

Magnetic couplings

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MINEX®-H

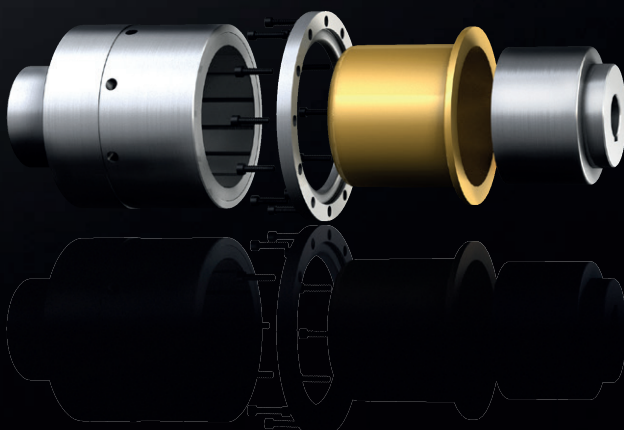
Hysteresis coupling 276

Please note: Higher pressure resistance

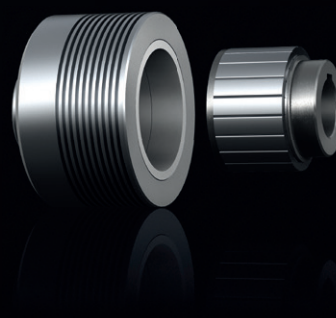


Years of experience with applications at customer sites and additional test series in the KTR test field in Rheine enabled us to determine potentials allowing for an increase of pressure resistance with some sizes of this series.

MINEX®-S



MINEX®-H



MAGNETIC COUPLINGS

TYPES AND OPERATING DESCRIPTION

General information



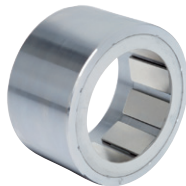
General description

MINEX[®]-S magnetic couplings transmit the torque without contact through magnetic forces between the internal and external rotor. They ensure hermetic separation between driving and driven side in pumps and agitators sealing hazardous liquids and gases reliably. As a result they prevent serious leakages operating as a reliable alternative to usual dynamic shaft seals.

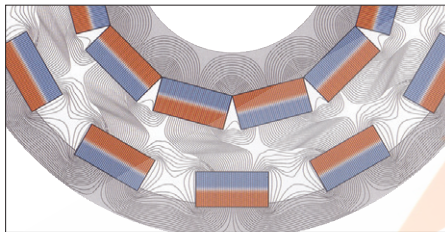
Internal rotor



External rotor



Run of flux lines



Operation/design

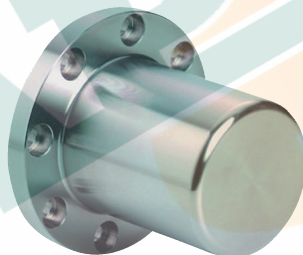
The coupling consists of an external and an internal rotor. The external rotor has high-quality, permanent magnets of changing polarity on the inner side while the internal rotor has got them on the outside.

The external rotor is usually fixed on the drive side and the magnets are bonded in the keyways. The magnets of the internal rotor on the driven side are fully encapsulated.

Torque transmission

In their non-operative states the north and south poles of the rotors face each other and the magnetic field is completely symmetric. It is only when the rotors are twisted that the magnetic field lines are deflected, hence the torque is transmitted through the air gap. Then there is a synchronous operation under a constant torsion angle. If the maximum coupling torque and the maximum torsion angle are exceeded, the power transmission is interrupted.

Containment shroud



Sealing function

The containment shroud that is fixed to the housing separates internal and external rotor from each other.

It ensures a completely leak-proof separation of product and atmosphere.

The sealing is made statically, e. g. with a flat gasket or an O-ring, thus eliminating the need to use dynamically loaded sealing elements.

As a standard KTR supplies both metallic and non-metallic containment shrouds. The metallic types cover the widest application range, yet causing eddy current losses which might require cooling measures. If eddy current losses have to be entirely excluded, the energy-efficient alternative materials PEEK and ceramics are available.

Use in potentially explosive atmospheres

MINEX[®] couplings are suitable for power transmission in drives in potentially explosive atmospheres. The types with metallic, ceramic and PEEK containment shrouds are assessed and approved as components of category II according to EU directive 2014/34/EU and thus suitable for the use in potentially explosive atmospheres of zone 2G.

