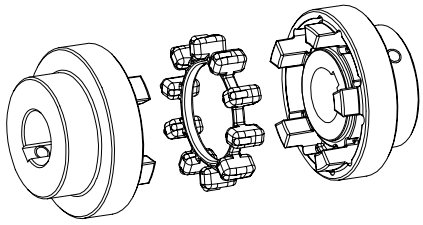
POLY-NORM®

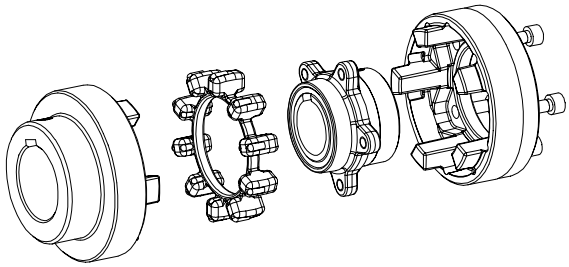
Flexible jaw-type couplings
of series

AR, ADR, AVR, AZR,
AR/AZR, AZVR,
AR with taper clamping sleeve
and their combinations

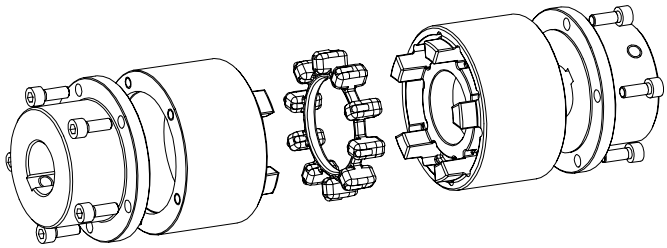
according to Standard 94/9/EC
(ATEX 95) for finish bored, pilot
bored and unbored couplings



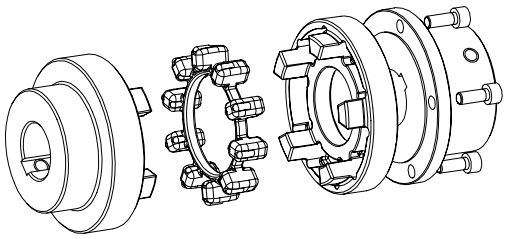
Type AR



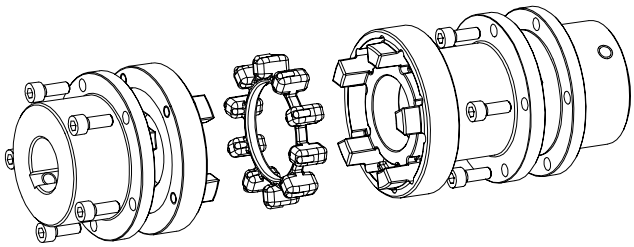
Type ADR, ADR-K and AVR



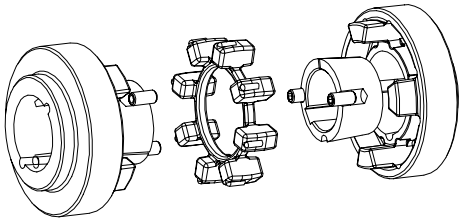
Type AZR and AZR short



Type AR/AZR



Type AZVR



Type AR with taper clamping sleeve

The **POLY-NORM®** is a torsionally elastic jaw coupling. It is able to compensate offset of shafts, e. g. caused by manufacturing inaccuracies, thermal expansion etc.

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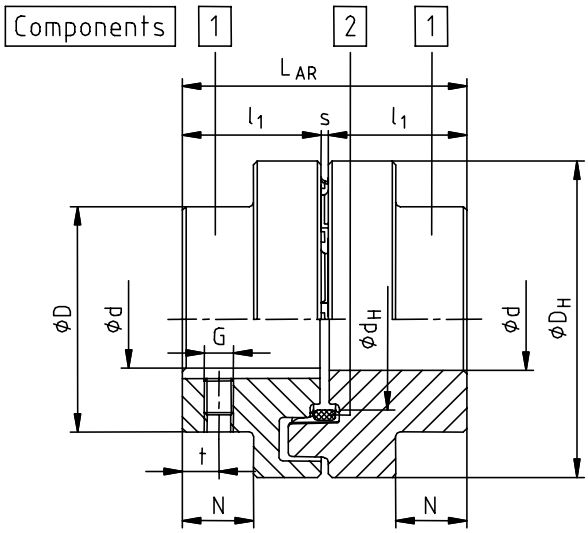
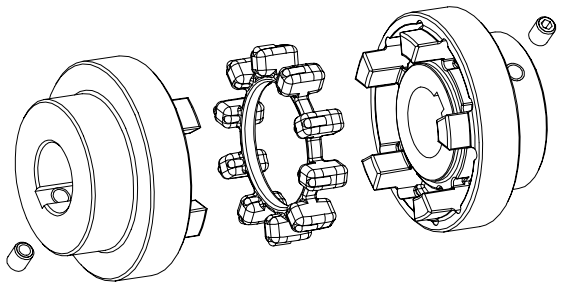
1 Technical Data





picture 1: POLY-NORM®, type AR

Table 1: dimensions and torques - type AR

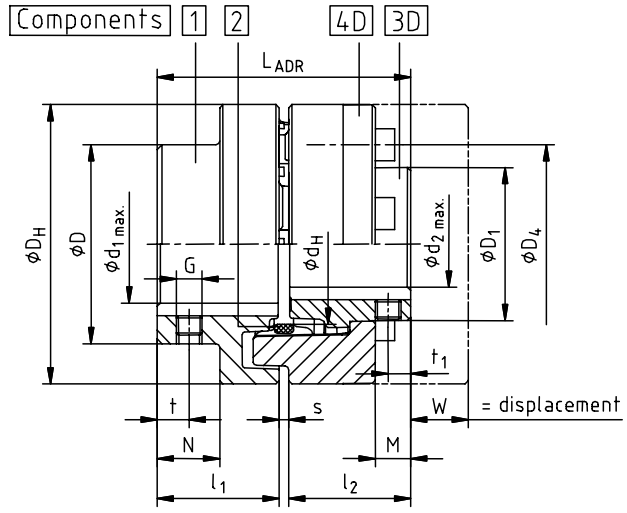
POLY-NORM® AR cast iron (EN-GJL-250)													
size	elastomer ring [1] (part 2) torque [Nm]		dimensions [mm]										weight [4] [kg]
			finish [2] bore	general							thread for [3] setscrews		
	T_{KN}	$T_{Kmax.}$	$d_{max.}$	L_{AR}	l_1	s	D_H	D	d_H	N	G	t	
28	40	80	28	59	28	3	69	46	36,5	12	M5	7	0,77
32	60	120	32	68	32	4	78	53	41,5	14	M8	7	1,14
38	90	180	38	80	38	4	87	62	50	19,5	M8	10	1,59
42	150	300	42	88	42	4	96	69	55,5	20	M8	10	2,17
48	220	440	48	101	48	5	106	78	64	24	M8	15	3,03
55	300	600	55	115	55	5	118	90	73	29	M8	14	4,27
60	410	820	60	125	60	5	129	97	81	33	M8	15	5,32
65	550	1100	65	135	65	5	140	105	86	36	M10	20	6,86
75	850	1700	75	155	75	5	158	123	100	42,5	M10	20	10,25
85	1350	2700	85	175	85	5	182	139	116	48,5	M10	25	15,05
90	2000	4000	90	185	90	5	200	148	128	49	M12	25	19,50
100	2900	5800	100	206	100	6	224	165	143	55	M12	25	26,98
110	3900	7800	110	226	110	6	250	185	158	60	M16	30	38,12
125	5500	11000	125	256	125	6	280	210	178	70	M16	35	54,21

[1] standard material Perbunan (NBR) 78 Shore A
[2] bores H7 with keyway DIN 6885 page 1 [JS9] and thread for setscrew on the keyway
[3] tightening torque of setscrews see table 2
[4] weights apply for max. bore diameters with feather key according to DIN 6885 sheet 1

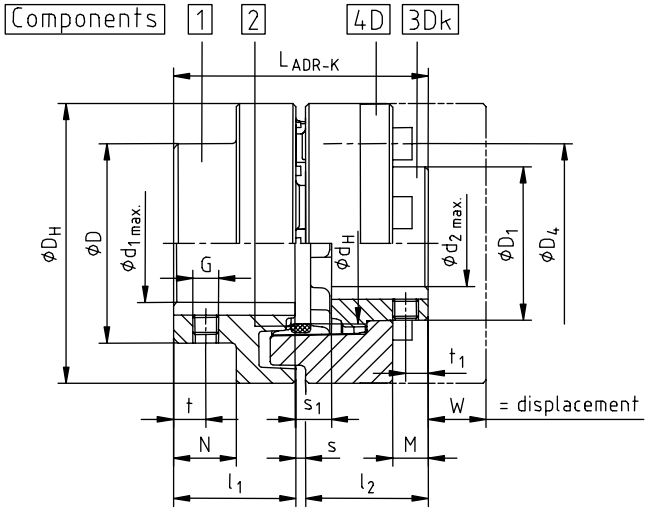
Table 2: setscrews DIN 916

size	28	32	38	42	48	55	60	65	75	85	90	100	110	125
dimension G [mm]	M5	M8	M8	M8	M8	M8	M8	M10	M10	M10	M12	M12	M16	M16
tightening torque T_A [Nm]	2	10	10	10	10	10	10	17	17	17	40	40	100	100

1 Technical Data



picture 2: POLY-NORM®, type ADR (3-part)



picture 3: POLY-NORM®, type ADR-K (3-part)

Table 3: dimensions - type ADR and ADR-K

POLY-NORM® ADR and ADR-K (type AVR corresponding to components 3D and 4D reflected) cast iron (EN-GJL-250), component 3D/3Dk flange hub nodular iron (EN-GJS-400-15)														
size	dimensions [mm]													
	general											thread for setscrews [1]		
	L_{ADR}/L_{ADR-K}	l_1/l_2	s	s_1	D_H	D	D_1	d_H	N	M	W	G	t	t_1
38	80	38	4	12,0	87	62	48	50	19,5	11	12	M8	10	7
42	88	42	4	14,5	96	69	54	55,5	20,0	12	16	M8	10	7
48	101	48	5	16,0	106	78	62	64	24,0	13,7	16	M8	15	7
55	115	55	5	17,0	118	90	72	73	29,0	18,7	15	M8	14	14
60	125	60	5	18,0	129	97	80	81	33,0	22,2	14	M8	15	15
65	135	65	5	20,0	140	105	86	86	36,0	26,7	11	M10	20	20
75	155	75	5	23,5	158	123	98	100	42,5	27,8	16	M10	20	20
85	175	85	5	27,0	182	139	112	116	48,5	33,7	18	M10	25	25
90	185	90	5	29,5	200	148	122	128	49,0	31,5	26	M12	25	25
100	206	100	6	33,0	224	165	136	143	55,0	37,5	28	M12	25	25
110	226	110	6	36,0	250	185	150	158	60,0	39,5	30	M16	30	30
125	256	125	6	39,0	280	210	168	178	70,0	48,0	35	M16	35	35

