

Torsionally Rigid Gear Couplings

ZAPEX ZW Series

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Siemens MD 10.1 · 2011	

FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZW Series

General information

Overview



Coupling suitable for potentially explosive environments.
Complies with Directive 94/9/EC for:

CE Ex II 2 GD c 120 °C (T4)

CE Ex I M2

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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 shaft misalignment
	T_{KN} Nm	T_{Kmax} Nm	T_{KOL} Nm	T_{KW} Nm	ZW C_{Tdyn} kNm/rad	
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.

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 sub-assembly.

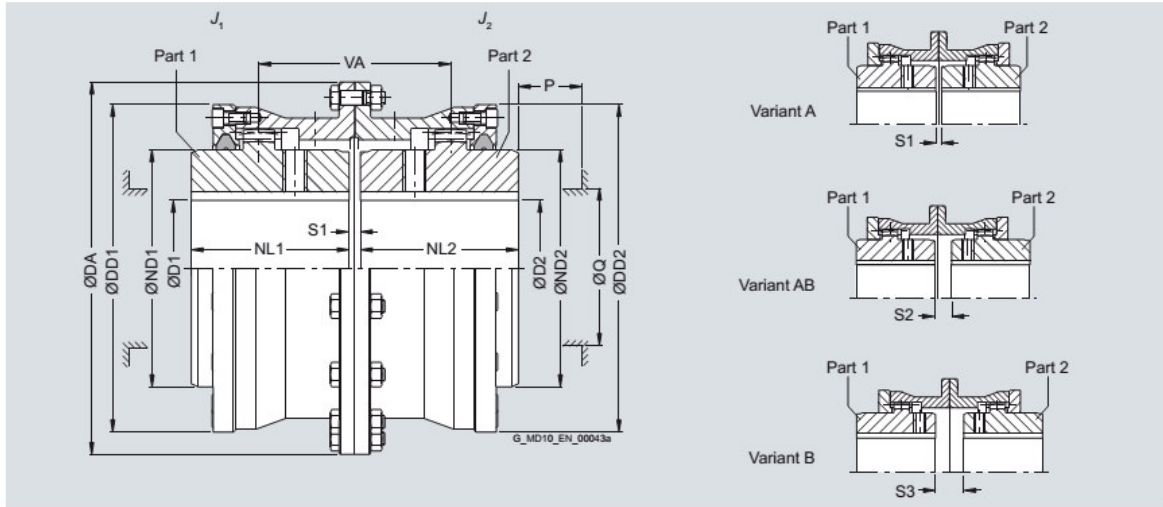
FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZW Series

Type ZWN

Selection and ordering data

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Size	Dimensions in mm														Mass moment of inertia J_1/J_2 kgm ²	Product code Order codes for bore diameters and tolerances are specified in catalog section 3	Weight m kg
	Rated torque T_{KN} Nm	Maximum speed n_{Kmax} rpm	D1, D2 Keyway DIN 6885 min. max.	DA	ND1/ ND2	NL1/ NL2	DD1/ DD2	S1	S2	S3	VA	Q	P				
112	1300	9400	0 45	143 65	50	110	6	-	-	56	45	35	0.006	2LC0300-0A ■■■ -0AA0	6.2		
128	2500	8300	0 55	157 80	60	128	6	13	20	73	60	45	0.014	2LC0300-1A ■■■ -0AA0	8.4		
146	4300	7300	0 65	177 95	75	146	6	13	20	88	75	45	0.022	2LC0300-2A ■■■ -0AA0	12		
175	7000	6400	0 80	215 112	90	175	8	14	20	104	85	50	0.052	2LC0300-3A ■■■ -0AA0	20.5		
198	11600	5500	0 95	237 135	100	198	8	19	30	119	110	50	0.089	2LC0300-4A ■■■ -0AA0	28.5		
230	19000	4700	0 110	265 160	110	230	8	20	32	130	135	50	0.16	2LC0300-5A ■■■ -0AA0	41		
255	27000	4100	0 125	294 185	125	255	10	25	40	150	160	50	0.27	2LC0300-6A ■■■ -0AA0	56		
290	39000	3700	70 145	330 210	140	290	10	30	50	170	180	60	0.52	2LC0300-7A ■■■ -0AA0	83		
315	54000	3300	80 160	366 230	160	315	10	30	50	190	200	60	0.84	2LC0300-8A ■■■ -0AA0	110		
342	69000	3000	90 180	392 255	180	340	12	42	72	222	225	60	1.3	2LC0301-0A ■■■ -0AA0	140		
375	98000	2700	100 200	430 290	200	375	12	42	72	242	260	60	2.1	2LC0301-1A ■■■ -0AA0	195		
415	130000	2500	120 220	478 320	220	415	12	74	136	294	285	80	3.3	2LC0301-2A ■■■ -0AA0	250		
465	180000	2200	140 250	528 360	240	465	16	96	176	336	325	80	5.5	2LC0301-3A ■■■ -0AA0	330		
505	250000	2000	160 275	568 400	260	505	16	106	196	366	365	80	8.1	2LC0301-4A ■■■ -0AA0	420		
545	320000	1800	180 300	620 440	280	545	16	126	236	406	405	80	12.5	2LC0301-5A ■■■ -0AA0	560		
585	400000	1700	210 330	660 480	310	585	20	150	280	460	445	80	18.5	2LC0301-6A ■■■ -0AA0	700		
640	510000	1600	230 330 >330 360	738 480 520	330 640	20	149	278	479	445	90	26	26	2LC0301-7A ■■■ -0AA0	860 890		
690	660000	1450	250 360 >360 390	788 520 560	350 690	20	166	312	516	475	90	37	37	2LC0301-8A ■■■ -0AA0	1050 1050		
730	790000	1350	275 390 >390 415	834 560 600	380 730	20	180	340	560	515	90	52	52	2LC0302-0A ■■■ -0AA0	1250 1350		
780	1000000	1250	300 415 >415 450	900 600 650	400 780	25	176	327	576	555	110	71	71	2LC0302-1A ■■■ -0AA0	1550 1650		
852	1200000	1150	325 450 >450 490	970 650 710	420 850	25	185	345	605	595	110	105	105	2LC0302-2A ■■■ -0AA0	1950 2050		

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 • With finished bore – With order codes for diameter and tolerance (product code without -Z) 	1 2 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 • With finished bore – With order codes for diameter and tolerance (product code without -Z) 	1 2 9

FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZW Series

Type ZWN

Size	Dimensions in mm														Mass moment of inertia J_1/J_2 kgm ²	Product code Order codes for bore diameters and tolerances are specified in catalog section 3	Weight <i>m</i> kg
	Rated torque T_{KN} Nm	Maximum speed n_{Kmax} rpm	D1, D2 Keyway DIN 6885		DA	ND1/ND2	NL1/NL2	DD1/DD2	S1	S2	S3	VA	Q	P			
			min.	max.													
910	1600000	1050	350	490	1030	710	450	910	25	215	405	665	655	110	150	2LC0302-3A ■■■ -0AA0	2350
			>490	520		750	155								2450		
1020	1900000	1000	375	520	1112	750	480	1020	25	213	401	693	695	130	215	2LC0302-4A ■■■ -0AA0	2900
			>520	550		800	235								3100		
1080	2200000	950	400	550	1162	800	500	1080	30	226	422	726	735	135	275	2LC0302-5A ■■■ -0AA0	3300
			>550	600		860	310								3500		
1150	2700000	900	425	600	1222	860	520	1150	30	238	446	758	795	135	360	2LC0302-6A ■■■	4000
			>600	650		930	410								4200		
1160	3350000	850	450	600	1292	860	550	1160	30	260	490	810	795	135	440	2LC0302-7A ■■■ -0AA0	4400
			>600	650		930	480								4700		
			>650	690		990	540								4900		
1240	3800000	800	475	650	1400	930	580	1240	30	250	470	830	865	155	620	2LC0302-8A ■■■ -0AA0	5400
			>650	690		990	660								5600		
			>690	730		1055	760								6100		
1310	4600000	750	500	650	1470	930	610	1310	35	265	495	875	850	155	770	2LC0303-0A ■■■ -0AA0	6200
			>650	690		990	810								6400		
			>690	730		1055	910								6800		
			>730	780		1120	1000								7100		
1380	5300000	700	525	690	1540	990	640	1380	35	275	515	915	910	155	980	2LC0303-1A ■■■ -0AA0	7200
			>690	730		1055	1050								7500		
			>730	780		1120	1150								7800		
			>780	810		1170	1250								8100		
			>810	860		1240	1430								8400		
1440	6250000	670	550	730	1600	1055	670	1440	35	295	555	965	975	155	1250	2LC0303-2A ■■■ -0AA0	8400
			>730	780		1120	1350								8500		
			>780	810		1170	1450								8800		
			>810	860		1240	1550								9400		
			>860	910		1310	1610								9700		
1540	7200000	630	575	780	1710	1120	700	1540	35	275	515	975	1030	175	1650	2LC0303-3A ■■■ -0AA0	9700
			>780	810		1170	1750								9800		
			>810	860		1240	1850								10000		
			>860	910		1310	2050								11500		

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 (product code 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 (product code 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.

Product code:
2LC0300-2AA99-0AA0-Z
LOW+M1A+M13

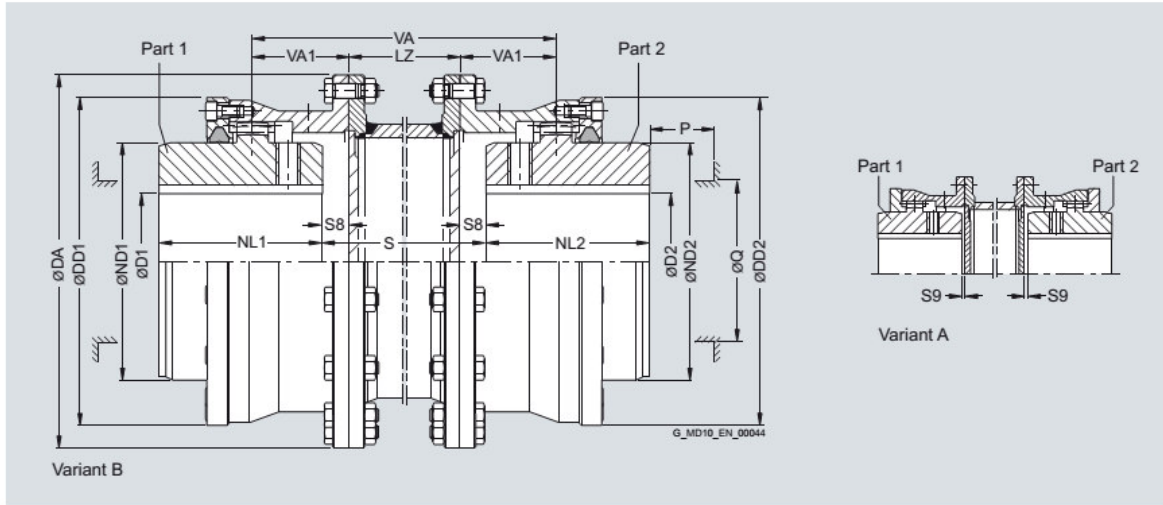
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FLENDER Standard Couplings Torsionally Rigid Gear Couplings – ZAPEX ZW Series

Type ZZS

Selection and ordering data

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Size	Rated torque T_{KN} Nm	Dimensions in mm		DA	ND1/ ND2	NL1/ NL2	DD1/ DD2	S8	S9	VA1	Q	P	LZ min.	Product code 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 min.	max.												m each 100 mm pipe kg	m kg		
112	1300	0	45	143	65	50	110	3	3	28	45	35	120	2LC0300-0A ■■■ -0AZO QOY	0.8	10		
128	2500	0	55	157	80	60	128	10	3	36.5	60	45	120	2LC0300-1A ■■■ -0AZO QOY	1.3	13		
146	4300	0	65	177	95	75	146	10	3	44	75	45	120	2LC0300-2A ■■■ -0AZO QOY	1.8	18		
175	7000	0	80	215	112	90	175	10	4	52	85	50	130	2LC0300-3A ■■■ -0AZO QOY	2.3	29		
198	11600	0	95	237	135	100	198	15	4	59.5	110	50	130	2LC0300-4A ■■■ -0AZO QOY	3.5	39		
230	19000	0	110	265	160	110	230	16	4	65	135	50	130	2LC0300-5A ■■■ -0AZO QOY	4.5	53		
255	27000	0	125	294	185	125	255	20	5	75	160	50	140	2LC0300-6A ■■■ -0AZO QOY	6.3	76		
290	39000	70	145	330	210	140	290	25	5	85	180	60	140	2LC0300-7A ■■■ -0AZO QOY	7.2	105		
315	54000	80	160	366	230	160	315	25	5	95	200	60	180	2LC0300-8A ■■■ -0AZO QOY	9.1	145		
342	69000	90	180	392	255	180	340	36	6	111	225	60	180	2LC0301-0A ■■■ -0AZO QOY	12	185		
375	98000	100	200	430	290	200	375	36	6	121	260	60	180	2LC0301-1A ■■■ -0AZO QOY	15	250		
415	130000	120	220	478	320	220	415	68	6	147	285	80	200	2LC0301-2A ■■■ -0AZO QOY	17	320		
465	180000	140	250	528	360	240	465	88	8	168	325	80	200	2LC0301-3A ■■■ -0AZO QOY	19	420		
505	250000	160	275	568	400	260	505	98	8	183	365	80	200	2LC0301-4A ■■■ -0AZO QOY	24	520		
545	320000	180	300	620	440	280	545	118	8	203	405	80	220	2LC0301-5A ■■■ -0AZO QOY	30	710		
585	400000	210	330	660	480	310	585	140	10	230	445	80	220	2LC0301-6A ■■■ -0AZO QOY	33	870		
Variant		<ul style="list-style-type: none"> • A • B 															D E	
ØD1:		<ul style="list-style-type: none"> • Without finished bore – Without order codes • With finished bore – With order codes for diameter and tolerance (product code without -Z) 																1 9
ØD2:		<ul style="list-style-type: none"> • Without finished bore – Without order codes • With finished bore – With order codes for diameter and tolerance (product code without -Z) 																1 9

FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZW Series

Type ZZS

Size	Rated torque T_{KN} Nm	Dimensions in mm											LZ min.	Product code 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 min. max.		DA	ND1/ND2	NL1/NL2	DD1/DD2	S8	S9	VA1	Q	P			m	m	
640	510000	230	330	738	480	330	640	139	10	239.5	445	90	250	2LC0301-7A ■■■ -0AZ0 Q0Y	39	1100	
		>330	360		520											1120	
690	660000	250	360	788	520	350	690	156	10	258	475	90	250	2LC0301-8A ■■■ -0AZ0 Q0Y	45	1500	
		>360	390		560											1400	
730	790000	275	390	834	560	380	730	170	10	280	515	90	250	2LC0302-0A ■■■ -0AZ0 Q0Y			
		>390	415		600												
780	1000000	300	415	900	600	400	780	163	12.5	288	555	110	280	2LC0302-1A ■■■ -0AZ0 Q0Y			
		>415	450		650												
852	1200000	325	450	970	650	420	850	172	12.5	302.5	595	110	280	2LC0302-2A ■■■ -0AZ0 Q0Y			
		>450	490		710												
910	1600000	35	490	1030	710	450	910	202	12.5	332.5	655	110	280	2LC0302-3A ■■■ -0AZ0 Q0Y			
		>490	520		750												
1020	1900000	375	520	1112	750	480	1020	200	12.5	346.5	695	130	380	2LC0302-4A ■■■ -0AZ0 Q0Y			
		>520	550		800												
1080	2200000	400	550	1162	800	500	1080	211	15	363	735	135	380	2LC0302-5A ■■■ -0AZ0 Q0Y			
		>550	600		860												
1150	2700000	425	600	1222	860	520	1150	223	15	379	795	135	380	2LC0302-6A ■■■ -0AZ0 Q0Y			
		>600	650		930												
1160	3350000	450	600	1292	860	550	1160	245	15	405	795	135	380	2LC0302-7A ■■■ -0AZ0 Q0Y			
		>600	650		930		1160										
		>650	690		990		1210										
1240	3800000	475	650	1400	930	580	1240	235	15	415	865	155	400	2LC0302-8A ■■■ -0AZ0 Q0Y			
		>650	690		990		1240										
		>690	730		1055		1290										
1310	4600000	500	650	1470	930	610	1310	247	17.5	437.5	850	155	400	2LC0303-0A ■■■ -0AZ0 Q0Y			
		>650	690		990		1310										
		>690	730		1055		1310										
		>730	780		1120		1370										
1380	5300000	525	690	1540	990	640	1380	257	17.5	457.5	910	155	400	2LC0303-1A ■■■ -0AZ0 Q0Y			
		>690	730		1055		1380										
		>730	780		1120		1380										
		>780	810		1170		1430										
1440	6250000	550	730	1600	1055	670	1440	277	17.5	482.5	975	155	400	2LC0303-2A ■■■ -0AZ0 Q0Y			
		>730	780		1120		1440										
		>780	810		1170		1440										
		>810	860		1240		1510										
1540	7200000	575	780	1710	1120	700	1540	257	17.5	487.5	1030	175	600	2LC0303-3A ■■■ -0AZ0 Q0Y			
		>780	810		1170		1540										
		>810	860		1240		1540										
		>860	910		1310		1610										

Variant		D	E
• A			
• B			
∅D1:	• Without finished bore – Without order codes	1	
	• Without finished bore from size 640 for 2nd diameter range D1 – Without order codes	2	
	• Without finished bore from size 1160 for 3rd diameter range D1 – Without order codes	3	
	• Without finished bore from size 1310 for 4th diameter range D1 – Without order codes	4	
	• With finished bore – With order codes for diameter and tolerance (product code without -Z)	9	
∅D2:	• Without finished bore – Without order codes	1	
	• Without finished bore from size 640 for 2nd diameter range D2 – Without order codes	2	
	• Without finished bore from size 1160 for 3rd diameter range D2 – Without order codes	3	
	• Without finished bore from size 1310 for 4th diameter range D2 – Without order codes	4	
	• With finished bore – With order codes for diameter and tolerance (product code without -Z)	9	

Weights from size 730 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:

Product code:

2LC0300-2AE99-0AZ0-Z

LOW+M1A+Q0Y+M13

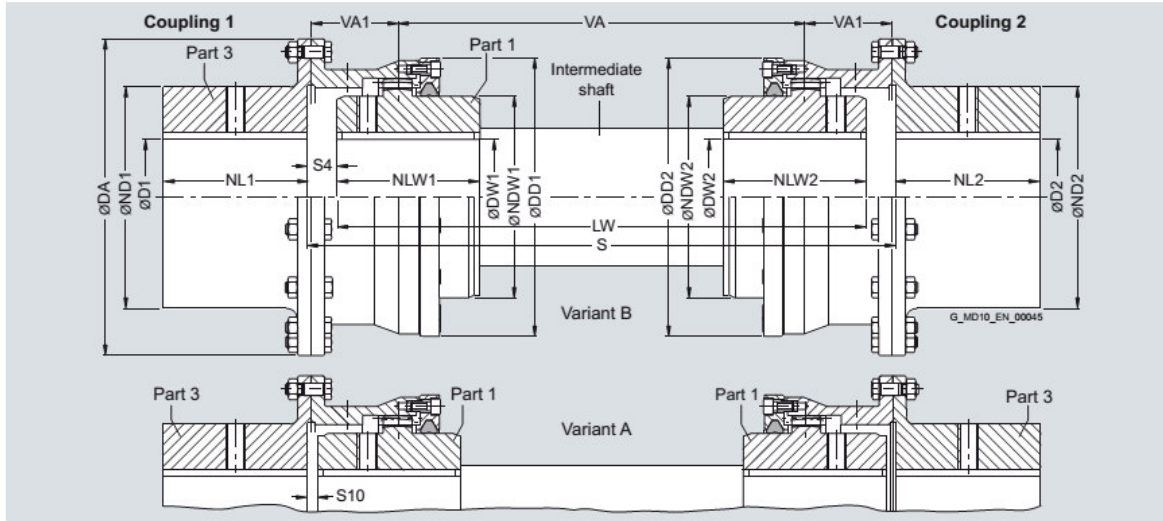
plain text to Q0Y: **250 mm (dimension S)**

FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZW Series

Type ZZW

Selection and ordering data



4

Size	Rated torque T_{KN} Nm	Dimensions in mm											Product code Order codes for bore diameters and tolerances are specified in catalog section 3	Weight m kg		
		D1, D2 Keyway DIN 6885		DA	ND1/ND2	NL1/NL2/ NLW1/ NLW2	DW1, DW2 Keyway DIN 6885		NDW1/ NDW2	DD1/ DD2	S4	S10			VA1	
		min.	max.				min.	max.								
112	1300	20	55	143	80	50	0	45	65	110	12.5	12.5	37.5	2LC0300-0B ■■■ -0AA0	5.4	
128	2500	25	65	157	95	60	0	55	80	128	12.5	5.5	39	2LC0300-1B ■■■ -0AA0	6.9	
146	4300	30	80	177	112	75	0	65	95	146	12.5	5.5	46.5	2LC0300-2B ■■■ -0AA0	10.5	
175	7000	35	95	215	135	90	0	80	112	175	12.5	6.5	54.5	2LC0300-3B ■■■ -0AA0	17.5	
198	11600	40	110	237	160	100	0	95	135	198	17.5	6.5	62	2LC0300-4B ■■■ -0AA0	25	
230	19000	50	125	265	185	110	0	110	160	230	18.5	6.5	67.5	2LC0300-5B ■■■ -0AA0	36	
255	27000	60	145	294	210	125	0	125	185	255	23.5	8.5	78.5	2LC0300-6B ■■■ -0AA0	50	
290	39000	70	160	330	230	140	70	145	210	290	28.5	8.5	88.5	2LC0300-7B ■■■ -0AA0	71	
315	54000	80	180	366	255	160	80	160	230	315	28.5	8.5	98.5	2LC0300-8B ■■■ -0AA0	99	
342	69000	90	200	392	290	180	90	180	255	340	39.5	9.5	114.5	2LC0301-0B ■■■ -0AA0	130	
375	98000	100	220	430	320	200	100	200	290	375	39.5	9.5	124.5	2LC0301-1B ■■■ -0AA0	175	
415	130000	120	250	478	360	220	120	220	320	415	71.5	9.5	150.5	2LC0301-2B ■■■ -0AA0	230	
465	180000	140	275	528	400	240	140	250	360	465	91.5	11.5	171.5	2LC0301-3B ■■■ -0AA0	310	
505	250000	160	300	568	440	260	160	275	400	505	102.5	12.5	187.5	2LC0301-4B ■■■ -0AA0	400	
545	320000	180	330	620	480	280	180	300	440	545	122.5	12.5	207.5	2LC0301-5B ■■■ -0AA0	520	
585	400000	210	330	660	480	310	210	330	480	585	144.5	14.5	234.5	2LC0301-6B ■■■ -0AA0	610	
		>330	360		520										640	
640	510000	230	360	738	520	330	230	330	480	640	143.5	14.5	244	2LC0301-7B ■■■ -0AA0	780	
		>360	390		560		>330	360	520						830	
690	660000	250	390	788	560	350	250	360	520	690	160.5	14.5	262.5	2LC0301-8B ■■■ -0AA0	910	
		>390	415		600		>360	390	560						1000	
730	790000	275	415	834	600	380	275	390	560	730	176	16	286	2LC0302-0B ■■■ -0AA0	1150	
		>415	450		650		>390	415	600						1250	
780	1000000	300	450	900	650	400	300	415	600	780	171	20.5	296	2LC0302-1B ■■■ -0AA0	1450	
		>450	490		710		>415	450	650						1550	
852	1200000	325	490	970	710	420	325	450	650	850	180	20.5	310.5	2LC0302-2B ■■■ -0AA0	1750	
		>490	520		750		>450	490	710						1850	

Variant:	• A	D
	• B	
øD1:	• Without finished bore – Without order codes	E
	• Without finished bore from size 585 for 2nd diameter range D1 – Without order codes	
	• With finished bore – With order codes for diameter and tolerance (product code without -Z)	
øD2:	• Without finished bore – Without order codes	1
	• Without finished bore from size 585 for 2nd diameter range D2 – Without order codes	2
	• With finished bore – With order codes for diameter and tolerance (product code without -Z)	9

FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZW Series

Type ZZW

Size	Rated torque T_{KN} Nm	Dimensions in mm										Product code Order codes for bore diameters and tolerances are specified in catalog section 3	Weight <i>m</i> kg		
		D1, D2 Keyway DIN 6885		DA	ND1/ND2	NL1/NL2/NLW1/NLW2	DW1, DW2 Keyway DIN 6885		NDW1/NDW2	DD1/DD2	S4			S10	VA1
		min.	max.				min.	max.							
910	1600000	350	520	1030	750	450	350	490	710	910	210	20.5	340.5	2LC0302-3B ■■■ -0AA0	2150
		>520	550		800		>490	520	750						2250
1020	1900000	375	550	1112	800	480	375	520	750	1020	210	22.5	356.5	2LC0302-4B ■■■ -0AA0	2650
		>550	600		860		>520	550	800						2800
1080	2200000	400	600	1162	860	500	400	550	800	1080	221	25	373	2LC0302-5B ■■■ -0AA0	3000
		>600	650		930		>550	600	860						3300
1150	2700000	425	600	1222	860	520	425	600	860	1150	233	25	389	2LC0302-6B ■■■ -0AA0	3500
		>600	650		930		>425	600	860						3600
1160	3350000	450	650	1292	930	550	450	600	860	1160	255	25	415	2LC0302-7B ■■■ -0AA0	4000
		>650	690		990		>600	650	930	1160					4200
1240	3800000	475	650	1400	930	580	475	650	930	1240	245	25	425	2LC0302-8B ■■■ -0AA0	4700
		>650	690		990		475	650	930	1240					4900
1310	4600000	500	690	1470	990	610	500	650	930	1310	258	28.5	448.5	2LC0303-0B ■■■ -0AA0	5500
		>690	730		1055		>650	690	990	1310					5800
1380	5300000	525	730	1540	1055	640	525	690	990	1380	268	28.5	468.5	2LC0303-1B ■■■ -0AA0	6400
		>730	780		1120		>690	730	1055	1380					6700
1440	6250000	550	780	1600	1120	670	550	730	1055	1440	288	28.5	493.5	2LC0303-2B ■■■ -0AA0	7400
		>780	810		1170		>730	780	1120	1440					7600
1540	7200000	575	810	1710	1170	700	575	780	1120	1540	268	28.5	498.5	2LC0303-3B ■■■ -0AA0	8600
		>810	860		1240		>780	810	1170	1540					8700
		>860	910		1310		>810	860	1240	1510				9200	
		>860	960		1390		>860	910	1310	1610				10500	

Variant:

- A
- B

D
E

∅D1:

- 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 (product code without -Z)

1

2

3

4

9

∅D2:

- 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 (product code 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.

Product code:

**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 ∅45p6 x 75 long; keyway DIN 6885-1.

Product code:

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.

