GEAR-COUPLINGS

SERIES LX • GLX • S-NX

MALMEDIE.COM

MALMEDIE

CONTENTS

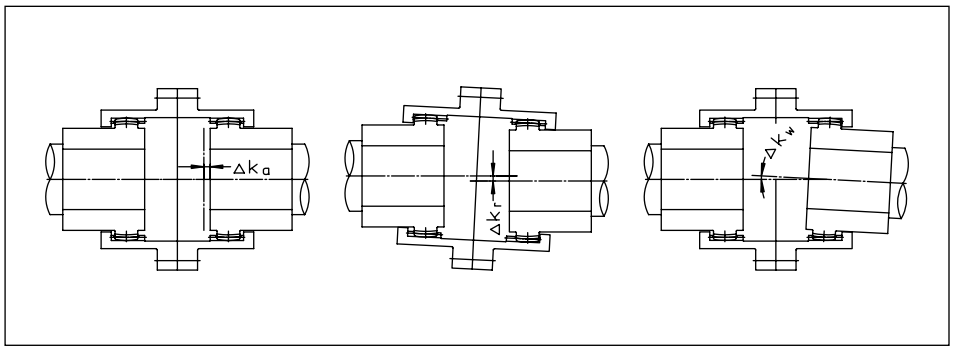
Application

MALMEDIE Gear-Couplings are designed with crowned teeth, and are used where torques must be transmitted through shafts that are movable on all sides.

The operational experience with Gear-Couplings that we have accumulated over more than 50 years in all sectors of drive technology attests the high performance and quality of our products.

The MALMEDIE Gear-Couplings can compensate for angular, radial and axial misalignments. For standard Gear-Couplings the misalignment can be up to ± 0.75° per toothing plane, while special designs can be supplied up to ± 5°.

The MALMEDIE Gear-Couplings range offers a large number of variants, so that an optimal solution can be found even for difficult drives.



Quality and production

All MALMEDIE Gear-Coupling parts are produced to stringent internal quality standards. With the aid of modern CNC manufacturing technology the ability to replace individual parts is guaranteed. All load-bearing coupling parts are produced from high-quality heat-treated steel. In special cases it is possible to increase the performance of the MALMEDIE Gear-Couplings and/or to reduce wear by a careful selection of materials and appropriate hardening processes.

Design and characteristics

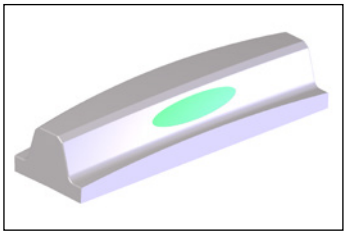
The coupling hubs with crowned outer tooth forms run in housings with straight internal tooth forms. By this means the coupling hubs can move spatially in the housings and compensate for angular, radial and axial misalignments between the shafts that are to be connected together. For standard MALMEDIE Gear-Couplings the misalignment can be up to ± 0.75° per toothing plane, while special designs can be supplied up to ± 5°.

The new LX and GLX series offer:

- *higher load capacity*
- *higher permissible torque*
- *large permissible finished bore*
- *longer service life*
- *interchangeable with preceding series*
- *suitable for use in potentially explosive areas according to directive 94/9/EG* (Ex)

Features of the MALMEDIE Gear-Coupling:

- *compensation for angular, radial and axial misalignments*
- *suitable for operation in reverse*
- *quiet running thanks to gear head centring*
- *special designs can also be suitable for vertical installation*
- *large permissible finished bore*
- *easy replacement of seals with splitted cover*
- *high level of operational reliability as a result of the use of high quality materials*
- *long service life with low levels of maintenance*
- *high ambient temperatures are possible*



The size of coupling required depends on the following factors:

1. Max. drive torque
T_{nom}

2. Max. plant shock torque
T_{max}

3. Operating rotational speed
$n_{Operation}$

4. Dimensions of the input and output shafts

1. Max. drive torque T_{nom} [Nm]

N = plant power output [kW]
n = coupling rotational speed [rpm]
K_1 = operating factor, taken from the „Type of drive“ table
K_2 = operating factor, taken from the „Type of loading“ table
T_{KN} = coupling torque, taken from dimension sheet [Nm]

Type of drive	K_1 operating factor	
	Daily operation duration, up to 12 hours	Daily operation duration, above 12 hours
Electric motor, turbine	1,00	1,05
Hydraulic motor	1,05	1,10
Combustion engine	1,10	1,20

$$T_{nom} = \frac{N \cdot 9550}{n} \cdot K_1 \cdot K_2 \leq T_{KN}$$

Type of loading	Operation	K_2 operating factor	Working machine
SMOOTH	Continuous operation without overload	1,0 – 1,25	Light ventilation fans Radial pumps Electrical generators Centrifugal pumps Stirrers (low viscosity liquids)
LIGHT DUTY	Continuous operation with light overloads and brief, infrequent shock loads	1,25 – 1,5	Large ventilation fans Piston pumps Stirrers (high viscosity liquids) Textile machinery Machine tools Belt conveyors Elevator
MEDIUM DUTY	Operation with frequent light shock loads and brief, medium level overloads	1,5 – 1,8	Piston compressors Conveyor machinery Calenders Briquetting presses Non-reversing rolling mills Smoothing machinery Winches
HEAVY DUTY	Operation with heavy and frequent shock loads. Frequent load reversals: High level of safety.	1,8 – 2,2	Cranes, elevators (heavy load operations) Mixers Rolling lines Reversing rolling mills Kneading machinery Punching machinery Shears
VERY HEAVY DUTY	Operation with very heavy and frequent shock loads. Frequent and sudden load reversals. Very high level of safety.	> 2,2	Reversing rolling mills Heavy load operations in the steel industry Shearing and cutting units Forging presses Billet shears Hammers Stone breakers / milling machinery

The K_2 operating factors specified are average values.

2. Max. plant shock torque T_{max} [Nm]

$$T_{max} \leq T_{K\,max}$$

T_{max} = plant shock torque or starting torque [Nm]
T_{Kmax} = max. coupling torque, taken from dimension sheet [Nm]

The max. plant shock torque T_{max} must be less than the max. coupling torque T_{kmax}, otherwise a larger coupling must be selected.

3. Operating rotational speed $n_{Operation}$ [rpm]

$$n_{perm} = n_{max} \cdot f_1 \geq n_{operation}$$

With angular misalignments ΔKw > 0.5° a rotational speed factor f1 must be taken into account.

n_{perm} = permissible coupling rotational speed [rpm]
$n_{Operation}$ = coupling rotational speed [rpm]
f_1 = rotational speed factor, taken from table
n_{max} = max. coupling rotational speed, taken from dimension sheet [rpm]
ΔKw = angular misalignment

Angular misalignment	Rotational speed factor
ΔKw	f_1
0,50°	1,00
0,55°	0,91
0,60°	0,82
0,65°	0,73
0,70°	0,64
0,75°	0,55

The critical rotational speed in MALMEDIE Gear-Couplings with an intermediate tube or an intermediate shaft must be checked depending upon the application. For circumferential speeds of 34 m/s and upwards, measured at the diameter d_4 (see dimensional sheet), dynamic balancing in two planes is recommended.

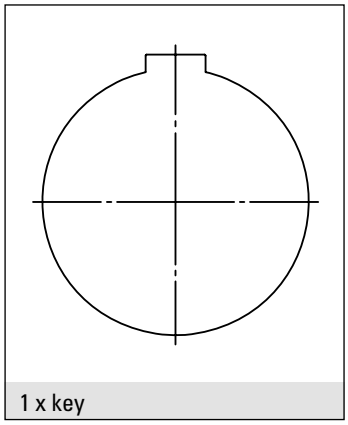
4. Dimensions of the input and output shafts

Furthermore a check must be made as to whether the input or output shaft diameters are smaller than the max. permissible bore diameter of the Gear-Coupling according to the dimension sheet. The maximum bore diameters specified in the dimension sheets apply for keyways according to DIN6885-1, without tightening. In addition all connections are to be checked for the torque transferred across the hub/shaft connection.

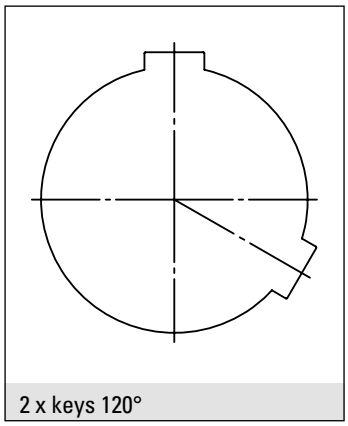
Key connections
see page 6

Shrink-fit connections
see page 7

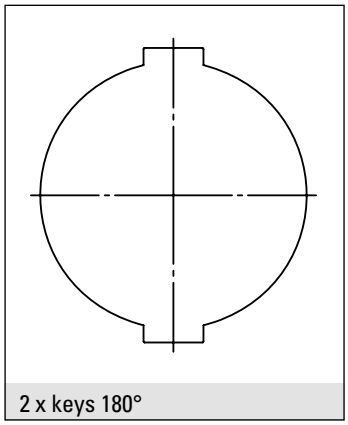
Key connections



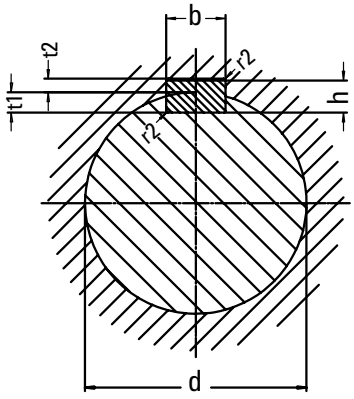
1 x key



2 x keys 120°



2 x keys 180°



The given values for the bores are valid according to DIN6885-1. As a matter of principle, every key connection must be checked with regard to surface pressure. keyways according to BS 46, ANSI B17.1 or other standards are also possible. For other types of connections, such as e.g. spline connections in accordance with DIN5480, multiple splined shaft connections, or shrink disc connections, please get in contact with our Technical Department.

