000	28000	2800	9360	1.0
198	11600	23200	46400	4640	15600	1.0
230	19000	38000	76000	7600	26300	1.0
255	27000	54000	108000	10800	33400	1.5
290	39000	78000	156000	15600	44000	1.5
315	54000	108000	216000	21600	64100	1.5
342	69000	138000	276000	27600	81600	1.5
375	98000	196000	392000	39200	115600	1.5
415	130000	260000	520000	52000	106000	1.5
465	180000	360000	720000	72000	134600	2.0
505	250000	500000	1000000	100000	168700	2.0
545	320000	640000	1280000	128000	216900	2.0
585	400000	800000	1600000	160000	263200	2.0
640	510000	1020000	2040000	204000	356000	2.0
690	660000	1320000	2640000	264000	431000	2.0
730	790000	1580000	3160000	316000	538000	2.0
780	1000000	2000000	4000000	400000	696000	3.0
852	1200000	2400000	4800000	480000	926000	3.0
910	1600000	3200000	6400000	640000	1118000	3.0
1020	1900000	3800000	7600000	760000	1339000	3.0
1080	2200000	4400000	8800000	880000	1605000	3.0
1150	2700000	5400000	10800000	1080000	2120000	3.0
1160	3350000	6700000	13400000	1340000	2474000	3.0
1240	3800000	7600000	15200000	1520000	3079000	3.0
1310	4600000	9200000	18400000	1840000	3693000	4.0
1380	5300000	10600000	21200000	2120000	4383000	4.0
1440	6250000	12500000	25000000	2500000	5056000	4.0
1540	7200000	14400000	28800000	2880000	6115000	4.0

In the case of type ZWTR, the rated torques which deviate from the above are specified in the dimension table.

The stated torsional stiffness „ZW“ applies to coupling types ZWN and ZWNV.

Torsional stiffness of the remaining types on request.

The axial misalignment ΔK_a must be understood as the maximum permitted enlargement of the hub distance S of the coupling.

The axial misalignment for the types ZWBT, ZWBG and ZWNV is $\frac{1}{2} \times \Delta K_a$.

Angular misalignment ΔK_w

- Types ZWN, ZZS, ZZW, ZWH, ZWB, ZBR, ZWS: $\Delta K_w = 1^\circ$
- Types ZWBT and ZWBG: $\Delta K_w = 0.2^\circ$
- Type ZWSE: $\Delta K_w = 0.4^\circ$

Radial misalignment ΔK_r

- Types ZWN, ZZS, ZZW, ZWH, ZWB, ZBR, ZWS:
 $\Delta K_r \leq VA \cdot \tan 1^\circ$
- Types ZWBT and ZWBG: $\Delta K_r \leq VA \cdot \tan 0.2^\circ$
- Type ZWSE: $\Delta K_r \leq VA \cdot \tan 0.4^\circ$

For the tooth distance VA, see the relevant table for the subassembly.

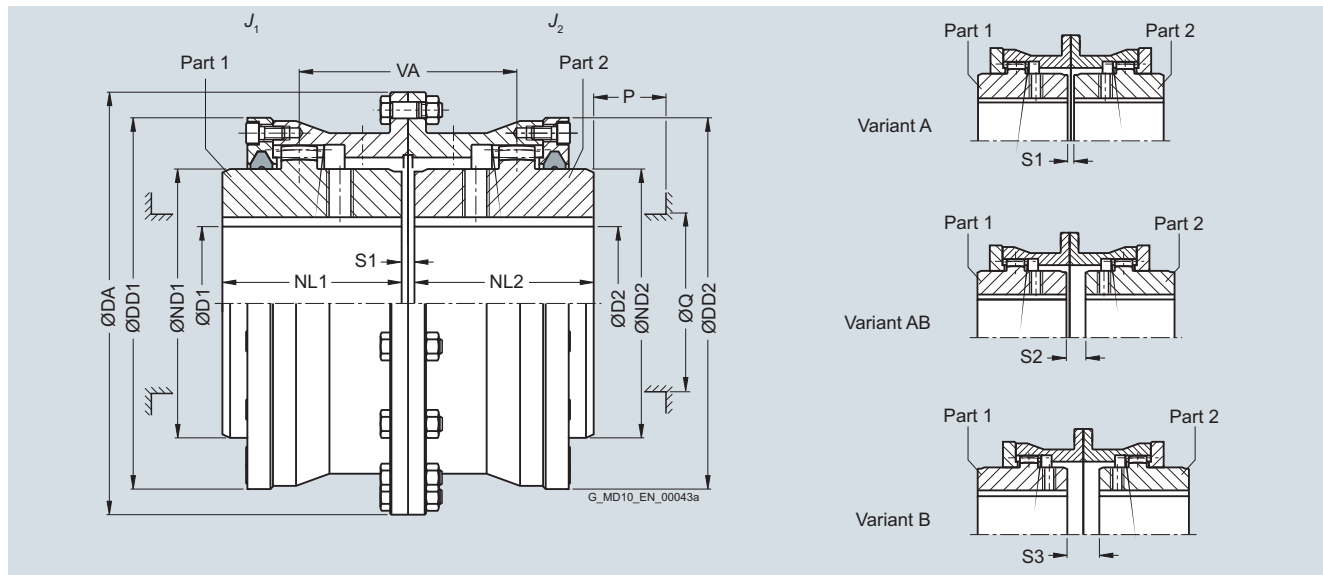
FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZW Series

Type ZWN

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Selection and ordering data



Size	Rated torque T_{KN} Nm	Maximum speed n_{Kmax} rpm	Dimensions in mm											Mass moment of inertia J_1/J_2 kgm ²	Article No. Order codes for bore diameters and tolerances are specified in catalog section 3	Weight m kg
			D1, D2 Keyway DIN 6885-1 min. max.	DA	ND1/ ND2	NL1/ NL2	DD1/ DD2	S1	S2	S3	VA	Q	P			
112	1300	9400	0 49	143	65	50	110	6	-	-	56	50	35	0.007	2LC0300-0A ■■■ -0AA0	5.8
128	2500	8300	0 61	157	80	60	128	6	13	20	73	65	45	0.014	2LC0300-1A ■■■ -0AA0	7.9
146	4300	7300	0 72	177	95	75	146	6	13	20	88	75	45	0.021	2LC0300-2A ■■■ -0AA0	11.5
175	7000	6400	0 85	215	112	90	175	8	14	20	104	85	50	0.049	2LC0300-3A ■■■ -0AA0	19
198	11600	5500	0 100	237	135	100	198	8	19	30	119	110	50	0.086	2LC0300-4A ■■■ -0AA0	26.5
230	19000	4700	0 120	265	160	110	230	8	20	32	130	135	50	0.16	2LC0300-5A ■■■ -0AA0	37
255	27000	4100	0 140	294	185	125	255	10	25	40	150	160	50	0.26	2LC0300-6A ■■■ -0AA0	49
290	39000	3700	70 160	330	210	140	290	10	30	50	170	180	60	0.51	2LC0300-7A ■■■ -0AA0	72
315	54000	3300	80 175	366	230	160	315	10	30	50	190	200	60	0.81	2LC0300-8A ■■■ -0AA0	99
342	69000	3000	90 195	392	255	180	340	12	42	72	222	225	60	1.2	2LC0301-0A ■■■ -0AA0	125
375	98000	2700	100 220	430	290	200	375	12	42	72	242	260	60	2	2LC0301-1A ■■■ -0AA0	170
415	130000	2500	120 240	478	320	220	415	12	74	136	294	285	80	3.1	2LC0301-2A ■■■ -0AA0	225
465	180000	2200	140 270	528	360	240	465	16	96	176	336	325	80	5.2	2LC0301-3A ■■■ -0AA0	300
505	250000	2000	160 300	568	400	260	505	16	106	196	366	365	80	7.7	2LC0301-4A ■■■ -0AA0	380
545	320000	1800	180 330	620	440	280	545	16	126	236	406	405	80	12	2LC0301-5A ■■■ -0AA0	490
585	400000	1700	210 360	660	480	310	585	20	150	280	460	445	80	17	2LC0301-6A ■■■ -0AA0	620
640	510000	1600	230 360	738	480	330	640	20	149	278	479	445	90	25	2LC0301-7A ■■■ -0AA0	780
			>330 390	520								475			27	800
690	660000	1450	250 390	788	520	350	690	20	166	312	516	475	90	35	2LC0301-8A ■■■ -0AA0	950
			>360 420	560								515			38	980
730	790000	1350	275 420	834	560	380	730	20	180	340	560	515	90	48	2LC0302-0A ■■■ -0AA0	1150
			>390 450	600								555			52	1200
780	1000000	1250	300 450	900	600	400	780	25	176	327	576	555	110	68	2LC0302-1A ■■■ -0AA0	1450
			>415 490	650								595			77	1450
852	1200000	1150	325 490	970	650	420	850	25	185	345	605	595	110	100	2LC0302-2A ■■■ -0AA0	1750
			>450 535	710								655			110	1800

Variant:	<ul style="list-style-type: none"> • A • B • AB 	A B C
ØD1:	<ul style="list-style-type: none"> • Without finished bore – Without order codes • Without finished bore from size 640 for 2nd diameter range D1 – Without order codes • With finished bore – With order codes for diameter and tolerance (article number without "-Z") 	1 2 9
ØD2:	<ul style="list-style-type: none"> • Without finished bore – Without order codes • Without finished bore from size 640 for 2nd diameter range D2 – Without order codes • With finished bore – With order codes for diameter and tolerance (article number without "-Z") 	1 2 9

FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZW Series

Type ZWN

Size	Rated torque T_{KN}	Maximum speed n_{Kmax}	Dimensions in mm													Mass moment of inertia J_1/J_2	Article No. Order codes for bore diameters and tolerances are specified in catalog section 3	Weight m
			D1, D2 Keyway DIN 6885-1		DA	ND1/ ND2	NL1/ NL2	DD1/ DD2	S1	S2	S3	VA	Q	P				
			min.	max.														
910	1600000	1050	350	535	1030	710	450	910	25	215	405	665	655	110	140	2LC0302-3A ■■■-0AA0	2100	
			>490	570		750											145	2150
1020	1900000	1000	375	570	1112	750	480	1020	25	213	401	693	695	130	200	2LC0302-4A ■■■-0AA0	2600	
			>520	600		800											220	2800
1080	2200000	950	400	600	1162	800	500	1080	30	226	422	726	735	135	255	2LC0302-5A ■■■-0AA0	3100	
			>550	650		860											285	3200
1150	2700000	900	425	650	1222	860	520	1150	30	238	446	758	795	135	330	2LC0302-6A ■■■-0AA0	3600	
			>600	705		930											380	3700
1160	3350000	850	450	650	1292	860	550	1160	30	260	490	810	795	135	420	2LC0302-7A ■■■-0AA0	4000	
			>600	705		930		1160					865				450	4100
			>650	750		990		1210					910				500	4300
1240	3800000	800	475	705	1400	930	580	1240	30	250	470	830	865	155	580	2LC0302-8A ■■■-0AA0	4900	
			>650	750		990		1240					910				620	5000
			>690	800		1055		1290					975				700	5300
1310	4600000	750	500	705	1470	930	610	1310	35	265	495	875	865	155	730	2LC0303-0A ■■■-0AA0	5600	
			>650	750		990		1310					910				770	5700
			>690	800		1055		1310					975				840	5900
			>730	850		1120		1370					1030				930	6200
1380	5300000	700	525	750	1540	990	640	1380	35	275	515	915	910	155	930	2LC0303-1A ■■■-0AA0	6500	
			>690	800		1055		1380					975				1000	6800
			>730	850		1120		1380					1030				1050	6900
			>780	890		1170		1430					1080				1150	7100
1440	6250000	670	550	800	1600	1055	670	1440	35	295	555	965	975	155	1200	2LC0303-2A ■■■-0AA0	7500	
			>730	850		1120		1440					1030				1250	7600
			>780	890		1170		1440					1080				1300	7700
			>810	940		1240		1510					1150				1450	8200
1540	7200000	630	575	850	1710	1120	700	1540	35	275	515	975	1030	175	1550	2LC0303-3A ■■■-0AA0	8800	
			>780	890		1170		1540					1080				1600	8900
			>810	940		1240		1540					1150				1700	9200
			>860	995		1310		1610					1220				1900	9600