Product code:

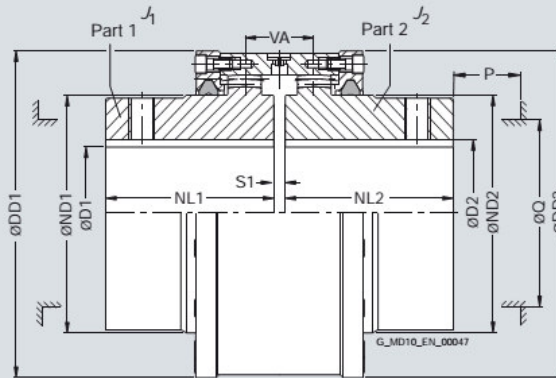
2LC0300-2BE99-0AA0-Z**L1A+M1A+M13**

FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZW Series

Type ZWH

Selection and ordering data



4

Size	Rated torque T_{KN} Nm	Maximum speed n_{Kmax} rpm	Dimensions in mm								Mass moment of inertia J_1/J_2 kgm ²	Product code Order codes for bore diameters and tolerances are specified in catalog section 3	Weight m kg	
			D1, D2 Keyway DIN 6885 min. max.		ND1/ND2	NL1/NL2	DD1/DD2	S1	VA	Q				P
112	1300	9400	0	45	65	50	110	6	28	45	35	0.003	2LC0300-0BB ■ ■ -0AA0	4.0
128	2500	8300	0	55	80	60	128	6	30	60	45	0.007	2LC0300-1BB ■ ■ -0AA0	5.7
146	4300	7300	0	65	95	75	146	6	33	75	45	0.013	2LC0300-2BB ■ ■ -0AA0	8.6
175	7000	6400	0	80	112	90	175	8	46	85	50	0.032	2LC0300-3BB ■ ■ -0AA0	15.5
198	11600	5500	0	95	135	100	198	8	48	110	50	0.059	2LC0300-4BB ■ ■ -0AA0	21.5
230	19000	4700	0	110	160	110	230	8	50	135	50	0.11	2LC0300-5BB ■ ■ -0AA0	33
255	27000	4100	0	125	185	125	255	10	55	160	50	0.21	2LC0300-6BB ■ ■ -0AA0	45
290	39000	3700	70	145	210	140	290	10	58	180	60	0.38	2LC0300-7BB ■ ■ -0AA0	67
315	54000	3300	80	160	230	160	315	10	62	200	60	0.59	2LC0300-8BB ■ ■ -0AA0	88
342	69000	3000	90	180	255	180	340	12	70	225	60	0.85	2LC0301-0BB ■ ■ -0AA0	110
375	98000	2700	100	200	290	200	375	12	72	260	60	1.5	2LC0301-1BB ■ ■ -0AA0	150
415	130000	2500	120	220	320	220	415	12	76	285	80	2.4	2LC0301-2BB ■ ■ -0AA0	200
465	180000	2200	140	250	360	240	465	16	90	325	80	4.2	2LC0301-3BB ■ ■ -0AA0	280
505	250000	2000	160	275	400	260	505	16	92	365	80	6.3	2LC0301-4BB ■ ■ -0AA0	360
545	320000	1800	180	300	440	280	545	16	96	405	80	9.5	2LC0301-5BB ■ ■ -0AA0	460
585	400000	1700	210	330	480	310	585	20	102	445	80	14	2LC0301-6BB ■ ■ -0AA0	570
640	510000	1600	230	330	480	330	640	20	105	445	90	19	2LC0301-7BB ■ ■ -0AA0	712
			>330	360	520							21		742
690	660000	1450	250	360	520	350	690	20	108	475	90	26.5	2LC0301-8BB ■ ■ -0AA0	852
			>360	390	560							29.5		882
730	790000	1350	275	390	560	380	730	20	112	515	90	37	2LC0302-0BB ■ ■ -0AA0	1031
			>390	415	600							41		1091
780	1000000	1250	300	415	600	400	780	25	120	555	110	53	2LC0302-1BB ■ ■ -0AA0	1287
			>415	450	650							59		1327

ØD1: • Without finished bore – Without order codes

• With finished bore – With order codes for diameter and tolerance (product code without -Z)

ØD2: • Without finished bore – Without order codes

• With finished bore – With order codes for diameter and tolerance (product code without -Z)

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.

Product code:

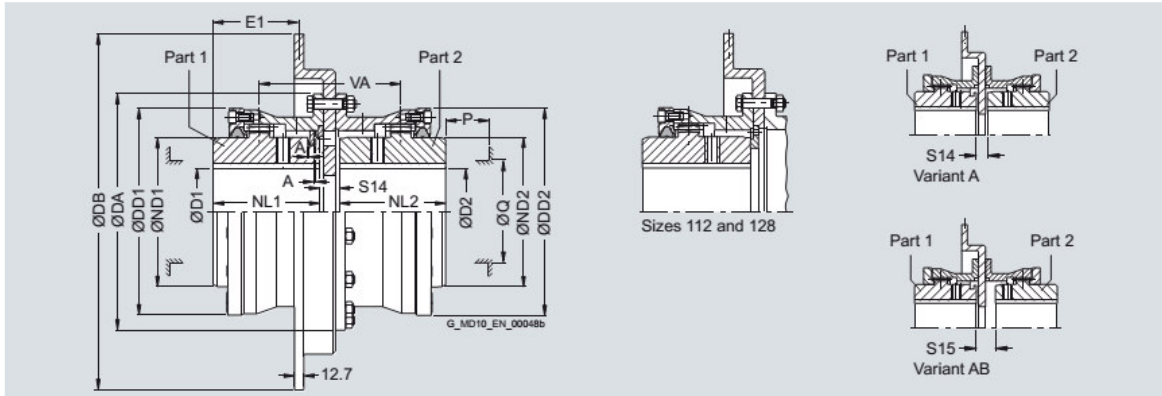
2LC0300-2BB99-0AA0-Z

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	D1, D2 Keyway DIN 6885		DA	ND1/ ND2	NL1/ NL2	DD1/ DD2	S14	S15	A	VA	Q	P	Brake disk		Product code Order codes for bore diameters and tolerances are specified in catalog section 3	Weight <i>m</i> kg
			min.	max.											DB	E1		
112	1300	3800	0	45	143	65	50	110	20	–	0.5	69	45	35	300	32.35	2LC0300-0A ■■■ -0AA0	13
		3200							23	–		72			356	22.35	2LC0300-0A ■■■ -0BA0	16.5
128	2500	3200	0	55	157	80	60	128	23.5	30.5	0.5	89	60	45	356	32.85	2LC0300-1A ■■■ -0AA0	19
		2800							20.5	27.5		86			406	29.85	2LC0300-1A ■■■ -0BA0	22
146	4300	2800	0	65	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	215	112	90	175	21	27	0.5	117	85	50	406	59.35	2LC0300-3A ■■■ -0AA0	34
		2500							24	30		120			457	62.35	2LC0300-3A ■■■ -0BA0	39
		2200							24	30		120			514	62.35	2LC0300-3A ■■■ -0CA0	44
198	11600	2500	0	95	237	135	100	198	24	35	0.5	135	110	50	457	72.35	2LC0300-4A ■■■ -0AA0	47
		2200							24	35		135			514	72.35	2LC0300-4A ■■■ -0BA0	52
230	19000	2200	0	110	265	160	110	230	24	36	0.5	146	135	50	514	82.35	2LC0300-5A ■■■ -0AA0	65
		1850							24	36		146			610	82.35	2LC0300-5A ■■■ -0BA0	76
255	27000	2200	0	125	294	185	125	255	26	41	1	166	160	50	514	98.35	2LC0300-6A ■■■ -0AA0	80
		1850							26	41		166			610	98.35	2LC0300-6A ■■■ -0BA0	92
290	39000	1850	70	145	330	210	140	290	26	46	1	186	180	60	610	113.35	2LC0300-7A ■■■ -0AA0	120
		1600							29	49		189			711	116.35	2LC0300-7A ■■■ -0BA0	135
315	54000	1850	80	160	366	230	160	315	26	46	1	206	200	60	610	133.35	2LC0300-8A ■■■ -0AA0	145
		1600							29	49		209			711	136.35	2LC0300-8A ■■■ -0BA0	160
342	69000	1600	90	180	392	255	180	340	31	61	1	241	225	60	711	157.35	2LC0301-0A ■■■ -0AA0	195
375	98000	1600	100	200	430	290	200	375	31	61	1	261	260	60	711	177.35	2LC0301-1A ■■■ -0AA0	240
415	130000	1400	120	220	478	320	220	415	37	99	1	319	285	80	812	203.35	2LC0301-2A ■■■ -0AA0	340
465	180000	1400	140	250	528	360	240	465	41	121	1	361	325	80	812	225.35	2LC0301-3A ■■■ -0AA0	420

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
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.

Product code:
2LC0300-2AS99-0BA0-Z
L0W+M1A+M13

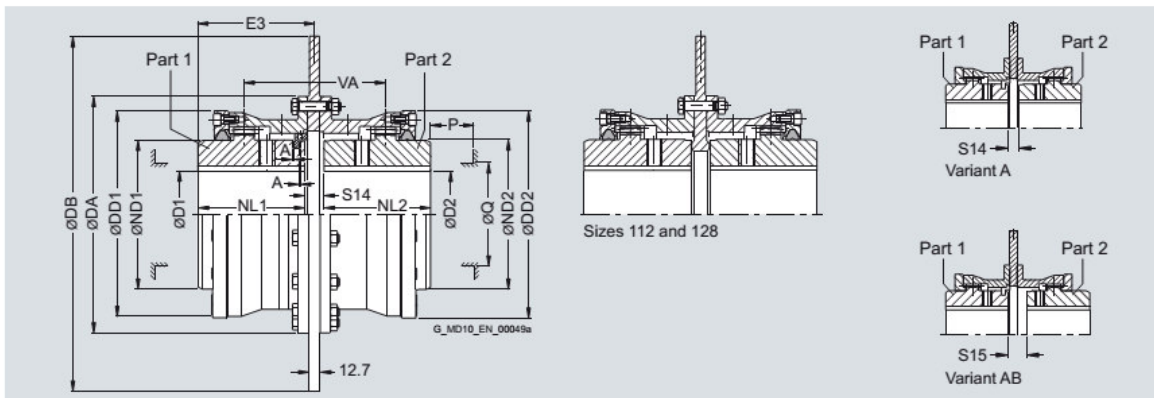
FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZW Series

Type ZWBG

Selection and ordering data

4



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	D1, D2 Keyway DIN 6885		DA	ND1/ND2	NL1/NL2	DD1/DD2	S14	S15	A	VA	Q	P	Brake disk		Product code Order codes for bore diameters and tolerances are specified in catalog section 3	Weight <i>m</i> kg
			min.	max.											DB	E3		
112	1300	3800	0	45	143	65	50	110	19	–	0.5	69	45	35	300	59.5	2LC0300-0A ■■■-0AA0	13
		3200							22	–		72			356	61	2LC0300-0A ■■■-0BA0	16
128	2500	3200	0	55	157	80	60	128	22	29	0.5	89	60	45	356	71	2LC0300-1A ■■■-0AA0	18.5
		2800							19	26		86			406	69.5	2LC0300-1A ■■■-0BA0	21
146	4300	2800	0	65	177	95	75	146	19	26	0.5	101	75	45	406	84.5	2LC0300-2A ■■■-0AA0	24
		2500							22	29		104			457	86	2LC0300-2A ■■■-0BA0	28
175	7000	2800	0	80	215	112	90	175	21	27	0.5	117	85	50	406	100.5	2LC0300-3A ■■■-0AA0	33
		2500							24	30		120			457	102	2LC0300-3A ■■■-0BA0	37
		2200							24	30		120			514	102	2LC0300-3A ■■■-0CA0	41
198	11600	2500	0	95	237	135	100	198	24	35	0.5	135	110	50	457	112	2LC0300-4A ■■■-0AA0	44
		2200							24	35		135			514	112	2LC0300-4A ■■■-0BA0	49
230	19000	2200	0	110	265	160	110	230	24	36	0.5	146	135	50	514	122	2LC0300-5A ■■■-0AA0	60
		1850							24	36		146			610	122	2LC0300-5A ■■■-0BA0	69
255	27000	2200	0	125	294	185	125	255	26	41	1	166	160	50	514	138	2LC0300-6A ■■■-0AA0	75
		1850							26	41		166			610	138	2LC0300-6A ■■■-0BA0	82
290	39000	1850	70	145	330	210	140	290	26	46	1	186	180	60	610	153	2LC0300-7A ■■■-0AA0	110
		1600							29	49		189			711	154.5	2LC0300-7A ■■■-0BA0	125
315	54000	1850	80	160	366	230	160	315	26	46	1	206	200	60	610	173	2LC0300-8A ■■■-0AA0	140
		1600							29	49		209			711	174.5	2LC0300-8A ■■■-0BA0	150
342	69000	1600	90	180	392	255	180	340	31	61	1	241	225	60	711	195.5	2LC0301-0A ■■■-0AA0	175
375	98000	1600	100	200	430	290	200	375	31	61	1	261	260	60	711	215.5	2LC0301-1A ■■■-0AA0	225
415	130000	1400	120	220	478	320	220	415	37	99	1	319	285	80	812	238.5	2LC0301-2A ■■■-0AA0	300
465	180000	1400	140	250	528	360	240	465	41	121	1	361	325	80	812	260.5	2LC0301-3A ■■■-0AA0	380

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.

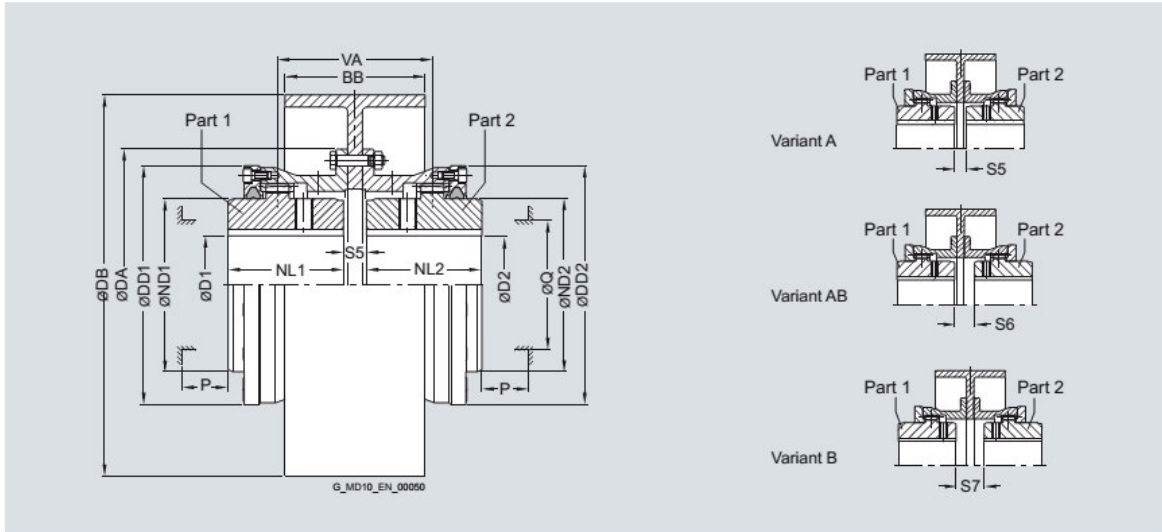
Ordering example:
ZAPEX ZWBG coupling, size 146, variant A, brake disk diameter DB = 457 mm,
Part 1: Bore 40H7 mm, keyway to DIN 6885-1 P9 and set screw,
Part 2: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw.