[1] tightening torque of setscrews see table 2

Table 4: torques and finish bores - type ADR and ADR-K

size		38	42	48	55	60	65	75	85	90	100	110	125
elastomer ring [1] (part 2) torque [Nm]	T_{KN}	90	150	220	300	410	550	850	1350	2000	2900	3900	5500
	$T_{Kmax.}$	180	300	440	600	820	1100	1700	2700	4000	5800	7800	11000
max. finish bore [2] [mm]	d_1	38	42	48	55	60	65	75	85	90	100	110	125
	d_2	32	35	42	48	55	60	65	75	85	90	100	110
weight [3] [kg]	ADR	1,75	2,34	3,23	4,41	5,43	7,10	10,50	15,29	20,06	27,83	38,95	55,67
	ADR-K	1,70	2,26	3,12	4,24	5,24	6,67	10,01	14,44	19,02	26,28	37,31	53,26

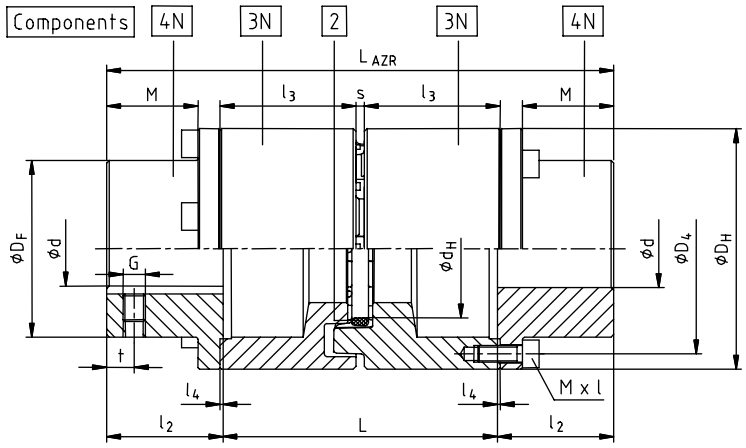
[1] standard material Perbunan (NBR) 78 Shore A; individual elastomer sets cannot be used
[2] bores H7 with keyway DIN 6885 page 1 [JS9] and thread for setscrew on the keyway
[3] weights apply for max. bore diameters with feather key according to DIN 6885 sheet 1

Table 5: arrangement of the cap screws DIN EN ISO 4762 - 12.9

size	38	42	48	55	60	65	75	85	90	100	110	125
screw size M	M6	M8	M8	M8	M8	M10	M10	M12	M16	M16	M16	M20
screw length l	16	16	20	20	20	20	25	25	30	30	40	40
quantity [1] z	5	5	6	6	6	6	6	6	6	6	8	8
dimension D_4	62	69	78	88	98	104	120	138	149	163	183	202
tightening torque T_A [Nm]	10	25	25	25	25	49	49	86	210	210	210	410

[1] per flange hub

1 Technical Data



picture 4:
POLY-NORM®, type AZR

Table 6: dimensions and torques - type AZR

POLY-NORM® AZR cast iron (EN-GJL-250), component 4N steel (S355 J2G3)																
size	drop-out center length L [mm]	elastomer ring [1] (part 2) torque [Nm]		dimensions [mm]												weight [4] [kg]
				finish bore [2]	general									thread for [3] setscrews		
		T_{KN}	$T_{Kmax.}$	$d_{max.}$	L_{AZR}	l_2	l_3	s	l_4	D_H	D_F	d_H	M	G	t	
28	100	40	80	30	170	35	49,5	3	1	69	46	36,5	26	M5	7	2,33
	140				210		69,5									2,91
32	100	60	120	35	170	35	49	4	1	78	53	41,5	26	M8	7	2,86
	140				210		69									3,50
38	100	90	180	40	184	42	49	4	1	87	62	50	33	M8	10	3,78
	140				224		69									4,57
42	100	150	300	45	190	45	49	4	1	96	69	55,5	35	M8	10	4,56
	140				230		69									5,41
48	100	220	440	50	204	52	49	5	1,5	106	78	64	41,5	M8	15	6,03
	140				244		69									6,98
55	100	300	600	60	210	55	49	5	1,5	118	88	73	43,5	M8	14	7,81
	140				250		69									9,21
	180				290		89									10,57
60	100	410	820	65	220	60	49	5	1,5	129	97	81	47,5	M8	15	9,49
	140				260		69									11,05
	180				300		89									12,61
65	100	550	1100	70	230	65	49	5	1,5	140	105	86	51,5	M10	20	11,85
	140				270		69									13,61
	180				310		89									15,37
75	140	850	1700	80	290	75	69	5	1,5	158	123	100	60,5	M10	20	19,71
	180				330		89									22,15
	250				400		124									26,18
85	140	1350	2700	90	310	85	69	5	1,5	182	139	116	69,5	M10	25	27,57
	180				350		89									30,65
	250				420		124									36,22
90	140	2000	4000	100	320	90	69	5	1,5	200	148	128	73,5	M12	25	32,00
	180				360		89									35,35
	250				430		124									41,22
100	140	2900	5800	110	340	100	69	6	2	224	165	143	83	M12	25	42,31
	180				380		89									46,44
	250				450		124									53,67

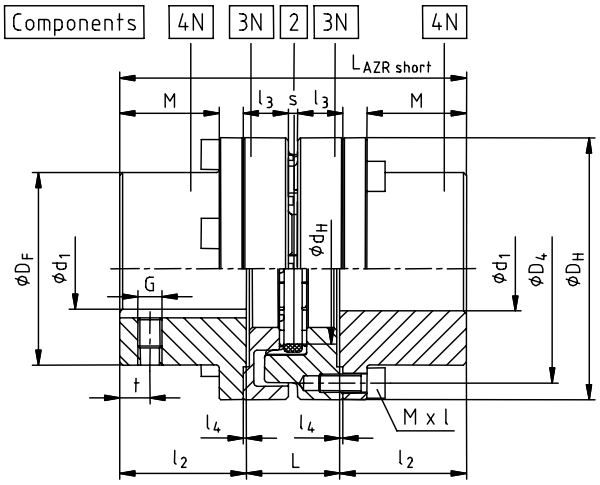
[1] standard material Perbunan (NBR) 78 Shore A
[2] bores H7 with keyway DIN 6885 page 1 [JS9] and thread for setscrew on the keyway
[3] tightening torque of setscrews see table 2
[4] weights apply for max. bore diameters with feather key according to DIN 6885 sheet 1

Table 7: arrangement of the cap screws DIN EN ISO 4762 - 12.9

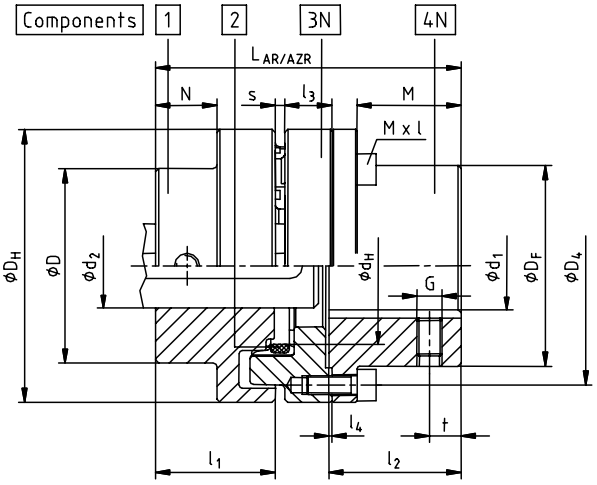
size	28	32	38	42	48	55	60	65	75	85	90	100
screw size M	M6	M6	M6	M6	M6	M8	M8	M8	M10	M10	M12	M12
screw length l	18	18	20	20	20	25	25	25	30	30	35	35
dimension D_4	58	67	76	85	95	103	114	124	141	160	180	200
quantity [1] z	4	4	5	5	6	6	6	6	6	6	6	6
tightening torque T_A [Nm]	14	14	14	14	14	35	35	35	69	69	120	120

[1] each flange connection

1 Technical Data



picture 5: POLY-NORM®, type AZR short



picture 6: POLY-NORM®, type AR/AZR

Table 8: dimensions - type AZR short and AR/AZR

POLY-NORM® AZR short and AR/AZR cast iron (EN-GJL-250), component 4N steel (S355 J2G3)															
size	dimensions [mm]														
	general													thread for setscrews [1]	
	$L_{AZR\ short}$	$L_{AR/AZR}$	l_1	l_2	l_3	s	l_4	L	D_H	D/D_F	d_H	N	M	G	t
28	101	80	28	35	15	3	1	31	69	46	36,5	12	26	M5	7
32	102	85	32	35	15	4	1	32	78	53	41,5	14	26	M8	7
38	116	98	38	42	15	4	1	32	87	62	50	19,5	33	M8	10
42	128	108	42	45	18	4	1	38	96	69	55,5	20	35	M8	10
48	144	122,5	48	52	19	5	1,5	40	106	78	64	24	41,5	M8	15
55	154	134,5	55	55	21	5	1,5	44	118	90/88	73	29	43,5	M8	14
60	166	145,5	60	60	22	5	1,5	46	129	97	81	33	47,5	M8	15
65	180	157,5	65	65	24	5	1,5	50	140	105	86	36	51,5	M10	20
75	206	108,5	75	75	27	5	1,5	56	158	123	100	42,5	60,5	M10	20
85	234	204,5	85	85	31	5	1,5	64	182	139	116	48,5	69,5	M10	25
90	252	218,5	90	90	35	5	1,5	72	200	148	128	49	73,5	M12	25
100	280	243	100	100	39	6	2	80	224	165	143	55	83	M12	25

[1] tightening torque of setscrews see table 2

Table 9: torques and finish bores - type AZR short and AR/AZR

size		28	32	38	42	48	55	60	65	75	85	90	100
elastomer ring [1] (part 2) torque [Nm]	T_{KN}	40	60	90	150	220	300	410	550	850	1350	2000	2900
	$T_{Kmax.}$	80	120	180	300	440	600	820	1100	1700	2700	4000	5800
max. finish bore [2] [mm]	d_1	30	35	40	45	50	60	65	70	80	90	100	110
	d_2	28	32	38	42	48	55	60	65	75	85	90	100
weight [3] [kg]	AZR short	1,24	1,57	2,20	2,98	4,07	5,18	6,76	8,11	11,34	20,06	24,43	34,16
	AR/AZR	1,01	1,35	1,89	2,57	3,55	4,72	6,04	7,48	10,79	17,54	21,94	30,56