DIN6885-1

All dimensions in mm

Bore d1	from	38	44	50	58	65	75	85	95	110
	to	44	50	58	65	75	85	95	110	130
Key	Width w	12	14	16	18	20	22	25	28	32
	Height h	8	9	10	11	12	14	14	16	18
Shaft keyway	*Width w	12	14	16	18	20	22	25	28	32
	Depth t1	5	5,5	6	7	7,5	9	9	10	11
	Tolerance	+ 0,2								
	r2 min.	0,4						0,6		
	r2 max.	0,6						0,8		
Hub keyway	**Width w	12	14	16	18	20	22	25	28	32
	Depth t2	3,3	3,8	4,3	4,4	4,9	5,4	5,4	6,4	7,4
	Tolerance	+ 0,2								
	r2 min.	0,4						0,6		
	r2 max.	0,6						0,8		

Bore d1	from	130	150	170	200	230	260	290	330	380	440
	to	150	170	200	230	260	290	330	380	440	500
Key	Width w	36	40	45	50	56	63	70	80	90	100
	Height h	20	22	25	28	32	32	36	40	45	50
Shaft keyway	*Width w	36	40	45	50	56	63	70	80	90	100
	Depth t1	12	13	15	17	20	20	22	25	28	31
	Tolerance	+ 0,3									
	r2 min.	1				1,6			2,5		
	r2 max.	1,2				2			3		
Hub keyway	**Width w	36	40	45	50	56	63	70	80	90	100
	Depth t2	8,4	9,4	10,4	11,4	12,4	12,4	14,4	15,4	17,4	19,5
	Tolerance	+ 0,3									
	r2 min.	1				1,6			2,5		
	r2 max.	1,2				2			3		

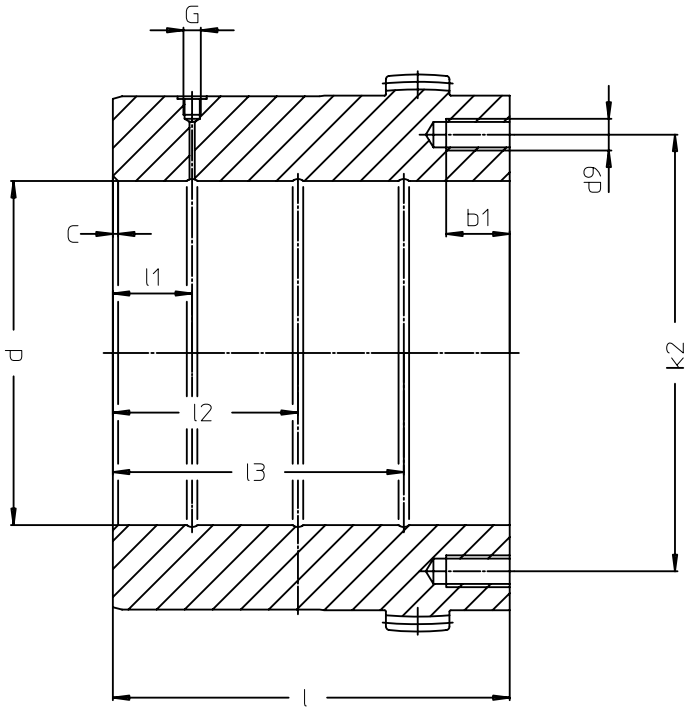
* **Tolerance width b of the shaft keyway**

tight fit	P9
loose fit	N9

** **Tolerance width b of the hub keyway**

tight fit	P9
loose fit	JS9

Shrink-fit connections



The Gear-Coupling hub must be brought up to the required shrinking temperature T before assembly.

T = required shrinking temperature [°C]

O = max. oversize [µm]

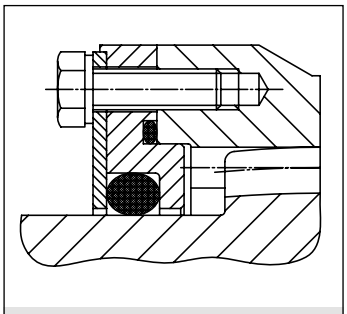
d = bore diameter [mm]

$$T = \frac{100 \cdot O}{1{,}2 \cdot d} + 120$$

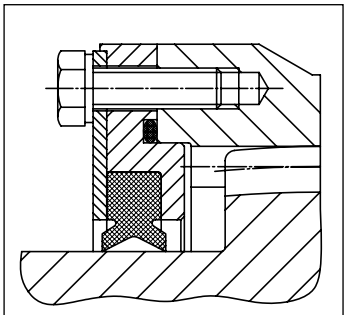
Size	Bore		Dimensions								
	d_1 min. [mm]	d_1 max. [mm]	l [mm]	l1 [mm]	l2 [mm]	l3 [mm]	k2 [mm]	d9	Anz.	b1 [mm]	G
0,14	32	65	80	30	-	-	80	M8	10	16	G1/8
0,22	40	75	90	35	-	-	95	M8	12	16	G1/8
0,35	45	88	100	25	60	-	110	M10	8	20	G1/8
0,56	50	100	120	30	72	-	130	M10	12	20	G1/8
0,88	60	118	140	35	84	-	150	M12	10	24	G1/4
1,4	70	136	160	40	96	-	170	M12	12	24	G1/4
2,2	80	156	175	45	105	-	200	M16	10	32	G1/4
3,5	90	178	200	50	120	-	230	M16	12	32	G1/4
5,6	100	212	225	55	135	-	265	M20	10	40	G1/4
7	110	228	250	60	150	-	285	M20	12	40	G1/4
8,8	120	238	280	70	170	-	300	M24	8	48	G1/4
11	130	260	300	60	140	220	330	M24	8	48	G1/4
14	140	280	320	60	145	230	360	M24	10	48	G1/4
17,5	150	302	340	70	160	250	390	M30	8	60	G1/4
22	170	328	360	70	165	260	420	M30	8	60	G1/4
28	180	345	380	75	175	275	450	M30	10	60	G1/4
35		374	400	80	185	285	490	M30	10	60	G3/4
44		400	420	85	195	305	520	M36	8	72	G3/4
56		430	440	90	205	320	560	M36	10	72	G3/4
70		475	470	95	215	335	600	M36	12	72	G3/4
88		505	500	100	225	350	650	M36	12	72	G3/4

Dimension sheet 710-50 / LX Standard

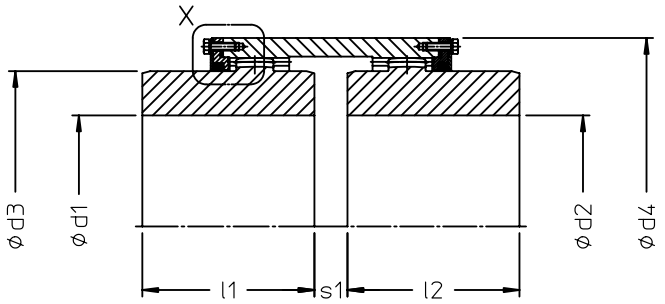
Detail "X"



Standard design



With profile seal



Size	Torque (1) [Nm]		Speed (2) [rpm]	Bore (3) [mm]		Dimensions [mm]				Weight (4) [kg]	Mass moment of inertia (4)	Lubricant quantity
	T_{KN}	$T_{K\,max}$	n max	d1,2 min	d1,2 max	d3	d4	l1, l2	s1	G	I [kgm²]	[dm³]
0,056	2060	4120	7500	25	48	68	105	60	6	4,4	0,0069	0,04
0,088	3120	6240	6530	30	58	81	117	70	6	5,7	0,0111	0,04
0,14	5050	10100	5570	32	69	97	133	80	8	8,3	0,0212	0,06
0,22	7550	15100	4890	40	80	112	148	90	8	11,5	0,0368	0,09
0,35	11850	23700	4210	45	95	133	171	100	8	16,6	0,0719	0,10
0,56	17800	35600	3680	50	109	152	193	120	10	24,7	0,135	0,16
0,88	24000	48000	3190	60	127	178	218	140	10	36,2	0,256	0,19
1,4	36000	72000	2770	70	146	205	253	160	10	56	0,530	0,37
2,2	54000	108000	2430	80	168	235	283	175	12	76	0,920	0,46
3,5	81000	162000	2100	90	192	269	332	200	12	121	1,99	0,88
5,6	123000	246000	1800	100	227	318	383	225	12	181	4,02	1,2
7	160000	320000	1680	110	244	342	407	250	12	221	5,68	1,5
8,8	192000	384000	1590	120	255	358	436	280	16	290	8,25	2,1
11	235000	470000	1470	130	278	389	466	300	16	352	11,6	2,4
14	290000	580000	1370	140	299	419	496	320	16	429	16,1	2,7
17,5	380000	760000	1260	150	325	455	539	340	16	539	23,9	3,7
22	480000	960000	1170	170	351	492	575	360	16	744	33,3	4,3
28	610000	1220000	1080	180	371	520	629	380	20	820	48,7	6,5
35	760000	1520000	1010		400	561	675	400	20	985	65,7	7,4
44	920000	1840000	945		429	601	715	420	20	1171	97,4	9,3
56	1150000	2300000	880		464	650	775	440	20	1457	150	12
70	1450000	2900000	805		510	714	839	470	30	1817	210	14
88	1800000	3600000	755		545	763	887	500	30	2164	275	15,5

Larger couplings, higher rotational speeds and intermediate sizes on request.

Torsion spring stiffness *see page 14*

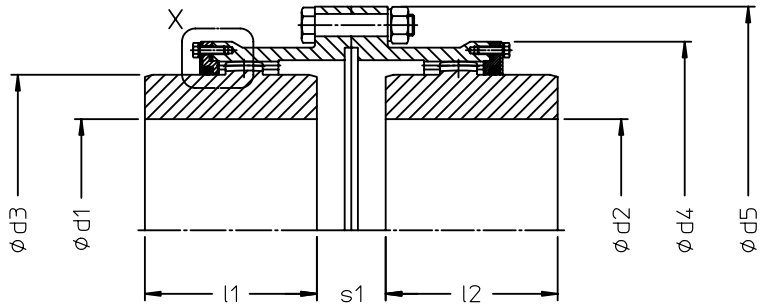
Maximum permissible misalignments *see page 15*

(1) The torques stated do not refer to the connection of shaft and hub. If necessary these must be checked.

(2) Balancing to order.

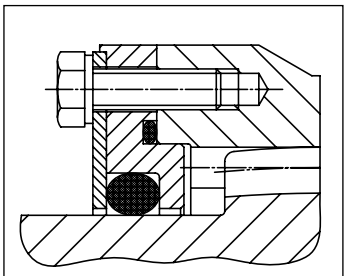
(3) The values specified for the bores are valid according to DIN6885-1 (see page 6).

(4) With reference to the max. finished bore

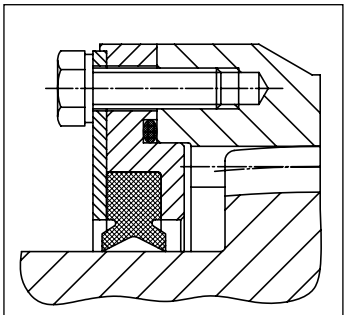


Size	Torque (1) [Nm]		Speed (2) [rpm]	Bore (3) [mm]		Dimensions [mm]					Weight (4) [kg]	Mass moment of inertia (4)	Lubricant quantity
	T_{KN}	$T_{K\,max}$	n max	d1,2 min	d1,2 max	d3	d4	d5	l1, l2	s1	G	I [kgm²]	[dm³]
0,056	2060	4120	7500	25	48	68	105	132	60	46	5,9	0,012	0,15
0,088	3120	6240	6530	30	58	81	117	144	70	52	7,5	0,018	0,19
0,14	5050	10100	5570	32	69	97	133	160	80	50	10,2	0,031	0,23
0,22	7550	15100	4890	40	80	112	148	177	90	48	13,6	0,050	0,28
0,35	11850	23700	4210	45	95	133	171	208	100	51	20,5	0,105	0,33
0,56	17800	35600	3680	50	109	152	193	230	120	60	28,9	0,181	0,52
0,88	24000	48000	3190	60	127	178	218	262	140	68	43,3	0,354	0,66
1,4	36000	72000	2770	70	146	205	253	306	160	88	69,1	0,770	1,1
2,2	54000	108000	2430	80	168	235	283	338	175	92	91,8	1,27	1,4
3,5	81000	162000	2100	90	192	269	332	383	200	110	139	2,53	2,5
5,6	123000	246000	1800	100	227	318	383	448	225	116	208	5,12	3,2
7	160000	320000	1680	110	244	342	407	474	250	120	256	7,07	3,8
8,8	192000	384000	1590	120	255	358	436	500	280	124	326	9,80	5,1
11	235000	470000	1470	130	278	389	466	545	300	138	400	14,4	6,0
14	290000	580000	1370	140	299	419	496	576	320	153	480	19,5	7,0
17,5	380000	760000	1260	150	325	455	539	621	340	147	596	28,4	9,1
22	480000	960000	1170	170	351	492	575	683	360	148	755	42,9	10
28	610000	1220000	1080	180	371	520	629	732	380	167	926	60,4	16,5
35	760000	1520000	1010		400	561	675	777	400	60	1107	84,3	16
44	920000	1840000	45		429	601	715	817	420	60	1300	113	19
56	1150000	2300000	880		464	650	775	894	440	60	1642	179	22,5
70	1450000	2900000	805		510	714	839	962	470	70	2027	250	25
88	1800000	3600000	755		545	763	887	1013	500	70	2395	316	27
110	2200000	4400000	705		580	813	965	1104	540	70	3043	468	35,5
140	2800000	5600000	650		631	884	1036	1177	570	80	3690	778	40
175	3500000	7000000	605		681	954	1106	1252	600	90	4410	911	44,5
220	4400000	8800000	560		739	1035	1185	1337	650	90	5438	1280	49
280	5500000	11000000	515		803	1125	1288	1433	700	95	6784	1840	56
350	7000000	14000000	460		896	1255	1448	1590	750	105	9040	3040	80
440	8800000	17600000	440		942	1320	1531	1670	800	105	10600	3930	95
560	11000000	22000000	400		1035	1450	1666	1815	850	120	13400	5920	110