Product code:
2LC0300-2AU99-0BA0-Z
LOW+M1A+M13

FLENDER Standard Couplings Torsionally Rigid Gear Couplings – ZAPEX ZW Series

Type ZWB

Selection and ordering data



4

Size	Rated torque T_{KN} Nm	Maximum speed n_{Kmax} rpm	D1, D2 Keyway DIN 6885		DA	ND1/ND2	NL1/NL2	DD1/DD2	S5	S6	S7	VA	Q	P	Brake disk		Product code Order codes for bore diameters and tolerances are specified in catalog section 3	Weight <i>m</i> kg
			min.	max.											DB	BB		
128	2500	2500	0	55	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	16
146	4300	2000	0	65	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
175	7000	1600	0	80	215	112	90	175	20	26	32	116	85	50	315	118	2LC0300-3 ■■■■ -0AA0	35
		1250							22	28	34	118			400	150	2LC0300-3 ■■■■ -0BA0	47
198	11600	1600	0	95	237	135	100	198	20	31	42	131	110	50	315	118	2LC0300-4 ■■■■ -0AA0	42
		1250							22	33	44	133			400	150	2LC0300-4 ■■■■ -0BA0	54
230	19000	1250	0	110	265	160	110	230	22	34	46	144	135	50	400	150	2LC0300-5 ■■■■ -0AA0	66
		1000							23	35	47	145			500	190	2LC0300-5 ■■■■ -0BA0	85
255	27000	1000	0	125	294	185	125	255	25	40	55	165	160	50	500	190	2LC0300-6 ■■■■ -0AA0	97
		1000							28	43	58	168			630	236	2LC0300-6 ■■■■ -0BA0	135
290	39000	1000	70	145	330	210	140	290	28	48	68	188	180	60	630	236	2LC0300-7 ■■■■ -0AA0	165
		750							28	48	68	188			710	265	2LC0300-7 ■■■■ -0BA0	195

Variant: • A
• B
• AB

ØD1: • Without finished bore – Without order codes
• With finished bore – With order codes for diameter and tolerance (product code without -Z)

ØD2: • Without finished bore – Without order codes
• With finished bore – With order codes for diameter and tolerance (product code 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.

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.

Product code:
2LC0300-2AW99-0BA0-Z
L0W+M1A+M13

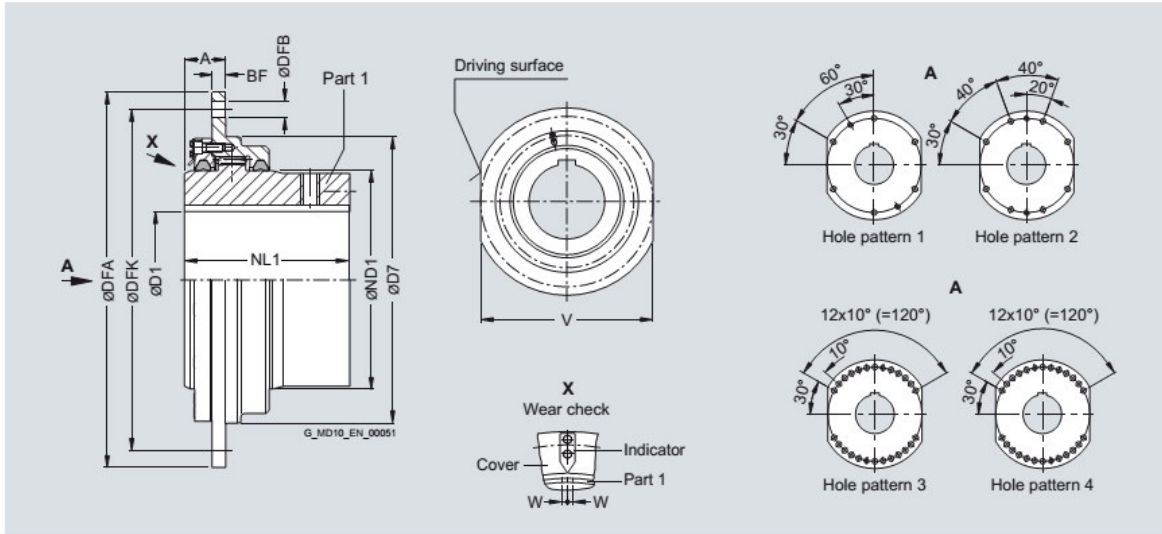
FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZW Series

Type ZWTR

Selection and ordering data

4



Size	Rated torque T_{KN} Nm	Perm. radial load N	Dimensions in mm		D1 Keyway DIN 6885 min.	ND1 max.	NL1	DFA	D7	V	A	BF	DFK	DFB	Hole pattern	Perm. wear W	Product code Order codes for bore diameters and tolerances are specified in catalog section 3	Weight m kg
			h6	h9														
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
290 ¹⁾	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
342 ¹⁾	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
415 ¹⁾	104000	150000	0	220	320	240	550	420	500	60	20	500	24	1	3	2LC0301-2BN	0-0AA0	130
465 ¹⁾	155000	165000	0	250	360	260	580	450	530	60	20	530	24	2	4	2LC0301-3BN	0-0AA0	160
505 ¹⁾	235000	200000	0	275	400	315	650	530	580	65	25	600	24	2	4	2LC0301-4BN	0-0AA0	240
545 ¹⁾	390000	325000	0	300	440	350	680	560	600	65	25	630	24	3	4	2LC0301-5BN	0-0AA0	320
585 ¹⁾	460000	380000	0	330	480	380	710	600	640	81	35	660	28	4	4	2LC0301-6BN	0-0AA0	400
640 ¹⁾	600000	420000	0	360	520	410	780	670	700	81	35	730	28	4	4	2LC0301-7BN	0-0AA0	510
730 ¹⁾	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 (product code without -Z)																		
1																		
9																		

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.

Product code:

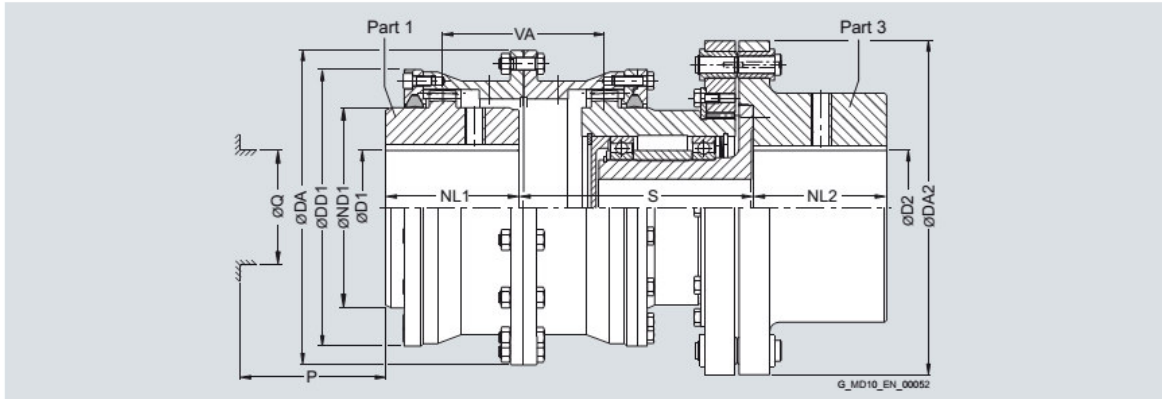
**2LC0300-4BN90-0AA0
L1J**

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



4

Size	Rated torque T_{KN} Nm	Max. shear torque T_{BR} Nm	Maximum speed n_{Kmax} rpm	Geometry data												Product code Plain text required for shear torque. Order codes for bore diameters and tolerances are specified in catalog section 3	Weight <i>m</i> kg	
				D1 Keyway DIN 6885		D2 Keyway DIN 6885		DA	ND1	NL1/ NL2	DA2	DD1	S	VA	Q			P
				min.	max.	min.	max.											
112	1300	1690	9400	0	45	0	55	143	65	50	170	110	106	56	45	35	2LC0300-0BH ■■■ -0AA0-Z Y99	15
128	2500	3250	8300	0	55	0	65	157	80	60	190	128	116	73	60	45	2LC0300-1BH ■■■ -0AA0-Z Y99	18
146	4300	5590	7300	0	65	0	75	177	95	75	205	146	131	88	75	45	2LC0300-2BH ■■■ -0AA0-Z Y99	29.5
175	7000	9100	6400	0	80	0	90	215	112	90	235	175	165	104	85	50	2LC0300-3BH ■■■ -0AA0-Z Y99	46
198	11600	15080	5500	0	95	0	110	237	135	100	285	198	182	119	110	50	2LC0300-4BH ■■■ -0AA0-Z Y99	63
230	19000	24700	4700	0	110	0	125	265	160	110	300	230	198	130	135	50	2LC0300-5BH ■■■ -0AA0-Z Y99	96
255	27000	35100	4100	0	125	0	150	294	185	125	335	255	215	150	160	50	2LC0300-6BH ■■■ -0AA0-Z Y99	120
290	39000	50700	3700	70	145	70	160	330	210	140	390	290	236	170	180	60	2LC0300-7BH ■■■ -0AA0-Z Y99	180
315	54000	70200	3300	80	160	80	180	366	230	160	415	315	257	190	200	60	2LC0300-8BH ■■■ -0AA0-Z Y99	225
342	69000	89700	3000	90	180	90	200	392	255	180	460	340	280	222	225	60	2LC0301-0BH ■■■ -0AA0-Z Y99	300
375	98000	127400	2700	100	200	100	220	430	290	200	495	375	292	242	260	60	2LC0301-1BH ■■■ -0AA0-Z Y99	380
415	130000	169000	2500	120	220	120	240	478	320	220	540	415	349	294	285	80	2LC0301-2BH ■■■ -0AA0-Z Y99	490
465	180000	234000	2200	140	250	140	280	528	360	240	635	465	380	336	325	80	2LC0301-3BH ■■■ -0AA0-Z Y99	720
505	250000	325000	2000	160	275	160	320	568	400	260	710	505	395	366	365	80	2LC0301-4BH ■■■ -0AA0-Z Y99	930
545	320000	416000	1800	180	300	180	360	620	440	280	800	545	433	406	405	80	2LC0301-5BH ■■■ -0AA0-Z Y99	1350
585	400000	520000	1700	210	330	210	390	660	480	310	860	585	466	460	445	80	2LC0301-6BH ■■■ -0AA0-Z Y99	1700
640	510000	663000	1600	230	330	230	420	738	480	330	900	640	502	479	445	90	2LC0301-7BH ■■■ -0AA0-Z Y99	1900 1950
690	660000	858000	1450	250	360	250	450	788	520	350	1020	690	528	516	475	90	2LC0301-8BH ■■■ -0AA0-Z Y99	2650 2700
730	790000	1027000	1350	275	390	275	480	834	560	380	1080	730	555	560	515	90	2LC0302-0BH ■■■ -0AA0-Z Y99	3200 3250

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 (product code 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 (product code without -Z)	9

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

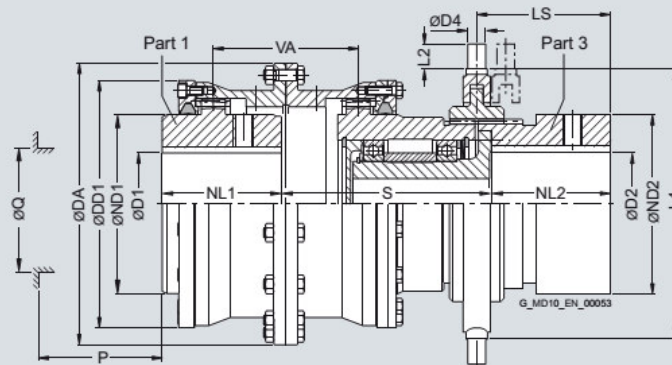
Mass moments of inertia on request.
Weights apply to maximum bores.

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} Nm	Maximum speed n_{Kmax} rpm	D1 Keyway DIN 6885		D2 Keyway DIN 6885		DA	ND1/ND2	NL1/NL2	DD1 S	VA	Q	P	LS	Shift ring		Switch		Product code Order codes for bore diameters and tolerances are specified in catalog section 3	Weight <i>m</i> kg		
			min.	max.	min.	max.									L4	D4	L2	KSHN			KSZH	
128	2500	1500	0	55	0	50	157	80	60	128	116	73	60	45	70	150	15	14	14/11	-	2LC0300-1BK ■ ■ -0AA0	15.5
146	4300	1300	0	65	0	60	177	95	75	146	131	88	75	45	86	180	16	16	16/12	-	2LC0300-2BK ■ ■ -0AA0	22.5
175	7000	1100	0	80	0	70	215	112	90	175	165	104	85	50	101	180	16	16	16/12	-	2LC0300-3BK ■ ■ -0AA0	33
198	11600	960	0	95	0	80	237	135	100	198	182	119	110	50	116	210	20	18	18/13	-	2LC0300-4BK ■ ■ -0AA0	50
230	19000	830	0	110	0	100	265	160	110	230	198	130	135	50	126	260	22	20	18/15	14/14	2LC0300-5BK ■ ■ -0AA0	74
255	27000	750	0	125	0	115	294	185	125	255	215	150	160	50	142	300	25	22	21/17	16/17	2LC0300-6BK ■ ■ -0AA0	115
290	39000	660	70	145	70	130	330	210	140	290	236	170	180	60	157	315	25	35	-	16/211	2LC0300-7BK ■ ■ -0AA0	160
315	54000	600	80	160	80	140	366	230	160	315	257	190	200	60	182	360	30	24	-	18/18	2LC0300-8BK ■ ■ -0AA0	215
342	69000	560	90	180	90	160	392	255	180	340	280	222	225	60	202	360	30	24	-	18/18	2LC0301-0BK ■ ■ -0AA0	270
375	98000	510	100	200	100	180	430	290	200	375	292	242	260	60	222	430	34	26	-	24/20	2LC0301-1BK ■ ■ -0AA0	370
415	130000	460	120	220	120	210	478	320	220	415	349	294	285	80	247	-	-	-	-	-	2LC0301-2BK ■ ■ -0AA0	460
465	180000	410	140	250	140	230	528	360	240	465	380	336	325	80	267	-	-	-	-	-	2LC0301-3BK ■ ■ -0AA0	620
505	250000	380	160	275	160	260	568	400	260	505	395	366	365	80	287	-	-	-	-	-	2LC0301-4BK ■ ■ -0AA0	820
545	320000	350	180	300	180	280	620	440	280	545	433	406	405	80	315	-	-	-	-	-	2LC0301-5BK ■ ■ -0AA0	1000

ØD1: • Without finished bore – Without order codes

• With finished bore – With order codes for diameter and tolerance (product code without -Z)

ØD2: • Without finished bore – Without order codes

• With finished bore – With order codes for diameter and tolerance (product code 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.