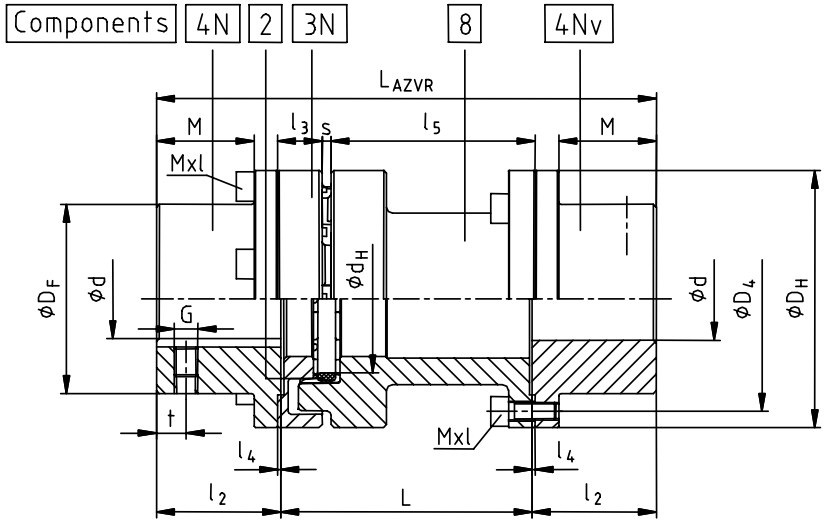
[1] standard material Perbunan (NBR) 78 Shore A
[2] bores H7 with keyway DIN 6885 page 1 [JS9] and thread for setscrew on the keyway
[3] weights apply for max. bore diameters with feather key according to DIN 6885 sheet 1

Table 10: arrangement of the cap screws DIN EN ISO 4762 - 12.9

size	28	32	38	42	48	55	60	65	75	85	90	100
screw size M	M6	M6	M6	M6	M6	M8	M8	M8	M10	M10	M12	M12
screw length l	16	16	16	20	20	25	25	25	30	30	35	35
dimension D_4	58	67	76	85	95	103	114	124	141	160	180	200
quantity [1] z	4	4	5	5	6	6	6	6	6	6	6	6
tightening torque T_A [Nm]	14	14	14	14	14	35	35	35	69	69	120	120

[1] each flange connection

1 Technical Data



picture 7: POLY-NORM®, type AZVR

Table 11: dimensions - type AZVR

POLY-NORM® AZVR cast iron (EN-GJL-250), component 4N and 4Nv steel (S355 J2G3)														
size	dimensions [mm]													weight [2] [kg]
	general											threads for setscrews [1]		
	L_{AZVR}	l_2	l_3	s	l_4	l_5	L	D_H	D_F	d_H	M	G	t	
38	224	42	69	4	1	69	140	87	62	50	33	M8	10	4,33
42	230	45	69	4	1	69	140	96	69	55,5	35	M8	10	5,25
48	244	52	69	5	1,5	69	140	106	78	64	41,5	M8	15	6,83
55	250	55	49	5	1,5	89	140	118	88	73	43,5	M8	14	8,59
	290		89				180							9,97
60	260	60	49	5	1,5	89	140	129	97	81	47,5	M8	15	10,66
	300		89				180							12,22
65	270	65	49	5	1,5	89	140	140	105	86	51,5	M10	20	12,74
	310		89				180							14,50
75	330	75	89	5	1,5	89	180	158	123	100	60,5	M10	20	21,34
	450		209				300							28,58
85	350	85	89	5	1,5	89	180	182	139	116	69,5	M10	25	29,91
	470		209				300							39,25

[1] tightening torque of setscrews see table 2
[2] weights apply for max. bore diameters with feather key according to DIN 6885 sheet 1

Table 12: torques and finish bores - type AZVR

size		38	42	48	55	60	65	75	85
elastomer ring [1] (part 2) torque [Nm]	T_{KN}	90	150	220	300	410	550	850	1350
	$T_{Kmax.}$	180	300	440	600	820	1100	1700	2700
finish bore [2] [mm]	$d_{max.}$	40	45	50	60	65	70	80	90

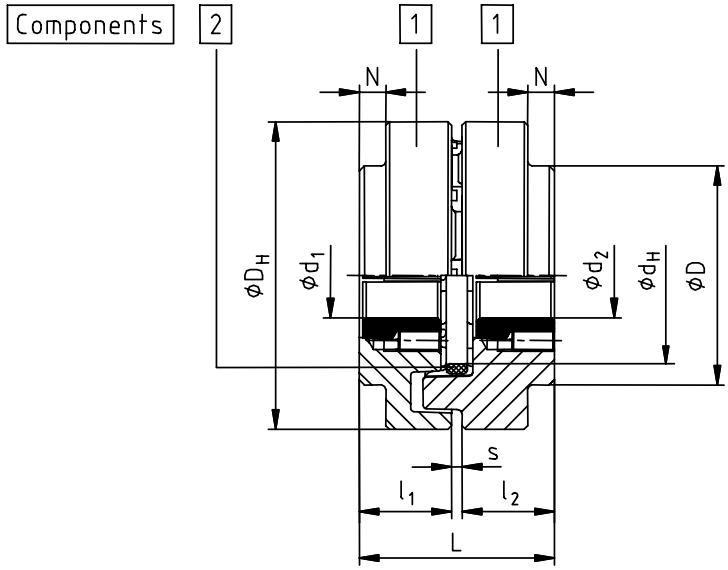
[1] standard material Perbunan (NBR) 78 Shore A
[2] bores H7 with keyway DIN 6885 page 1 [JS9] and thread for setscrew on the keyway

Table 13: arrangement of the cap screws DIN EN ISO 4762 - 12.9

size	38	42	48	55	60	65	75	85
screw size M	M6	M6	M6	M8	M8	M8	M10	M10
screw length l	20	20	20	25	25	25	30	30
dimension D_4	76	85	95	103	114	124	141	160
quantity [1] z	5	5	6	6	6	6	6	6
tightening torque T_A [Nm]	14	14	14	35	35	35	69	69

[1] each flange connection

1 Technical Data



picture 8: POLY-NORM®, type with taper clamping sleeve

Table 14: dimensions - type with taper clamping sleeve

POLY-NORM® with taper clamping sleeve hub TB1 and TB2 cast iron (EN-GJL-250)													
size	elastomer ring [1] (part 2) torque [Nm]		speed $n_{max.}$ [1/min]	dimensions [mm]								taper clamping sleeve	weight [3] [kg]
				finish bore [2] d_1/d_2		general							
	T_{KN}	$T_{Kmax.}$		min.	max.	l_1/l_2	s	L	D	D_H	N		
32	60	120	7300	10	28	25,5	4	55	53	78	7,5	1108	1,05
48	220	440	5400	14	42	30,0	5	65	78	106	6,0	1610	2,35
						42,5		90			18,5	1615	2,96
60	410	820	4400	14	50	38,5	5	80	97	129	10,5	2012	4,16
75	850	1700	3600	16	60	52,5	5	110	123	158	20,0	2517	8,54
85	1350	2700	3150	16	60	46,5	5	98	139	132	10,0	2517	11,60
90	2000	4000	2900	25	75	52,0	5	109	148	200	11,0	3020	14,88
100	2900	5800	2600	35	90	98,0	6	202	165	224	53,0	3535	27,41

[1] standard material Perbunan (NBR) 78 Shore A
[2] bores H7 with keyway DIN 6885 page 1 [JS9] and thread for setscrew on the keyway
[3] weights apply for max. bore diameters with feather key according to DIN 6885 sheet 1

POLY-NORM® couplings with such components that are in a position to produce heat, sparks and static charge (e. g. in combination with brake drums/disks, overload systems like torque limiters, fans, etc.) are <u>not</u> permitted for the use in hazardous locations.
A separate test has to be performed.

2 Hints

2.1 Coupling Selection

C A U T I O N !
For a continuous and troublefree operation of the coupling it must be designed according to the selection instructions (according to DIN 740 part 2) for the particular application (see POLY-NORM® catalogue).
If the operating conditions (performance, speed, changes at engine and machine) change, the coupling selection must be checked again.
Please note that the technical details regarding the torque refer to the elastomer part only. The transmittable torque of the shaft-hub-connection has to be verified by the customer and is subject to his responsibility.

For drives with dangerous torsional vibrations (drives with periodical torsional vibration load) it is necessary for a selection ensuring a safe operation to perform a torsional vibration calculation. Typical drives subject to dangerous torsional vibrations are, as an example, drives with diesel engines, piston pumps, piston compressors, etc. If requested, KTR will perform the coupling selection and torsional vibration calculation.

2.2 General Hints

Please read through these mounting instructions carefully before you set the coupling into operation.
Please pay special attention to the safety instructions!

The **POLY-NORM®** coupling is suitable and approved for the use in hazardous areas. When using the coupling in hazardous areas please observe the special hints and instructions regarding safety in enclosure A.

The mounting instructions are part of your product. Please keep them carefully and close to the coupling.

2.3 Safety and Advice Hints

STOP	**D A N G E R !**	**Danger of injury to persons.**
!	**C A U T I O N !**	**Damages on the machine possible.**
☞	**A T T E N T I O N !**	**Pointing to important items.**
Ex	**P R E C A U T I O N !**	**Hints concerning explosion protection.**

2 Hints

2.4 General Hints of Danger

D A N G E R !
With assembly, operation and maintenance of the coupling it has to be made sure that the entire drive train is protected against unintentional engagement. You can be seriously hurt by rotating parts. Please make absolutely sure to read through and observe the following safety instructions.

- All operations on and with the coupling have to be performed taking into account "safety first".
- Please make sure to disengage the power pack before you perform your work.
- Protect the power pack against unintentional engagement, e. g. by providing hints at the place of engagement or removing the fuse for current supply.
- Do not touch the operation area of the coupling as long as it is in operation.
- Please protect the coupling against unintentional touch. Please provide for the necessary protection devices and caps.

2.5 Proper Use

You may only assemble, operate and maintain the coupling if you

- carefully read through the mounting instructions and understood them
- had technical training
- are authorized to do so by your company

The coupling may only be used in accordance with the technical data (see table 1 to 14 in chapter 1).
Unauthorized modifications on the coupling design are not admissible. We do not take any warranty for resulting damages. To further develop the product we reserve the right for technical modifications.
The **POLY-NORM®** described in here corresponds to the technical status at the time of printing of these mounting instructions.

3 Storage

The coupling hubs are supplied in preserved condition and can be stored at a dry and roofed place for 6 - 9 months.
The features of the elastomer rings remain unchanged for up to 5 years in case of favourable stock conditions.