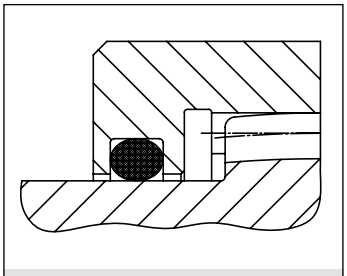
Detail "X"



Standard design



With profile seal



One-piece cover / housing

Larger couplings, higher rotational speeds and intermediate sizes on request.

Torsion spring stiffness *see page 14*

Maximum permissible misalignments *see page 15*

(1) The torques stated do not refer to the connection of shaft and hub. If necessary these must be checked.

(2) Balancing to order.

(3) The values specified for the bores are valid according to DIN6885-1 (see page 6).

(4) With reference to the max. finished bore

Dimension sheet 710-52 / GLXz Standard

Detail “X” see page 9

Larger couplings, higher rotational speeds and intermediate sizes on request.

Torsion spring stiffness see page 14

Maximum permissible misalignments see page 15

(1) The torques stated do not refer to the connection of shaft and hub. If necessary these must be checked.

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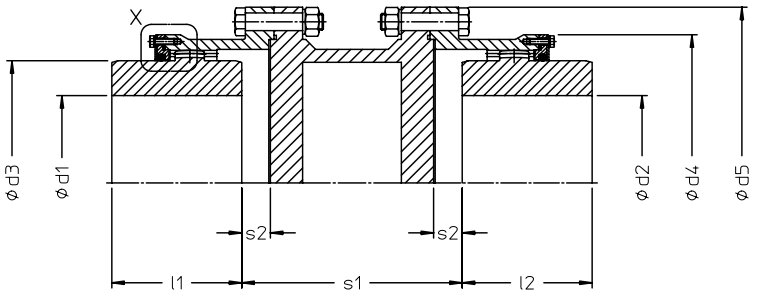
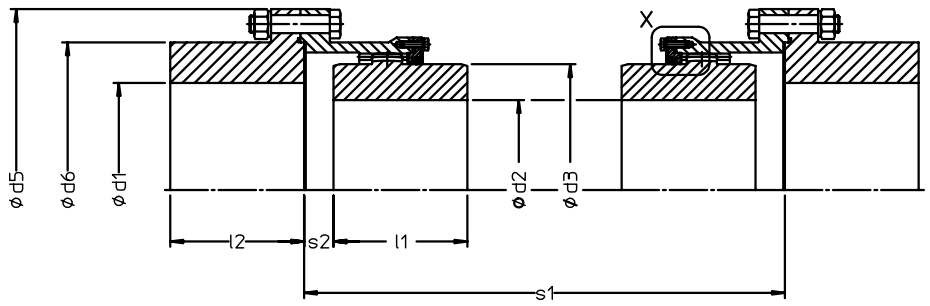
(4) With reference to the max. finished bore



Size	Torque (1) [Nm]		Speed (2) [rpm]	Bore (3) [mm]		Dimensions [mm]						Weight (4) [kg]			Mass moment of inertia (4) [kgm²]			Lubricant quantity / coupling half
	T_{KN}	$T_{K\,max}$	n max	d1,2 min	d1,2 max	d3	d4	d5	l1, l2	s1 min	s2	G	ZwH (5)	Tube 100 mm	I	ZwH (5)	Tube 100 mm	[dm³]
0,056	2060	4120	Function of critical rotational speed and/or length of the intermediate sleeve / on request	25	48	68	105	132	60	140	20	5,9	4,5	1,3	0,012	0,009	0,002	0,08
0,088	3120	6240		30	58	81	117	144	70	146	23	7,5	5,4	1,5	0,018	0,013	0,003	0,10
0,14	5050	10100		32	69	97	133	160	80	144	22	10,2	6,9	2,1	0,031	0,021	0,006	0,12
0,22	7550	15100		40	80	112	148	177	90	142	21	13,6	8,5	2,7	0,050	0,033	0,010	0,14
0,35	11850	23700		45	95	133	171	208	100	163	22	20,5	13,7	3,5	0,105	0,070	0,018	0,17
0,56	17800	35600		50	109	152	193	230	120	172	27	28,9	16,9	4,5	0,181	0,108	0,032	0,26
0,88	24000	48000		60	127	178	218	262	140	199	31	43,3	25,4	5,6	0,354	0,212	0,046	0,33
1,4	36000	72000		70	146	205	253	306	160	248	40	69,1	41,7	7,2	0,77	0,48	0,076	0,55
2,2	54000	108000		80	168	235	283	338	175	252	42	91,8	51,9	8,9	1,27	0,75	0,14	0,70
3,5	81000	162000		90	192	269	332	383	200	270	51	139	67,5	12,1	2,53	1,23	0,24	1,25
5,6	123000	246000		100	227	318	383	448	225	307	54	208	108	16,6	5,12	2,76	0,47	1,6
7	160000	320000		110	244	342	407	474	250	311	56	256	125	21,3	7,07	3,61	0,63	1,9
8,8	192000	384000		120	255	358	436	500	280	315	58	326	136	21,0	9,80	4,30	0,78	2,6
11	235000	470000		130	278	389	466	545	300	358	64	400	183	24,5	14,4	6,5	0,95	3,0
14	290000	580000		140	299	419	496	576	320	373	71	480	209	29,6	19,5	8,7	1,4	3,5
17,5	380000	760000		150	325	455	539	621	340	367	68	596	241	33,1	28,4	11,8	1,9	4,6
22	480000	960000		170	351	492	575	683	360	429	69	755	370	38,6	42,9	21,6	2,3	5,0
28	610000	1220000		180	371	520	629	732	380	448	78	926	429	46,4	60,4	28,0	3,2	8,3
35	760000	1520000			400	561	675	777	400		24	1107			84,3			8,0
44	920000	1840000			429	601	715	817	420		24	1300			113			9,5
56	1150000	2300000			464	650	775	894	440		24	1642			179			11,5
70	1450000	2900000			510	714	839	962	470		29	2027			250			12,5
88	1800000	3600000			545	763	887	1013	500		29	2395			316			13,5
110	2200000	4400000			580	813	965	1104	540	on request	27	3043	on request	on request	468	on request	on request	18
140	2800000	5600000			631	884	1036	1177	570		32	3690			778			20
175	3500000	7000000			681	954	1106	1252	600		37	4410			911			22
220	4400000	8800000			739	1035	1185	1337	650		37	5438			1280			25
280	5500000	11000000			803	1125	1288	1433	700		39	6784			1840			28
350	7000000	14000000			896	1255	1448	1590	750		42	9040			3040			40
440	8800000	17600000			942	1320	1531	1670	800		42	10600			3930			48
560	11000000	22000000			1035	1450	1666	1815	850		50	13400			5920			55

Dimension sheet 710-53 / GLXw Standard



Coupling 1 Intermediate shaft Coupling 2

Detail "X" see page 9

Larger couplings, higher rotational speeds and intermediate sizes on request.

Torsion spring stiffness see page 14

Maximum permissible misalignments see page 15

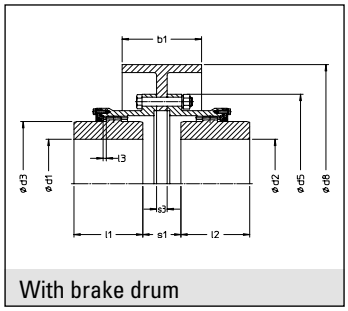
(1) The torques stated do not refer to the connection of shaft and hub. If necessary these must be checked.

(2) Balancing to order.

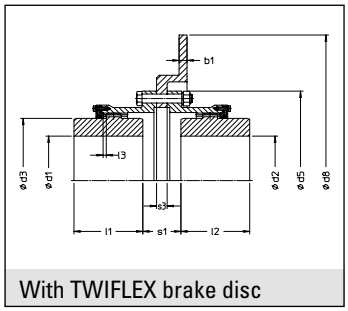
(3) The values specified for the bores are valid according to DIN6885-1 (see page 6).