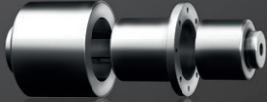
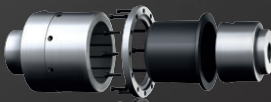
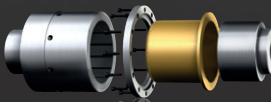

Please read through our information included in the respective type examination certificate and the operating and assembly instructions at www.ktr.com.



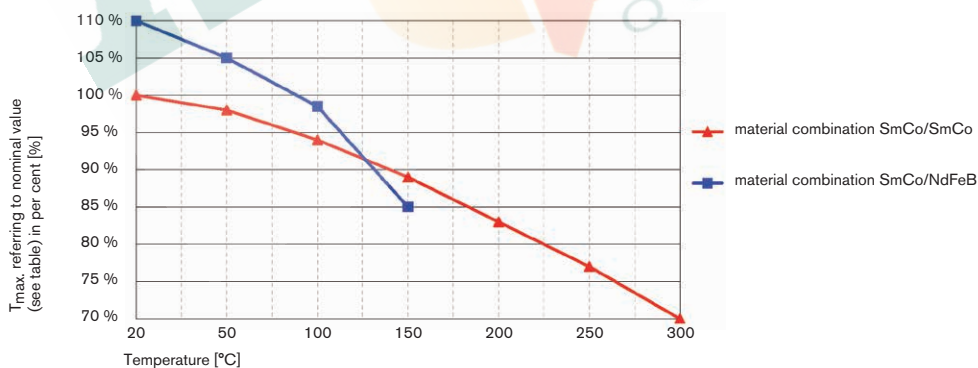
MAGNETIC COUPLINGS

TYPES AND OPERATING DESCRIPTION

Properties of magnetic couplings

			
Product	Type with metallic containment shroud	Type with containment shroud made of PEEK CFRP	Type with containment shroud made of oxide ceramics
Type	Permanent-magnetic synchronous coupling		
Properties			
Permanent-magnetic	●	●	●
Contactless	●	●	●
Maintenance-free	●	●	●
Torsionally flexible	●	●	●
Low vibrations	●	●	●
Special features/applications			
	most common type covering the widest performance range particularly suitable for pump drives/ applications with liquids high t_{max} [°C] and p_{max} [bar]	no eddy current losses energy-efficient and economic particularly suitable for dry running	
		for average requirements on t_{max} [°C] and p_{max} [bar]	high t_{max} [°C] and p_{max} [bar]
Torque range T_{KN} [Nm]			
Max.	1,000	600	600
Max. pressure resistance [bar]			
p_{max} .	up to 90 bars depending on size	up to 16 bars with 130 °C	up to 25 bars depending on size
Geometries			
shaft diameter min./max. [mm]	Ø5 pilot bored	Ø5 pilot bored	Ø5 pilot bored
Max. temperature resistance [°C]			
t_{max} .	150/300 depending on magnet material	130	300
Certifications/type examinations			
ATEX 	●	CFRP reinforcement ● GRP reinforcement	●
	for further details see catalogue pages 268 - 271	for further details see catalogue pages 272 - 273	
			for further details see catalogue pages 274 - 275

Torque reduction with temperature increase



Temporary torque reduction with increased temperature for alternative material combinations [%].

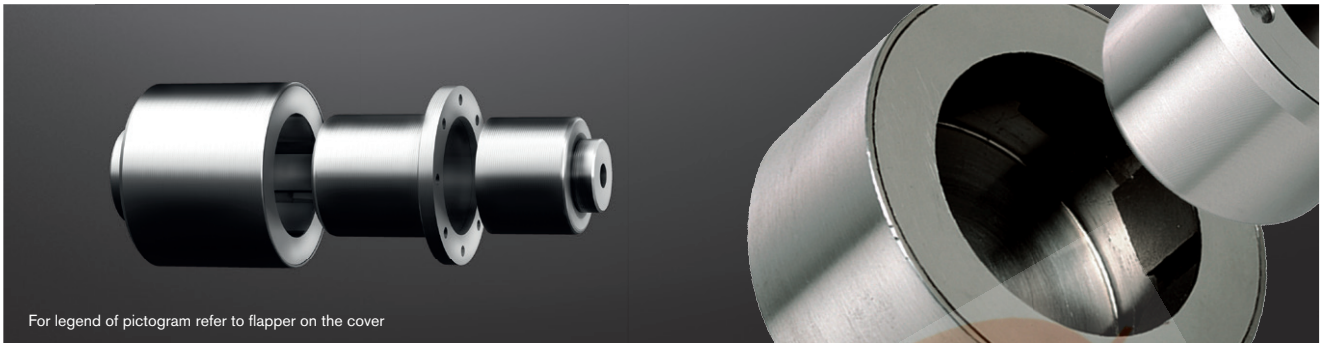
Please note:

KTR recommends to use NdFeB magnets for the external rotor, provided that the operating temperature falls below 150 °C.

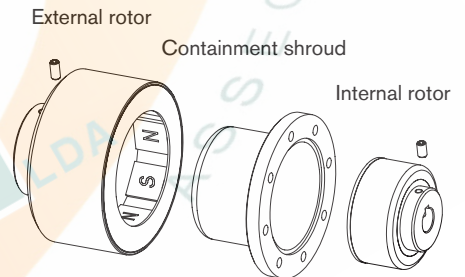
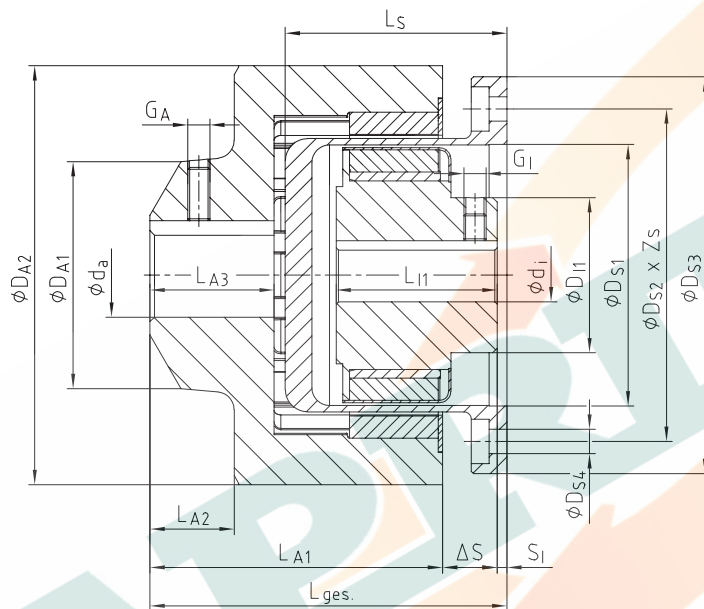
MINEX®-S

Magnetic couplings

Containment shroud – material stainless steel



For legend of pictogram refer to flapper on the cover



Technical data – Internal rotor and containment shroud

Size	TK max [Nm] with 20 °C	Dimensions [mm]												
		Internal rotor						Containment shroud						
		Finish bore ¹⁾ d _i		D _{I1}	L _{I1}	G _I	S _I		D _{S1}	D _{S2}	D _{S3}	D _{S4}	Z _S	L _S
min.	max.	min.	max.											
SA 22/4	0.15	5	9	20	20	M3	2.0	2.0	21.5	38	46	4.5	8	29
SA 34/10	1	5	12	20	22	M3	2.0	5.5	34	46	55	4.5	4	30.5
SA 46/6	3	8	16	28	33	M4	6.5	7.0	46	64	78	4.5	8	45
SA 60/8	7	12	22	35	36.3	M5	1.7	5.5	59	75	89	5.5	8	50
SB 60/8	14			36	56	M5	0.0	4.0						70.3

Technical data – External rotor and general

Size	Dimensions [mm]										
	External rotor									General	
	Finish bore ¹⁾ d _a		D _{A1}	D _{A2}	G _A	L _{A1}	L _{A2}	L _{A3}	ΔS	L _{total}	
min.	max.	min.								max.	
SA 22/4	5	11	18	38	M4	35	8.5	11	5	42	42
SA 34/10	5	14	22	53	M4	38.8	10.5	13	5.3	46	49.5
SA 46/6	5	24	40	69.5	M5	53	16	22	9	69	69.5
SA 60/8	9	32	50	94.5	M6	66	19	28	12	80	83.3
SB 60/8	9	38			M8	93.3	15	30			