C A U T I O N !
The storage rooms may not include any ozone-generating devices, like e. g. fluorescent light sources, mercury-vapour lamps or electrical high-voltage appliances.
Humid storage rooms are not suitable.
Please make sure that there is no condensation. The best relative air humidity is under 65%.

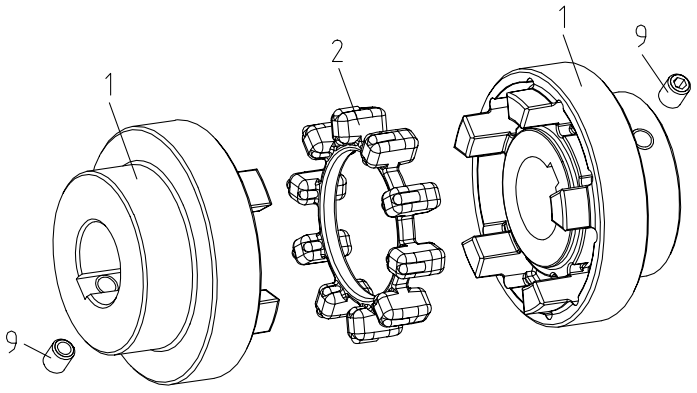
4 Assembly

Basically the coupling is supplied in individual parts. Before assembly the coupling has to be controlled for completeness.

4.1 Components of the Couplings

Components of POLY-NORM®, type AR

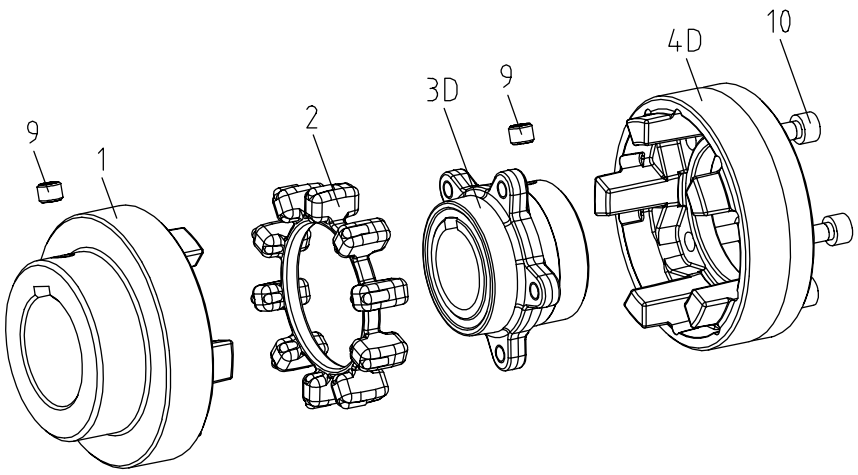
Component	Quantity	Designation	Material	Balancing Condition
1	2	hub	EN-GJL-250	acc. to customer's request
2	1	elastomer ring	NBR (Perbunan)	
9	2	setscrew DIN 916	steel	



picture 9: POLY-NORM®, type AR

Components of POLY-NORM®, type ADR (3-part)
type AVR corresponding to components 3D and 4D reflected

Component	Quantity	Designation	Material	Balancing Condition
1	1	hub	EN-GJL-250	acc. to customer's request
2	1	elastomer ring	NBR (Perbunan)	
3D	1	flange hub	EN-GJS-400-15	acc. to customer's request
4D	1	cam ring	EN-GJL-250	acc. to customer's request
9	2	setscrew DIN 916	steel	
10	s. table 5	cap screw DIN EN ISO 4762	steel	



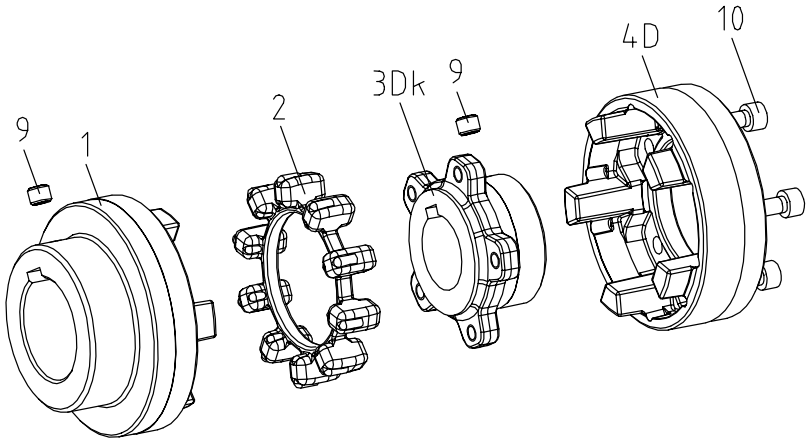
picture 10: POLY-NORM®, type ADR (3-part)

4 Assembly

4.1 Components of the Couplings

Components of POLY-NORM®, type ADR-K (3-part)

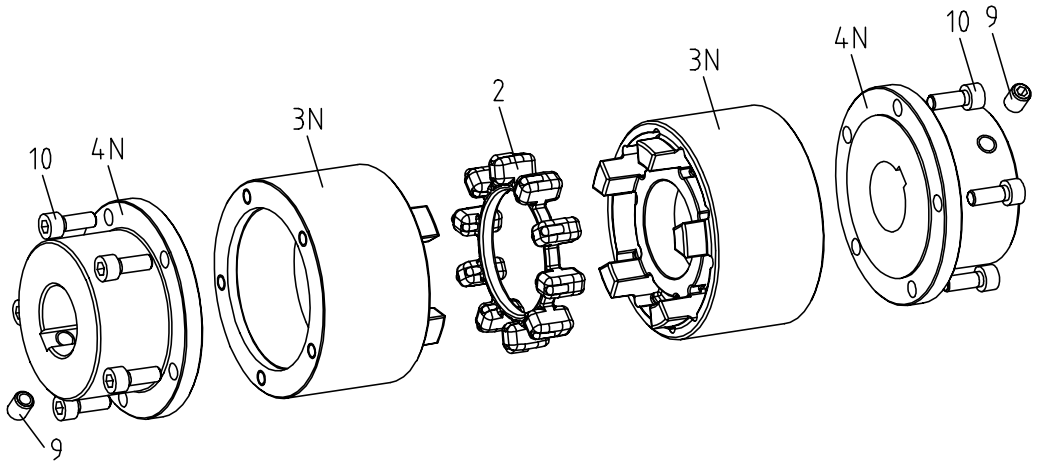
Component	Quantity	Designation	Material	Balancing Condition
1	1	hub	EN-GJL-250	acc. to customer's request
2	1	elastomer ring	NBR (Perbunan)	
3Dk	1	flange hub K	EN-GJS-400-15	acc. to customer's request
4D	1	cam ring	EN-GJL-250	acc. to customer's request
9	2	setscrew DIN 916	steel	
10	s. table 5	cap screw DIN EN ISO 4762	steel	



picture 11: POLY-NORM®, type ADR-K (3-part)

Components of POLY-NORM®, type AZR and AZR short

Component	Quantity	Designation	Material	Balancing Condition
2	1	elastomer ring	NBR (Perbunan)	
3N	2	driving flange	EN-GJL-250	acc. to customer's request
4N	2	coupling flange	EN-GJL-250/ S355 J2G3	acc. to customer's request
9	2	setscrew DIN 916	steel	
10	s. table 7 and 10	cap screw DIN EN ISO 4762	steel	



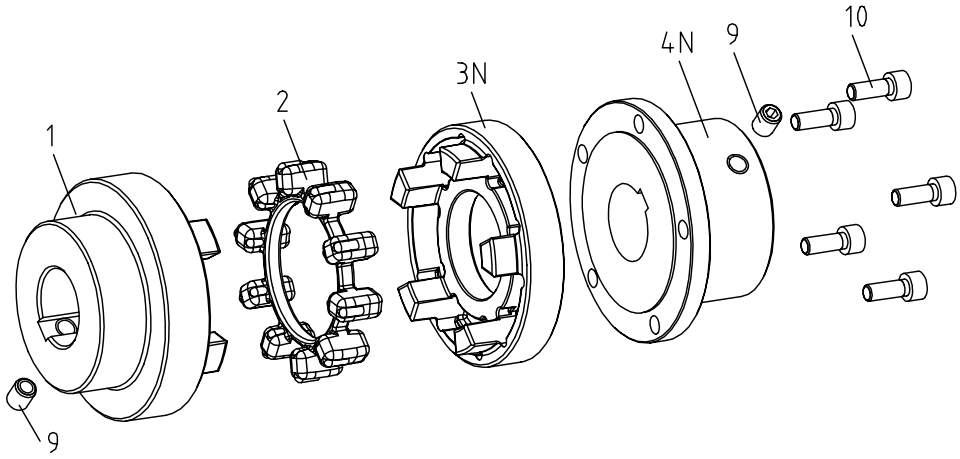
picture 12: POLY-NORM®, type AZR and AZR short

4 Assembly

4.1 Components of the Couplings

Components of POLY-NORM®, type AR/AZR

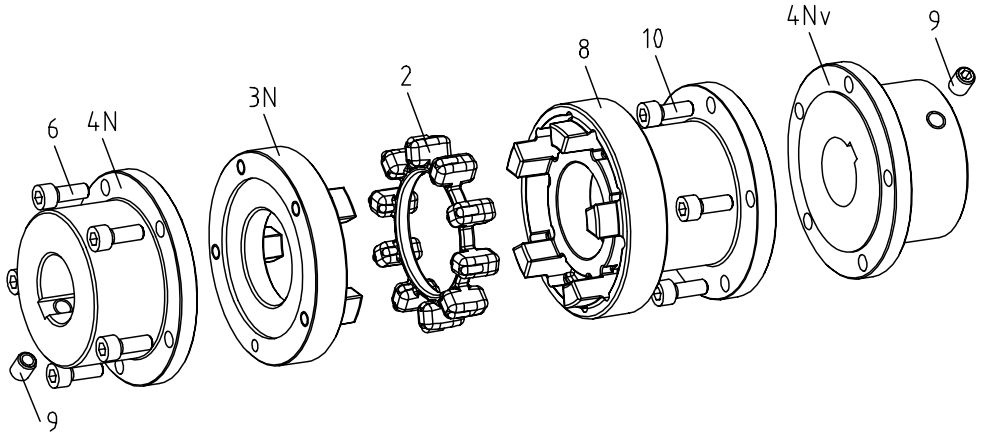
Component	Quantity	Designation	Material	Balancing Condition
1	1	hub	EN-GJL-250	acc. to customer's request
2	1	elastomer ring	NBR (Perbunan)	
3N	1	driving flange	EN-GJL-250	acc. to customer's request
4N	1	coupling flange	EN-GJL-250/ S355 J2G3	acc. to customer's request
9	2	setscrew DIN 916	steel	
10	s. table 10	cap screw DIN EN ISO 4762	steel	