Variant:	<ul style="list-style-type: none"> • A • B • AB 	A B C
∅D1:	<ul style="list-style-type: none"> • Without finished bore – Without order codes • Without finished bore from size 640 for 2nd diameter range D1 – Without order codes • Without finished bore from size 1160 for 3rd diameter range D1 – Without order codes • Without finished bore from size 1310 for 4th diameter range D1 – Without order codes • With finished bore – With order codes for diameter and tolerance (article number without "-Z") 	1 2 3 4 9
∅D2:	<ul style="list-style-type: none"> • Without finished bore – Without order codes • Without finished bore from size 640 for 2nd diameter range D2 – Without order codes • Without finished bore from size 1160 for 3rd diameter range D2 – Without order codes • Without finished bore from size 1310 for 4th diameter range D2 – Without order codes • With finished bore – With order codes for diameter and tolerance (article number without "-Z") 	1 2 3 4 9

Q Diameter required for renewing the sealing rings.

P Length required for renewing the sealing rings.

Mass moments of inertia apply to a coupling half with maximum bore diameter.

Weights apply to the entire coupling with maximum bores.

Ordering example:

ZAPEX ZWN coupling, size 146, variant A,
Part 1: Bore 40H7mm, keyway to DIN 6885-1 P9 and set screw,
Part 2: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw.

Article No.:

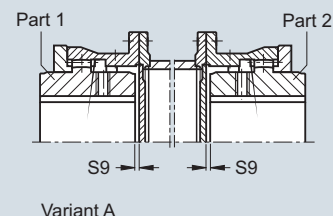
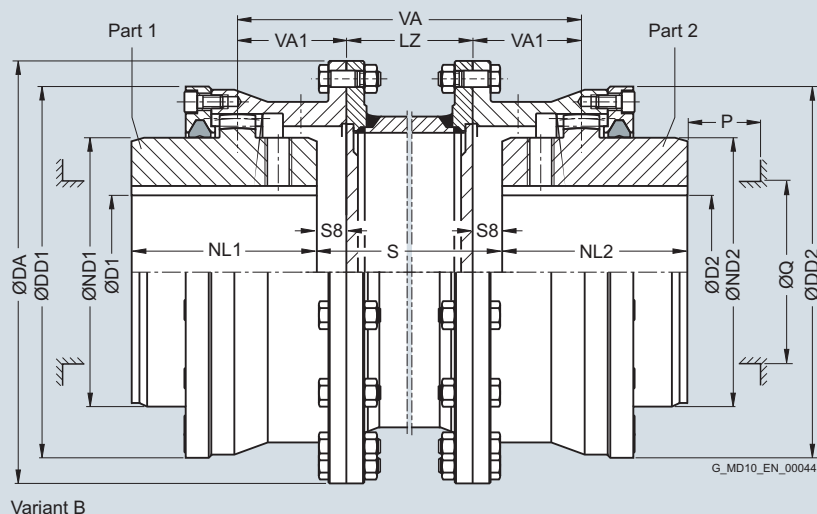
2LC0300-2AA99-0AA0-Z
LOW+M1A+M13

FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZW Series

Type ZZS

Selection and ordering data



Size	Rated torque T_{KN}	Dimensions in mm												Article No. Plain text required for dimension S Order codes for bore diameters and tolerances are specified in catalog section 3	Weight	
		D1, D2 Keyway DIN 6885-1		DA	ND1/ ND2	NL1/ NL2	DD1/ DD2	S8	S9	VA1	Q	P	LZ min.		<i>m</i> each 100 mm pipe	<i>m</i> kg
	Nm	min.	max.												kg	kg
112	1300	0	49	143	65	50	110	3	3	28	50	35	120	2LC0300-0A Q0Y	0.8	9.4
128	2500	0	61	157	80	60	128	10	3	36.5	65	45	120	2LC0300-1A Q0Y	1.3	12.5
146	4300	0	72	177	95	75	146	10	3	44	75	45	120	2LC0300-2A Q0Y	1.8	17
175	7000	0	85	215	112	90	175	10	4	52	85	50	130	2LC0300-3A Q0Y	2.3	27.5
198	11600	0	100	237	135	100	198	15	4	59.5	110	50	130	2LC0300-4A Q0Y	3.5	37
230	19000	0	120	265	160	110	230	16	4	65	135	50	130	2LC0300-5A Q0Y	4.5	50
255	27000	0	140	294	185	125	255	20	5	75	160	50	140	2LC0300-6A Q0Y	6.3	68
290	39000	70	160	330	210	140	290	25	5	85	180	60	140	2LC0300-7A Q0Y	7.2	93
315	54000	80	175	366	230	160	315	25	5	95	200	60	180	2LC0300-8A Q0Y	9.1	135
342	69000	90	195	392	255	180	340	36	6	111	225	60	180	2LC0301-0A Q0Y	12	170
375	98000	100	220	430	290	200	375	36	6	121	260	60	180	2LC0301-1A Q0Y	15	220
415	130000	120	240	478	320	220	415	68	6	147	285	80	200	2LC0301-2A Q0Y	17	295
465	180000	140	270	528	360	240	465	88	8	168	325	80	200	2LC0301-3A Q0Y	19	380
505	250000	160	300	568	400	260	505	98	8	183	365	80	200	2LC0301-4A Q0Y	24	470
545	320000	180	330	620	440	280	545	118	8	203	405	80	220	2LC0301-5A Q0Y	30	640
585	400000	210	360	660	480	310	585	140	10	230	445	80	220	2LC0301-6A Q0Y	33	780

Variant	<ul style="list-style-type: none"> • A • B 	D E
∅D1:	<ul style="list-style-type: none"> • Without finished bore – Without order codes • With finished bore – With order codes for diameter and tolerance (article number without "-Z") 	1 9
∅D2:	<ul style="list-style-type: none"> • Without finished bore – Without order codes • With finished bore – With order codes for diameter and tolerance (article number without "-Z") 	1 9

FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZW Series

Type ZZS

Size	Rated torque T_{KN}	Dimensions in mm												Article No. Plain text required for dimension S Order codes for bore diameters and tolerances are specified in catalog section 3	Weight	
		D1, D2 Keyway DIN 6885-1		DA	ND1/ ND2	NL1/ NL2	DD1/ DD2	S8	S9	VA1	Q	P	LZ		m	m
	Nm	min.	max.									min.	each 100 mm pipe	kg	kg	
640	510000	230	360	738	480	330	640	139	10	239.5	445	90	250	2LC0301-7A Q0Y	39	1010
		>330	390		520						475					1050
690	660000	250	390	788	520	350	690	156	10	258	475	90	250	2LC0301-8A Q0Y	48	1200
		>360	420		560						515					1250
730	790000	275	420	834	560	380	730	170	10	280	515	90	250	2LC0302-0A Q0Y	51	1450
		>390	450		600						555					1500
780	1000000	300	450	900	600	400	780	163	12.5	288	555	110	280	2LC0302-1A Q0Y	55	1850
		>415	490		650						595					1900
852	1200000	325	490	970	650	420	850	172	12.5	302.5	595	110	280	2LC0302-2A Q0Y	68	2300
		>450	535		710						655					2400
910	1600000	350	535	1030	710	450	910	202	12.5	332.5	655	110	280	2LC0302-3A Q0Y	94	2800
		>490	570		750						695					2850
1020	1900000	375	570	1112	750	480	1020	200	12.5	346.5	695	130	380	2LC0302-4A Q0Y		
		>520	600		800						735					
1080	2200000	400	600	1162	800	500	1080	211	15	363	735	135	380	2LC0302-5A Q0Y		
		>550	650		860						795					
1150	2700000	425	650	1222	860	520	1150	223	15	379	795	135	380	2LC0302-6A Q0Y		
		>600	705		930						865					
1160	3350000	450	650	1292	860	550	1160	245	15	405	795	135	380	2LC0302-7A Q0Y		
		>600	705		930		1160				865					
		>650	750		990		1210				910					
1240	3800000	475	705	1400	930	580	1240	235	15	415	865	155	400	2LC0302-8A Q0Y		
		>650	750		990		1240				910					
		>690	800		1055		1290				975					
1310	4600000	500	705	1470	930	610	1310	247	17.5	437.5	865	155	400	2LC0303-0A Q0Y		
		>650	750		990		1310				910					
		>690	800		1055		1310				975					
		>730	850		1120		1370				1030					
1380	5300000	525	750	1540	990	640	1380	257	17.5	457.5	910	155	400	2LC0303-1A Q0Y		
		>690	800		1055		1380				975					
		>730	850		1120		1380				1030					
		>780	890		1170		1430				1080					
1440	6250000	550	800	1600	1055	670	1440	277	17.5	482.5	975	155	400	2LC0303-2A Q0Y		
		>730	850		1120		1440				1030					
		>780	890		1170		1440				1080					
		>810	940		1240		1510				1150					
1540	7200000	575	850	1710	1120	700	1540	257	17.5	487.5	1030	175	600	2LC0303-3A Q0Y		
		>780	890		1170		1540				1080					
		>810	940		1240		1540				1150					
		>860	995		1310		1610				1220					

Variant	<ul style="list-style-type: none"> A B 	D
ØD1:	<ul style="list-style-type: none"> Without finished bore – Without order codes Without finished bore from size 640 for 2nd diameter range D1 – Without order codes Without finished bore from size 1160 for 3rd diameter range D1 – Without order codes Without finished bore from size 1310 for 4th diameter range D1 – Without order codes With finished bore – With order codes for diameter and tolerance (article number without "-Z") 	1 2 3 4 9
ØD2:	<ul style="list-style-type: none"> Without finished bore – Without order codes Without finished bore from size 640 for 2nd diameter range D2 – Without order codes Without finished bore from size 1160 for 3rd diameter range D2 – Without order codes Without finished bore from size 1310 for 4th diameter range D2 – Without order codes With finished bore – With order codes for diameter and tolerance (article number without "-Z") 	1 2 3 4 9

Weights from size 1020 on request.

$$VA = 2 \cdot VA1 + LZ$$

Q Diameter required for renewing the sealing rings.

P Length required for renewing the sealing rings.