¹⁾ Bores H7 with keyway to DIN 6885 sheet 1 [JS9]

Ordering example:	MINEX® SA 60/8	NdFeB	d _i Ø20 mm	d _a Ø24 mm
	Coupling size	NdFeB – t _{max.} = 150 °C Sm2Co17 – t _{max.} = 300 °C	Finish bore (H7), feather keyway acc. to DIN 6885 sheet 1 (JS9)	

Examples of application

MINEX® couplings with containment shroud made of stainless steel are the most common type for pump drives and other applications with liquids in the lower performance range. Subject to their high resistance to pressure and temperature they cover a wide application range. The magnetic rotors are available from stock in an unbored or pilot bored design. If requested, the parts can be finish bored according to ISO fit H7 and provided with feather keyway to DIN 6885 sheet 1 [JS9].

Inside the rotating magnetic field metallic containment shrouds generally cause losses of eddy current which are converted into heat and which may require cooling measures. On applications with pumps the heat generated can usually be dissipated by the medium to be pumped. If higher pressure resistance than covered by the KTR standard is required, KTR provides for customised special solutions.

Typical applications: gear pumps, centrifugal pumps, screw spindle pumps, agitators, PU foaming lines

Use in potentially explosive atmospheres

MINEX® couplings with containment shroud made of stainless steel are suitable for power transmission in drives used in potentially explosive atmospheres. They are assessed and approved as components of category II according to EU directive 2014/34/EU and thus suitable for the use in potentially explosive atmospheres of zone 2G.

If the couplings operate in potentially explosive atmospheres, the user has to provide for special measures. Please read through our information included in the respective type examination certificate and the operating and assembly instructions at www.ktr.com.

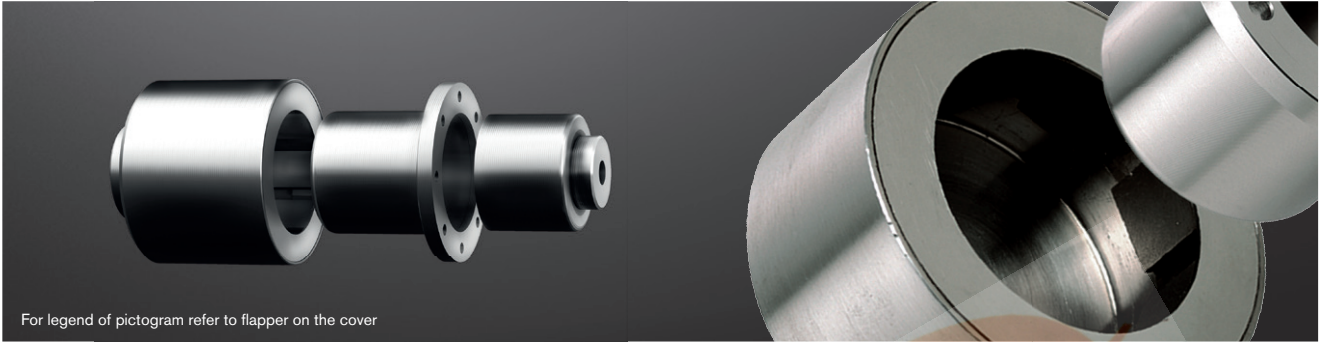


Technical data – Materials, temperature and pressure resistance										
Size	TK max [Nm] with 20 °C	Internal rotor			Containment shroud			External rotor (+ flange hub optionally)		
		Standard material		Max. temperature	Standard material		Max. pressure	Standard material		Max. temperature
		Hub	Magnets	t _{max.} [°C]	Hub	Cont. shroud	P _N /P _{max.} [bar]	Hub	Magnets	t _{max.} [°C]
SA 22/4	0.15	1.4462	NdFeB	150	1.4571	1.4571	60/90	S355J2	NdFeB	150
SA 34/10	1	1.4462	NdFeB	150	1.4571	1.4571	16/24	S355J2	NdFeB	150
SA 46/6	3	1.4571	Sm2Co17	300	1.4571	1.4571	16/24	S355J2	Sm2Co17	300
SA 60/8	7	1.4571	Sm2Co17	300	1.4571	1.4571	40/60	S355J2	Sm2Co17*	300
SB 60/8	14	1.4571	Sm2Co17	300	1.4571	1.4571	40/60	S355J2	Sm2Co17*	300