picture 13: POLY-NORM®, type AR/AZR

Components of POLY-NORM®, type AZVR

Component	Quantity	Designation	Material	Balancing Condition
2	1	elastomer ring	NBR (Perbunan)	
3N	1	driving flange	EN-GJL-250	acc. to customer's request
4N	1	coupling flange	EN-GJL-250/ S355 J2G3	acc. to customer's request
4Nv	1	coupling flange AZVR		
8	1	driving flange AZVR	EN-GJL-250	acc. to customer's request
9	2	setscrew DIN 916	steel	
10	s. table 13	cap screw DIN EN ISO 4762	steel	



picture 14: POLY-NORM®, type AZVR

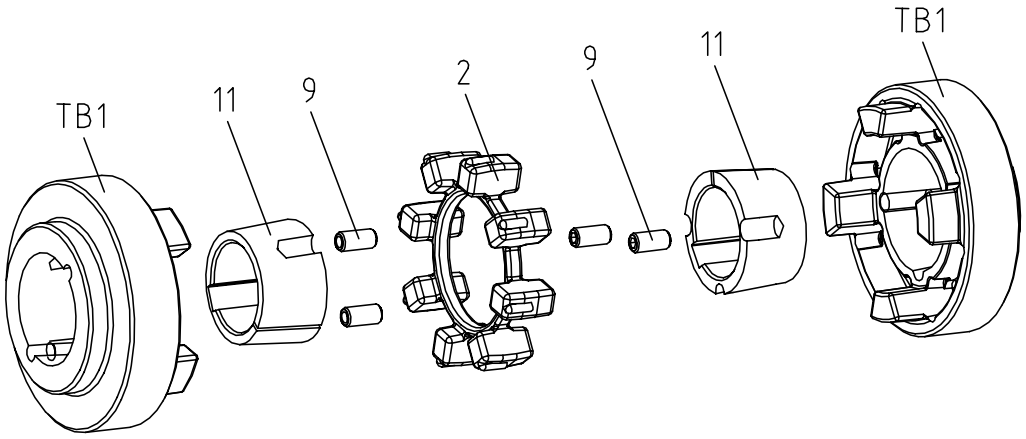
4 Assembly

4.1 Components of the Couplings

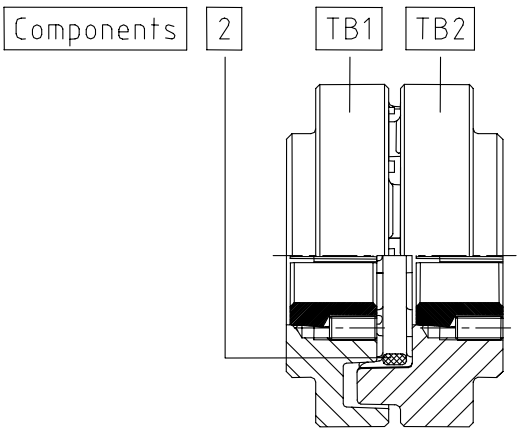
Components of POLY-NORM®, type with taper clamping sleeve

Component	Quantity	Designation	Material	Balancing Condition
2	1	elastomer ring	NBR (Perbunan)	
9	2 [1)]	setscrew	steel	
TB1	2	hub for taper clamping sleeve	EN-GJL-250	acc. to customer's request
11	2	taper clamping sleeve	EN-GJL-250	

[1)] each taper clamping sleeve, from size 100 on 3 grub screws are needed



picture 15: POLY-NORM®, type with taper clamping sleeve



picture 16: type with taper clamping sleeve
hub design TB1 and TB2

Coupling design:

TB1 Cam-sided screwing
TB2 Collar-sided screwing

Various combinations of the designs TB1 and TB2 are possible.

4 Assembly

4.2 Assembly of the Coupling (General)

ATTENTION!
We recommend to check bores, shaft, keyway and feather key for dimensional accuracy before assembly.

Heating the hubs, coupling flanges or flange hubs slightly (approx. 80 °C) allows for an easier installation onto the shaft.

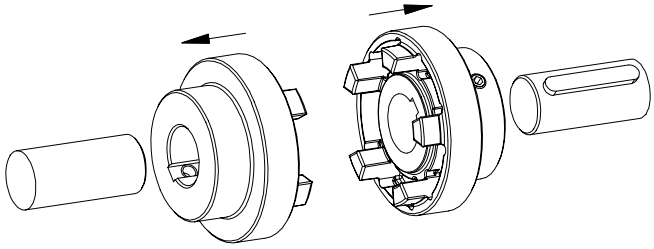
PRECAUTION!
Please pay attention to the danger of ignition in hazardous areas.

DANGER!
Touching the heated hubs causes burns.
We would recommend to wear safety gloves.

CAUTION!
During the assembly please make sure that the s dimension (see table 1 to 14 of the respective type) is observed, so that the hubs do not contact each other during operation. Disregarding this hint may cause damage on the coupling.

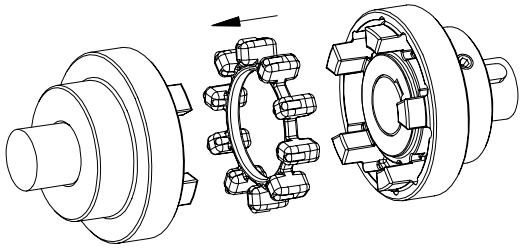
4.3 Assembly of the Type AR

- Assemble the hubs onto the shaft of driving and driven side (see picture 17).



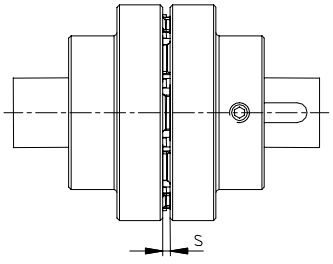
picture 17: assembly of the hub

- Insert the elastomer ring into the cam section of the drive- or driven-sided hub (see picture 18).



picture 18: assembly of the elastomer ring

- Move the power packs in axial direction until the dimension s is achieved (see picture 19).
- If the power packs are already firmly assembled, axial movement of the hubs on the shafts allows for adjusting the dimension s (see picture 19).
- Fasten the hubs by tightening the setscrews DIN 916 with cup point (tightening torque see table 2).

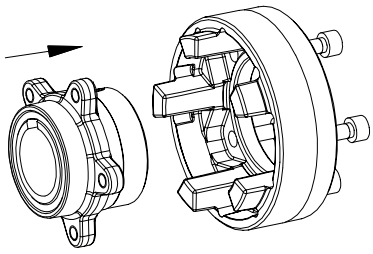


picture 19: coupling assembly

4 Assembly

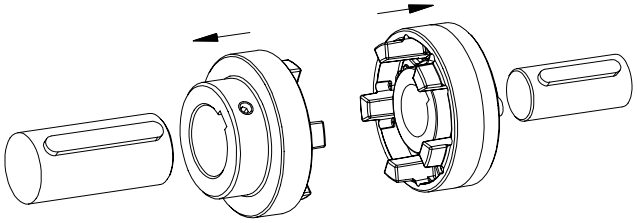
4.4 Assembly of the Type ADR, ADR-K and AVR

- Please plug the flange hub and the cam ring together (see picture 20).
- At first hand-screw the parts.



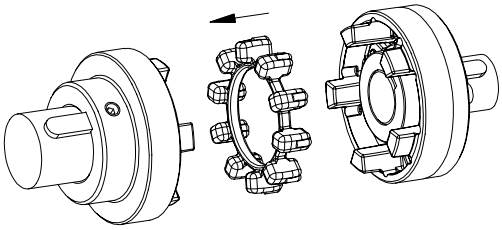
picture 20: assembly of the flange hub with cam ring

- Assemble the hub and flange hub with cam ring onto the shaft of driving and driven side (see picture 21).
- Tighten the screws with a suitable torque key to the tightening torques T_A shown in table 5.



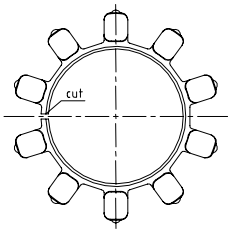
picture 21: assembly of the hub and flange hub with cam ring

- Insert the elastomer ring into the cam section of the drive- or driven-sided hub or cam ring (see picture 22).

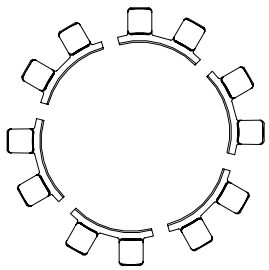


picture 22: assembly of the elastomer ring

C A U T I O N !
For the easier assembly of the elastomer ring, if the aggregates have already been assembled, we would recommend to separate the elastomer ring up to size 65 at one position between the dampers (see picture 23).
From size 75 on we would recommend to separate the elastomer ring between every second damper for an easier assembly (see picture 24).

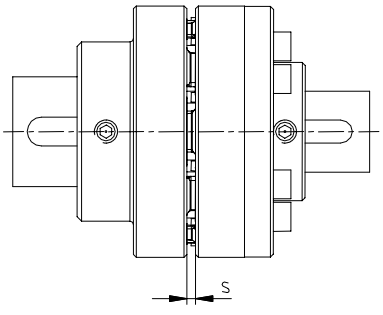


picture 23: assembly help of the elastomer ring up to size 65



picture 24: assembly help of the elastomer ring from size 75 on

- Move the power packs in axial direction until the dimension s is achieved (see picture 25).
- If the power packs are already firmly assembled, axial movement of the hubs on the shafts allows for adjusting the dimension s (see picture 25).
- Fasten the hubs or flange hubs by tightening the setscrews DIN 916 with cup point (tightening torque see table 2).



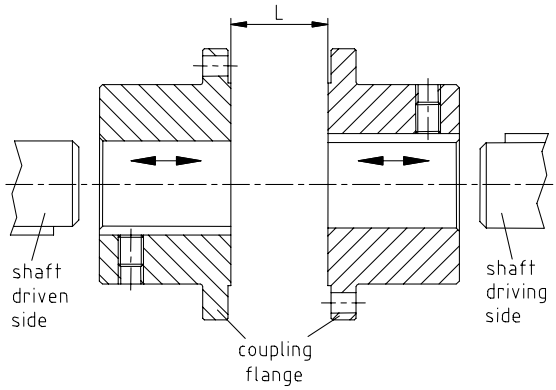
picture 25: coupling assembly

C A U T I O N !
Having set the coupling into operation, the tightening torque of the screws and wear of elastomer ring have to be inspected in usual maintenance intervals.