Product code:

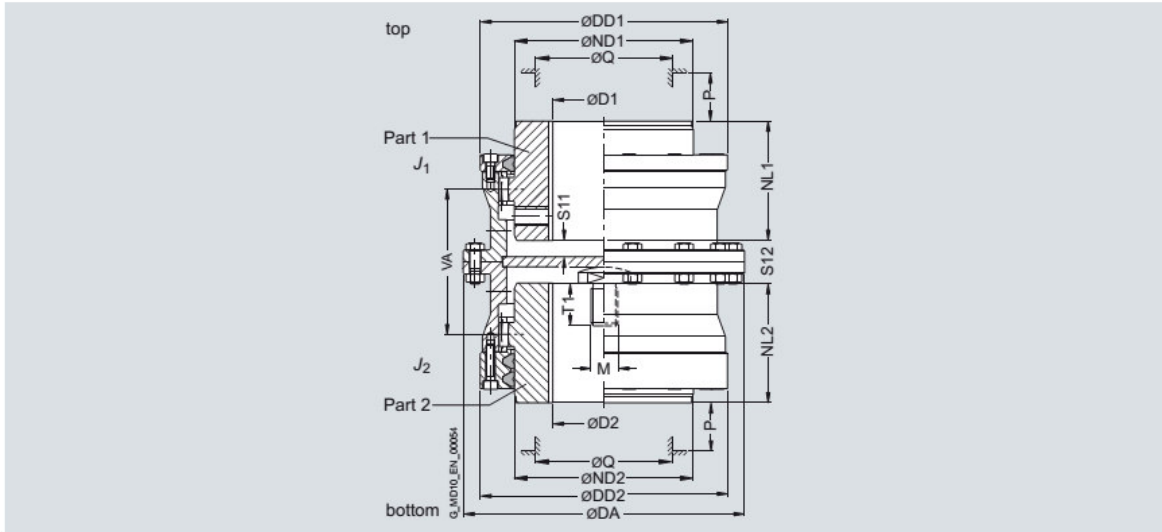
2LC0300-2BK99-0AA0-Z

LOW+M1A+M13

FLENDER Standard Couplings Torsionally Rigid Gear Couplings – ZAPEX ZWNV

Type ZWNV

Selection and ordering data



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

Size	Rated torque T_{KN} Nm	Maximum speed n_{Kmax} rpm	D1, D2 Keyway DIN 6885		DA	ND1/ND2	NL1/NL2	DD1/DD2	S11	S12	VA	Q	P	Mass moment of inertia J_1/J_2 kgm ²	Product code 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 <i>m</i> kg
			min.	max.												
128	2500	8300	0	55	157	80	60	128	6.5	26	73	60	45	0.015	2LC0300-1AH ■■■ -0AA0-Z Y99	9.3
146	4300	7300	0	65	177	95	75	146	6	28	88	75	45	0.024	2LC0300-2AH ■■■ -0AA0-Z Y99	10.5
175	7000	6400	0	80	215	112	90	175	5.5	33	104	85	50	0.057	2LC0300-3AH ■■■ -0AA0-Z Y99	23
198	11600	5500	0	95	237	135	100	198	10	40	119	110	50	0.099	2LC0300-4AH ■■■ -0AA0-Z Y99	32
230	19000	4700	0	110	265	160	110	230	11	32	130	135	50	0.18	2LC0300-5AH ■■■ -0AA0-Z Y99	46
255	27000	4100	0	125	294	185	125	255	14	40	150	160	50	0.30	2LC0300-6AH ■■■ -0AA0-Z Y99	62
290	39000	3700	70	145	330	210	140	290	19	50	170	180	60	0.57	2LC0300-7AH ■■■ -0AA0-Z Y99	94
315	54000	3300	80	160	366	230	160	315	18	50	190	200	60	0.94	2LC0300-8AH ■■■ -0AA0-Z Y99	125
342	69000	3000	90	180	392	255	180	340	29	72	222	225	60	1.4	2LC0301-0AH ■■■ -0AA0-Z Y99	155
375	98000	2700	100	200	430	290	200	375	29	72	242	260	60	2.2	2LC0301-1AH ■■■ -0AA0-Z Y99	205
415	130000	2500	120	220	478	320	220	415	60	136	294	285	80	3.6	2LC0301-2AH ■■■ -0AA0-Z Y99	270
465	180000	2200	140	250	528	360	240	465	80	176	336	325	80	6.0	2LC0301-3AH ■■■ -0AA0-Z Y99	360
505	250000	2000	160	275	568	400	260	505	89	196	366	365	80	8.8	2LC0301-4AH ■■■ -0AA0-Z Y99	450

- øD1:
 - Without finished bore – Without order codes
 - With finished bore – With order codes for diameter and tolerance (product code without -Z)
- øD2:
 - Without finished bore – Without order codes
 - With finished bore – With order codes for diameter and tolerance (product code without -Z)

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.

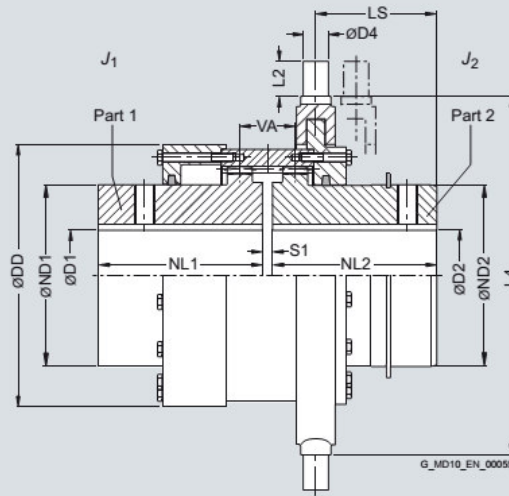
Product code:
2LC0300-2AH99-0AA0-Z
LOW+M1A+M13+Y99
plain text to Y99: **Thread M10 x 20 mm**

FLENDER Standard Couplings Torsionally Rigid Gear Couplings – ZAPEX ZW Series

Type ZWSE

Selection and ordering data

4



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	Dimensions in mm															Mass moment of inertia J_1/J_2	Product code Order codes for bore diameters and tolerances are specified in catalog section 3	Weight <i>m</i>			
	Rated torque T_{KN}	Maximum speed n_{Kmax}	D1 Keyway DIN 6885		D2 Keyway DIN 6885		ND1	ND2	NL1/ NL2	DD	S1	Shift ring		Switch					J_1/J_2		
			min.	max.	min.	max.						L4	D4	L2	KSHN					KSZH	
128	2500	730	0	55	0	50	76.5	75	60	60	130	6	36.5	180	16	16	16	-	0.018	2LC0300-1BM ■ ■ -0AA0	9
146	4300	630	0	65	0	60	91.5	90	75	75	150	6	50	210	20	18	18	-	0.04	2LC0300-2BM ■ ■ -0AA0	14.5
175	7000	530	0	75	0	75	108	105	90	90	180	8	56.5	250	20	30	18	-	0.1	2LC0300-3BM ■ ■ -0AA0	23
198	11600	470	0	90	0	90	130	130	100	100	204	8	64.5	260	22	20	18	-	0.17	2LC0300-4BM ■ ■ -0AA0	33
230	19000	410	0	110	0	105	155	155	110	110	236	8	73	300	25	22	21	-	0.33	2LC0300-5BM ■ ■ -0AA0	47
255	27000	370	0	125	0	120	180	180	125	125	260	10	82	355	25	35	24	-	0.58	2LC0300-6BM ■ ■ -0AA0	68
290	39000	330	70	145	70	140	210	210	140	140	295	10	68.5	355	25	35	24	-	0.9	2LC0300-7BM ■ ■ -0AA0	84
315	54000	300	80	160	80	160	230	230	160	160	325	10	76	355	25	35	24	-	1.5	2LC0300-8BM ■ ■ -0AA0	100
342	69000	280	90	180	90	170	255	255	180	180	345	12	72	430	34	26	-	24	3	2LC0301-0BM ■ ■ -0AA0	151
375	98000	250	100	200	100	200	280	280	200	200	378	12	97	430	34	26	-	24	3.9	2LC0301-1BM ■ ■ -0AA0	186
415	130000	220	120	220	120	220	320	320	220	240	425	12	120	580	40	40	-	24	8	2LC0301-2BM ■ ■ -0AA0	290
465	180000	200	140	250	140	250	360	360	240	260	470	16	150	580	40	40	-	24	11	2LC0301-3BM ■ ■ -0AA0	350
505	250000	180	160	270	160	270	400	400	260	280	510	16	161	-	-	-	-	24	15.2	2LC0301-4BM ■ ■ -0AA0	410
ØD1:																	1				
• Without finished bore – Without order codes																					
• With finished bore – With order codes for diameter and tolerance (product code without -Z)																	9				
ØD2:																	1				
• Without finished bore – Without order codes																					
• With finished bore – With order codes for diameter and tolerance (product code without -Z)																	9				

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 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.

Product code:
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

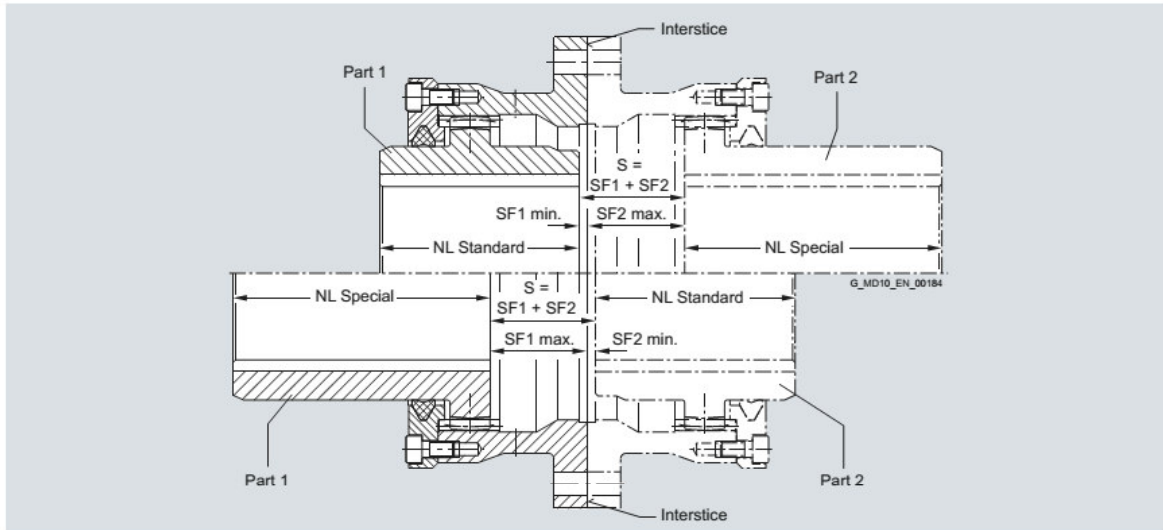
ZAPEX couplings can be provided with customized S-dimensions and hub lengths.

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 SF1 or SF2 min.	Maximum dimension SF1 or SF2 max.
	NL Standard		
	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		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)

Product code

The product code 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

Product code:

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**

Part 2		Order code
min.	max.	
> Std-NL	≤ 1.25 · Std-NL	Y41 (specification of hub length in plain text)
> 1.25 · Std-NL	≤ 1.5 · Std-NL	Y43 (specification of hub length in plain text)
> 1.5 · Std-NL	≤ 1.75 · Std-NL	Y45 (specification of hub length in plain text)
> 1.75 · Std-NL	≤ 2 · Std-NL	Y47 (specification of hub length in plain text)
> 2 · Std-NL		Y49 (specification of hub length in plain text)

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	Product code
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

Torsionally Rigid Gear Couplings

ZAPEX ZN Series

5



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FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZN Series

General information

Overview



Coupling suitable for potentially explosive environments. Complies with Directive 94/9/EC for:

CE Ex II 2 GD c 120 °C (T4)

CE Ex I M2

Materials

- Hubs and flanged sleeves: Steel
- O ring: Perbunan
- Lubricant: Grease filling

5

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, so application-related solutions can be delivered quickly.

This coupling requires very little maintenance. Regular grease changes at the prescribed intervals prolong 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 ZNNV, for vertical mounting positions.

Design

A ZAPEX coupling comprises two hub sections with external teeth which are mounted on the machine shafts. The external teeth engage with a flanged sleeve with corresponding internal teeth. The flanged sleeves are connected via two flanges with close-fitting bolts.

The teeth are lubricated with grease. On the ZAPEX type ZN, O-rings are used to seal the tooth space. The O-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.

The torque is transmitted through the coupling teeth. The teeth are crowned, so angular displacement per tooth plane is possible. Radial misalignment 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 in contact with the teeth 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.

ZAPEX ZN gear coupling types

Type	Description
ZNN	Standard type
ZNZS	With adapter
ZNW	With intermediate shaft
ZNBS	With straight brake disk
ZNNA	With axial backlash limiter
ZNZA	With adapter and axial backlash limiter
ZNNV	Vertical type
ZNN	For axial displacement

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

Customized hub designs are described after the types.

FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZN 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}	ZN C_{Tdyn} kNm/rad	ΔK_a mm
83	1020	2040	4080	408	500	1
107	2210	4420	8840	884	1400	1
130	4020	8040	16080	1600	2500	1
156	6600	13200	26400	2640	5800	1
181	11000	22000	44000	4400	9200	1
211	19200	38400	76800	7680	16600	1
250	30680	61360	122720	12270	27300	1
274	43550	87100	174200	17400	41500	1.5
307	61750	123500	247000	24700	61000	1.5
333	87100	174200	348400	34800	79000	1.5
364	117000	234000	468000	46800	99000	1.5
424	162500	325000	650000	64800	156000	1.5

The specified torsional stiffness "ZN" applies to coupling types ZNN, ZNNA, ZNNV and ZNN for axial displacement.

Torsional stiffness of types ZNZS, ZNZW, ZNBS and ZNZA on request.