(4) With reference to the max. finished bore

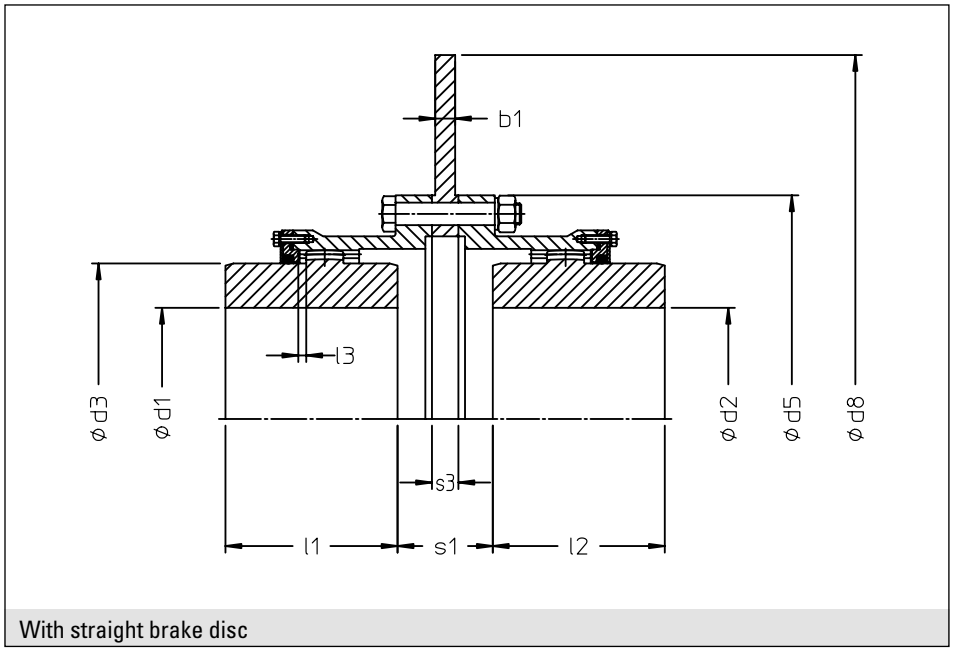
Size	Torque (1) [Nm]		Speed (2) [rpm]	Bore (3) [mm]			Dimensions [mm]						Weight (4) [kg]	Mass moment of inertia (4) [kgm²]	Lubricant quantity / coupling half
	T_{KN}	$T_{K\,max}$	n max	d1,2 min	d1 max	d2 max	d3	d5	d6	l1, l2	s1 min	s2	G	I	[dm³]
0,056	2060	4120	Function of critical rotational speed and/or length of the intermediate shaft / on request	25	67	48	68	132	95	60	190	20	5,5	0,012	0,08
0,088	3120	6240		30	76	58	81	144	107	70	206	23	7,1	0,018	0,10
0,14	5050	10100		32	87	69	97	160	123	80	224	22	10,0	0,031	0,12
0,22	7550	15100		40	100	80	112	177	140	90	242	21	13,3	0,052	0,14
0,35	11850	23700		45	115	95	133	208	162	100	265	22	20,3	0,110	0,17
0,56	17800	35600		50	131	109	152	230	184	120	294	27	29,0	0,193	0,26
0,88	24000	48000		60	150	127	178	262	211	140	322	31	44	0,38	0,33
1,4	36000	72000		70	174	146	205	306	244	160	380	40	69	0,82	0,55
2,2	54000	108000		80	197	168	235	338	276	175	404	42	93	1,37	0,70
3,5	81000	162000		90	228	192	269	383	320	200	492	51	140	2,70	1,25
5,6	123000	246000		100	262	227	318	448	368	225	558	54	210	5,48	1,6
7	160000	320000		110	281	244	342	474	394	250	602	56	260	7,64	1,9
8,8	192000	384000		120	300	255	358	500	420	280	646	58	324	10,66	2,6
11	235000	470000		130	321	278	389	545	450	300	678	64	406	15,62	3,0
14	290000	580000		140	343	299	419	576	481	320	713	71	488	21,2	3,5
17,5	380000	760000		150	375	325	455	621	526	340	747	68	609	31,2	4,6
22	480000	960000		170	403	351	492	683	565	360	798	69	770	46,8	5,0
28	610000	1220000		180	438	371	520	732	614	380	857	78	945	66,5	8,3
35	760000	1520000			470	400	561	777	660	400		24			8,0
44	920000	1840000			499	429	601	817	700	420		24			9,5
56	1150000	2300000			535	464	650	894	751	440		24			11,5
70	1450000	2900000			584	510	714	962	819	470		29			12,5
88	1800000	3600000			620	545	763	1013	870	500		29			13,5
110	2200000	4400000			670	580	813	1104	939	540	on request	27	on request	on request	18
140	2800000	5600000			722	631	884	1177	1012	570		32			20
175	3500000	7000000			775	681	954	1252	1087	600		37			22
220	4400000	8800000			836	739	1035	1337	1172	650		37			25
280	5500000	11000000			905	803	1125	1433	1268	700		39			28
350	7000000	14000000			1012	896	1255	1590	1418	750		42			40
440	8800000	17600000			1068	942	1320	1670	1496	800		42			48
560	11000000	22000000			1168	1035	1450	1815	1635	850		50			55



With brake drum



With TWIFLEX brake disc



With straight brake disc

Larger couplings, higher rotational speeds and intermediate sizes on request.

(1) The torques stated do not refer to the connection of shaft and hub. If necessary these must be checked.

(2) Balancing to order.

(3) The values specified for the bores are valid according to DIN6885-1 (see page 6).

(4) With reference to the max. finished bore without brake disc/brake drum

Max. permissible misalignment 0.25° per toothing plane.

Brake discs/brake drums can also be supplied in conjunction with all other coupling designs.

Size	Torque (1) [Nm]		Speed (2) [rpm]	Bore (3) [mm]		Dimensions [mm]					Weight (4)	Mass moment of inertia (4)	Lubricant quantity
	T_{KN}	$T_{K\,max}$	n max	d1,2 min	d1,2 max	d3	l4	d5	l1, l2	s1	G [kg]	I [kgm²]	[dm³]
0,056	2060	4120	7500	25	48	68	2	132	60	46 +s3	5,9	0,0120	0,15
0,088	3120	6240	6530	30	58	81	2	144	70	52 +s3	7,5	0,0181	0,19
0,14	5050	10100	5570	32	69	97	2	160	80	50 +s3	10,2	0,0305	0,23
0,22	7550	15100	4890	40	80	112	2	177	90	48 +s3	13,6	0,050	0,28
0,35	11850	23700	4210	45	95	133	2	208	100	51 +s3	20,5	0,105	0,33
0,56	17800	35600	3680	50	109	152	2	230	120	60 +s3	28,9	0,181	0,52
0,88	24000	48000	3190	60	127	178	3	262	140	68 +s3	43,3	0,354	0,66
1,4	36000	72000	2770	70	146	205	3	306	160	88 +s3	69,1	0,770	1,1
2,2	54000	108000	2430	80	168	235	3	338	175	92 +s3	91,8	1,27	1,4
3,5	81000	162000	2100	90	192	269	3	383	200	110 +s3	139	2,53	2,5
5,6	123000	246000	1800	100	227	318	4	448	225	116 +s3	208	5,12	3,2
7	160000	320000	1680	110	244	342	4	474	250	120 +s3	256	7,07	3,8
8,8	192000	384000	1590	120	255	358	4	500	280	124 +s3	326	9,80	5,1

Recommended assignment of straight brake disc.

	d8 [mm]	355	400	450	500	560	630	710	800	900	1000
	b1 [mm]					30					
	s3 [mm]					30					
	Weight [kg]	21,2	26,8	33,8	41,4	49,8	62,4	74,3	93,3	121	152
	Mass moment of inertia [kgm²]	0,36	0,59	0,94	1,43	2,23	3,56	5,63	9,04	14,6	22,4
Size	0,056	X									
	0,088	X	X								
	0,14		X	X							
	0,22		X	X	X						
	0,35			X	X	X					
	0,56			X	X	X					
	0,88				X	X	X				
	1,4					X	X	X			
	2,2						X	X	X		
	3,5						X	X	X	X	X
	5,6 - 8,8							X	X	X	X

Recommended assignment of TWIFLEX brake disc.

	d8 [mm]	300	350	400	460	515	610	710	810	915
	b1 [mm]					12,7				
	s3 [mm]	13	16	13	16	16	16	19	25	25
	Weight [kg]	21,2	26,8	33,8	41,4	49,8	62,4	74,3	93,3	1212
	Mass moment of inertia [kgm²]	0,10	0,20	0,29	0,48	0,76	1,47	2,7	5,9	10,5
Size	0,056	X								
	0,088	X	X							
	0,14		X	X						
	0,22		X	X	X					
	0,35			X	X	X				
	0,56			X	X	X				
	0,88				X	X	X			
	1,4					X	X	X		
	2,2						X	X	X	
	3,5						X	X	X	X
	5,6 - 8,8							X	X	X

Recommended assignment of brake drum.

	d8 [mm]	200	250	315	400	500	630	710
	b1 [mm]	75	95	118	150	190	236	265
	s3 [mm]	8	10	12	14	18	22	25
	Weight [kg]	3,8	7,3	13,6	25,3	49,4	101	152
	Mass moment of inertia [kgm²]	0,032	0,097	0,291	0,889	2,75	8,7	16,2
Size	0,056	X	X					
	0,088	X	X	X				
	0,14	X	X	X				
	0,22		X	X	X			
	0,35		X	X	X			
	0,56			X	X	X		
	0,88			X	X	X		
	1,4				X	X	X	
	2,2				X	X	X	X
	3,5 + 5,6					X	X	X
	7 + 8,8						X	X

Torsion spring stiffness

The torsion spring stiffness "c" is specified for max. bore diameters d1max, d2 max.

Torsion spring stiffness for larger couplings and special designs on request.

(1) For coupling and intermediate tube with the minimum separation distance s1 min.

For longer couplings the torsion spring stiffness "cv" is specified for each 100 mm tube length.

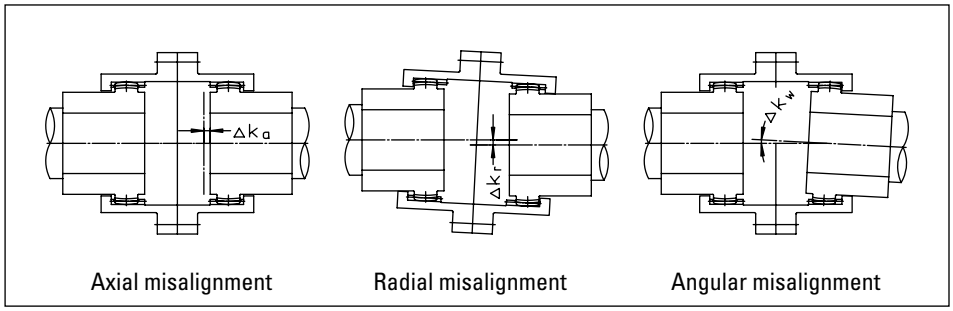
(2) For 1x coupling without intermediate shaft

Size	Design				
	LX	GLX	GLXz (1)		GLXw (2)
	c	c	Coupling c	100 mm tube cv	c
	[Nm/rad]				
0,056	2,17 x 10^6	1,65 x 10^6	1,12 x 10^6	2,24 x 10^6	2,77 x 10^6
0,088	3,58 x 110^6	2,52 x 10^6	1,71 x 10^6	3,44 x 10^6	4,17 x 10^6
0,14	5,94 x 10^6	4,13 x 10^6	2,86 x 10^6	6,07 x 10^6	6,66 x 10^6
0,22	8,66 x 10^6	6,37 x 10^6	4,57 x 10^6	10,65 x 10^6	10,08 x 10^6
0,35	14,67 x 10^6	11,05 x 10^6	7,31 x 10^6	18,23 x 10^6	17,24 x 10^6
0,56	21,69 x 10^6	15,30 x 10^6	11,10 x 10^6	32,21 x 10^6	24,11 x 10^6
0,88	34,29 x 10^6	24,77 x 10^6	16,66 x 10^6	46,95 x 10^6	38,87 x 10^6
1,4	54,60 x 10^6	37,52 x 10^6	24,31 x 10^6	77,12 x 10^6	59,68 x 10^6
2,2	80,67 x 10^6	57,18 x 10^6	39,48 x 10^6	144,6 x 10^6	90,34 x 10^6
3,5	124,4 x 10^6	79,13 x 10^6	57,92 x 10^6	244,9 x 10^6	125,9 x 10^6
5,6	193,6 x 10^6	120,3 x 10^6	89,40 x 10^6	476,7 x 10^6	190,8 x 10^6
7	225,2 x 10^6	144,8 x 10^6	110,2 x 10^6	637,2 x 10^6	228,2 x 10^6
8,8	265,1 x 10^6	173,6 x 10^6	133,4 x 10^6	793,7 x 10^6	271,9 x 10^6
11	331,9 x 10^6	213,1 x 10^6	158,2 x 10^6	964,6 x 10^6	337,5 x 10^6
14	415,6 x 10^6	255,2 x 10^6	197,7 x 10^6	1397 x 10^6	407,3 x 10^6
17,5	526,8 x 10^6	344,6 x 10^6	269,0 x 10^6	1952 x 10^6	547,0 x 10^6
22	632,8 x 10^6	461,2 x 10^6	332,0 x 10^6	2361 x 10^6	724,4 x 10^6
28	839,1 x 10^6	577,3 x 10^6	426,0 x 10^6	3247 x 10^6	912,2 x 10^6

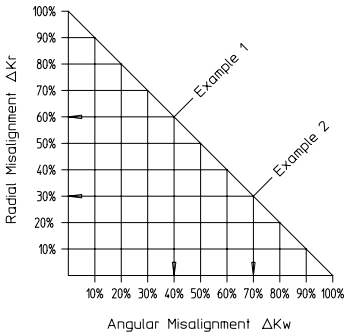
Example:
Design GLXz 3,5 with s1 = s1min + 700 mm

$$c_{tot} = \frac{1}{\frac{1}{c_{GLXz}} + \left[\frac{700}{100 \times c_v}\right]} = \frac{1}{\frac{1}{57{,}92 \times 10^6} + \left[\frac{700}{244{,}9 \times 10^6}\right]} = 21{,}81 \times 10^6 \text{ Nm / rad}$$

Max. permissible misalignments for LX / GLX



Axial misalignment | Radial misalignment | Angular misalignment



For standard Gear-Couplings the misalignment can be up to ± 0.75° per toothing plane. The misalignment values specified are maximum values that cannot be allowed to occur at the same time.