4 Assembly

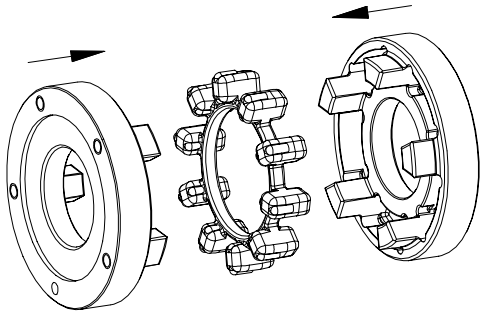
4.5 Assembly of the Type AZR, AZR short and AZVR

- Assemble the coupling flange onto the shaft of driving or driven side (see picture 26).
  The inside of the coupling flange must be flush with the faces of the shafts.
- Move the power packs in axial direction until the dimension L is achieved.
- Fasten the coupling flanges by tightening the setscrews DIN 916 with cup point (tightening torque see table 2).



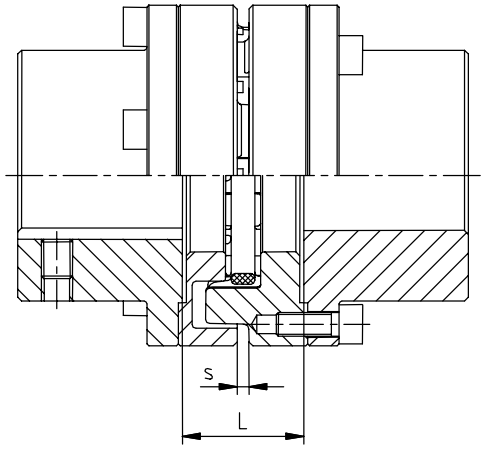
picture 26: assembly of the coupling flanges

- Please plug the driving flanges and the elastomer ring together (see picture 27).



picture 27: assembly of the driving flange with elastomer ring

- Put the assembled parts between the coupling flanges (see picture 28).
- At first hand-screw the parts.
- Tighten the screws with a suitable torque key to the tightening torques T_A shown in table 7, 10 and 13.
- Please check the s or the L dimension (see table 6, 8 and 11).
- If the power packs are already firmly assembled, axial movement of the coupling flanges on the shafts allows for adjusting the dimension s or L (see picture 28).



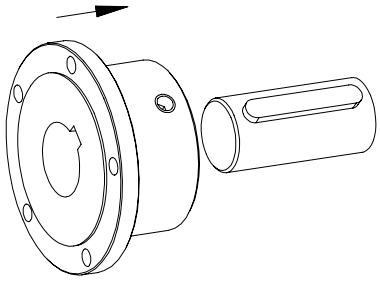
picture 28: coupling assembly

C A U T I O N !
Having set the coupling into operation, the tightening torque of the screws and wear of elastomer ring have to be inspected in usual maintenance intervals.

4 Assembly

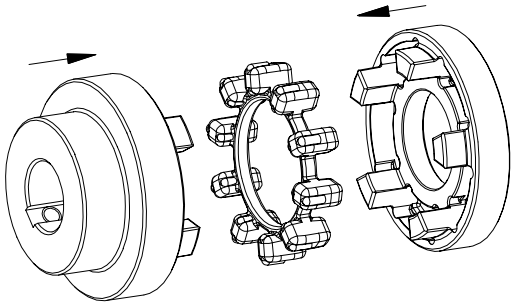
4.6 Assembly of the Type AR/AZR

- Assemble the coupling flange onto the shaft of driving or driven side (see picture 29).
  The inside of the coupling flange must be flush with the faces of the shafts.



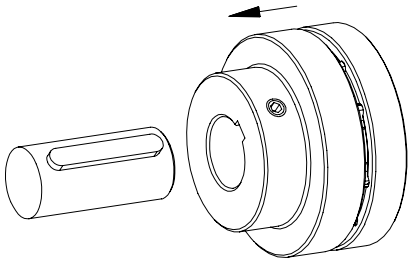
picture 29: assembly of the flange hub

- Please plug the hub, the elastomer ring and the driving flange together (see picture 30).



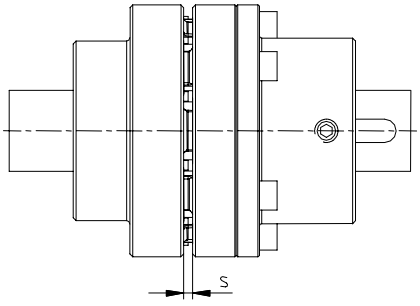
picture 30: assembly of the hub, elastomer ring and driving flange

- Assemble the parts put together onto the other shaft end (see picture 31).
- Secure the hub and the coupling flange by fastening the setscrews DIN 916 with cup point (tightening torque see table 2).



picture 31: assembly of the components

- Position the machine in a way that the driving flange and the coupling flange can be screwed together. First screw the parts manually and tighten the screws with a suitable torque key according to the tightening torques T_A indicated in table 10.
- Please check the s dimension (see picture 32).



picture 32: coupling assembly

C A U T I O N !
Having set the coupling into operation, the tightening torque of the screws and wear of elastomer ring have to be inspected in usual maintenance intervals.

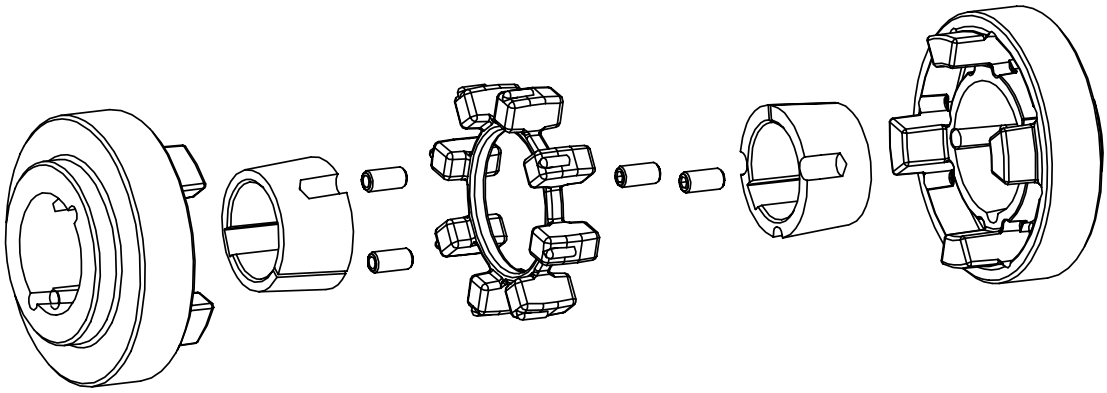
4 Assembly

4.7 Assembly of the Taper Clamping Sleeve

Assembly of the taper clamping sleeve:

Fit the coupling element and the taper clamping sleeve into each other, make sure that the bores cover each other and tighten the setscrews slightly. Put the coupling element with the taper clamping sleeve onto the shaft and tighten the setscrews to the tightening torque shown in table 15.
During the process of screwing the hub is pushed onto the taper sleeve so that the bush is pressed onto the sleeve. The taper clamping sleeve has to be driven further into the taper bore with light blows of a hammer by means of a suitable sleeve. Afterwards the setscrews have to be retightened to the tightening torque shown in table 15. This process has to be performed at least one time.
After the drive has been operated under load over a short period in time, it should be reviewed whether the setscrews may have unscrewed.
An axial fastening of the taper lock hub (coupling hub with taper clamping sleeve) can only be realized by a proper assembly.

C A U T I O N !
When using the grub screws for fixing the taper clamping sleeves in explosive areas, please additionally secure them against self-loosening, e. g. w. Loctite (medium-strength). Taper clamping sleeves without using a feather key are not permitted in explosive areas.



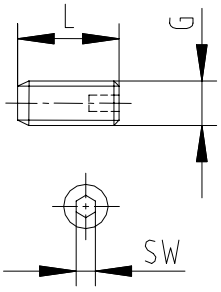
picture 33: POLY-NORM®, type with taper clamping sleeve

Disassembly of the taper clamping sleeve:

The taper clamping sleeve is detached if the setscrews are removed. Afterwards one of the setscrews is screwed into the thread of the bush as a pull-off screw and tightened.
The detached coupling hub can be removed manually from the shaft together with the taper clamping sleeve.

Table 15:

taper clamping sleeve	screw dimensionss				quantity	spanner
	G [inch]	L [inch]	SW [mm]	T_A [Nm]		
1108	1/4	1/2	3	5,7	2	SW 3
1610	3/8	5/8	5	20	2	SW 5
1615	3/8	5/8	5	20	2	SW 5
2012	7/16	7/8	6	31	2	SW 6
2517	1/2	7/8	6	49	2	SW 6
3020	5/8	1 1/4	8	92	2	SW 8
3535	1/2	1 1/2	10	115	3	SW 10



picture 34: Withworth-setscrew (BSW)

4 Assembly

4.8 Hint Regarding the Finish Bore

KTR supplies the coupling parts and spare parts in an unbored or pilot bored design only on request of the customer. Such parts are marked additionally with the symbol Ⓤ.

C A U T I O N !
The customer is responsible for all machining processes performed subsequently on all unbored or pilot bored as well as finish machined coupling parts and spare parts by the customer. KTR does not take any warranty for any improper remachining processes.

P R E C A U T I O N !
Any mechanical rework to couplings that are used in hazardous areas require an explicit release by KTR.
The orderer must send a drawing to KTR acc. to which the manufacture must be made. KTR checks this drawing and returns it to the orderer with approval.

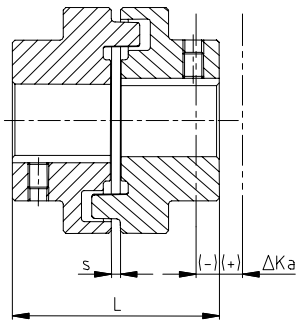
4.9 Displacements - Alignment of the Couplings

The **POLY-NORM®** compensates for displacements produced by the shafts to be combined as shown in table 16. Excessive misalignment may be caused by inaccurate alignment, production tolerances, thermal expansion, shaft deflection, twisting of machine frames, etc.

C A U T I O N !
In order to ensure a long lifetime of the coupling and to avoid dangers regarding the use in hazardous areas, the shaft ends must be accurately aligned.
Please absolutely observe the displacement figures indicated (see table 16). If the figures are exceeded, the coupling is damaged.
The more accurately the coupling is aligned, the higher is its durability.
In case of a use in hazardous areas for the explosion group IIC (marking II 2G c IIC T4), only the half displacement figures (see table 16) are permissible.