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

Angular misalignment ΔK_w

- Types ZNN, ZNZS, ZNZW, ZNNV, ZNN for axial displacement:
 $\Delta K_w = 0.5^\circ$
- Types ZNBS, ZNNA, ZNZA: $\Delta K_w = 0.2^\circ$

Radial misalignment ΔK_r

- Types ZNN, ZNZS, ZNZW, ZNNV, ZNN for axial displacement:
 $\Delta K_r \leq VA \cdot \tan 0.5^\circ$
- Types ZNBS, ZNNA, ZNZA: $\Delta K_r \leq VA \cdot \tan 0.2^\circ$

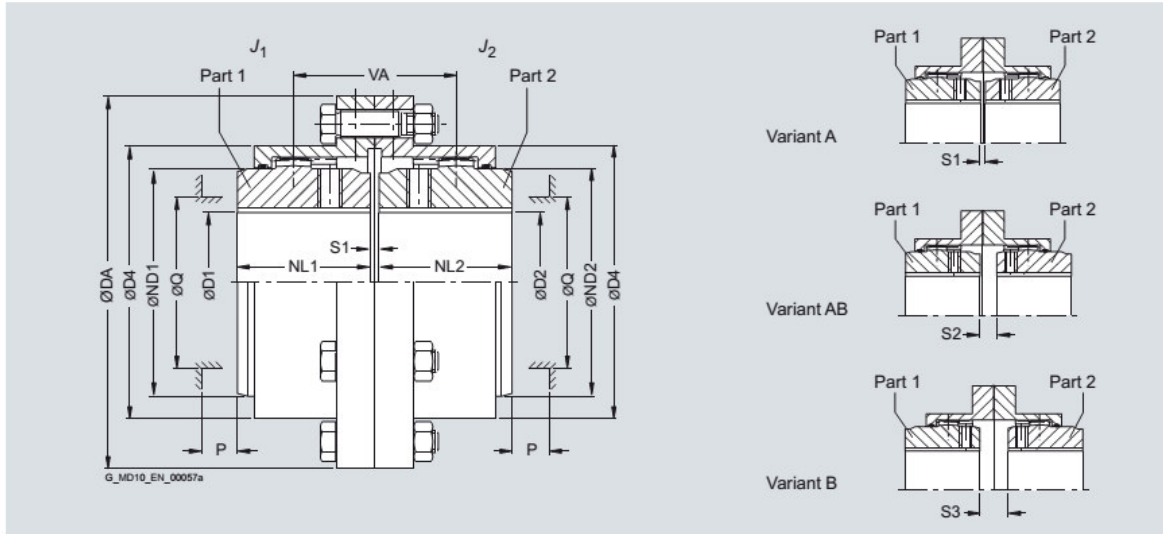
For the tooth distance VA, see the relevant table for the subassembly.

FLENDER Standard Couplings Torsionally Rigid Gear Couplings – ZAPEX ZN Series

Type ZNN

Selection and ordering data

5



Size	Rated torque T_{KN} Nm	Maximum speed n_{Kmax} rpm	D1, D2 Keyway DIN 6885		DA	ND1/ND2	NL1/NL2	D4	S1	S2	S3	VA	Q	P	Mass moment of inertia J_1/J_2 kgm ²	Product code Order codes for bore diameters and tolerances are specified in catalog section 3	Weight <i>m</i> kg
			min.	max.													
83	1020	8500	0	50	117	67	43	83	3	12	21	55	52	31	0.003	2LC0330-0A ■■■ -0AA0	3.2
107	2210	7700	0	65	152	87	50	107	3	9	15	59	68	34	0.009	2LC0330-1A ■■■ -0AA0	6.5
130	4020	6900	0	82	178	108	62	129.5	3	17	31	79	85	42	0.02	2LC0330-2A ■■■ -0AA0	9.8
156	6600	6200	0	100	213	130	76	156	5	17	29	93	110	47	0.05	2LC0330-3A ■■■ -0AA0	17.5
181	11000	5800	0	116	240	153	90	181	5	19	33	109	130	58	0.09	2LC0330-4A ■■■ -0AA0	25.5
211	19200	5100	0	137	280	180	105	211	6	23	40	128	150	67	0.21	2LC0330-5A ■■■ -0AA0	43
250	30680	4500	0	164	318	214	120	249.5	6	24	42	144	175	72	0.39	2LC0330-6A ■■■ -0AA0	60
274	43550	4000	80	178	347	233	135	274	8	29	50	164	190	81	0.59	2LC0330-7A ■■■ -0AA0	82
307	61750	3750	90	198	390	260	150	307	8	32	56	182	220	91	1.1	2LC0330-8A ■■■ -0AA0	115
333	87100	3550	100	216	425.5	283	175	332.5	8	39	70	214	250	104	1.8	2LC0331-0A ■■■ -0AA0	155
364	117000	3400	120	242	457	312	190	364	8	46	84	236	265	126	2.3	2LC0331-1A ■■■ -0AA0	180
424	162500	3200	150	288	527	371	220	423.5	10	43	76	263	300	140	4.9	2LC0331-2A ■■■ -0AA0	275

Variant:
 • A
 • B
 • AB

ØD1:
 • Without finished bore – Without order codes
 • With finished bore – With order codes for diameter and tolerance (product code without -Z)

ØD2:
 • Without finished bore – Without order codes
 • With finished bore – With order codes for diameter and tolerance (product code without -Z)

- Q Diameter required for renewing the sealing rings.
- P Length required for renewing the sealing rings, aligning the coupling parts and tightening the set screw.

Mass moments of inertia apply to a coupling half with maximum bore diameter.
Weights apply to the entire coupling with maximum bores.

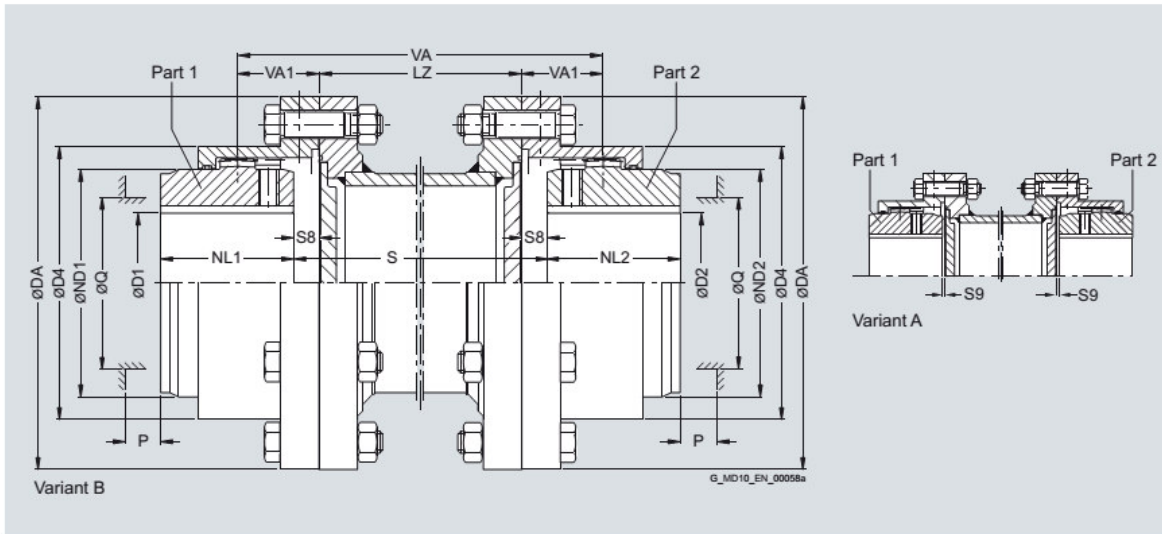
Ordering example:
ZAPEX ZNN coupling, size 107, variant A,
Part 1: Bore 40H7 mm, keyway to DIN 6885-1 P9 and set screw,
Part 2: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw.

Product code:
2LC0330-1AA99-0AA0-Z
LOW+M1A+M13

FLENDER Standard Couplings Torsionally Rigid Gear Couplings – ZAPEX ZN Series

Type ZNZS

Selection and ordering data



5

Size	Rated torque T_{KN} Nm	Dimensions in mm											Product code 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 min. max.	DA	ND1/ ND2	NL1/ NL2	D4	S8	S9	VA1	Q	P	LZ		m	m
83	1020	0 50	117	67	43	83	10.5	1.5	27.5	52	31	75	2LC0330-0A Q0Y	0.9	5.5
107	2210	0 65	152	87	50	107	7.5	1.5	29.5	68	34	85	2LC0330-1A Q0Y	0.8	12
130	4020	0 82	178	108	62	129.5	15.5	1.5	39.5	85	42	95	2LC0330-2A Q0Y	1.2	16
156	6600	0 100	213	130	76	156	14.5	2.5	46.5	110	47	110	2LC0330-3A Q0Y	2.3	28
181	11000	0 116	240	153	90	181	16.5	2.5	54.5	130	58	110	2LC0330-4A Q0Y	3.5	40
211	19200	0 137	280	180	105	211	20	3	64	150	67	125	2LC0330-5A Q0Y	4.5	64
250	30680	0 164	318	214	120	249.5	21	3	72	175	72	125	2LC0330-6A Q0Y	6.3	91
274	43550	80 178	347	233	135	274	25	4	82	190	81	125	2LC0330-7A Q0Y	7.2	115
307	61750	90 198	390	260	150	307	28	4	91	220	91	145	2LC0330-8A Q0Y	9.1	175
333	87100	100 216	425.5	283	175	332.5	35	4	107	250	104	145	2LC0331-0A Q0Y	12	220
364	117000	120 242	457	312	190	364	42	4	118	265	126	145	2LC0331-1A Q0Y	15	245
424	162500	150 288	527	371	220	423.5	38	5	131.5	300	140	145	2LC0331-2A Q0Y	16	360

Variant:	<ul style="list-style-type: none"> • A • B 	D	1
ØD1:	<ul style="list-style-type: none"> • Without finished bore – Without order codes • With finished bore – With order codes for diameter and tolerance (product code without -Z) 	E	9
ØD2:	<ul style="list-style-type: none"> • Without finished bore – Without order codes • With finished bore – With order codes for diameter and tolerance (product code without -Z) 		1
			9

$VA = 2 \cdot VA1 + LZ$

Q Diameter required for renewing the sealing rings.

P Length required for renewing the sealing rings, aligning the coupling parts and tightening the set screw.

Mass moments of inertia on request.

Weights apply to the entire coupling with maximum bores and an adapter length of LZ min.

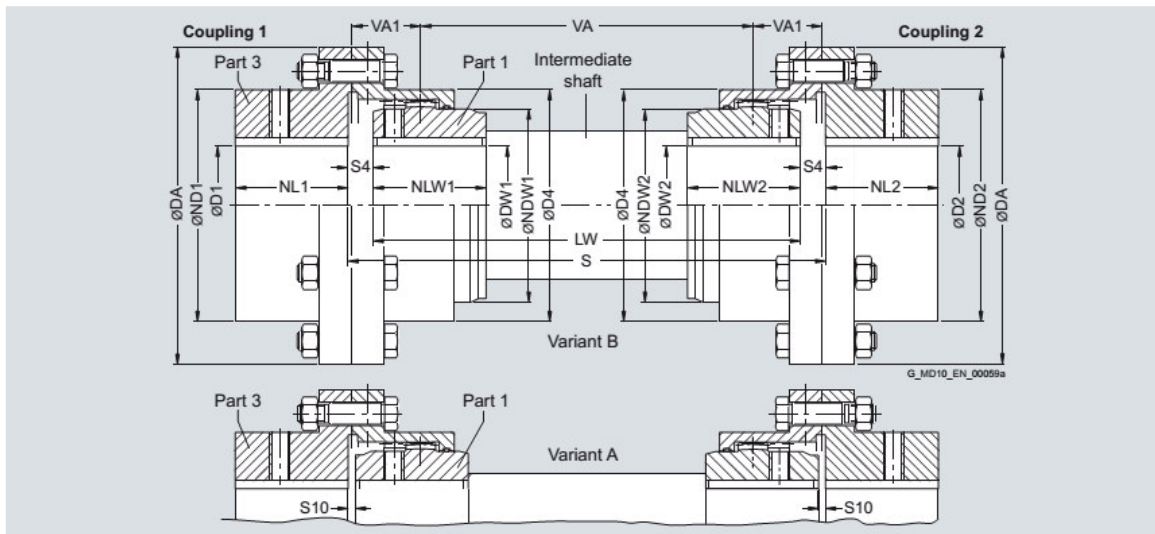
Maximum speed, limited by weight and critical adapter speed, on request.

FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZN Series

Type ZNW

Selection and ordering data



Size	Rated torque T_{KN} Nm	Dimensions in mm										Product code Order codes for bore diameters and tolerances are specified in catalog section 3	Weight <i>m</i> kg		
		D1, D2 Keyway DIN 6885		DA	ND1/ ND2	NL1/ NL2/ NLW1/ NLW2	DW1, DW2 Keyway DIN 6885		NDW1/ D4 NDW2	S4	S10			VA1	
		min.	max.				min.	max.							
83	1020	0	61	117	83	43	0	50	67	83	12	3	29	2LC0330-0A	3.1
107	2210	0	79	152	107	50	0	65	87	107	9	3	31	2LC0330-1A	6.2
130	4020	0	96	178	129.5	62	0	82	108	129.5	17	3	41	2LC0330-2A	9.5
156	6600	0	116	213	156	76	0	100	130	156	17	5	49	2LC0330-3A	17
181	11000	0	134	240	181	90	0	116	153	181	19	5	57	2LC0330-4A	24.5
211	19200	0	156	280	211	105	0	137	180	211	23	6	67	2LC0330-5A	41
250	30680	0	184	318	249.5	120	0	164	214	249.5	24	6	75	2LC0330-6A	58
274	43550	80	202	347	274	135	80	178	233	274	29	8	86	2LC0330-7A	76
307	61750	90	228	390	307	150	90	198	260	307	32	8	95	2LC0330-8A	110
333	87100	100	247	425.5	332.5	175	100	216	283	332.5	39	8	111	2LC0331-0A	150
364	117000	120	270	457	364	190	120	242	312	364	46	8	122	2LC0331-1A	170
424	162500	150	313	527	423.5	220	150	288	371	423.5	43	10	136.5	2LC0331-2A	270
Variant:															
∅D1:															
∅D2:															

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

Mass moments of inertia on request.

Weights apply to either coupling 1 or 2 with maximum bores, without intermediate shaft.
Maximum speed, limited by weight and critical speed of intermediate shaft, on request.

Ordering example:

Coupling 1:

ZAPEX ZNW coupling, size 107, variant B,
Part 3: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw,
Part 1: Bore 45H7 mm, keyway to DIN 6885-1 P9 and set screw.

Product code:
2LC0330-1AW99-0AA0-Z
L1A+L13+M1A

Intermediate shaft:

Intermediate shaft to ZAPEX ZNW coupling, size 107, length
LW = 570 mm, shaft journal $\varnothing 45p6 \times 50$ long; keyway
DIN 6885-1.