Where there is simultaneous radial misalignment ΔKr and angular misalignment ΔKw these values must be reduced in accordance with the diagram.

Example 1:
ΔKr = 60% *ΔKw = 40%*

Example 2:
ΔKr = 30% *ΔKw = 70%*

Size	Design													
	LX			GLX			GLXz				GLXw			
							for s1 min			per 100 mm tube	for s1 min			per 100 mm shaft
	ΔKa [mm]	ΔKr [mm]	ΔKw [°]	ΔKa [mm]	ΔKr [mm]	ΔKw [°]	ΔKa [mm]	ΔKr [mm]	ΔKw [°]	ΔKr [mm]	ΔKa [mm]	ΔKr [mm]	ΔKw [°]	ΔKr [mm]
0,056	±1	0,45	Max. permissible angular misalignment 0.75°	±1	0,98	Max. permissible angular misalignment 0.75°	±1	2,21	Max. permissible angular misalignment 0.75°	A lengthening by 100 mm provides an additional max. radial misalignment of ΔKr = 1.30 mm	±1	1,58	Max. permissible angular misalignment 0,75°	A lengthening by 100 mm provides an additional max. radial misalignment of ΔKr = 1.30 mm
0,088	±1	0,45		±1	1,06		±1	2,29			±1	1,71		
0,14	±2	0,53		±2	1,08		±2	2,31			±2	1,92		
0,22	±2	0,65		±2	1,17		±2	2,40			±2	2,06		
0,35	±2	0,68		±2	1,24		±2	2,70			±2	2,30		
0,56	±2	0,78		±2	1,44		±2	2,90			±2	2,48		
0,88	±2	0,85		±2	1,61		±2	3,32			±2	2,68		
1,4	±2	1,02		±2	2,04		±2	4,13			±2	3,03		
2,2	±3	1,04		±3	2,12		±3	4,21			±3	3,27		
3,5	±3	1,33		±3	2,64		±3	4,73			±3	3,90		
5,6	±3	1,54		±3	2,90		±3	5,40			±3	4,50		
7	±3	1,70		±3	3,11		±3	5,61			±3	4,86		
8,8	±3	1,91		±3	3,32		±3	5,82			±3	5,23		
11	±3	2,02		±3	3,62		±3	6,50			±3	5,38		
14	±3	2,14		±3	3,91		±3	6,79			±3	5,55		
17,5	±3	2,30		±3	4,01		±3	6,89			±3	5,89		
22	±3	2,48		±3	4,21		±3	7,89			±3	6,36		
28	±4	2,61		±4	4,54		±4	8,22			±4	6,80		
35	±4	2,74		±4	4,58		±4	auf Anfrage			±4	auf Anfrage		
44	±4	3,07		±4	4,97		±4				±4			
56	±4	3,45		±4	5,44		±4				±4			
70	±4	3,63		±4	5,49		±4				±4			
88	±4	3,82		±4	5,62		±4				±4			

Max. permissible misalignments for larger couplings on request.

Larger couplings, higher rotational speeds and intermediate sizes on request.

Maximum permissible misalignments see page 19

(1) The torques stated do not refer to the connection of shaft and hub. If necessary these must be checked.

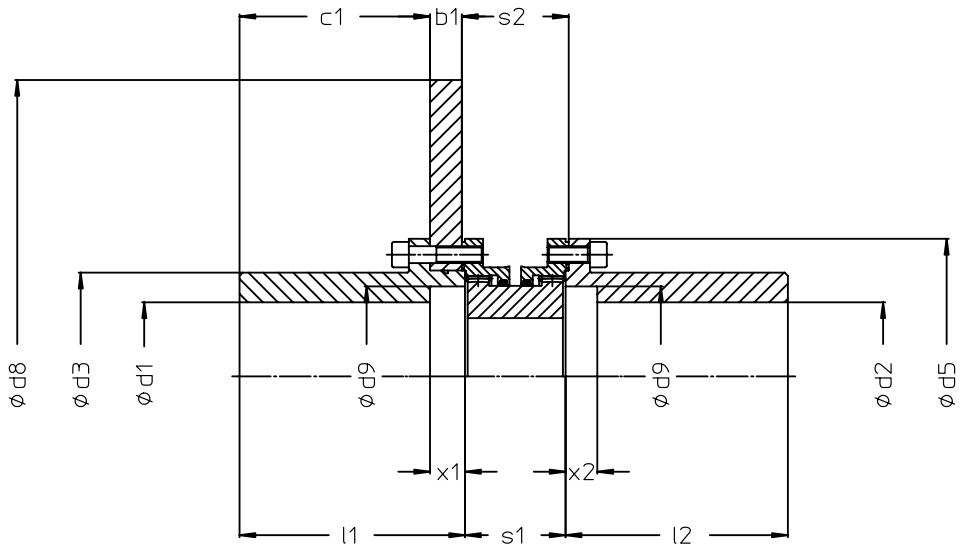
(2) Balancing to order.

(3) The values specified for the bores are valid according to DIN6885-1 (see page 6).

(4) With reference to the max. finished bore

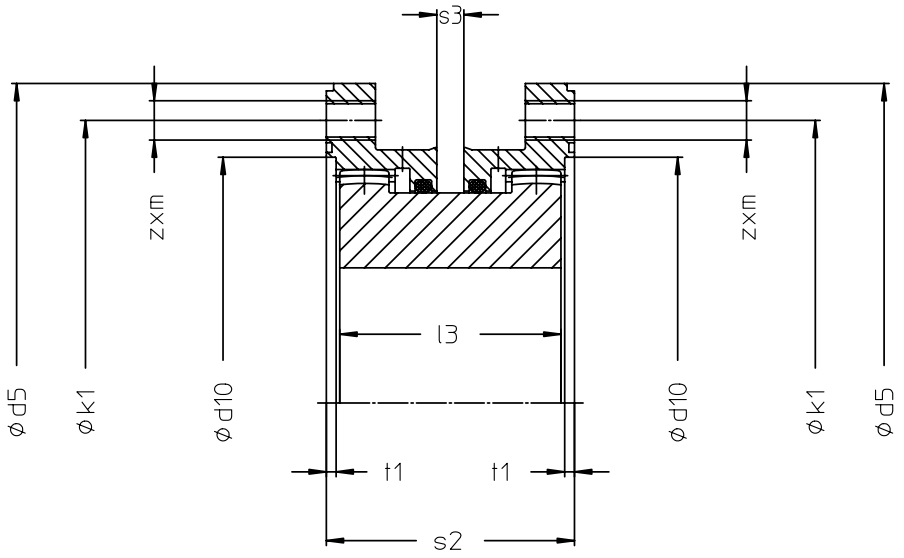
Dimensions x1 and x2 according to customer requirements

(take care to ensure ease of assembly/ disassembly for the central part of the coupling)



Size d5	Brake disc d8 x b1	Torques (1) [Nm]		Speed (2) [rpm]	Bore (3) [mm]	Dimensions								Weight (4)	Mass moment of inertia (4)	Lubricant quantity / coupling half
[mm]	[mm]	T_{KN}	$T_{K\,max}$	n max	d1,2 max	d3 [mm]	d9 [mm]	c1 [mm]	l1 [mm]	l2 [mm]	s1 [mm]	s2 [mm]	Ma [Nm]	G [kg]	I [kgm²]	[dm³]
	355x30			4800										35,4	0,40	
145	400x30	600	1800	4300	65	92	78	135	167	110	67	71 +2,5	85	41,7	0,62	0,021
	450x30			3800										49,6	0,98	
	400x30			4300										48,9	0,66	
170	450x30	950	2850	3800	80	117	98	135	167	140	67	71 +2,5	85	56,7	1,01	0,026
	500x30			3400										65,5	1,51	
	450x30			3800										69,6	1,10	
200	500x30	1650	4950	3400	95	138	115	175	208	171	75	81 +3	135	78,4	1,59	0,03
	560x30			3050										90,1	2,42	
	500x30			3400										87,9	1,73	
230	560x30	2580	7740	3050	120	168	145	175	208	170	80	86 +3,5	135	99,6	2,55	0,04
	630x30			2700										115	3,92	
	560x30			3050										121	2,83	
260	630x30	3980	11940	2700	140	196	170	180	213	210	95	101 +4	210	137	4,20	0,06
	710x30			2400										157	6,43	
	630x30			2700										164	4,68	
300	710x30	5850	17550	2400	154	216	180	180	213	210	112	118 +4	425	183	6,91	0,07
	800x30			2150										209	10,5	
	800x30			2150										269	11,9	
360	900x30	9700	29100	1900	184	258	215	220	253	250	124	130 +4	730	300	17,6	0,10
	1000x30			1700										336	25,5	
400	900x30	13350	40050	1900	210	298	245	220	253	250	124	130 +4	730	342	19,1	0,12
	1000x30			1700										377	27,1	

Dimension sheet 710-56 / S-NX Conversion kit



Larger couplings, higher rotational speeds and intermediate sizes on request.

Maximum permissible misalignments see page 19

Note:
Only suitable as a conversion kit for elastic couplings where the drives are frequency-controlled.

Size d5	Torques [Nm]		k1	d10 H7	s3	l3	s2	t1	Bolt connection		Mass moment of inertia	Weight
[mm]	T_{KN}	$T_{K\,max}$	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	z x m	M_A [Nm]	I [kgm²]	G [kg]
145	600	1800	120	95	11	65	71+2,5	3	9 x M12	85	0,011	4,8
170	950	2850	145	120	11	65	71+2,5	3	12 x M12	85	0,022	6,4
200	1650	4950	170	140	13	75	81+3	4	12 x M14	135	0,048	9,5
230	2580	7740	200	170	18	80	86+3,5	4	15 x M14	135	0,085	12,0
260	3980	11940	230	200	11	90	101+4	4	15 x M16	210	0,161	17,7
300	5850	17550	260	220	14	108	118+4	4	15 x M20	425	0,352	29,0
360	9700	29100	310	260	26	120	130+4	4	12 x M24	730	0,765	44,3
400	13350	40050	350	300	26	120	130+4	4	14 x M24	730	1,159	51,7

Dimension sheet 710-57 / S-NX

Larger couplings, higher rotational speeds and intermediate sizes on request.