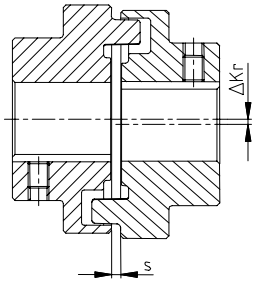
Please note:

- The displacement values mentioned in table 16 are maximum values which may not occur at the same time. If the radial and the angular displacement occur at the same time, the sum of the displacements may not exceed ΔK_r or ΔK_W.
- Please check with a dial gauge, ruler or feeler whether the permissible displacement figures of table 16 can be observed.

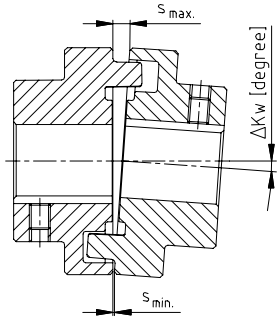


axial displacements

$L_{perm.} = L + \Delta K_A$ [mm]



radial displacements



angular displacements

$\Delta K_W = s_{max.} - s_{min.}$ [mm]

picture 35: displacements

4 Assembly

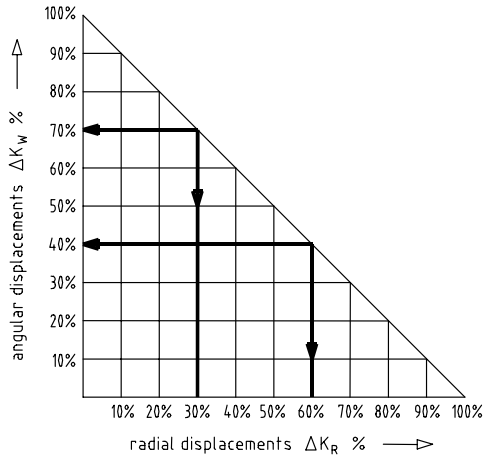
4.9 Displacements - Alignment of the Couplings

Continuation:

Example for the misalignment combinations given in picture 36:

Example 1:
$\Delta K_R = 30\%$
$\Delta K_W = 70\%$

Example 2:
$\Delta K_R = 60\%$
$\Delta K_W = 40\%$



picture 36: combinations of displacement

$$\Delta K_{total} = \Delta K_R + \Delta K_W \leq 100\ \%$$

Table 16: displacement figures

coupling size (for all materials)	28	32	38	42	48	55	60	65	75	85	90	100	110	125
max. axial displacement ΔKa [mm]	±1	±1	±1	±1	±1,5	±1,5	±1,5	±1,5	±1,5	±1,5	±1,5	±3	±3	±3
max. radial displacement with n=1500 1/min ΔKr [mm]	0,2	0,25	0,25	0,25	0,3	0,3	0,3	0,35	0,4	0,4	0,5	0,5	0,6	0,6
max. radial displacment with n=3000 1/min ΔKr [mm]	0,15	0,18	0,18	0,18	0,22	0,22	0,22	0,26	0,3	0,3	0,33	0,37	0,42	0,48
max. angular displacement (1°) with n=1500 1/min ΔKw [mm]	1,2	1,4	1,5	1,7	1,8	2,0	2,2	2,4	2,7	3,0	3,4	3,9	4,3	4,8
max. angular displacement (0,5°) with n=3000 1/min ΔKw [mm]	0,6	0,7	0,7	0,8	0,9	1,0	1,1	1,2	1,3	1,5	1,7	1,9	2,1	2,4

4.10 Spares Inventory, Customer Service Addresses

A basic requirement to guarantee the operational readiness of the coupling is a stock of the most important spare parts on site.

Contact addresses of the KTR partners for spare parts and orders can be obtained from the KTR homepage under www.ktr.com.

5 Enclosure A

Hints and Instructions Regarding the Use in Ex Hazardous Areas

Type AR:	hub/elastomer ring/hub
Type ADR:	hub/elastomer ring/flange hub/cam ring
Type ADR-K:	hub/elastomer ring/flange hub K/cam ring
Type AZR and AZR short:	coupling flange/driving flange/elastomer ring/driving flange/coupling flange
Type AR/AZR:	hub/elastomer ring/driving flange/coupling flange
Type AZVR:	coupling flange/driving flange/elastomer ring/driving flange AZVR/ coupling flange AZVR
Type with taper clamping sleeve:	hub/taper clamping sleeve/elastomer ring/ taper clamping sleeve/hub **(Use of taper clamping sleeve <u>only</u> in connection with a feather key!)**

5.1 Use in Ex Hazardous Areas According to the Regulations

Conditions of operation in Ex hazardous locations

POLY-NORM® couplings are suitable for the use according to EC standard 94/9/EC.

1. Industry (with the exception of mining)

- device class II of category 2 and 3 (*coupling is <u>not</u> approved for device class 1*)
- media class G (*gases, fogs, steams*), zone 1 and 2 (*coupling is <u>not</u> approved for zone 0*)
- media class D (*dusts*), zone 21 and 22 (*coupling is <u>not</u> approved for zone 20)*
- explosion class IIC (*explosion class IIA and IIB are included in IIC*)

<u>Temperature class:</u>

Temperature class	ambient or operating temperature T_a	max. surface temperature
T4, T3, T2, T1	- 30 °C to + 80 °C [1)]	100 °C [2)]
T5	- 30 °C to + 80 °C	100 °C
T6	- 30 °C to + 65 °C	85 °C

<u>Explanation:</u>
The maximum surface temperatures result from each the maximum permissible ambient or operating temperature T_a plus the maximum temperature increase ΔT of 20 K which has to be taken into account.

1) The ambient or operating temperature T_a is limited to + 80 °C due to the permissible permanent operating temperature of the elastomers used.

2) The maximum surface temperature of 100 °C applies for the use in locations which are potentially subject to dust explosion, too.

2. Mining

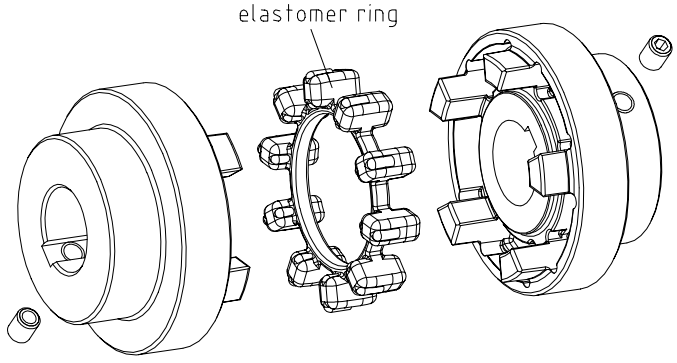
Device class I of category M2 (coupling is <u>not</u> approved for device category M1).
Permissible ambient temperature - 30 °C to + 80 °C.

5 Enclosure A

Hints and Instructions Regarding the Use in Ex Hazardous Areas

5.2 Control Intervals for Couplings in Ex Hazardous Areas

explosion group	control intervals
3G 3D	For couplings which are classified in category 3G or 3D the operating and assembly instructions that are usual for standard operation apply. During the standard operation which has to be subject to the analysis of danger of ignition the couplings are free from any ignition source. Merely the temperature increase produced by proper heating and depending on the coupling type has to be considered: for POLY-NORM®: ΔT = 20 K
II 2G c IIB T4, T5, T6	A checking of the circumferential backlash and a visual check of the elastomer ring must be effected after 3000 operating hours for the first time, after 6 months at the latest. Except for centered, stiff connecting flanges (e. g. bellhousings). If you note an unconsiderable or no wear at the elastomer ring after this first inspection, the further inspections can be effected, in case of the same operating parameters, respectively after 6000 operating hours or after 18 months at the latest. If you note a considerable wear during the first inspection, so that a change of the elastomer ring would be recommended, please find out the cause according to the table „Breakdowns“, as far as possible. The maintenance intervals must be adjusted according to the changed operating parameters.
II 2G c IIC T4, T5, T6	A checking of the circumferential backlash and a visual check of the elastomer ring must be effected after 2000 operating hours for the first time, after 3 months at the latest. Except for centered, stiff connecting flanges (e. g. bellhousings). If you note an unconsiderable or no wear at the elastomer ring after this first inspection, the further inspections can be effected, in case of the same operating parameters, respectively after 4000 operating hours or after 12 months at the latest. If you note a considerable wear during the first inspection, so that a change of the elastomer ring would be recommended, please find out the cause according to the table „Breakdowns“, as far as possible. The maintenance intervals must be adjusted according to the changed operating parameters.



picture 37: POLY-NORM®, type AR

Here the backlash between the coupling cams and the elastomer teeth must be checked by a reverse backlash.
The friction / wear may be 25% of the original tooth thickness of the elastomer before elastomer rings must be changed.
When reaching the limit of wear and tear $\Delta s_{max.}$, the elastomer rings must be exchanged immediately, irrespective of the inspection intervals.

5 Enclosure A

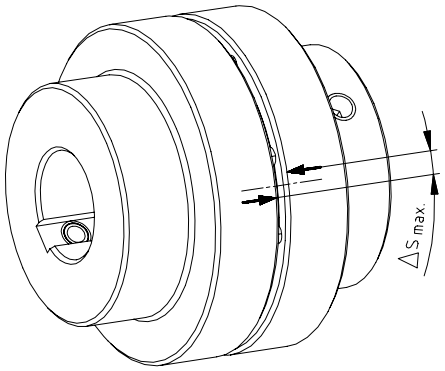
Hints and Instructions Regarding the Use in Ex Hazardous Areas

5.3 Approximate Values of Wear

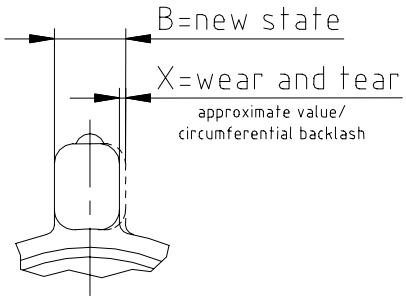
The achievement of the exchange limits depends on the conditions of the use and the existing operating parameters.

In case of a torsional backlash of ≥ $\Delta s_{max.}$, an exchange of the elastomer rings must be effected.
Friction ≥ 25% of the original tooth thickness of the elastomer - exchange is necessary!