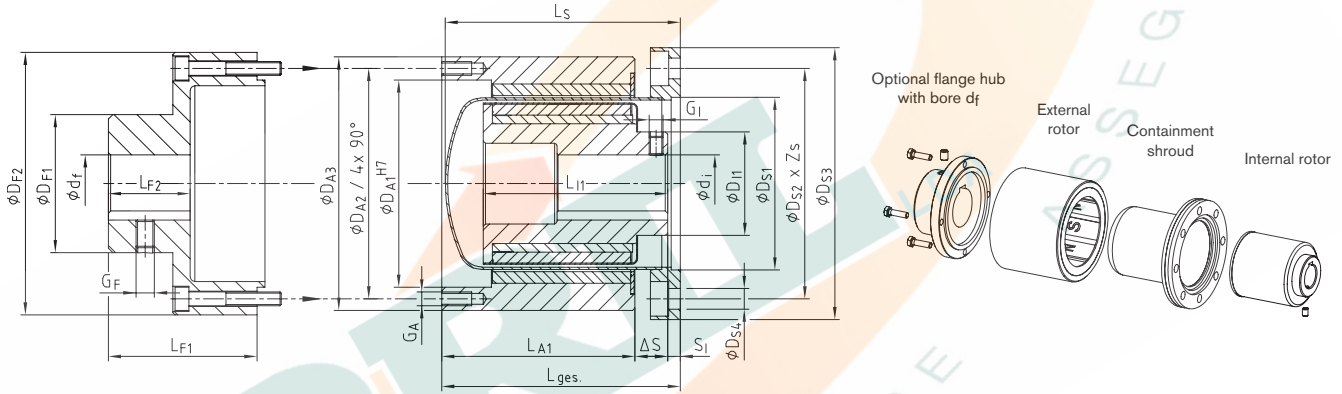
*) External rotor alternatively available with magnets made of NdFeB (t_{max.} = 150 °C)

MINEX®-S Magnetic couplings

Containment shroud – material Hastelloy



For legend of pictogram refer to flapper on the cover



Technical data – Materials, temperature and pressure resistance

Size	TK max [Nm] with 20 °C	Internal rotor			Containment shroud			External rotor (+ flange hub optionally)		
		Standard material		Max. temperature	Standard material		Max. pressure	Standard material		Max. temperature
		Hub	Magnets	t _{max.} [°C]	Hub	Cont. shroud	P _N /P _{max.} [bar]	Hub	Magnets	t _{max.} [°C]
SA 75/10	10	1.4571	Sm2Co17	300	1.4571	2.4602**	25/37.5	S355J2	Sm2Co17*	300
SB 75/10	24	1.4571	Sm2Co17	300	1.4571	2.4602**	25/37.5	S355J2	Sm2Co17*	300
SC 75/10	40	1.4571	Sm2Co17	300	1.4571	2.4602**	25/37.5	S355J2	Sm2Co17*	300
SB 110/16	60	1.4571	Sm2Co17	300	1.4571	2.4856	25/37.5	S355J2	Sm2Co17*	300
SC 110/16	95	1.4571	Sm2Co17	300	1.4571	2.4856	25/37.5	S355J2	Sm2Co17*	300
SB 135/20	100	1.4571	Sm2Co17	300	1.4571	2.4856	25/37.5	S355J2	Sm2Co17*	300
SC 135/20	145	1.4571	Sm2Co17	300	1.4571	2.4856	25/37.5	S355J2	Sm2Co17*	300
SD 135/20	200	1.4571	Sm2Co17	300	1.4571	2.4856	25/37.5	S355J2	Sm2Co17*	300
SC 165/24	210	1.4571	Sm2Co17	300	1.4571	2.4856	25/37.5	S355J2	Sm2Co17	300
SD 165/24	280	1.4571	Sm2Co17	300	1.4571	2.4856	25/37.5	S355J2	Sm2Co17	300
SE 165/24	370	1.4571	Sm2Co17	300	1.4571	2.4856	25/37.5	S355J2	Sm2Co17	300
SD 200/30	460	1.4571	Sm2Co17	300	1.4571	2.4856	16/24	S355J2	Sm2Co17	300
SE 200/30	600	1.4571	Sm2Co17	300	1.4571	2.4856	16/24	S355J2	Sm2Co17	300
SD 250/38	670	1.4571	Sm2Co17	300	1.4571	2.4856	16/24	S355J2	Sm2Co17	300
SE 250/38	820	1.4571	Sm2Co17	300	1.4571	2.4856	16/24	S355J2	Sm2Co17	300
SF 250/38	1000	1.4571	Sm2Co17	300	1.4571	2.4856	16/24	S355J2	Sm2Co17	300