Mass moments of inertia on request.

Weights apply to maximum bores and an adapter length of LZ min.

Maximum speed, limited by weight and critical adapter speed, on request.

Ordering example:

Article No.:

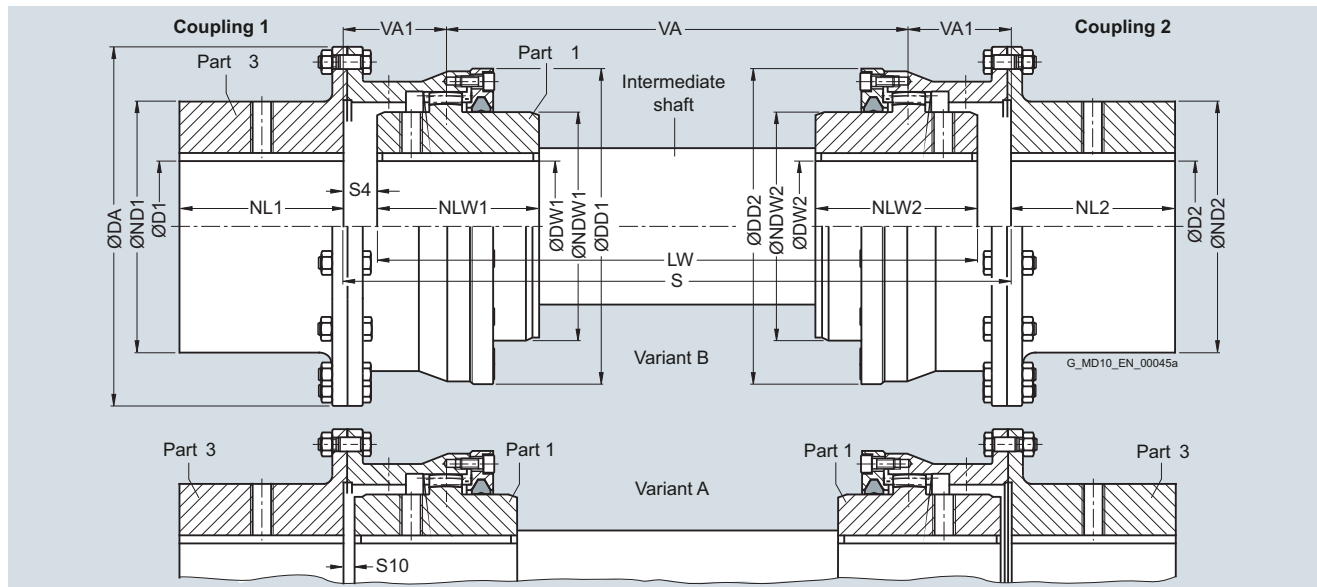
2LC0300-2AE99-0AZ0-Z**LOW+M1A+Q0Y+M13**Plain text to Q0Y: **250 mm (dimension S)**

FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZW Series

Type ZZW

Selection and ordering data



Size	Rated torque T_{KN} Nm	Dimensions in mm										Article No. Order codes for bore diameters and tolerances are specified in catalog section 3	Weight m kg		
		D1, D2 Keyway DIN 6885-1		DA	ND1/ ND2	NL1/ NL2/ NLW1/ NLW2	DW1, DW2 Keyway DIN 6885-1		NDW1/ DD1/ NDW2 DD2	S4	S10			VA1	
		min.	max.			min.	max.								
112	1300	20	61	143	80	50	0	49	65	110	12.5	12.5	37.5	2LC0300-0B ■■■ -0AA0	5.1
128	2500	25	72	157	95	60	0	61	80	128	12.5	5.5	39	2LC0300-1B ■■■ -0AA0	6.8
146	4300	30	85	177	112	75	0	72	95	146	12.5	5.5	46.5	2LC0300-2B ■■■ -0AA0	9.8
175	7000	35	100	215	135	90	0	85	112	175	12.5	6.5	54.5	2LC0300-3B ■■■ -0AA0	16.5
198	11600	40	120	237	160	100	0	100	135	198	17.5	6.5	62	2LC0300-4B ■■■ -0AA0	23
230	19000	50	140	265	185	110	0	120	160	230	18.5	6.5	67.5	2LC0300-5B ■■■ -0AA0	32
255	27000	60	160	294	210	125	0	140	185	255	23.5	8.5	78.5	2LC0300-6B ■■■ -0AA0	43
290	39000	70	175	330	230	140	70	160	210	290	28.5	8.5	88.5	2LC0300-7B ■■■ -0AA0	61
315	54000	80	195	366	255	160	80	175	230	315	28.5	8.5	98.5	2LC0300-8B ■■■ -0AA0	86
342	69000	90	220	392	290	180	90	195	255	340	39.5	9.5	114.5	2LC0301-0B ■■■ -0AA0	115
375	98000	100	240	430	320	200	100	220	290	375	39.5	9.5	124.5	2LC0301-1B ■■■ -0AA0	150
415	130000	120	270	478	360	220	120	240	320	415	71.5	9.5	150.5	2LC0301-2B ■■■ -0AA0	205
465	180000	140	300	528	400	240	140	270	360	465	91.5	11.5	171.5	2LC0301-3B ■■■ -0AA0	275
505	250000	160	330	568	440	260	160	300	400	505	102.5	12.5	187.5	2LC0301-4B ■■■ -0AA0	350
545	320000	180	360	620	480	280	180	330	440	545	122.5	12.5	207.5	2LC0301-5B ■■■ -0AA0	450
585	400000	210	360	660	480	310	210	360	480	585	144.5	14.5	234.5	2LC0301-6B ■■■ -0AA0	540
		>330	390		520			360							570
640	510000	230	390	738	520	330	230	360	480	640	143.5	14.5	244	2LC0301-7B ■■■ -0AA0	700
		>360	420		560		>330	390	520						740
690	660000	250	420	788	560	350	250	390	520	690	160.5	14.5	262.5	2LC0301-8B ■■■ -0AA0	850
		>390	450		600		>360	420	560						900
730	790000	275	450	834	600	380	275	420	560	730	176	16	286	2LC0302-0B ■■■ -0AA0	1050
		>415	490		650		>390	450	600						1100
780	1000000	300	490	900	650	400	300	450	600	780	171	20.5	296	2LC0302-1B ■■■ -0AA0	1300
		>450	535		710		>415	490	650						1350
852	1200000	325	535	970	710	420	325	490	650	850	180	20.5	310.5	2LC0302-2B ■■■ -0AA0	1550
		>490	570		750		>450	535	710						1650

Variant:

- A
- B

ØD1:

- Without finished bore – Without order codes
- Without finished bore from size 585 for 2nd diameter range D1 – Without order codes
- With finished bore – With order codes for diameter and tolerance (article number without "-Z")

ØD2:

- Without finished bore – Without order codes
- Without finished bore from size 585 for 2nd diameter range D2 – Without order codes
- With finished bore – With order codes for diameter and tolerance (article number without "-Z")

D
E

1
2
9
1
2
9

FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZW Series

Type ZZW

Size	Rated torque T_{KN} Nm	Dimensions in mm											Article No. Order codes for bore diameters and tolerances are specified in catalog section 3	Weight m kg	
		D1, D2 Keyway DIN 6885-1		DA	ND1/ ND2	NL1/ NL2/ NLW1/ NLW2	DW1, DW2 Keyway DIN 6885-1		NDW1/ NDW2	DD1/ DD2	S4	S10			VA1
		min.	max.				min.	max.							
910	1600000	350	570	1030	750	450	350	535	710	910	210	20.5	340.5	2LC0302-3B ■■■■-0AA0	1900
		>520	600		800		>490	570	750						2000
1020	1900000	375	600	1112	800	480	375	570	750	1020	210	22.5	356.5	2LC0302-4B ■■■■-0AA0	2300
		>550	650		860		>520	600	800						2500
1080	2200000	400	650	1162	860	500	400	600	800	1080	221	25	373	2LC0302-5B ■■■■-0AA0	2750
		>600	705		930		>550	650	860						2900
1150	2700000	425	650	1222	860	520	425	650	860	1150	233	25	389	2LC0302-6B ■■■■-0AA0	3100
		>600	705		930		>425	650	860						3200
		>650	750		990		>600	705	930						3400
1160	3350000	450	705	1292	930	550	450	650	860	1160	255	25	415	2LC0302-7B ■■■■-0AA0	3600
		>650	750		990		>600	705	930	1160					3700
		>690	800		1055		>650	750	990	1210					4000
1240	3800000	475	705	1400	930	580	475	705	930	1240	245	25	425	2LC0302-8B ■■■■-0AA0	4200
		>650	750		990		475	705	930	1240					4400
		>690	800		1055		>650	750	990	1240					4600
		>730	850		1120		>690	800	1055	1290					4900
1310	4600000	500	750	1470	990	610	500	705	930	1310	258	28.5	448.5	2LC0303-0B ■■■■-0AA0	4900
		>690	800		1055		>650	750	990	1310					5100
		>730	850		1120		>690	800	1055	1310					5300
		>780	890		1170		>730	850	1120	1370					5600
1380	5300000	525	800	1540	1055	640	525	750	990	1380	268	28.5	468.5	2LC0303-1B ■■■■-0AA0	5700
		>730	850		1120		>690	800	1055	1380					5900
		>780	890		1170		>730	850	1120	1380					6100
		>810	940		1240		>780	890	1170	1430					6500
1440	6250000	550	850	1600	1120	670	550	800	1055	1440	288	28.5	493.5	2LC0303-2B ■■■■-0AA0	6500
		>780	890		1170		>730	850	1120	1440					6700
		>810	940		1240		>780	890	1170	1440					7000
		>860	995		1310		>810	940	1240	1510					7400
1540	7200000	575	890	1710	1170	700	575	850	1120	1540	268	28.5	498.5	2LC0303-3B ■■■■-0AA0	7700
		575	890		1170		>780	890	1170	1540					7700
		>810	940		1240		>810	940	1240	1540					8100
		>860	1040		1390		>860	995	1310	1610					8900

Variant:

- A
- B

D
E

ØD1:

- Without finished bore – Without order codes
- Without finished bore from size 585 for 2nd diameter range D1 – Without order codes
- Without finished bore from size 1150 for 3rd diameter range D1 – Without order codes
- Without finished bore from size 1240 for 4th diameter range D1 – Without order codes
- With finished bore – With order codes for diameter and tolerance (article number without "-Z")

1
2
3
4
9

ØD2:

- Without finished bore – Without order codes
- Without finished bore from size 585 for 2nd diameter range D2 – Without order codes
- Without finished bore from size 1150 for 3rd diameter range D2 – Without order codes
- Without finished bore from size 1240 for 4th diameter range D2 – Without order codes
- With finished bore – With order codes for diameter and tolerance (article number without "-Z")

1
2
3
4
9

$$VA = S - 2 \cdot VA1$$

Mass moments of inertia on request.

Weights apply to either coupling 1 or 2 with maximum bore diameter, without intermediate shaft.

Maximum speed, limited by weight and critical speed of intermediate shaft, on request.

Ordering example:

Coupling ZZW consisting of coupling 1, intermediate shaft, coupling 2

Coupling 1:

ZAPEX ZZW coupling, size 146, variant B,
Part 3: Bore D1 = 45K7 mm, keyway to DIN 6885-1 P9 and set screw,
Part 1: Bore DW1 = 45H7 mm, keyway to DIN 6885-1 P9 and set screw.