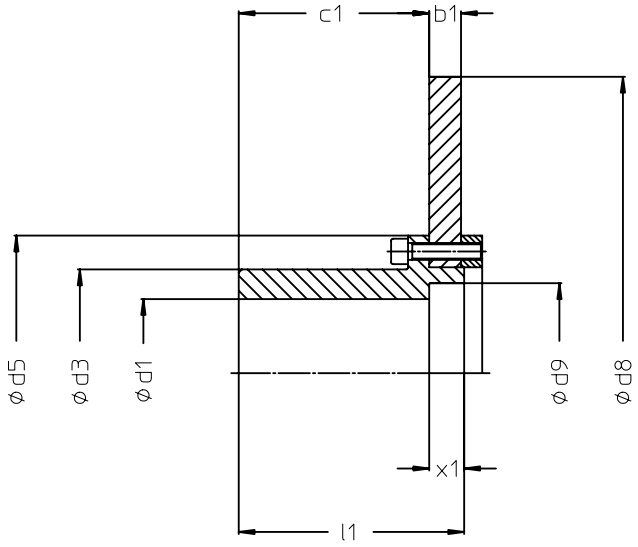
Maximum permissible misalignments see page 19

(1) The torques stated do not refer to the connection of shaft and hub. If necessary these must be checked.

(2) Balancing to order.

(3) The values specified for the bores are valid according to DIN6885-1 (see page 6).

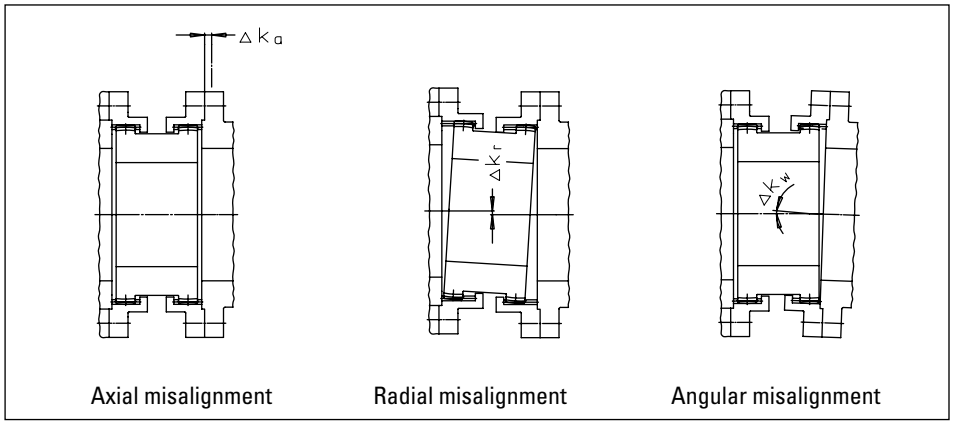
(4) With reference to the max. finished bore



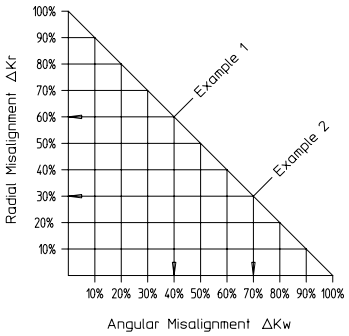
Dimension x1 according to customer requirements

Size d5	Brake disc d8 x b1	Torque (1) [Nm]		Speed (2) [rpm]	Bore (3) [mm]	Dimensions					Weight (4)	Mass moment of inertia (4)
[mm]	[mm]	T_{KN}	$T_{K\,max}$	n max	d1 max	d3 [mm]	d9 [mm]	c1 [mm]	l1 [mm]	Ma [Nm]	G [kg]	I [kgm²]
	355x30			4800							28,0	0,38
145	400x30	600	1800	4300	65	92	78	135	167	85	34,3	0,61
	450x30			3800							42,7	0,96
	400x30			4300							36,7	0,62
170	450x30	950	2850	3800	80	117	98	135	167	85	44,6	0,98
	500x30			3400							53,3	1,47
	450x30			3800							50,3	1,00
200	500x30	1650	4950	3400	95	138	115	175	208	135	59,0	1,51
	560x30			3050							70,8	2,34
	500x30			3400							62,5	1,57
230	560x30	2580	7740	3050	120	168	145	175	208	135	68,7	2,36
	630x30			2700							89,7	3,76
	560x30			3050							80,8	2,50
260	630x30	3980	11940	2700	140	196	170	180	213	210	96,2	3,87
	710x30			2400							116	6,1
	630x30			2700							106	4,1
300	710x30	5850	17550	2400	154	216	180	180	213	425	126	6,3
	800x30			2150							151	9,9
	800x30			2150							176	10,5
360	900x30	9700	29100	1900	184	258	215	220	253	730	206	16,2
	1000x30			1700							240	24,1
400	900x30	13350	40050	1900	210	298	245	220	253	730	222	16,8
	1000x30			1700							257	24,8

Max. permissible misalignments for S-NX



Axial misalignment | Radial misalignment | Angular misalignment



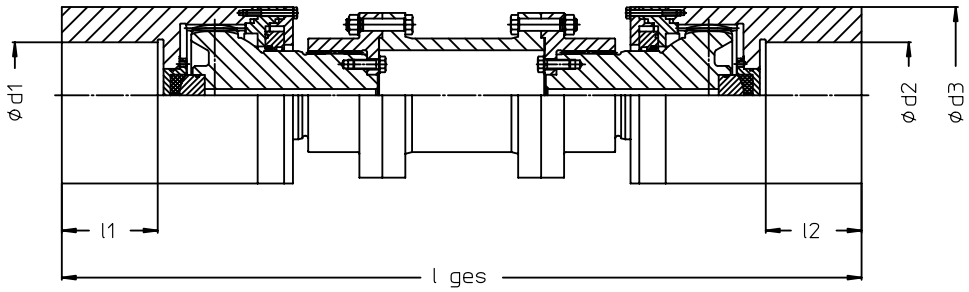
For standard MALMEDIE Gear-Couplings of the S-NX series the misalignment can be up to ± 1° per toothing plane. The misalignment values specified are maximum values that cannot be allowed to occur at the same time. Where there is simultaneous radial misalignment ΔKr and angular misalignment ΔKw these values must be reduced in accordance with the diagram.

Example 1:
ΔKr = 60% *ΔKw = 40%*

Example 2:
ΔKr = 30% *ΔKw = 70%*

Size	Design		
	S-NX		
	ΔKa [mm]	ΔKr [mm]	ΔKw [°]
145	+2,5	0,87	Max. permissible angular misalignment 1.0° per toothing plane.
170	+2,5	0,87	
200	+3	0,96	
230	+3,5	1,04	
260	+4	1,22	
300	+4	1,44	
360	+4	1,66	
400	+4	1,66	

Dimension sheet 710-58 / Gear joint spindles



Larger couplings, higher rotational speeds and intermediate sizes on request.

(1) The torques stated do not refer to the connection of shaft and hub.

If necessary these must be checked.

(2) Balancing to order.

(3) The values specified for the bores are valid according to DIN6885-1 (see page 6).

Gear joint spindles are mainly used where high torques must be transferred with large misalignments and with smallest external diameters (e.g. in hot and cold rolling mills, straightening machines, crane travelling units, trolley travelling units, etc.).

MALMEDIE gear joint spindles are always optimally matched to a very wide variety of customer requirements. Particular attention is paid here to the rapid replacement of worn parts.

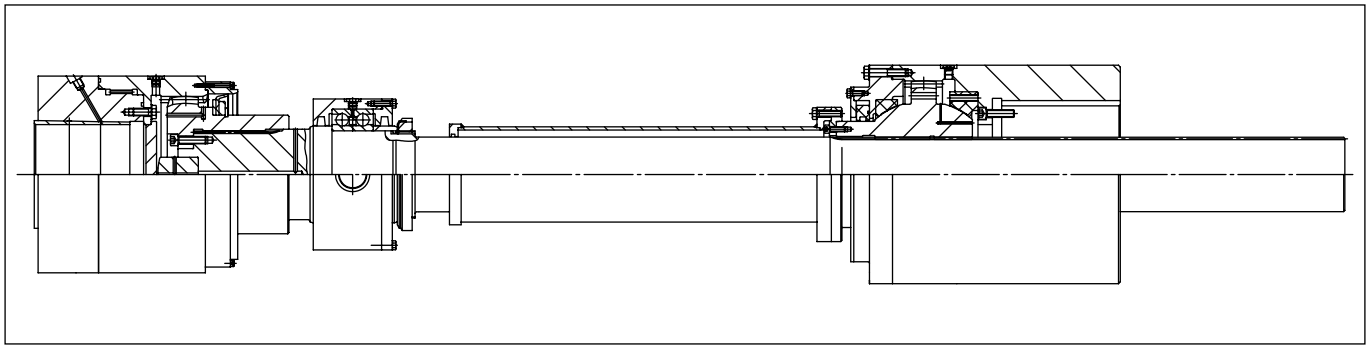
You will find some examples of various designs on page 21.

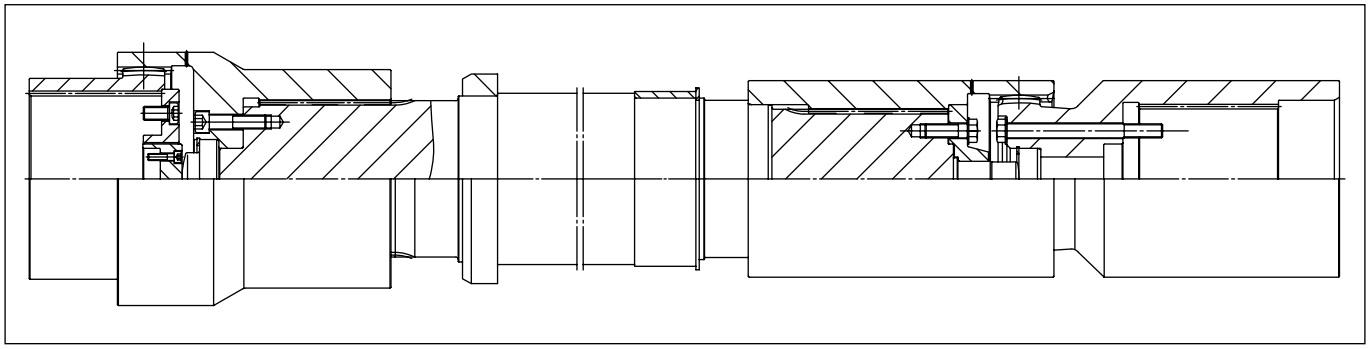
The specifications quoted below are to be understood as guideline values.

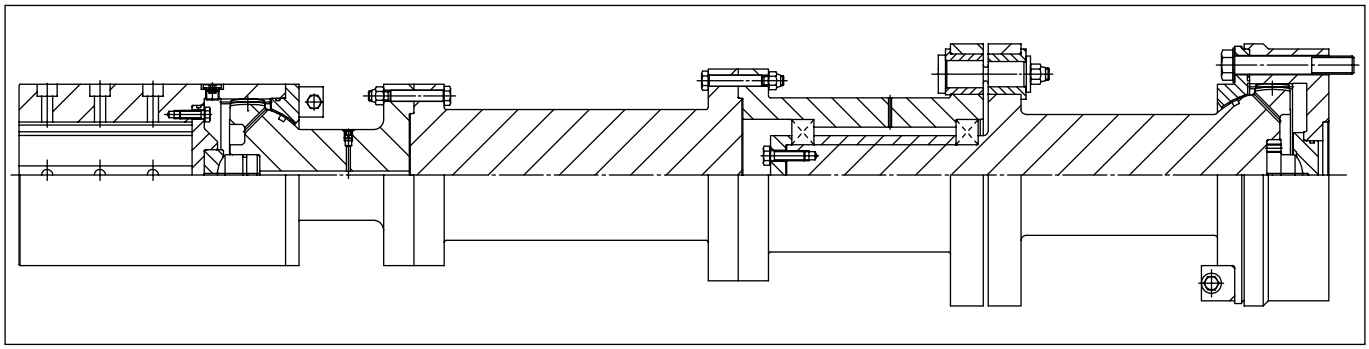
All MALMEDIE gear joint spindles designs are produced from alloyed heat-treated steels with a high elastic limit. Depending on the type of steel and hardening methods used 3 performance levels ensue.