*) External rotor alternatively available with magnets made of NdFeB (t_{max.} = 150 °C)
 **) Containment shroud size 75 alternatively available made of stainless steel 1.4571 (P_N/P_{max.} = 16/24 bars)

Ordering example:	MINEX® SB 75/10	NdFeB	d _i Ø20 mm	d _a Ø24 mm	Hastelloy
	Coupling size	NdFeB – t _{max.} = 150 °C Sm2Co17 – t _{max.} = 300 °C	Finish bore (H7), feather keyway acc. to DIN 6885 sheet 1 (JS9)		Containment shroud type Stainless steel 1.4571 or Hastelloy

Examples of application

MINEX® couplings with containment shroud made of Hastelloy are the most common type for pump drives and other applications with liquids in the average and higher performance range. Subject to their high resistance to pressure and temperature they cover a wide application range.

Inside the rotating magnetic field metallic containment shrouds generally cause losses of eddy current which are converted into heat and which may require cooling measures. On applications with pumps the heat generated can usually be dissipated by the medium to be pumped. If higher pressure resistance than covered by the KTR standard is required, KTR provides for customised special solutions.

Typical applications: gear pumps, centrifugal pumps, screw spindle pumps, agitators, PU foaming lines

Use in potentially explosive atmospheres

MINEX® couplings with containment shroud made of Hastelloy are suitable for power transmission in drives used in potentially explosive atmospheres. They are assessed and approved as components of category II according to EU directive 2014/34/EU and thus suitable for the use in potentially explosive atmospheres of zone 2G.

If the couplings operate in potentially explosive atmospheres, the user has to provide for special measures. Please read through our information included in the respective type examination certificate and the operating and assembly instructions at www.ktr.com.



Technical data – External rotor and general

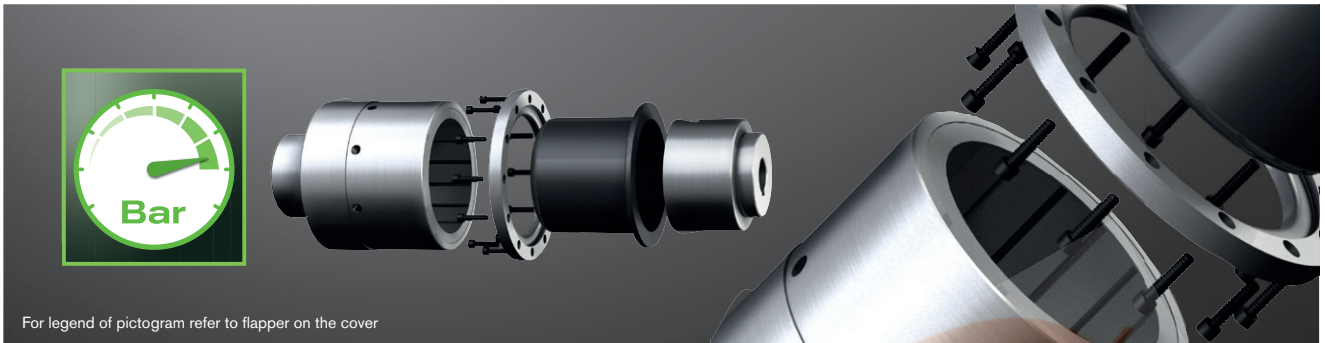
Size	Dimensions [mm]																							General				
	Internal rotor						Containment shroud						External rotor				Flange hub					General						
	Finish bore ¹⁾		D _{I1}	L _{I1}	G _I	S _I		D _{S1}	D _{S2}	D _{S3}	D _{S4}	Z _S	L _S	D _{A1}	D _{A2}	D _{A3}	L _{A1}	G _A	d _f max.	D _{F1}	D _{F2}	L _{F1}	L _{F2}	G _F	ΔS	Total length ²⁾ (with flange hub)		
	d _i min.	d _i max.				min.	max.																			min.	max.	min.
SA 75/10			39.5			46.5											41.3								12.2	140	164.5	
SB 75/10	12	32	45	58	M6	4	26.5	75	100	118	9	8	102	90	100	110	61.3	M6	42	60	114	64.5	35.5	M8	14.2	166.5	166.5	
SC 75/10			80			4.0											83.8											
SB 110/16			65			35.0											61.3								18.7	183.5	214.5	
SC 110/16	14	55	80	85	M8	4	15.0	110	133	153	9	12	115	126	135	145	81.3	M6	55	85	150	99.5	59.5	M10	18.7	203.5	214.5	
SB 135/20			65			50.5											70.3								18.2	190.5	204.5	
SC 135/20	20	70	90	85	M10	4	30.5	135	158	178	9	16	139	150	160	170	90.3	M6	70	100	170	65.5	48.5	M12	20.7	200.5		
SD 135/20			110			8.0											110.3								20.7	200.5		
SC 165/24			85			61.5											90.3									18.2	233	247
SD 165/24	24	80	110	110	M12	6	39.0	163.5	192	218	11	12	170	180	188	198	110.3	M6	75	110	198	77	60	M16	20.7	233	247	
SE 165/24			130			19.0											130.3									20.7	234	
SD 200/30			110			46.0											110.3										282	322
SE 200/30	38	90	130	135	M16	6	24.0	200	252	278	11	12	180	212	222	232	130.3	M6	80	120	232	120	98	M12	25.7	282	300	
SD 250/38			115			46.0											110.3										282	322
SE 250/38	38	100	165	135	M16	6	26.0	255	285	315	13.5	12	182	272	282	292	130.3	M6	100	150	300	140	93	M16	25.7	302	322	
SF 250/38			155			6.0											150.3										322	