Article No.:

**2LC0300-2BE99-0AA0-Z
L1A+M1A+M13**

Intermediate shaft:

Intermediate shaft for ZAPEX coupling ZZW, size 146, length LW = 570 mm, for shaft distance S = 595 mm shaft journal Ø45p6 x 75 long; keyway DIN 6885-1.

Article No.:

**2LC0308-8XX00-0AA0-Z
Y99**

Plain text to Y99: **DW1 = 45p6 mm, NLW1 = 75 mm, DW2 = 45p6 mm, NLW2 = 75 mm, LW = 570 mm**

Coupling 2:

ZAPEX ZZW coupling, size 146, variant B,
Part 1: Bore DW2 = 45H7 mm, keyway to DIN 6885-1 P9 and set screw,
Part 3: Bore D2 = 45K7 mm, keyway to DIN 6885-1 P9 and set screw.

Article No.:

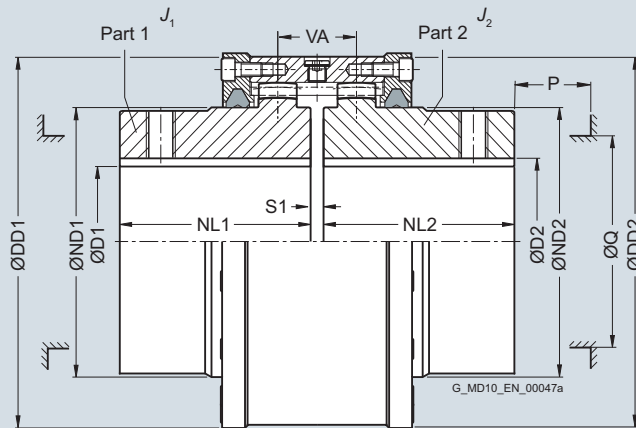
**2LC0300-2BE99-0AA0-Z
L1A+M1A+M13**

FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZW Series

Type ZWH

Selection and ordering data



Size	Rated torque T_{KN} Nm	Maximum speed n_{Kmax} rpm	Dimensions in mm										Mass moment of inertia J_1/J_2 kgm ²	Article No. Order codes for bore diameters and tolerances are specified in catalog section 3	Weight m kg
			D1, D2 Keyway DIN 6885-1 min. max.	ND1/N D2	NL1/N L2	DD1/D D2	S1	VA	Q	P					
112	1300	9400	0 49 65 50	110	6	28	50	35	0.003	2LC0300-0BB ■ ■ -0AA0	3.5				
128	2500	8300	0 61 80 60	128	6	30	65	45	0.007	2LC0300-1BB ■ ■ -0AA0	5.1				
146	4300	7300	0 72 95 75	146	6	33	75	45	0.012	2LC0300-2BB ■ ■ -0AA0	7.8				
175	7000	6400	0 85 112 90	175	8	46	85	50	0.031	2LC0300-3BB ■ ■ -0AA0	13.5				
198	11600	5500	0 100 135 100	198	8	48	110	50	0.056	2LC0300-4BB ■ ■ -0AA0	20				
230	19000	4700	0 120 160 110	230	8	50	135	50	0.11	2LC0300-5BB ■ ■ -0AA0	28.5				
255	27000	4100	0 140 185 125	255	10	55	160	50	0.18	2LC0300-6BB ■ ■ -0AA0	38				
290	39000	3700	70 160 210 140	290	10	58	180	60	0.35	2LC0300-7BB ■ ■ -0AA0	56				
315	54000	3300	80 175 230 160	315	10	62	200	60	0.55	2LC0300-8BB ■ ■ -0AA0	74				
342	69000	3000	90 195 255 180	340	12	70	225	60	0.82	2LC0301-0BB ■ ■ -0AA0	95				
375	98000	2700	100 220 290 200	375	12	72	260	60	1.3	2LC0301-1BB ■ ■ -0AA0	130				
415	130000	2500	120 240 320 220	415	12	76	285	80	2.3	2LC0301-2BB ■ ■ -0AA0	175				
465	180000	2200	140 270 360 240	465	16	90	325	80	4	2LC0301-3BB ■ ■ -0AA0	245				
505	250000	2000	160 300 400 260	505	16	92	365	80	6	2LC0301-4BB ■ ■ -0AA0	310				
545	320000	1800	180 330 440 280	545	16	96	405	80	8.8	2LC0301-5BB ■ ■ -0AA0	390				
585	400000	1700	210 360 480 310	585	20	102	445	80	13	2LC0301-6BB ■ ■ -0AA0	500				
640	510000	1600	230 360 480	330 640	20	105	445	90	18	2LC0301-7BB ■ ■ -0AA0	620				
			>330 390 520				475		19.5		650				
690	660000	1450	250 390 520	350 690	20	108	475	90	25.5	2LC0301-8BB ■ ■ -0AA0	760				
			>360 420 560				515		28		790				
730	790000	1350	275 420 560	380 730	20	112	515	90	35	2LC0302-0BB ■ ■ -0AA0	920				
			>390 450 600				555		39		950				
780	1000000	1250	300 450 600	400 780	25	120	555	110	48	2LC0302-1BB ■ ■ -0AA0	1150				
			>415 490 650				595		57		1150				

ØD1:	• Without finished bore – Without order codes	1
	• With finished bore – With order codes for diameter and tolerance (article number without "-Z")	9
ØD2:	• Without finished bore – Without order codes	1
	• With finished bore – With order codes for diameter and tolerance (article number without "-Z")	9

Larger size couplings on request.

Q Diameter required for renewing the sealing rings.
P Length required for renewing the sealing rings.

Mass moments of inertia apply to a coupling half with maximum bore diameter.

Weights apply to the entire coupling with maximum bores.

Ordering example:

ZAPEX ZWH coupling, size 146,
Part 1: Bore 40H7 mm, keyway to DIN 6885-1 P9 and set screw,
Part 2: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw.

Article No.:

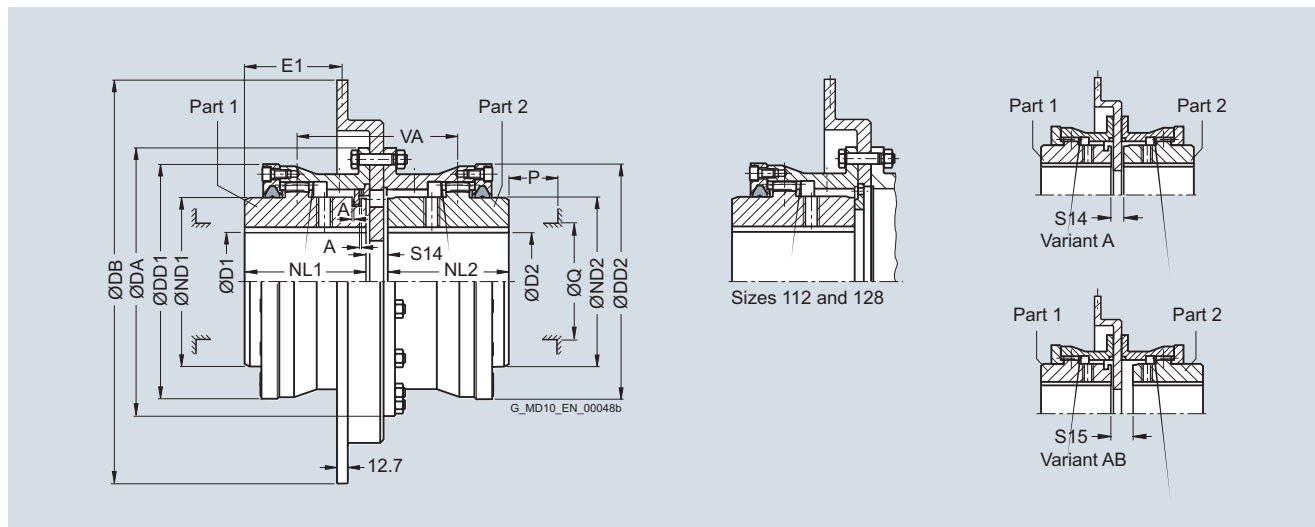
2LC0300-2BB99-0AA0-Z
LOW+M1A+M13

FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZW Series

Type ZWBT

Selection and ordering data



Variant limited in displacement and axial movement. Max. displacement 0.2°.

Size	Rated torque T_{KN} Nm	Maximum speed n_{Kmax} rpm	Dimensions in mm																Article No. Order codes for bore diameters and tolerances are specified in catalog section 3	Weight m kg	
			D1 Keyway DIN 6885-1		D2 Keyway DIN 6885-1		DA	ND1/ ND2	NL1/ NL2	DD1/ DD2	S14	S15	A	VA	Q	P	Brake disk DB E1				
			min.	max.	min.	max.															
112	1300	3800	0	49	0	49	143	65	50	110	20	-	0.5	70	50	35	300	32.35	2LC0300-0A	■■■-0AA0	13
		3200									23	-		73			356	22.35	2LC0300-0A	■■■-0BA0	16.5
128	2500	3200	0	61	0	61	157	80	60	128	23.5	30.5	0.5	90.5	65	45	356	32.85	2LC0300-1A	■■■-0AA0	19
		2800									20.5	27.5		87.5			406	29.85	2LC0300-1A	■■■-0BA0	21.5
146	4300	2800	0	65	0	72	177	95	75	146	19	26	0.5	101	75	45	406	43.35	2LC0300-2A	■■■-0AA0	25
		2500									22	29		104			457	46.35	2LC0300-2A	■■■-0BA0	30
175	7000	2800	0	80	0	85	215	112	90	175	21	27	0.5	117	85	50	406	59.35	2LC0300-3A	■■■-0AA0	33
		2500									24	30		120			457	62.35	2LC0300-3A	■■■-0BA0	38
		2200									24	30		120			514	62.35	2LC0300-3A	■■■-0CA0	43
198	11600	2500	0	95	0	100	237	135	100	198	24	35	0.5	135	110	50	457	72.35	2LC0300-4A	■■■-0AA0	46
		2200									24	35		135			514	72.35	2LC0300-4A	■■■-0BA0	51
230	19000	2200	0	117	0	120	265	160	110	230	24	36	0.5	146	135	50	514	82.35	2LC0300-5A	■■■-0AA0	62
		1850									24	36		146			610	82.35	2LC0300-5A	■■■-0BA0	73
255	27000	2200	0	140	0	140	294	185	125	255	26	41	1	166	160	50	514	98.35	2LC0300-6A	■■■-0AA0	73
		1850									26	41		166			610	98.35	2LC0300-6A	■■■-0BA0	84
290	39000	1850	70	155	70	160	330	210	140	290	26	46	1	186	180	60	610	113.35	2LC0300-7A	■■■-0AA0	110
		1600									29	49		189			711	116.35	2LC0300-7A	■■■-0BA0	125
315	54000	1850	80	175	80	175	366	230	160	315	26	46	1	206	200	60	610	133.35	2LC0300-8A	■■■-0AA0	135
		1600									29	49		209			711	136.35	2LC0300-8A	■■■-0BA0	150
342	69000	1600	90	195	90	195	392	255	180	340	31	61	1	241	225	60	711	157.35	2LC0301-0A	■■■-0AA0	180
375	98000	1600	100	220	100	220	430	290	200	375	31	61	1	261	260	60	711	177.35	2LC0301-1A	■■■-0AA0	220
415	130000	1400	120	240	120	240	478	320	220	415	37	99	1	319	285	80	812	203.35	2LC0301-2A	■■■-0AA0	320
465	180000	1400	140	270	140	270	528	360	240	465	41	121	1	361	325	80	812	225.35	2LC0301-3A	■■■-0AA0	400

Q Diameter required for renewing the sealing rings.
P Length required for renewing the sealing rings.