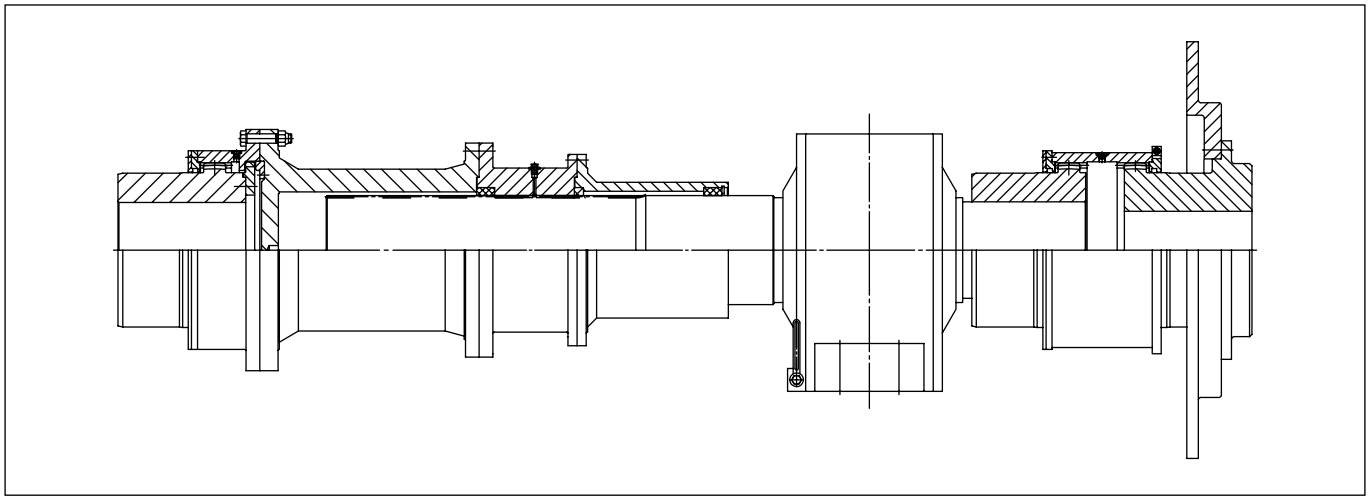
Size	Torque (1)						Speed (2)	Dimensions		
	Performance level 1		Performance level 2		Performance level 3					
	T_{KN} [Nm]	$T_{K\,max}$ [Nm]	T_{KN} [Nm]	$T_{K\,max}$ [Nm]	T_{KN} [Nm]	$T_{K\,max}$ [Nm]	n max [rpm]	d1,2 max [mm]	d3 [mm]	l ges [mm]
150	13000	26000	16900	33800	23400	46800	Dependent on l tot	105	150	Specified when ordered
200	35000	70000	45500	91000	63000	126000		140	200	
250	60000	120000	78000	156000	108000	216000		175	250	
300	110000	220000	143000	286000	198000	396000		210	300	
350	180000	360000	234000	468000	324000	648000		250	350	
400	290000	580000	377000	754000	522000	1044000		280	400	
450	350000	700000	455000	910000	630000	1260000		320	450	
500	600000	1200000	780000	1560000	1080000	2160000		350	500	