Product code:
2LC9330-0XH00-0AA0-Z
Y99

plain text to Y99: **DW1 = 45p6 mm, NLW1 = 50 mm,**
DW2 = 45p6 mm, NLW2 = 50 mm, LW = 570 mm

Coupling 2:

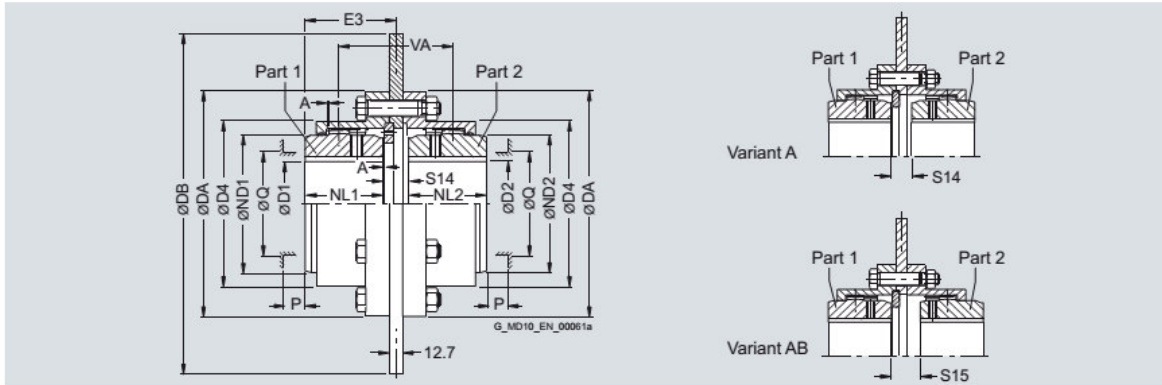
ZAPEX ZNW coupling, size 107, variant B,
Part 1: Bore 45H7 mm, keyway to DIN 6885-1 P9 and set screw,
Part 3: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw.

Product code:
2LC0330-0AW99-0AA0-Z
L1A+M1A+M13

FLENDER Standard Couplings Torsionally Rigid Gear Couplings – ZAPEX ZN Series

Type ZNBG

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	D1, D2 Keyway DIN 6885		DA	ND1/ NL1/ ND2 NL2	D4	S14	S15	A	VA	Q	P	Brake disk		Product code	Weight <i>m</i> kg
			min.	max.										DB	E3		
83	1020	3800	0	50	117	67 43	83	17	26	0.5	69	52	31	300	52	2LC0330-0A ■■■ ■-0AA0	10
107	2210	3200	0	65	152	87 50	107	20.5	26.5	0.5	76.5	68	34	356	61	2LC0330-1A ■■■ ■-0AA0	16
130	4020	3200	0	82	178	108 62	129.5	20.5	34.5	0.5	96.5	85	42	356	73	2LC0330-2A ■■■ ■-0AA0	16.5
		2800						17.5	31.5		93.5			406	71.5	2LC0330-2A ■■■ ■-0BA0	19.5
156	6600	2800	0	100	213	130 76	156	20	32	0.5	108	110	47	406	87	2LC0330-3A ■■■ ■-0AA0	29
		2500						23	35		111			457	88.5	2LC0330-3A ■■■ ■-0BA0	33
181	11000	2800	0	116	240	153 90	181	20	34	0.5	124	130	58	406	101	2LC0330-4A ■■■ ■-0AA0	38
		2500						23	37		127			457	102.5	2LC0330-4A ■■■ ■-0BA0	42
		2200						23	37		127			514	102.5	2LC0330-4A ■■■ ■-0CA0	46
211	19200	2500	0	137	280	180 105	211	24.5	41.5	0.5	146.5	150	67	457	118.5	2LC0330-5A ■■■ ■-0AA0	58
		2200						24.5	41.5		146.5			514	118.5	2LC0330-5A ■■■ ■-0BA0	63
		1850						24.5	41.5		146.5			610	118.5	2LC0330-5A ■■■ ■-0CA0	71
250	30680	2200	0	164	318	214 120	249.5	24	42	1.0	162	175	72	514	133	2LC0330-6A ■■■ ■-0AA0	77
		1850						24	42		162			610	133	2LC0330-6A ■■■ ■-0BA0	87
		1600						27	45		165			711	134.5	2LC0330-6A ■■■ ■-0CA0	97
274	43550	2200	80	178	347	233 135	274	26.5	47.5	1.0	182.5	190	81	514	149.5	2LC0330-7A ■■■ ■-0AA0	97
		1850						26.5	47.5		182.5			610	149.5	2LC0330-7A ■■■ ■-0BA0	105
		1600						29.5	50.5		185.5			711	151	2LC0330-7A ■■■ ■-0CA0	115
		1400						35.5	56.5		191.5			812	154	2LC0330-7A ■■■ ■-0DA0	130
307	61750	1850	90	198	390	260 150	307	27	51	1.0	201	220	91	610	165	2LC0330-8A ■■■ ■-0AA0	140
		1600						30	54		204			711	166.5	2LC0330-8A ■■■ ■-0BA0	155
		1400						36	60		210			812	169.5	2LC0330-8A ■■■ ■-0CA0	170
333	87100	1600	100	216	425.5	283 175	332.5	30	61	1.0	236	250	104	711	191.5	2LC0331-0A ■■■ ■-0AA0	190
		1400						36	67		242			812	194.5	2LC0331-0A ■■■ ■-0BA0	205
364	117000	1400	120	242	457	312 190	364	36	74	1.0	264	265	126	812	209.5	2LC0331-1A ■■■ ■-0AA0	235

- Variant:
 - A
 - AB
 - ØD1:
 - Without finished bore – Without order codes
 - With finished bore – With order codes for diameter and tolerance (product code without -Z)
 - ØD2:
 - Without finished bore – Without order codes
 - With finished bore – With order codes for diameter and tolerance (product code without -Z)
 - Q Diameter required for renewing the sealing rings.
 - P Length required for renewing the sealing rings, aligning the coupling parts and tightening the set screw.
- Mass moments of inertia on request.
Weights apply to the entire coupling with maximum bores.

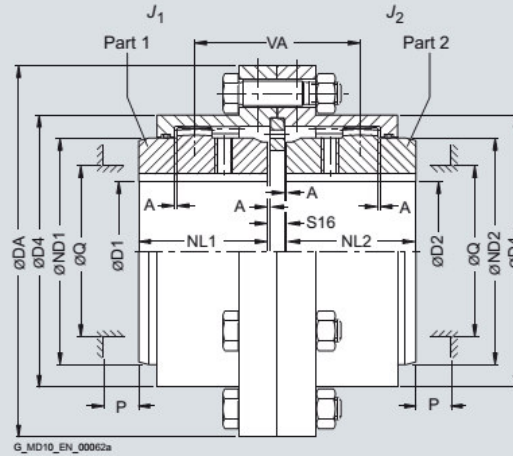
Ordering example:
ZAPEX ZNBG coupling, size 107, variant A,
brake disk diameter DB = 356 mm,
Part 1: Bore 40H7 mm, keyway to DIN 6885-1 P9 and set screw,
Part 2: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw.

Product code:
2LC0330-1AQ99-0AA0-Z
LOW+M1A+M13

FLENDER Standard Couplings Torsionally Rigid Gear Couplings – ZAPEX ZN Series

Type ZNNA

Selection and ordering data



6_MD10_EN_00062a

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

Size	Rated torque T_{KN} Nm	Maximum speed n_{Kmax} rpm	D1, D2 Keyway DIN 6885		DA	ND1/ ND2	NL1/ NL2	D4	S16	A	VA	Q	P	Mass moment of inertia J1/J2 kgm ²	Product code Order codes for bore diameters and tolerances are specified in catalog section 3	Weight <i>m</i> kg
			min.	max.												
83	1020	8500	0	50	117	67	43	83	5	0.5	57	52	31	0.003	2LC0330-0AF ■ ■ -0AA0	3.3
107	2210	7700	0	65	152	87	50	107	6	0.5	62	68	34	0.010	2LC0330-1AF ■ ■ -0AA0	6.7
130	4020	6900	0	82	178	108	62	129.5	6	0.5	82	85	42	0.021	2LC0330-2AF ■ ■ -0AA0	10.5
156	6600	6200	0	100	213	130	76	156	9	0.5	97	110	47	0.050	2LC0330-3AF ■ ■ -0AA0	18
181	11000	5800	0	116	240	153	90	181	9	0.5	113	130	58	0.095	2LC0330-4AF ■ ■ -0AA0	26.5
211	19200	5100	0	137	280	180	105	211	11	0.5	133	150	67	0.22	2LC0330-5AF ■ ■ -0AA0	44
250	30680	4500	0	164	318	214	120	249.5	10	1	148	175	72	0.40	2LC0330-6AF ■ ■ -0AA0	62
274	43550	4000	80	178	347	233	135	274	13	1	169	190	81	0.64	2LC0330-7AF ■ ■ -0AA0	82
307	61750	3750	90	198	390	260	150	307	14	1	188	220	91	1.1	2LC0330-8AF ■ ■ -0AA0	115
333	87100	3550	100	216	425.5	283	175	332.5	14	1	220	250	104	1.8	2LC0331-0AF ■ ■ -0AA0	155
364	117000	3400	120	242	457	312	190	364	14	1	242	265	126	2.4	2LC0331-1AF ■ ■ -0AA0	185
424	162500	3200	150	288	527	371	220	423.5	18	1	271	300	140	4.9	2LC0331-2AF ■ ■ -0AA0	285
ØD1: <ul style="list-style-type: none"> • Without finished bore – Without order codes • With finished bore – With order codes for diameter and tolerance (product code 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 (product code without -Z) 															1	
															9	

- Q Diameter required for renewing the sealing rings.
 P Length required for renewing the sealing rings, aligning the coupling parts and tightening the set screw.

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

Weights apply to the entire coupling with maximum bores.

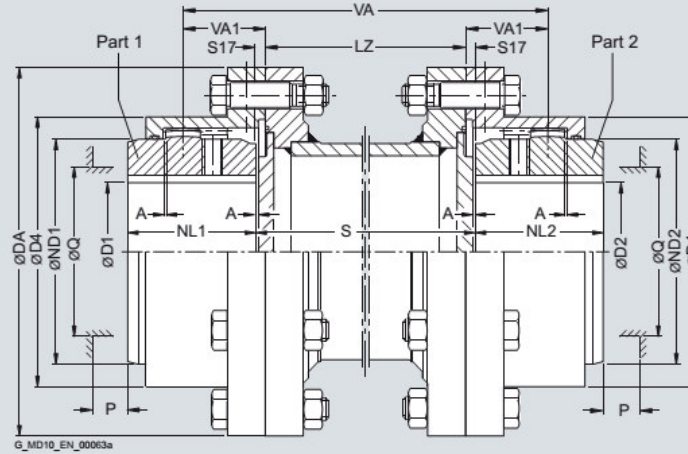
Ordering example:
 ZAPEX ZNNA coupling, size 107,
 Part 1: Bore 40H7 mm, keyway to DIN 6885-1 P9 and set screw,
 Part 2: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw.

Product code:
2LC0330-1AF99-0AA0-Z
L0W+M1A+M13

FLENDER Standard Couplings Torsionally Rigid Gear Couplings – ZAPEX ZN Series

Type ZNZA

Selection and ordering data



5

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

Size	Rated torque T_{KN} Nm	Dimensions in mm											Product code Order codes for bore diameters and tolerances are specified in catalog section 3	Weight		
		D1, D2 Keyway DIN 6885 min. max.	DA	ND1/ ND2	NL1/ NL2	D4	S17	A	VA1	Q	P	LZ min.		m each 100 mm pipe kg	m kg	
83	1020	0 50	117	67	43	83	2.5	0.5	28.5	52	31	75	2LC0330-0AG Q0Y	-0AZ0	0.9	5.5
107	2210	0 65	152	87	50	107	3	0.5	31	68	34	85	2LC0330-1AG Q0Y	-0AZ0	0.8	12
130	4020	0 82	178	108	62	129.5	3	0.5	41	85	42	95	2LC0330-2AG Q0Y	-0AZ0	1.2	16
156	6600	0 100	213	130	76	156	4.5	0.5	48.5	110	47	110	2LC0330-3AG Q0Y	-0AZ0	2.3	28
181	11000	0 116	240	153	90	181	4.5	0.5	56.5	130	58	110	2LC0330-4AG Q0Y	-0AZ0	3.5	40
211	19200	0 137	280	180	105	211	5.5	0.5	66.5	150	67	125	2LC0330-5AG Q0Y	-0AZ0	4.5	64
250	30680	0 164	318	214	120	249.5	5	1	74	175	72	125	2LC0330-6AG Q0Y	-0AZ0	6.3	91
274	43550	80 178	347	233	135	274	6.5	1	84.5	190	81	125	2LC0330-7AG Q0Y	-0AZ0	7.2	115
307	61750	90 198	390	260	150	307	7	1	94	220	91	145	2LC0330-8AG Q0Y	-0AZ0	9.1	175
333	87100	100 216	425.5	283	175	332.5	7	1	110	250	104	145	2LC0331-0AG Q0Y	-0AZ0	12	220
364	117000	120 242	457	312	190	364	7	1	121	265	126	145	2LC0331-1AG Q0Y	-0AZ0	15	245
424	162500	150 288	527	371	220	423.5	9	1	135.5	300	140	145	2LC0331-2AG Q0Y	-0AZ0	16	360

- ØD1:
 - Without finished bore – Without order codes
 - With finished bore – With order codes for diameter and tolerance (product code without -Z)
- ØD2:
 - Without finished bore – Without order codes
 - With finished bore – With order codes for diameter and tolerance (product code without -Z)

$VA = 2 \cdot VA1 + LZ$

- Q Diameter required for renewing the sealing rings.
- P Length required for renewing the sealing rings, aligning the coupling parts and tightening the set screw.

Mass moments of inertia on request.

Weights apply to the entire coupling with maximum bores and an adapter length of LZ min.

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

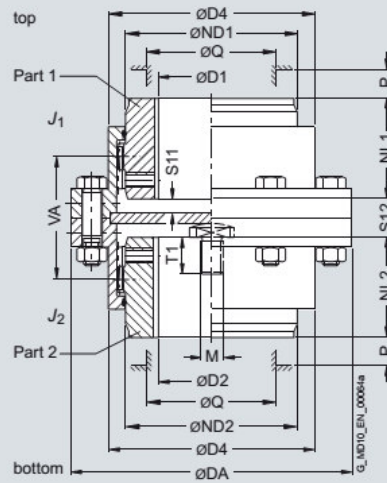
Ordering example:
ZAPEX ZNZA coupling, size 107,
adapter for S = 250 mm,
Part 1: Bore 40H7 mm, keyway to DIN 6885-1 P9 and set screw,
Part 2: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw.