Mass moments of inertia on request.
Weights apply to maximum bores.

Ordering example:
ZAPEX ZWBT coupling, size 146, variant A, brake disk diameter DB = 457 mm,
Part 1: Bore 40H7 mm, keyway to DIN 6885-1 P9 and set screw,
Part 2: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw.

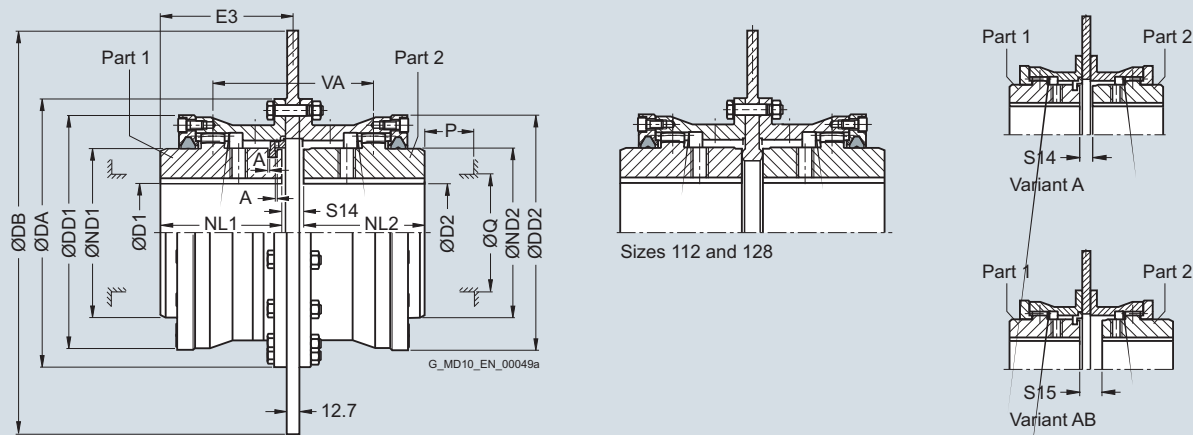
Article No.:
2LC0300-2AS99-0BA0-Z
LOW+M1A+M13

FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZW Series

Type ZWBG

Selection and ordering data



Variant limited in displacement and axial movement. Max. displacement 0.2°.

Modified brake disk dimensions on request

Size	Rated torque T_{KN} Nm	Maximum speed n_{Kmax} rpm	Dimensions in mm													Brake disk		Article No. Order codes for bore diameters and tolerances are specified in catalog section 3	Weight m kg		
			D1 Keyway DIN 6885-1 min. max.		D2 Keyway DIN 6885-1 min. max.		DA	ND1/ ND2	NL1/ NL2	DD1/ DD2	S14	S15	A	VA	Q	P	DB			E3	
			min.	max.	min.	max.															
112	1300	3800	0	49	0	49	143	65	50	110	19	–	0.5	69	50	35	300	59.5	2LC0300-0A	■ ■ ■ -0AA0	13
		3200	0	49	0	49	143	65	50	110	22	–	0.5	72	50	35	356	61	2LC0300-0A	■ ■ ■ -0BA0	16
128	2500	3200	0	61	0	61	157	80	60	128	22	29	0.5	89	65	45	356	71	2LC0300-1A	■ ■ ■ -0AA0	18
		2800	0	61	0	61	157	80	60	128	19	26	0.5	86	65	45	406	69.5	2LC0300-1A	■ ■ ■ -0BA0	20.5
146	4300	2800	0	65	0	72	177	95	75	146	19	26	0.5	101	75	45	406	84.5	2LC0300-2A	■ ■ ■ -0AA0	24
		2500	0	65	0	72	177	95	75	146	22	29	0.5	104	75	45	457	86	2LC0300-2A	■ ■ ■ -0BA0	28.5
175	7000	2800	0	80	0	85	215	112	90	175	21	27	0.5	117	85	50	406	100.5	2LC0300-3A	■ ■ ■ -0AA0	31
		2500	0	80	0	85	215	112	90	175	24	30	0.5	120	85	50	457	102	2LC0300-3A	■ ■ ■ -0BA0	35
		2200	0	80	0	85	215	112	90	175	24	30	0.5	120	85	50	514	102	2LC0300-3A	■ ■ ■ -0CA0	40
198	11600	2500	0	95	0	100	237	135	100	198	24	35	0.5	135	110	50	457	112	2LC0300-4A	■ ■ ■ -0AA0	43
		2200	0	95	0	100	237	135	100	198	24	35	0.5	135	110	50	514	112	2LC0300-4A	■ ■ ■ -0BA0	47
230	19000	2200	0	117	0	120	265	160	110	230	24	36	0.5	146	135	50	514	122	2LC0300-5A	■ ■ ■ -0AA0	58
		1850	0	117	0	120	265	160	110	230	24	36	0.5	146	135	50	610	122	2LC0300-5A	■ ■ ■ -0BA0	66
255	27000	2200	0	140	0	140	294	185	125	255	26	41	1	166	160	50	514	138	2LC0300-6A	■ ■ ■ -0AA0	69
		1850	0	140	0	140	294	185	125	255	26	41	1	166	160	50	610	138	2LC0300-6A	■ ■ ■ -0BA0	77
290	39000	1850	70	155	70	160	330	210	140	290	26	46	1	186	180	60	610	153	2LC0300-7A	■ ■ ■ -0AA0	100
		1600	70	155	70	160	330	210	140	290	29	49	1	189	180	60	711	154.5	2LC0300-7A	■ ■ ■ -0BA0	110
315	54000	1850	80	175	80	175	366	230	160	315	26	46	1	206	200	60	610	173	2LC0300-8A	■ ■ ■ -0AA0	130
		1600	80	175	80	175	366	230	160	315	29	49	1	209	200	60	711	174.5	2LC0300-8A	■ ■ ■ -0BA0	140
342	69000	1600	90	195	90	195	392	255	180	340	31	61	1	241	225	60	711	195.5	2LC0301-0A	■ ■ ■ -0AA0	165
375	98000	1600	100	220	100	220	430	290	200	375	31	61	1	261	260	60	711	215.5	2LC0301-1A	■ ■ ■ -0AA0	205
415	130000	1400	120	240	120	240	478	320	220	415	37	99	1	319	285	80	812	238.5	2LC0301-2A	■ ■ ■ -0AA0	280
465	180000	1400	140	270	140	270	528	360	240	465	41	121	1	361	325	80	812	260.5	2LC0301-3A	■ ■ ■ -0AA0	360

Q Diameter required for renewing the sealing rings.
P Length required for renewing the sealing rings.

Mass moments of inertia on request.

Weights apply to maximum bores.

Ordering example:

ZAPEX ZWBG coupling, size 146, variant A, brake disk diameter DB = 457 mm,
Part 1: Bore 40H7 mm, keyway to DIN 6885-1 P9 and set screw,
Part 2: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw.

Article No.:

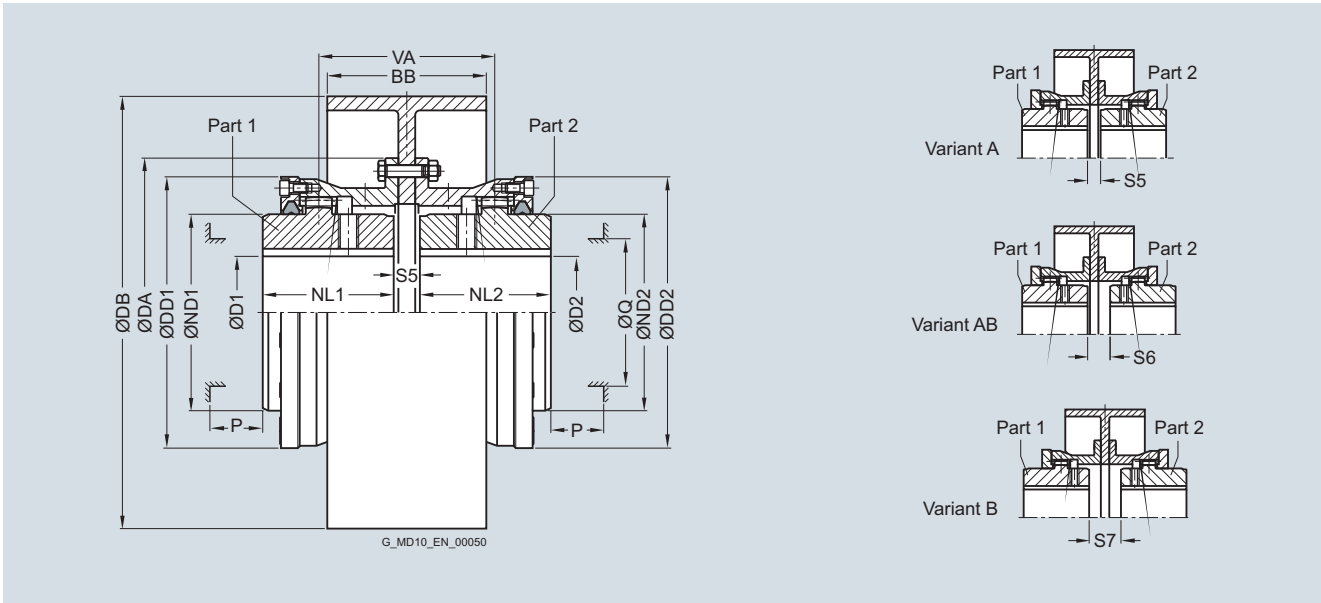
2LC0300-2AU99-0BA0-Z
LOW+M1A+M13

FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZW Series

Type ZWB

Selection and ordering data



Size	Rated torque T_{KN} Nm	Maximum speed n_{Kmax} rpm	Dimensions in mm														Article No. Order codes for bore diameters and tolerances are specified in catalog section 3	Weight m kg
			D1, D2 Keyway DIN 6885-1 min. max.	DA	ND1/ ND2	NL1/ NL2	DD1/ DD2	S5	S6	S7	VA	Q	P	DB	BB			
128	2500	2500	0	61	157	80	60	128	16	23	30	83	60	45	200	75	2LC0300-1 ■■■■ -0AA0	12.5
		2000							16	23	30	83			250	95	2LC0300-1 ■■■■ -0BA0	15.5
146	4300	2000	0	72	177	95	75	146	16	23	30	98	75	45	250	95	2LC0300-2 ■■■■ -0AA0	19
		1600							18	25	32	100			315	118	2LC0300-2 ■■■■ -0BA0	26.5
175	7000	1600	0	85	215	112	90	175	20	26	32	116	85	50	315	118	2LC0300-3 ■■■■ -0AA0	33
		1250							22	28	34	118			400	150	2LC0300-3 ■■■■ -0BA0	47
198	11600	1600	0	100	237	135	100	198	20	31	42	131	110	50	315	118	2LC0300-4 ■■■■ -0AA0	41
		1250							22	33	44	133			400	150	2LC0300-4 ■■■■ -0BA0	54
230	19000	1250	0	120	265	160	110	230	22	34	46	144	135	50	400	150	2LC0300-5 ■■■■ -0AA0	64
		1000							23	35	47	145			500	190	2LC0300-5 ■■■■ -0BA0	85
255	27000	1000	0	140	294	185	125	255	25	40	55	165	160	50	500	190	2LC0300-6 ■■■■ -0AA0	95
		1000							28	43	58	168			630	236	2LC0300-6 ■■■■ -0BA0	140
290	39000	1000	70	160	330	210	140	290	28	48	68	188	180	60	630	236	2LC0300-7 ■■■■ -0AA0	160
		750							28	48	68	188			710	265	2LC0300-7 ■■■■ -0BA0	195
Variant:																	AW	
																	AX	
																	BA	
ØD1:																		1
																		9
ØD2:																		1
																		9

Q Diameter required for renewing the sealing rings.
P Length required for renewing the sealing rings.