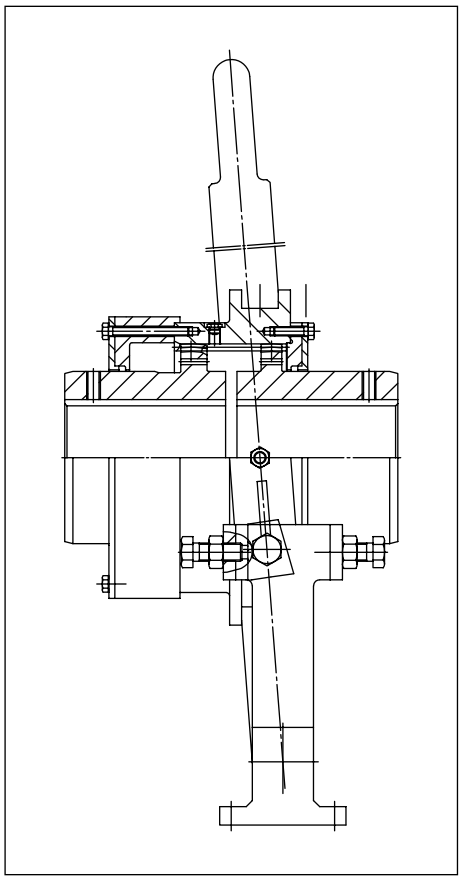
Gear joint spindles

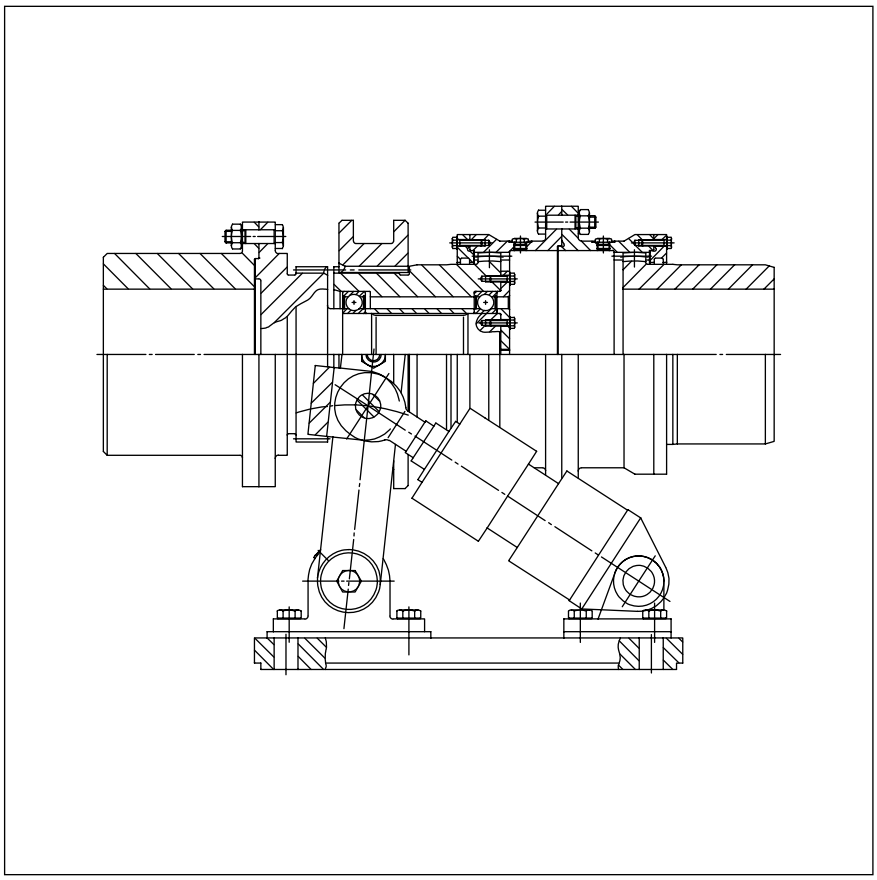




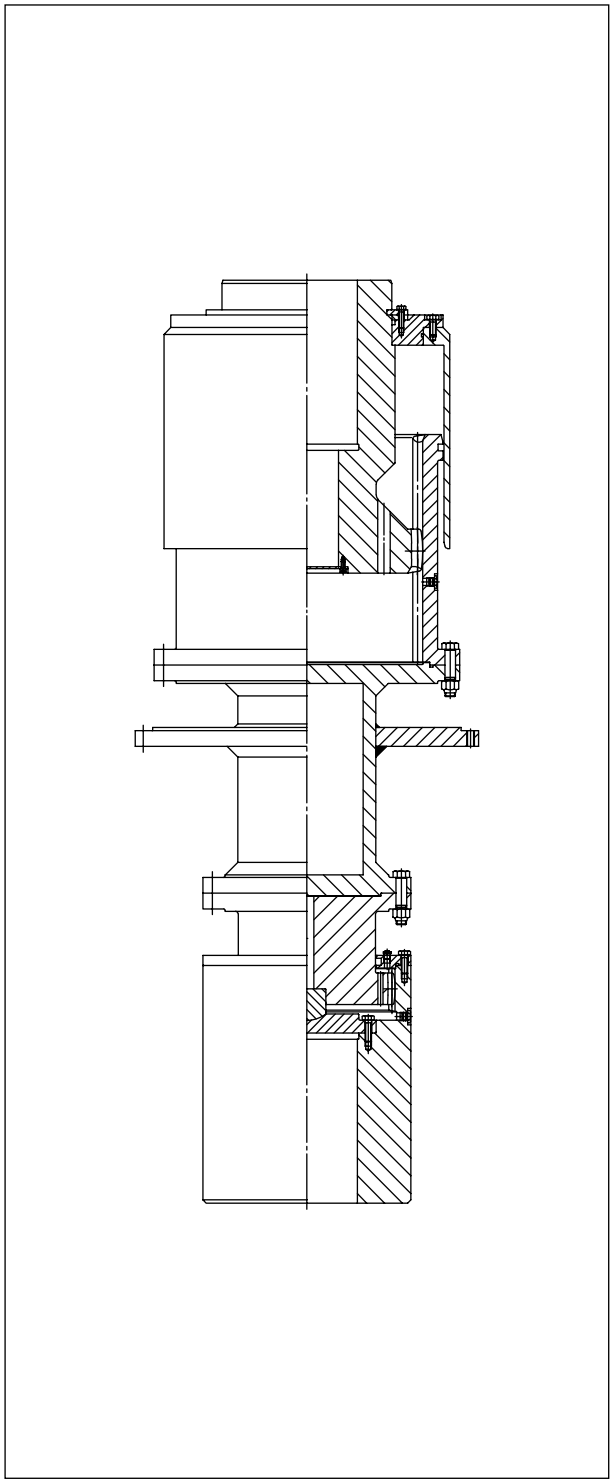


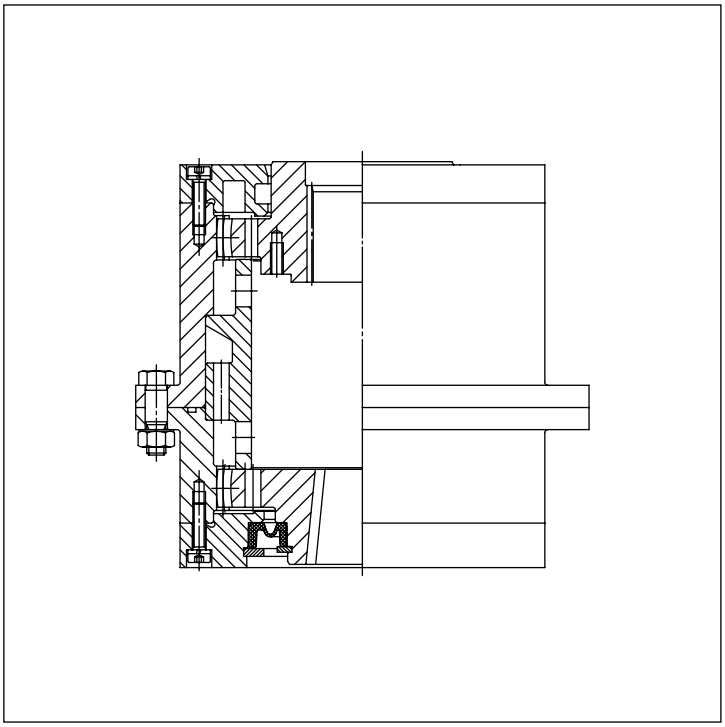


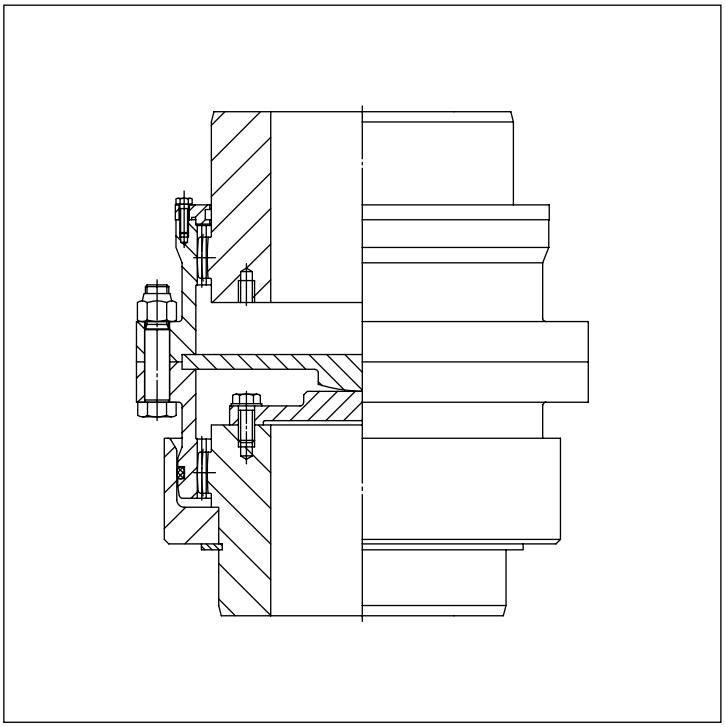




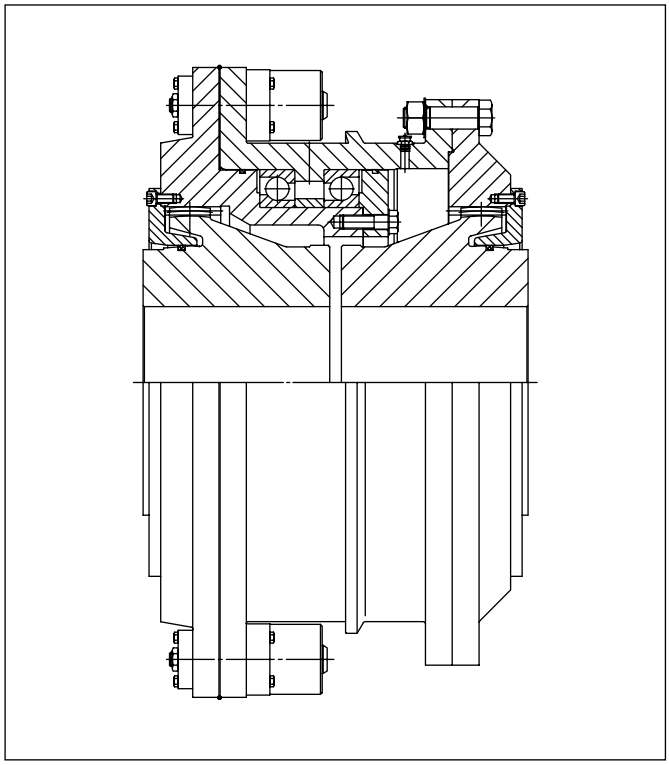
Vertical designs

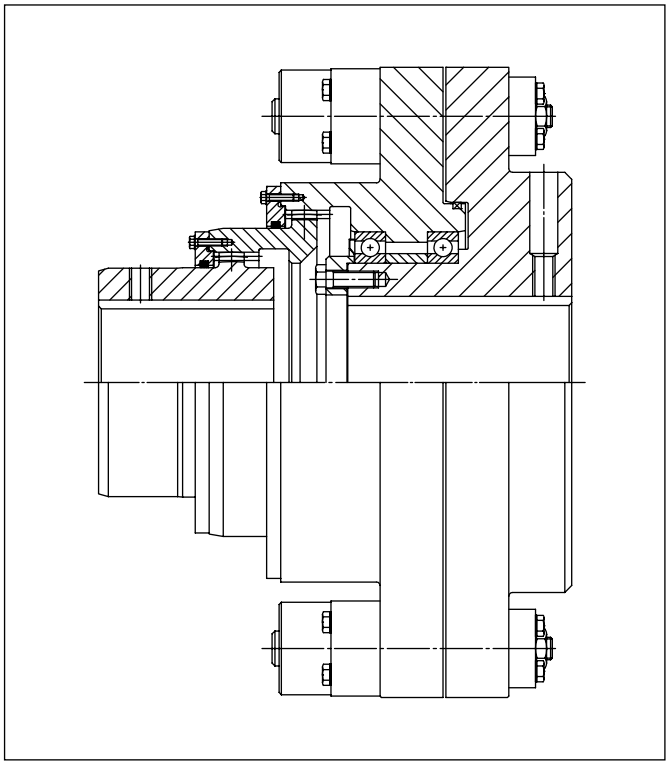


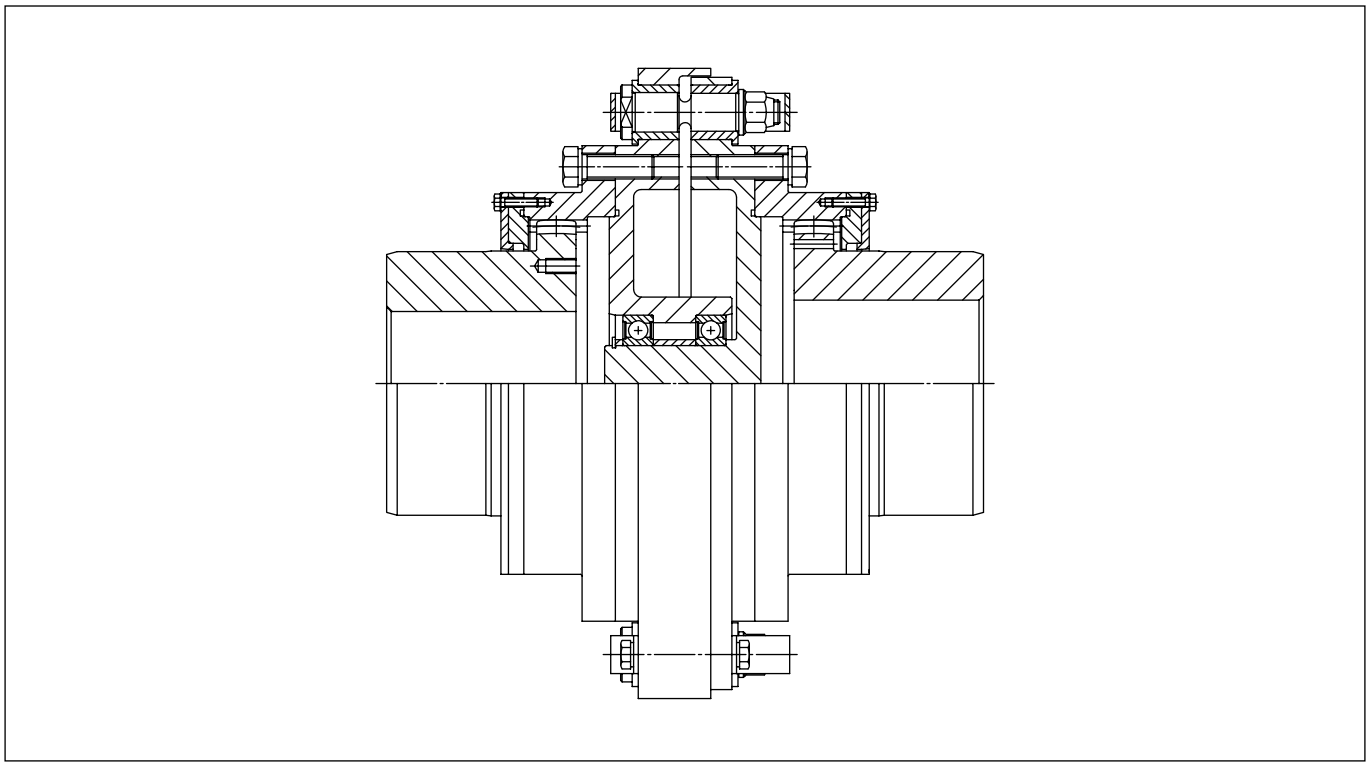




Safety Gear-Couplings







For further designs see the MALMEDIE catalogue under "Safety couplings"

Crane engineering

Conveyor engineering

Steel industry

Heavy machinery construction

Inquiry form
for Gear-Couplings

Company

Mr / Ms

Street

Postcode/Town

Country

Phone

Fax

eMail

Place of use

Project

Working machine

Operation

Type of operation

Operating factor

☐	SMOOTH	1,00 – 1,25	Continuous operation without overload
☐	LIGHT DUTY	1,25 – 1,50	Continuous operation with light overloads and brief, infrequent shock loads
☐	MEDIUM DUTY	1,50 – 1,80	Operation with frequent light shock loads and brief, medium level overloads
☐	HEAVY DUTY	1,80 – 2,20	Operation with heavy and frequent shock loads. Frequent load reversals: High level of safety.
☐	VERY HEAVY DUTY	>2,20	Operation with very heavy and frequent shock loads. Frequent and sudden load reversals. Very high level of safety.

Direction of force

☐ constant

☐ alternating

Operations per hour _____ / h

Operational duration per day _____ h/d

Ambient temperature _____ °C

Technical data

Type of drive ☐ Electric motor, turbine ☐ Hydraulic motor ☐ Combustion Engine

Motor power output _____ kW

Motor rotational speed _____ rpm

Gear transmission ratio _____

Gear efficiency _____

Coupling rotational speed _____ rpm

Nominal torque _____ kNm ☐ without operating factor ☐ with operating factor

max. torque _____ kNm ☐ without operating factor ☐ with operating factor

Design

Coupling type _____ Coupling size _____ (Pre-selection) Overall length _____

Hub-shaft connection

1.) Coupling hub

Bore diameter _____

Shaft diameter _____

☐ Keyway

Quantity _____

Angle _____

☐ DIN5480-gearing

☐ Shrink-fit connection

☐ Other

2.) Coupling hub

Bore diameter _____

Shaft diameter _____

☐ Keyway

Quantity _____

Angle _____

☐ DIN5480-gearing

☐ Shrink-fit connection

☐ Other

Remark

CONTACT

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