Product code:
2LC0330-1AG99-0AZ0-Z
L0W+M1A+Q0Y+M13
plain text to Q0Y: **S = 250 mm**

FLENDER Standard Couplings Torsionally Rigid Gear Couplings – ZAPEX ZN Series

Type ZNNV

Selection and ordering data



5

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

Size	Rated torque T_{KN} Nm	Maximum speed n_{Kmax} rpm	D1, D2 Keyway DIN 6885		DA	ND1/ND2	NL1/NL2	D4	S11	S12	VA	Q	P	Mass moment of inertia J_1/J_2 kgm ²	Product code Order codes for bore diameters and tolerances are specified in catalog section 3	Weight <i>m</i> kg
			min.	max.												
83	1020	8500	0	50	117	67	43	83	8	21	55	52	31	0.003	2LC0330-0AH ■ ■ ■ -0AA0-Z Y99	3.5
107	2210	7700	0	65	152	87	50	107	4.5	15	59	68	34	0.009	2LC0330-1AH ■ ■ ■ -0AA0-Z Y99	6.6
130	4020	6900	0	82	178	108	62	129.5	12.5	31	79	85	42	0.023	2LC0330-2AH ■ ■ ■ -0AA0-Z Y99	10.5
156	6600	6200	0	100	213	130	76	156	10.5	29	93	110	47	0.055	2LC0330-3AH ■ ■ ■ -0AA0-Z Y99	17
181	11000	5800	0	116	240	153	90	181	12.5	33	109	130	58	0.10	2LC0330-4AH ■ ■ ■ -0AA0-Z Y99	25.5
211	19200	5100	0	137	280	180	105	211	15	40	128	150	67	0.22	2LC0330-5AH ■ ■ ■ -0AA0-Z Y99	40
250	30680	4500	0	164	318	214	120	249.5	17	42	144	175	72	0.37	2LC0330-6AH ■ ■ ■ -0AA0-Z Y99	54
274	43550	4000	80	178	347	233	135	274	19.5	50	164	190	81	0.64	2LC0330-7AH ■ ■ ■ -0AA0-Z Y99	87
307	61750	3750	90	198	390	260	150	307	22	56	182	220	91	1.2	2LC0330-8AH ■ ■ ■ -0AA0-Z Y99	130
333	87100	3550	100	216	425.5	283	175	332.5	29	70	214	250	104	1.8	2LC0331-0AH ■ ■ ■ -0AA0-Z Y99	160
364	117000	3400	120	242	457	312	190	364	36	84	236	265	126	2.6	2LC0331-1AH ■ ■ ■ -0AA0-Z Y99	190
424	162500	3200	150	288	527	371	220	423.5	30	76	263	300	140	5.4	2LC0331-2AH ■ ■ ■ -0AA0-Z Y99	270

- ∅D1:
 - Without finished bore – Without order codes
 - With finished bore – With order codes for diameter and tolerance (product code without -Z)
- ∅D2:
 - Without finished bore – Without order codes
 - With finished bore – With order codes for diameter and tolerance (product code without -Z)

- Q Diameter required for renewing the sealing rings.
- P Length required for renewing the sealing rings, aligning the coupling parts and tightening the set screw.

Mass moments of inertia apply to a coupling half with maximum bore diameter.
Weights apply to the entire coupling with maximum bores.

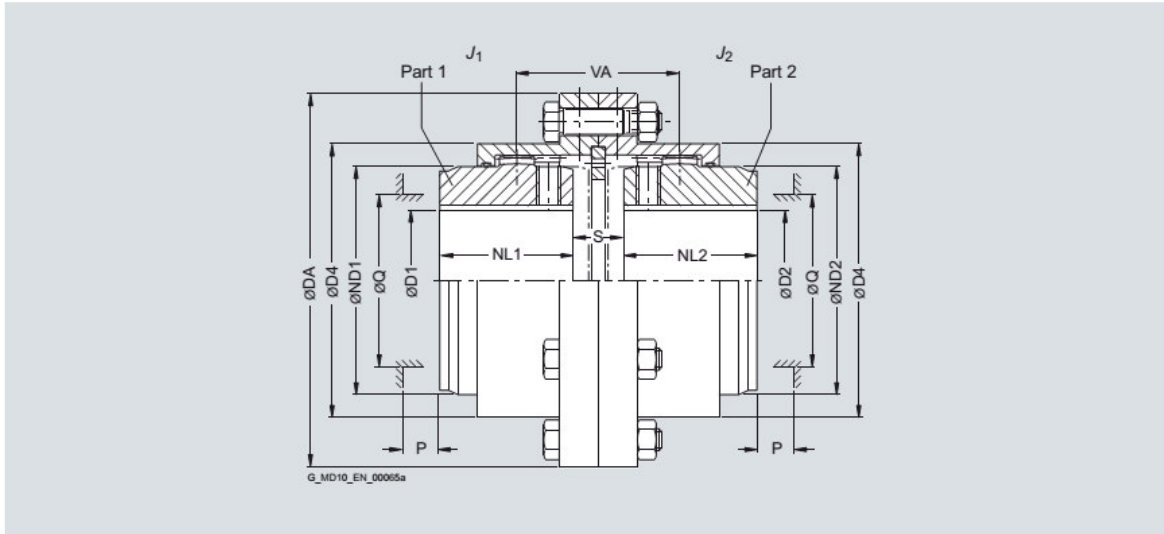
Ordering example:
ZAPEX ZNNV coupling, size 107,
Part 1: Bore 40H7 mm, keyway to DIN 6885-1 P9 and set screw,
Part 2: Bore 45K7 mm, keyway to DIN 6885-1 P9 and set screw,
thread M10 x 20 deep.

Product code:
2LC0330-1AH99-0AA0-Z
LOW +M1A +M13+Y99
plain text to Y99: **Thread M10 x 20**

FLENDER Standard Couplings Torsionally Rigid Gear Couplings – ZAPEX ZN Series

Type ZNN for axial displacement

Selection and ordering data



5

Size	Rated torque T_{KN} Nm	Maximum speed n_{Kmax} rpm	D1, D2 Keyway DIN 6885		DA	ND1/ND2	NL1/NL2	D4	S		VA	Q	P	Mass moment of inertia J_1/J_2 kgm ²	Product code Order codes for bore diameters and tolerances are specified in catalog section 3	Weight <i>m</i> kg
			min.	max.					min.	max.						
83	1020	8500	0	50	117	67	43	83	6	21	55	52	31	0.003	2LC0330-0AY ■ ■ -0AA0	3.3
107	2210	7700	0	65	152	87	50	107	7	15	59	68	34	0.010	2LC0330-1AY ■ ■ -0AA0	6.7
130	4020	6900	0	82	178	108	62	129.5	16	31	79	85	42	0.021	2LC0330-2AY ■ ■ -0AA0	10.5
156	6600	6200	0	100	213	130	76	156	11	29	93	110	47	0.050	2LC0330-3AY ■ ■ -0AA0	18
181	11000	5800	0	116	240	153	90	181	11	33	109	130	58	0.095	2LC0330-4AY ■ ■ -0AA0	26.5
211	19200	5100	0	137	280	180	105	211	14	40	128	150	67	0.22	2LC0330-5AY ■ ■ -0AA0	44
250	30680	4500	0	164	318	214	120	249.5	12	42	144	175	72	0.40	2LC0330-6AY ■ ■ -0AA0	62
274	43550	4000	80	178	347	233	135	274	16	50	164	190	81	0.64	2LC0330-7AY ■ ■ -0AA0	82
307	61750	3750	90	198	390	260	150	307	17	56	182	220	91	1.1	2LC0330-8AY ■ ■ -0AA0	115
333	87100	3550	100	216	425.5	283	175	332.5	17	70	214	250	104	1.8	2LC0331-0AY ■ ■ -0AA0	155
364	117000	3400	120	242	457	312	190	364	17	84	236	265	126	2.4	2LC0331-1AY ■ ■ -0AA0	185
424	162500	3200	150	288	527	371	220	423.5	23	76	263	300	140	4.9	2LC0331-2AY ■ ■ -0AA0	285
ØD1: <ul style="list-style-type: none"> Without finished bore – Without order codes With finished bore – With order codes for diameter and tolerance (product code without -Z) 															1	9
ØD2: <ul style="list-style-type: none"> Without finished bore – Without order codes With finished bore – With order codes for diameter and tolerance (product code without -Z) 															1	9

VA Valid at S max.

Q Diameter required for renewing the sealing rings.

P Length required for renewing the sealing rings, aligning the coupling parts and tightening the set screw.

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 ZNN coupling for axial displacement, size 107,
S min. = 7 mm, S max. = 12 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.

Product code:
2LC0330-0AY99-0AA0-Z
LOW +M1A +M13

FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZN Series

Customized hub design for ZAPEX ZN Series

Selection and ordering data

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

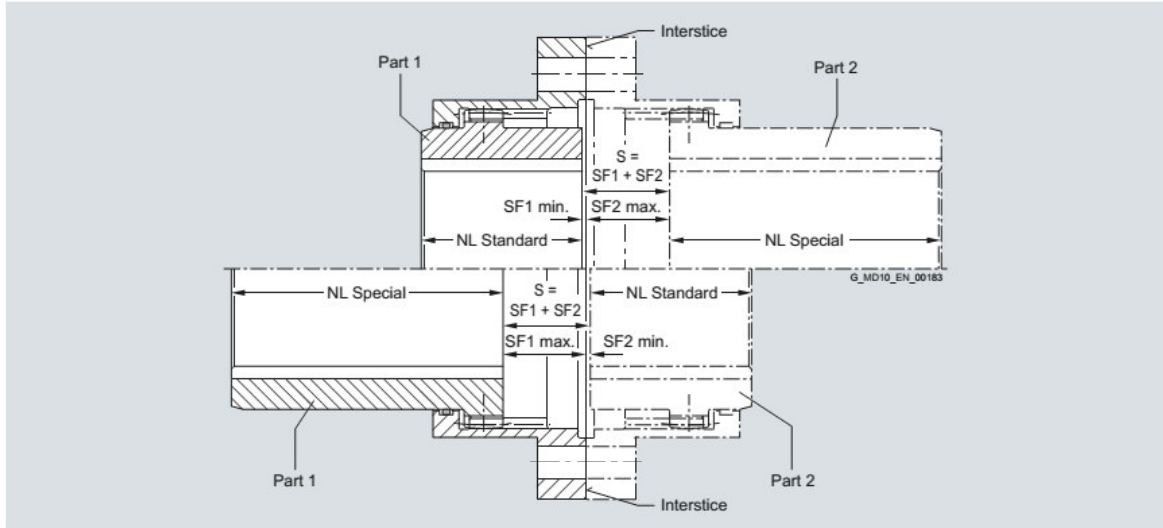
The entire dimension S results from the sum of the individual measurements SF1 and SF2. SF1 and SF2 are the measurements from the interstice of the coupling ring flange up to the beginning of the respective hub. As standard SF1 and SF2 are identical to each other and the entire S-dimension arises in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

5



Geometric data

Size	Standard hub length	Minimal dimension SF1 or SF2	Maximum dimension SF1 or SF2
	NL Standard mm		
83	43	1.5	22
107	50	1.5	23.5
130	62	1.5	32
156	76	2.5	36.5
181	90	2.5	43.5
211	105	3	51
250	120	3	59
274	135	4	64.5
307	150	4	72
333	175	4	85
364	190	4	92
424	220	5	100

The minimal hub lengths are not to fall below the standard hub lengths.

If there's no other possibility, for hub lengths smaller than standard hub lengths 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		Order code
Selected (special) hub length min.	max.	
> Std-NL	$\leq 1.25 \cdot \text{Std-NL}$	Y40 (specification of hub length in plain text)
> $1.25 \cdot \text{Std-NL}$	$\leq 1.5 \cdot \text{Std-NL}$	Y42 (specification of hub length in plain text)
> $1.5 \cdot \text{Std-NL}$	$\leq 1.75 \cdot \text{Std-NL}$	Y44 (specification of hub length in plain text)
> $1.75 \cdot \text{Std-NL}$	$\leq 2 \cdot \text{Std-NL}$	Y46 (specification of hub length in plain text)
> $2 \cdot \text{Std-NL}$		Y48 (specification of hub length in plain text)

Product code

The product code 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 ZNN 130, variant A

Hub left: bore D1 = 70H7 mm, keyway to DIN 6885-1 P9 and set screw; NL1 = 110 mm; SF1 = 10 mm

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

Product code:

2LC0330-2AA99-0AA0-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 = 110 mm**

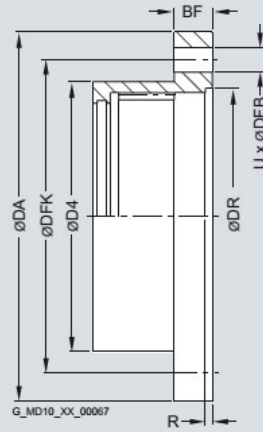
plain text to Y41: **NL2 = 75 mm**

FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZN Series

Type ZN – flange connection dimensions

Selection and ordering data



Size	Dimensions in mm							
	DA	BF	D4	DFK	DFB	U Number	DR	R
83	117	14	83	100	9	6	82	2.5
107	152	19	107	131	11	6	105	3
130	178	19	129.5	157	11	8	130	3
156	213	22	156	188	13	6	153	4
181	240	22	181	213	13	10	178	4
211	280	28.5	211	249	17	8	205	5
250	318	28.5	249.5	287	17	10	243	4
274	347	28.5	274	315	17	12	265	5.5
307	390	38	307	352	21	12	302	6
333	425.5	38	332.5	385	21	14	320	6
364	457	26	364	416	21	16	353	6
424	527	28.5	423.5	482	25	16	412	8

FLENDER Standard Couplings

Torsionally Rigid Gear Couplings – ZAPEX ZN Series

Spare and wear parts

Selection and ordering data

Sealing rings

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

Siemens high-performance grease (cartridge 300 g)
FFA:00000501027

Sealing compound (tube 60 ml)
FFA:000001443780

Size	Hub diameter ND1/ND2 mm	Product code
83	67	2LC0330-0XE00-0AA0
107	87	2LC0330-1XE00-0AA0
130	108	2LC0330-2XE00-0AA0
156	130	2LC0330-3XE00-0AA0
181	153	2LC0330-4XE00-0AA0
211	180	2LC0330-5XE00-0AA0
250	214	2LC0330-6XE00-0AA0
274	233	2LC0330-7XE00-0AA0
307	260	2LC0330-8XE00-0AA0
333	283	2LC0331-0XE00-0AA0
364	312	2LC0331-1XE00-0AA0
424	371	2LC0331-2XE00-0AA0

5