Mass moments of inertia on request.

Weights apply to maximum bores.

Ordering example:

ZAPEX ZWB coupling, size 146, variant A, brake disk diameter DB = 315 mm, BB = 118 mm,
Part 1: Bore 40H7 mm, keyway to DIN 6885-1 P9 and set screw,
Part 2: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw.

Article No.:
2LC0300-2AW99-0BA0-Z
LOW+M1A+M13

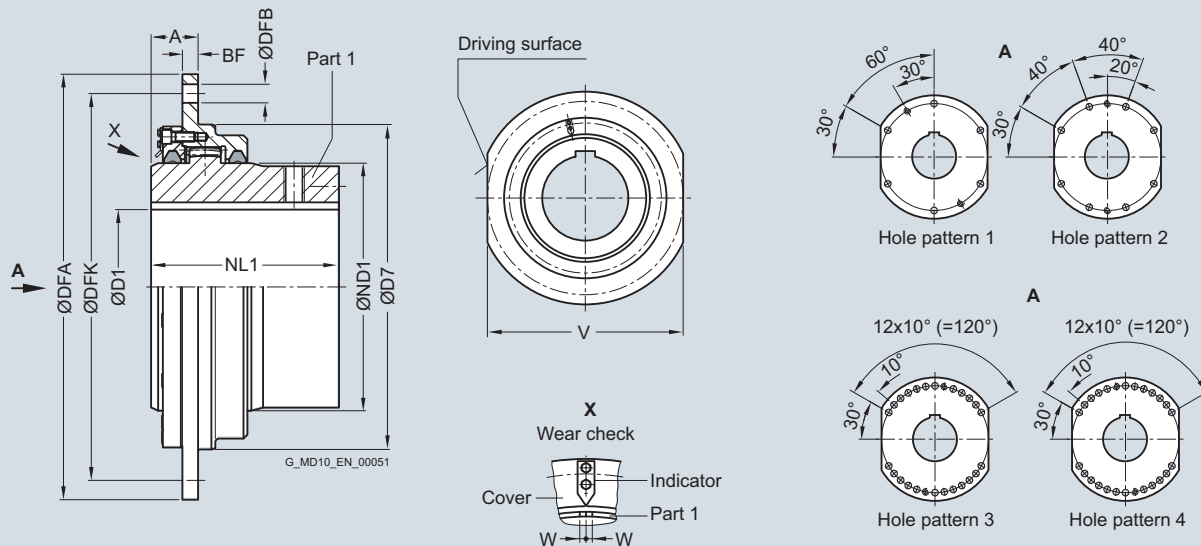


FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZW Series

Type ZWTR

Selection and ordering data



Size	Rated torque T_{KN}	Perm. radial load max. N	Dimensions in mm											Article No. Order codes for bore diameters and tolerances are specified in catalog section 3	Weight m	
			D1 Keyway DIN 6885-1 min. max.	ND1	NL1	DFA	D7	V	A	BF	DFK	DFB	Hole pattern			Perm. wear W
198	14500	32500	0 95	135	125	340	220	300	45	15	300	15	1	2	2LC0300-4BN ■ 0-0AA0	25
230	17500	36500	0 110	160	130	360	240	320	45	15	320	15	1	2	2LC0300-5BN ■ 0-0AA0	30
255	24000	45500	0 125	185	145	380	260	340	45	15	340	19	1	2	2LC0300-6BN ■ 0-0AA0	35
290¹⁾	31500	50000	0 145	210	170	400	280	360	45	15	360	19	1	3	2LC0300-7BN ■ 0-0AA0	45
315	42000	70000	0 160	230	175	420	310	380	60	20	380	24	1	3	2LC0300-8BN ■ 0-0AA0	60
342¹⁾	55000	90000	0 180	255	185	450	340	400	60	20	400	24	1	3	2LC0301-0BN ■ 0-0AA0	70
375	78000	110000	0 200	290	220	510	400	460	60	20	460	24	1	3	2LC0301-1BN ■ 0-0AA0	100
415¹⁾	104000	150000	0 220	320	240	550	420	500	60	20	500	24	1	3	2LC0301-2BN ■ 0-0AA0	130
465¹⁾	155000	165000	0 250	360	260	580	450	530	60	20	530	24	2	4	2LC0301-3BN ■ 0-0AA0	160
505¹⁾	235000	200000	0 275	400	315	650	530	580	65	25	600	24	2	4	2LC0301-4BN ■ 0-0AA0	240
545¹⁾	390000	325000	0 300	440	350	680	560	600	65	25	630	24	3	4	2LC0301-5BN ■ 0-0AA0	320
585¹⁾	460000	380000	0 330	480	380	710	600	640	81	35	660	28	4	4	2LC0301-6BN ■ 0-0AA0	400
640¹⁾	600000	420000	0 360	520	410	780	670	700	81	35	730	28	4	4	2LC0301-7BN ■ 0-0AA0	510
730¹⁾	880000	500000	0 415	600	450	850	730	760	81	35	800	28	4	5	2LC0302-0BN ■ 0-0AA0	690

ØD1:

- Without finished bore – Without order codes
- With finished bore – With order codes for diameter and tolerance (article number without "-Z")

Total wear must not exceed 1 x W.

Mass moments of inertia on request.

Weights apply to maximum bores.

Ordering example:

ZAPEX ZWTR coupling, size 198, bore 80H7 mm, keyway to DIN 6885-1 P9 and set screw.

Article No.:

2LC0300-4BN90-0AA0
L1J

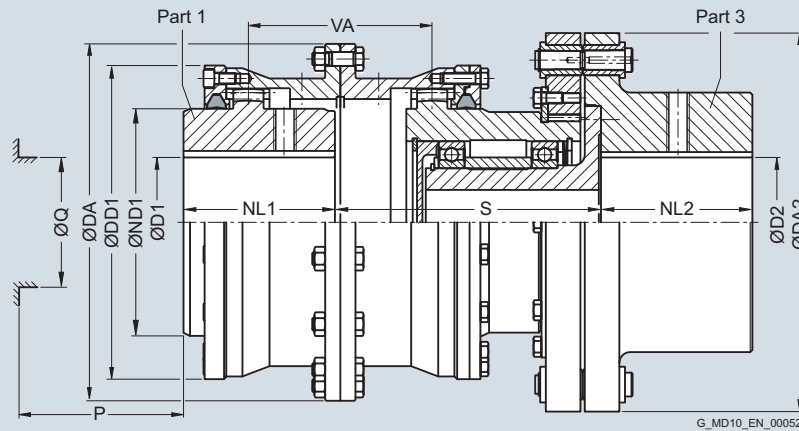
¹⁾ These sizes have connection dimensions to SEB 666 212.

FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZW Series

Type ZBR

Selection and ordering data



Size	Rated torque T_{KN} Nm	Max. shear torque T_{BR} Nm	Maximum speed n_{Kmax} rpm	Dimensions in mm														Article No. Plain text required for shear torque. Order codes for bore diameters and tolerances are specified in catalog section 3	Weight m kg
				D1 Keyway DIN 6885-1		D2 Keyway DIN 6885-1		DA	ND1	NL1/ NL2	DA2	DD1	S	VA	Q	P			
				min.	max.	min.	max.												
112	1300	1690	9400	0	49	0	60	143	65	50	170	110	115	56	50	35	2LC0300-0BH Y99	14.5	
128	2500	3250	8300	0	61	0	75	157	80	60	190	128	125	73	65	45	2LC0300-1BH Y99	19	
146	4300	5590	7300	0	72	0	90	177	95	75	205	146	140	88	75	45	2LC0300-2BH Y99	27.5	
175	7000	9100	6400	0	85	0	105	215	112	90	235	175	170	104	85	50	2LC0300-3BH Y99	43	
198	11600	15080	5500	0	100	0	120	237	135	100	285	198	185	119	110	50	2LC0300-4BH Y99	67	
230	19000	24700	4700	0	120	0	135	265	160	110	300	230	200	130	135	50	2LC0300-5BH Y99	91	
255	27000	35100	4100	0	140	0	155	294	185	125	335	255	215	150	160	50	2LC0300-6BH Y99	120	
290	39000	50700	3700	70	160	70	185	330	210	140	390	290	240	170	180	60	2LC0300-7BH Y99	170	
315	54000	70200	3300	80	175	80	200	366	230	160	415	315	257	190	200	60	2LC0300-8BH Y99	215	
342	69000	89700	3000	90	195	90	235	392	255	180	460	340	290	222	225	60	2LC0301-0BH Y99	295	
375	98000	127400	2700	100	220	100	240	430	290	200	495	375	300	242	260	60	2LC0301-1BH Y99	380	
415	130000	169000	2500	120	240	120	255	478	320	220	540	415	370	294	285	80	2LC0301-2BH Y99	520	
465	180000	234000	2200	140	270	140	285	528	360	240	635	465	400	336	325	80	2LC0301-3BH Y99	720	
505	250000	325000	2000	160	300	160	320	568	400	260	710	505	420	366	365	80	2LC0301-4BH Y99	970	
545	320000	416000	1800	180	330	180	370	620	440	280	800	545	460	406	405	80	2LC0301-5BH Y99	1250	
585	400000	520000	1700	210	360	210	390	660	480	310	860	585	500	460	445	80	2LC0301-6BH Y99	1600	
640	510000	663000	1600	230	360	230	425	738	480	330	900	640	530	479	445	90	2LC0301-7BH Y99	1850	
				>330	390				520						475				1850
690	660000	858000	1450	250	390	250	450	788	520	350	1020	690	580	516	475	90	2LC0301-8BH Y99	2600	
				>360	420				560						515				2650
730	790000	1027000	1350	275	420	275	485	834	560	380	1080	730	620	560	515	90	2LC0302-0BH Y99	3200	
				>390	450				600						555				3200

ØD1:	• Without finished bore – Without order codes	1
	• Without finished bore from size 640 for 2nd diameter range D1 – Without order codes	2
	• With finished bore – With order codes for diameter and tolerance (article number without "-Z")	9
ØD2:	• Without finished bore – Without order codes	1
	• Without finished bore from size 640 for 2nd diameter range D2 – Without order codes	2
	• With finished bore – With order codes for diameter and tolerance (article number without "-Z")	9

Q Diameter required for renewing the sealing rings.
P Length required for renewing the sealing rings.