C A U T I O N !
In order to ensure a long lifetime of the coupling and to avoid dangers regarding the use in hazardous areas, the shaft ends must be accurately aligned.
Please absolutely observe the displacement figures indicated (see table 16). If the figures are exceeded, the coupling is damaged.



picture 38: checking of the limit of wear



picture 39: wear of elastomer ring

Table 17:

POLY-NORM® size	limits of wear			POLY-NORM® size	limits of wear		
	elastomer - tooth thickness [mm]	friction $X_{max.}$ [mm]	torsional backlash $\Delta s_{max.}$ [mm]		elastomer - tooth thickness [mm]	friction $X_{max.}$ [mm]	torsional backlash $\Delta s_{max.}$ [mm]
28	7,2	1,80	3,0	65	13,4	3,35	5,4
32	8,8	2,20	3,6	75	15,6	3,90	6,1
38	9,0	2,20	3,6	85	19,1	4,75	7,4
42	9,6	2,40	4,0	90	20,0	5,00	7,0
48	10,3	2,55	4,2	100	23,0	5,75	9,1
55	11,9	2,95	4,7	110	22,5	5,5	8,0
60	12,6	3,15	5,1	125	24,5	6,0	9,0

5.4 Permissible Coupling Materials in the Ex Hazardous Area

In the Explosion Groups **IIA, IIB** and **IIC** the following materials may be combined:
EN-GJL-250 (alte Bez. GG 25) (old designation GG 25)
EN-GJS-400-15 (alte Bez. GGG 40) (old designation GGG 40)

Semifinished products from aluminium with a magnesium part of up to 7,5 % and a yield point of $R_{p0,2} \geq 250$ N/mm^2 are permitted for the use in hazardous areas.
Aluminium diecast is generally excluded for hazardous areas.

5 Enclosure A

Hints and Instructions Regarding the Use in Ex Hazardous Areas

5.5 Ex Marking of Coupling for the Hazardous Area

Couplings for the use in hazardous areas are marked on at least one component completely and on the remaining components at the outside diameter of the hub or on the front side with an Ex label for the respectively permitted conditions of use. The elastomer ring is not marked.

Complete labelling: Ex **II 2G c IIC T6 bzw. T5** X - 30 °C ≤T_a≤ + 65 °C bzw. + 80 °C
II 2D c T 100 °C X - 30 °C ≤T_a≤ + 80 °C / **I M2 c X** - 30 °C ≤T_a≤ + 80 °C

Short labelling: Ex **II 2GD c IIC T X / I M2 c TX**

The former marking remains valid: Ex II 2G c IIC T4/T5/T6 - 30 °C ≤T_a≤ + 80/60/45 °C
II 2D c T 110 °C/I M2 c - 30 °C ≤T_a≤ + 80 °C

The labelling with Explosion Group IIC includes the Explosion Groups IIA and IIB.

If the coupling part is labelled with U in addition to Ex, KTR supplied it unbored or pilot bored.

C A U T I O N !
Any mechanical rework to couplings that are used in hazardous areas require an explicit release by KTR.
The orderer must send a drawing to KTR acc. to which the manufacture must be made. KTR checks this drawing and returns it to the orderer with approval.

5.6 Starting

Before putting the coupling into operation, check the tightness of the grub screws in the hubs, the alignment and the distance dimension s and correct, if necessary, and also check all screw connections regarding the stipulated tightening torques dependent on the type of coupling.

Ex For the operation in hazardous locations the setscrews to fasten the hubs and screws on flange or clamping hubs, respectively, have to be additionally secured against slackening, e. g. by conglutinating with Loctite (medium strength).

Last but not least, the coupling protection against unintended contact must be fixed.

The cover must be electrically conductive and be included in the equipotential bonding. Bellhousings (magnesium part below 7,5 %) made from aluminium and damping rings (NBR) can be used as connecting element between pump and electro motor. The cover may only be taken off after having stopped the unit.

During operation, please pay attention to

- strange running noises
- occurring vibrations.

If the couplings are used in dust explosive areas and in mining the user must make sure that there is no accumulation of dust in a critical quantity between the cover and the coupling. The coupling must no operate in an accumulation of dust.

For covers with unlocked openings on the upper side no light metals may be used if the couplings are used as appliances of appliance group II (*if possible, from stainless steel*).
If the couplings are used in mining (appliance group I M2), the cover must not be made from light metal. In addition, it must be resistant to higher mechanical loads than if it is used as appliance of appliance group II.

5 Enclosure A

Hints and Instructions Regarding the Use in Ex Hazardous Areas

5.6 Starting

The minimum distance of the protection device to the rotating parts must be at least 5mm.

If the protection device is used as cover, regular openings complying with the explosion protection demands can be made that must not exceed the following dimensions:

	form of the openings		
	circular openings diameter in mm	rectangular openings side length in mm	straight or bended slot distance of the side limit in mm
top surface of the covering	4	4	prohibited
side parts of the covering	8	8	8

C A U T I O N !
If you note any irregularities at the coupling during operation, the drive unit must be turned off immediately. The cause of the breakdown must be found out with the table „Breakdowns“ and, if possible, be eliminated according to the proposals. The possible breakdowns mentioned can be hints only. To find out the cause all operating factors and machine components must be considered.

Coupling layer:

If coated (priming, painting etc.) couplings are used in hazardous areas, the requirements to conductability and layer thickness must be considered. In case of paintings up to 200 µm no electrostatic load can be expected. Multiple coatings that are thicker than 200 µm are prohibited for explosion group IIC.

5.7 Breakdowns, Causes and Elimination

The below-mentioned errors can lead to an incorrect use of the **POLY-NORM®** coupling. In addition to the stipulations in these operating and mounting instructions please make sure to avoid these errors.
The errors listed can only be clues to search for the errors. When searching for the error the adjacent components must be generally included.

Due to incorrect use the coupling can become a source of ignition.
EC Standard 94/9/EC requires a special care from the manufacturer and the user.

General errors incorrect use

- Important data for the coupling selection was not forwarded.
- The calculation of the shaft/hub connection was not considered.
- Coupling parts with damage occurred during transport are assembled.
- If the heated hubs are assembled, the permissible temperature is exceeded.
- The fits of the parts to be assembled are not coordinated with each other.
- Tightening torques are below/exceeded.
- Components are exchanged by mistake/put together incorrectly.
- A wrong or no elastomer ring is inserted into the coupling.
- No original KTR parts (purchased parts) are used.
- Old/already worn or superposed elastomer rings are used.
- The coupling used / the coupling protection used is not suitable for the operation in hazardous areas and does not correspond to EC Standard 94/9/EC, respectively.
- Maintenance intervals are not observed.

5 Enclosure A

Hints and Instructions Regarding the Use in Ex Hazardous Areas

5.7 Breakdowns, Causes and Elimination

breakdowns	causes	danger hints for hazardous areas	elimination
change of the running noises and/or occurring vibrations	misalignment		1) put the unit out of operation 2) eliminate the reason for the misalignment (e. g. loose foundation bolts, break of the engine fixing, heat expansion of unit components, change of the assembly dimension s of the coupling) 3) checking of wear see under point Control
	wear of elastomer ring, short-term torque transmission due to metal contact	danger of ignition due to sparking	1) put the unit out of operation 2) disassemble the coupling and remove rests of the elastomer ring 3) check coupling parts and exchange damaged coupling parts 4) insert elastomer ring, assemble coupling parts 5) check alignment, correct if necessary
	loose screws for axial securement of hubs	danger of ignition due to sparking	1) put the unit out of operation 2) check alignment of coupling 3) tighten the screws to secure the hubs and secure against self-loosening 4) checking of wear see under point Control
break of cam	wear of elastomer ring, torque transmission due to metal contact	danger of ignition due to sparking	1) put the unit out of operation 2) change complete coupling 3) check alignment
	break of the cams due to high shock energy/overload	danger of ignition due to sparking	1) put the unit out of operation 2) change complete coupling 3) check alignment 4) find out the reason of overload
	operating parameters do not correspond to the performance of the coupling	danger of ignition due to sparking	1) put the unit out of operation 2) check the operating parameters and select a larger coupling (consider installation space) 3) assemble new coupling size 4) check alignment
	mistake in service of the unit	danger of ignition due to sparking	1) put the unit out of operation 2) change complete coupling 3) check alignment 4) instruct and train the service staff

5 Enclosure A

Hints and Instructions Regarding the Use in Ex Hazardous Areas

5.7 Breakdowns, Causes and Elimination

breakdowns	causes	danger hints for hazardous areas	elimination
premature wear of elastomer ring	misalignment		1) put the unit out of operation 2) eliminate the reason for the misalignment (e. g. loose foundation bolts, break of the engine fixing, heat expansion of unit components, change of the assembly dimension s of the coupling) 3) checking of wear see under point Control
	e. g. contact with aggressive liquids/ oils, ozone-influence, too high ambient temperatures etc. effecting a physical change of the elastomer ring	danger of ignition due to sparking in case of metallic contact of the cams	1) put the unit out of operation 2) disassemble the coupling and remove rests of the elastomer ring 3) check coupling parts and exchange damaged coupling parts 4) insert elastomer ring, assemble coupling parts 5) check alignment, correct if necessary 6) make sure that further physical changes of the elastomer ring are excluded
	ambient/contact temperatures which are too high for the elastomer ring, max. permissible -30 °C / +80 °C	danger of ignition due to sparking in case of metallic contact of the cams	1) put the unit out of operation 2) disassemble the coupling and remove rests of the elastomer ring 3) check coupling parts and exchange damaged coupling parts 4) insert elastomer ring, assemble coupling parts 5) check alignment, correct if necessary 6) check and regulate ambient/contact temperature
premature wear of elastomer ring (Hardening/ embrittlement of the elastomer cam)	drive vibrations	danger of ignition due to sparking in case of metallic contact of the cams	1) put the unit out of operation 2) disassemble the coupling and remove rests of the elastomer ring 3) check coupling parts and exchange damaged coupling parts 4) insert elastomer ring, assemble coupling parts 5) check alignment, correct if necessary 6) find out the reason for the vibrations

Ex For the operation with a worn out spider (see chapter 5.2) and a subsequent contact of metal parts a proper operation following the explosion protection or the EC standard 94/9/EC, respectively, is not ensured.

☞ **ATTENTION!**
KTR does not take any responsibility or warranty for the use of spare parts and accessories which were not supplied by KTR and the resulting damages.

5 Enclosure A

Hints and Instructions Regarding the Use in Ex Hazardous Areas

5.8 EC Certificate of Conformity

EC Certificate of Conformity

corresponding to EC Standard 94/9/EC dated 23 March 1994
and to the legal regulations

The manufacturer - KTR Kupplungstechnik GmbH, D-48432 Rheine - states that the

POLY-NORM® couplings

described in these mounting instructions and explosion-proof designed correspond to Article 1 (3) b) of Standard 94/9/EC and comply with the general Safety and Health Requirements according to enclosure II of Standard 94/9/EC.

The couplings are certified according to Type Examination Certificate IBExU02ATEXB006 X.

According to article 8 (1) of Standard 94/9/EC the technical documentation is deposited with the:

IBExU
Institut für Sicherheitstechnik GmbH
Fuchsmühlenweg 7

09599 Freiberg

Rheine, 12.06.02
Date

ppa.
Dr. Norbert Partmann
Engineering Manager

i. V.
Bernd Tenfelde
Product Manager