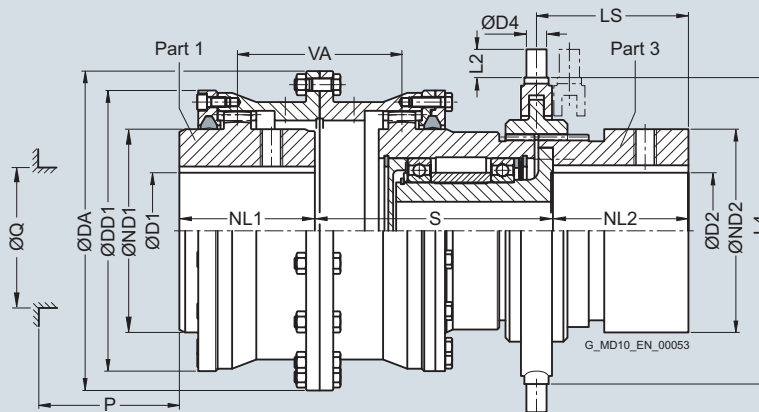
Mass moments of inertia on request.
Weights apply to maximum bores.

FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZW Series

Type ZWS

Selection and ordering data



For engaging/disengaging during standstill.

Part 3 should be mounted on the shaft while the shaft is disconnected and not being driven.

Size	Rated torque T_{KN}	Maximum speed n_{Kmax}	Dimensions in mm																Shift ring	Switch	Article No. Order codes for bore diameters and tolerances are specified in catalog section 3	Weight m
			D1 Keyway DIN 6885-1 min.	D1 Keyway DIN 6885-1 max.	D2 Keyway DIN 6885-1 min.	D2 Keyway DIN 6885-1 max.	DA	ND1/ND2	NL1/NL2	DD1	S	VA	Q	P	LS	L4	D4	L2				
128	2500	1500	0	61	0	50	157	80	60	128	135	73	65	45	70	150	15	14	14/11	-	2LC0300-1BK ■ ■ -0AA0	16
146	4300	1300	0	72	0	50	177	95	75	146	131	88	75	45	86	180	16	16	16/12	-	2LC0300-2BK ■ ■ -0AA0	22
175	7000	1100	0	85	0	70	215	112	90	175	165	104	85	50	101	180	16	16	16/12	-	2LC0300-3BK ■ ■ -0AA0	35
198	11600	960	0	100	0	80	237	135	100	198	182	119	110	50	116	210	20	18	18/13	-	2LC0300-4BK ■ ■ -0AA0	52
230	19000	830	0	120	0	90	265	160	110	230	198	130	135	50	126	260	22	20	18/15	14/14	2LC0300-5BK ■ ■ -0AA0	77
255	27000	750	0	140	0	115	294	185	125	255	215	150	160	50	142	300	25	22	21/17	16/17	2LC0300-6BK ■ ■ -0AA0	98
290	39000	660	70	160	70	130	330	210	140	290	236	170	180	60	157	315	25	35	-	16/211	2LC0300-7BK ■ ■ -0AA0	140
315	54000	600	80	175	80	140	366	230	160	315	257	190	200	60	182	360	30	24	-	18/18	2LC0300-8BK ■ ■ -0AA0	200
342	69000	560	90	195	90	160	392	255	180	340	280	222	225	60	202	360	30	24	-	18/18	2LC0301-0BK ■ ■ -0AA0	230
375	98000	510	100	220	100	180	430	290	200	375	292	242	260	60	222	430	34	26	-	24/20	2LC0301-1BK ■ ■ -0AA0	340
415	130000	460	120	240	120	210	478	320	220	415	349	294	285	80	247	430	34	26	-	24/20	2LC0301-2BK ■ ■ -0AA0	430
465	180000	410	140	270	140	230	528	360	240	465	380	336	325	80	267	-	-	-	-	-	2LC0301-3BK ■ ■ -0AA0	570
505	250000	380	160	300	160	260	568	400	260	505	395	366	365	80	287	-	-	-	-	-	2LC0301-4BK ■ ■ -0AA0	740
545	320000	350	180	330	180	270	620	440	280	545	460	406	405	80	315	-	-	-	-	-	2LC0301-5BK ■ ■ -0AA0	1000
ØD1:																				1		
• Without finished bore – Without order codes																				9		
• With finished bore – With order codes for diameter and tolerance (article number without "-Z")																						
ØD2:																				1		
• Without finished bore – Without order codes																				9		
• With finished bore – With order codes for diameter and tolerance (article number without "-Z")																						

Q Diameter required for renewing the sealing rings.

P Length required for renewing the sealing rings.

Mass moments of inertia on request.

Weights apply to maximum bores.

KSHN: Manual lever switch type KSHN to M4218

KSZH: Toothed rack type KSZH to M4215

Pneumatically or hydraulically actuated switches also available.

Ordering example:

ZAPEX ZWS coupling, size 146,

Part 1: Bore 40H7 mm, keyway to DIN 6885-1 P9 and set screw,

Part 3: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw.

Article No.:

2LC0300-2BK99-0AA0-Z

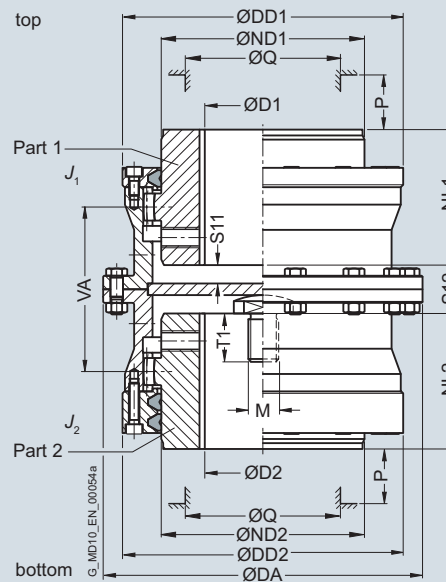
LOW+M1A+M13

FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZW Series

Type ZWNV

Selection and ordering data



When ordering, state thread size M and thread length T1 of the thrust piece.

Size	Rated torque	Maximum speed	Dimensions in mm												Mass moment of inertia J_1/J_2	Article No. Plain text for thread size M and thread length T1 necessary. Order codes for bore diameters and tolerances are specified in catalog section 3	Weight m
	T_{KN}	n_{Kmax}	D1, D2 Keyway DIN 6885-1	DA	ND1/ ND2	NL1/ NL2	DD1/ DD2	S11	S12	VA	Q	P	J_1/J_2	m			
	Nm	rpm	min. max.											kgm ²		kg	
128	2500	8300	0 61	157	80	60	128	6.5	26	73	65	45	0.015	2LC0300-1AH Y99	9.1		
146	4300	7300	0 72	177	95	75	146	6	28	88	75	45	0.023	2LC0300-2AH Y99	13		
175	7000	6400	0 85	215	112	90	175	5.5	33	104	85	50	0.055	2LC0300-3AH Y99	22		
198	11600	5500	0 100	237	135	100	198	10	40	119	110	50	0.095	2LC0300-4AH Y99	31		
230	19000	4700	0 120	265	160	110	230	11	32	130	135	50	0.18	2LC0300-5AH Y99	43		
255	27000	4100	0 140	294	185	125	255	14	40	150	160	50	0.28	2LC0300-6AH Y99	56		
290	39000	3700	70 160	330	210	140	290	19	50	170	180	60	0.55	2LC0300-7AH Y99	81		
315	54000	3300	80 175	366	230	160	315	18	50	190	200	60	0.88	2LC0300-8AH Y99	110		
342	69000	3000	90 195	392	255	180	340	29	72	222	225	60	1.3	2LC0301-0AH Y99	140		
375	98000	2700	100 220	430	290	200	375	29	72	242	260	60	2.1	2LC0301-1AH Y99	185		
415	130000	2500	120 240	478	320	220	415	60	136	294	285	80	3.4	2LC0301-2AH Y99	250		
465	180000	2200	140 270	528	360	240	465	80	176	336	325	80	5.6	2LC0301-3AH Y99	340		
505	250000	2000	160 300	568	400	260	505	89	196	366	365	80	8.2	2LC0301-4AH Y99	420		

ØD1:	• Without finished bore – Without order codes	1
	• With finished bore – With order codes for diameter and tolerance (article number without "-Z")	9
ØD2:	• Without finished bore – Without order codes	1
	• With finished bore – With order codes for diameter and tolerance (article number without "-Z")	9

Q Diameter required for renewing the sealing rings.
P Length required for renewing the sealing rings.

Mass moments of inertia apply to a coupling half with maximum bore diameter.

Weights apply to the entire coupling with maximum bores.

Ordering example:

ZAPEX ZWNV coupling, size 146, thread M 10 x 20 deep,
Part 1: Bore 40H7mm, keyway to DIN 6885-1 P9 and set screw,
Part 2: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw.

Article No.:

2LC0300-2AH99-0AA0-Z
LOW+M1A+M13+Y99

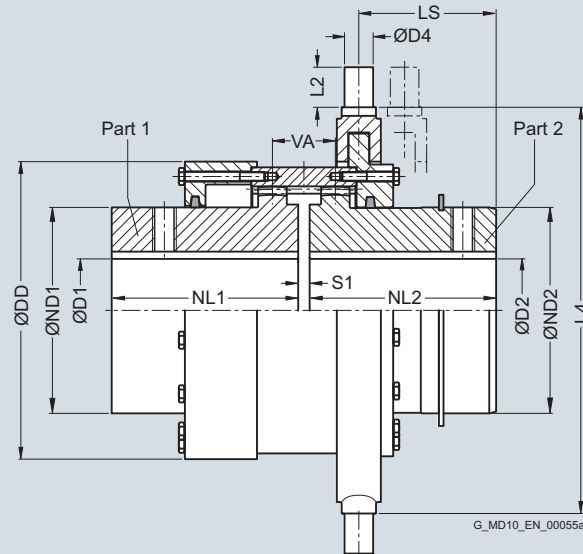
Plain text to Y99: **Thread M10 x 20 mm**

FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZW Series

Type ZWSE

Selection and ordering data



For engaging/disengaging during standstill. Protect sliding surfaces from dirt and corrosion; sprayed with adhesive grease.

Part 2 should be mounted on the shaft while the shaft is disconnected and not being driven.

Size	Rated torque T_{KN} Nm	Maximum speed n_{Kmax} rpm	Dimensions in mm																Article No. Order codes for bore diameters and tolerances are specified in catalog section 3	Weight m kg		
			D1 Keyway DIN 6885-1 min.	D2 Keyway DIN 6885-1 max.	ND1	ND2	NL1	NL2	DD	S1	VA	LS	L4	D4	L2	KSHN	KSZH					
128	2500	730	0	55	0	55	76.5	75	60	60	130	6	30	36.5	180	16	16	16	–	2LC0300-1BM	■ ■ -0AA0	8.8
146	4300	630	0	69	0	65	91.5	90	75	75	150	6	33	50	210	20	18	18	–	2LC0300-2BM	■ ■ -0AA0	13.5
175	7000	530	0	80	0	75	108	105	90	90	180	8	46	56.5	250	20	30	18	–	2LC0300-3BM	■ ■ -0AA0	23
198	11600	470	0	95	0	95	130	130	100	100	204	8	48	64.5	260	22	20	18	–	2LC0300-4BM	■ ■ -0AA0	32
230	19000	410	0	115	0	110	155	155	110	110	236	8	50	73	300	25	22	21	–	2LC0300-5BM	■ ■ -0AA0	44
255	27000	370	0	135	0	130	180	180	125	125	260	10	55	82	355	25	35	24	–	2LC0300-6BM	■ ■ -0AA0	63
290	39000	330	70	155	70	145	210	210	140	140	295	10	38	68.5	355	25	35	24	–	2LC0300-7BM	■ ■ -0AA0	82
315	54000	300	80	170	80	165	230	230	160	160	325	10	42	76	355	25	35	24	–	2LC0300-8BM	■ ■ -0AA0	105
342	69000	280	90	190	90	175	255	255	180	180	345	12	46	72	430	34	26	–	24	2LC0301-0BM	■ ■ -0AA0	145
375	98000	250	100	210	100	200	280	280	200	200	378	12	48	97	430	34	26	–	24	2LC0301-1BM	■ ■ -0AA0	180
415	130000	220	120	240	120	225	320	320	220	240	425	12	52	120	580	40	40	–	24	2LC0301-2BM	■ ■ -0AA0	295
465	180000	200	140	270	140	250	360	360	240	260	470	16	60	150	580	40	40	–	24	2LC0301-3BM	■ ■ -0AA0	350
505	250000	180	160	300	160	270	400	400	260	280	510	16	62	161	–	–	–	–	24	2LC0301-4BM	■ ■ -0AA0	400
ØD1:		<ul style="list-style-type: none"> Without finished bore – Without order codes With finished bore – With order codes for diameter and tolerance (article number without "-Z") 																1				
ØD2:		<ul style="list-style-type: none"> Without finished bore – Without order codes With finished bore – With order codes for diameter and tolerance (article number without "-Z") 																1				

Weights apply to the entire coupling with maximum bores.

Mass moment of inertia on request.

Ordering example:

ZAPEX ZWSE coupling, size 146,

Part 1: Bore 40H7 mm, keyway to DIN 6885-1 P9 and set screw,

Part 2: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw.

Article No.:

2LC0300-2BM99-0AA0-Z
LOW+M1A+M13

FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZW Series

Customized hub design
for ZAPEX ZW Series

Selection and ordering data

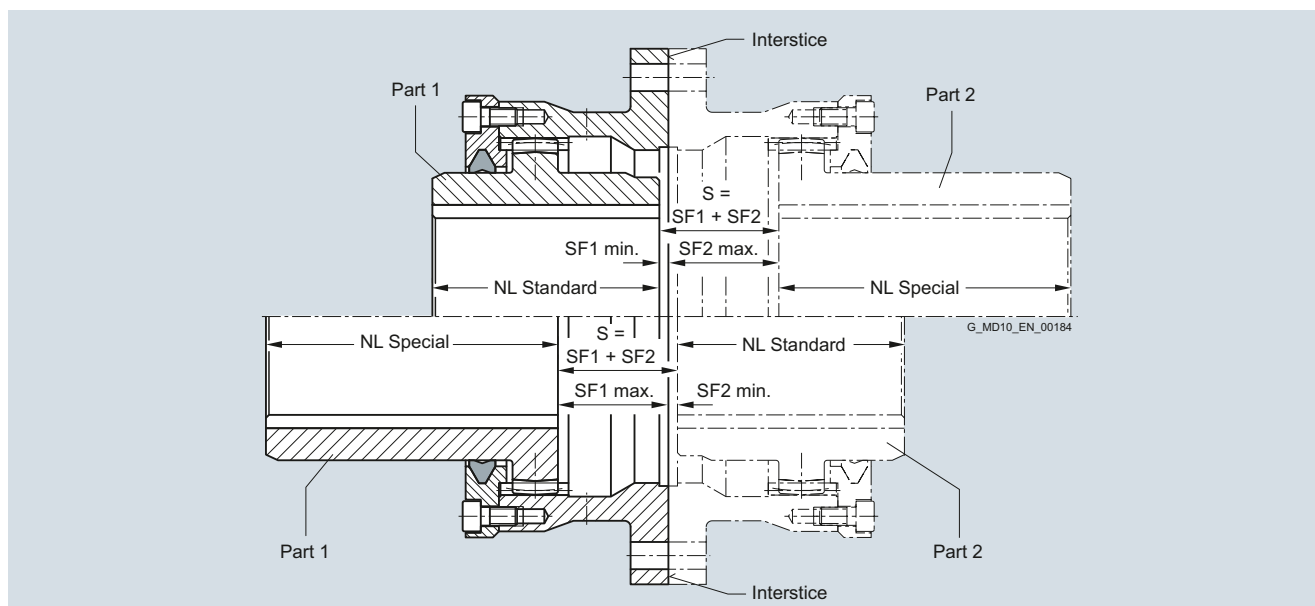
ZAPEX couplings can be provided with customized S-dimensions and hub lengths.

The entire dimension S results from the sum of the individual measurements SF1 and SF2. SF1 and SF2 are the measurements from the interstice of the coupling ring flange up to the beginning of the respective hub. As standard SF1 and SF2 are identical to each other and the entire S-dimension arises in accordance with them.

SF1 and SF2 can be chosen different on customer request, however the minimal and maximum values of the following table have to be observed. Within these limits the measurements SF1 and SF2 may be chosen freely.

The distance VA of the coupling teeth, the permitted bore diameter and the hub diameter remain unchanged.

By stating the hub S-dimension and both hub lengths the coupling is completely described.



Geometric data

Size	Standard hub length	Minimal dimension	Maximum dimension
	NL Standard	SF1 or SF2 min.	SF1 or SF2 max.
	mm	mm	mm
112	50	3	23
128	60	3	30.5
146	75	3	36.5
175	90	4	43
198	100	4	49.5
230	110	4	54
255	125	5	62.5
290	140	5	71
315	160	5	79
342	180	6	94
375	200	6	103
415	220	6	127
465	240	8	146
505	260	8	160

The minimal hub lengths are not to fall below the standard hub lengths. If there's no other possibility, at the hub lengths smaller than standard hub length the order codes "Y50" for part 1 and "Y51" for part 2 must be stated in plain text.

Order code for hub prolongations (Y4.); Std-NL = Standard hub length

Part 1		Selected (special) hub length order code
min.	max.	
> Std-NL	≤ 1.25 · Std-NL	Y40 (specification of hub length in plain text)
> 1.25 · Std-NL	≤ 1.5 · Std-NL	Y42 (specification of hub length in plain text)
> 1.5 · Std-NL	≤ 1.75 · Std-NL	Y44 (specification of hub length in plain text)
> 1.75 · Std-NL	≤ 2 · Std-NL	Y46 (specification of hub length in plain text)
> 2 · Std-NL		Y48 (specification of hub length in plain text)

Article number

The Article number of the respective ZAPEX coupling type must be supplemented with "-Z" and order codes for no standard SF-dimensions (order code "Y38" for part 1 and "Y39" for part 2). For no standard hub lengths the order codes "Y40" to "Y49" must be specified (see the table below).

Ordering example:

ZAPEX coupling ZWN 175, variant A

Hub left: bore D1 = 70H7 mm, keyway to DIN 6885-1 P9 and set screw; NL1 = 160 mm; SF1 = 10 mm

Hub right: bore D2 = 75H7 mm, keyway to DIN 6885-1 P9 and set screw; NL2 = 100 mm; SF2 = 25 mm

Article No.:

2LC0300-3AA99-0AA0-Z

L1G M1H Y38 Y39 Y41 Y46

Plain text to **Y38: SF1 = 10 mm**

Plain text to **Y39: SF2 = 25 mm**

Plain text to **Y46: NL1 = 160 mm**

Plain text to **Y41: NL2 = 100 mm**

FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZW Series

Spare and wear parts

Selection and ordering data

DUO sealing rings

The DUO sealing rings are wear parts and must be replaced in accordance with the operating instructions.

Siemens high-performance grease (cartridge 300 g)

FFA:000000501027

Sealing compound (tube 60 ml)

FFA:000001443780

Size	Hub diameter ND1/ND2 mm	Article No.
112	65	2LC0300-0XG00-0AA0
128	80	2LC0300-1XG00-0AA0
146	95	2LC0300-2XG00-0AA0
175	112	2LC0300-3XG00-0AA0
198	135	2LC0300-4XG00-0AA0
230	160	2LC0300-5XG00-0AA0
255	185	2LC0300-6XG00-0AA0
290	210	2LC0300-7XG00-0AA0
315	230	2LC0300-8XG00-0AA0
342	255	2LC0301-0XG00-0AA0
375	290	2LC0301-1XG00-0AA0
415	320	2LC0301-2XG00-0AA0
465	360	2LC0301-3XG00-0AA0
505	400	2LC0301-4XG00-0AA0
545	440	2LC0301-5XG00-0AA0
585	480	2LC0301-6XG00-0AA0
640	480 520	2LC0301-7XG10-0AA0 2LC0301-7XG20-0AA0
690	520 560	2LC0301-8XG10-0AA0 2LC0301-8XG20-0AA0
730	560 600	2LC0302-0XG10-0AA0 2LC0302-0XG20-0AA0
780	600 650	2LC0302-1XG10-0AA0 2LC0302-1XG20-0AA0
852	650 710	2LC0302-2XG10-0AA0 2LC0302-2XG20-0AA0
910	710 750	2LC0302-3XG10-0AA0 2LC0302-3XG20-0AA0
1020	750 800	2LC0302-4XG10-0AA0 2LC0302-4XG20-0AA0
1080	800 860	2LC0302-5XG10-0AA0 2LC0302-5XG20-0AA0
1150	860 930	2LC0302-6XG10-0AA0 2LC0302-6XG20-0AA0
1160	860 930 990	2LC0302-7XG10-0AA0 2LC0302-7XG20-0AA0 2LC0302-7XG30-0AA0
1240	930 990 1055	2LC0302-8XG10-0AA0 2LC0302-8XG20-0AA0 2LC0302-8XG30-0AA0
1310	930 990 1055 1120	2LC0303-0XG10-0AA0 2LC0303-0XG20-0AA0 2LC0303-0XG30-0AA0 2LC0303-0XG40-0AA0
1380	990 1055 1120 1170	2LC0303-1XG10-0AA0 2LC0303-1XG20-0AA0 2LC0303-1XG30-0AA0 2LC0303-1XG40-0AA0
1440	1055 1120 1170 1240	2LC0303-2XG10-0AA0 2LC0303-2XG20-0AA0 2LC0303-2XG30-0AA0 2LC0303-2XG40-0AA0
1540	1120 1170 1240 1310	2LC0303-3XG10-0AA0 2LC0303-3XG20-0AA0 2LC0303-3XG30-0AA0 2LC0303-3XG40-0AA0