¹⁾ Bores H7 with keyway to DIN 6885 sheet 1 [JS9]

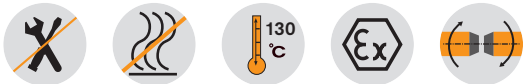
²⁾ Total length without flange hub = L_S

MINEX®-S Magnetic couplings

Containment shroud – material PEEK



For legend of pictogram refer to flapper on the cover



Technical data – Internal rotor and containment shroud															
Size	T _K max [Nm] with 20 °C	Dimensions [mm]													
		Internal rotor							Containment shroud						
		Finish bore ¹⁾ d _f		D _{I1}	L _{I1}	G _I	S _I		D _{S1}	D _{S2}	D _{S3}	D _{S4}	Z _S	L _S = L _{total}	
min.	max.	min.	max.												
SA 75/10	10				39.5		30.5	54.5							
SB 75/10	24	12	32	45	58	M6	8.5	35.5	-	100	118	9	8	108	
SC 75/10	40				80		5.5	13.5							
SB 110/16	70				65		4	25							
SC 110/16	100	14	55	80	85	M8	2	5	140	151	168	9	12	115	
SB 135/20	110				65		38.5	48							
SC 135/20	155	20	70	90	85	M10	18.5	28	157	167	180	6.6	12	144	
SD 135/20	210				110		4	4							
SC 165/24	220				85		8	32							
SD 165/24	300	24	80	110	110	M12	4	8	196	210	228	9	12	156	
SE 165/24	390				130		-6	-6						165	
SD 200/30	460				130		2	4	229	246	265	9	12	183	
SE 200/30	600	38	100	130	135	M16									

Technical data – External rotor, flange hub and general														
Size	Dimensions [mm]													
	External rotor					Flange hub						General		
	DA1	DA2	DA3	LA1	GA	Max. finish bore ¹⁾ d _f	DF1	DF2	LF1	LF2	GF	ΔS	Total length ²⁾ (with flange hub)	
												min.	max.	
SA 75/10				41.3										
SB 75/10	90	100	110	61.3	M6	42	60	114	64.5	35.5	M8	12.2	148.5	172.5
SC 75/10				83.8							14.2	168	172.5	
SB 110/16				61.3	M6	55	85	153	87.5	45.5	M10	18.7	172.5	193.5
SC 110/16	130	138	150	81.3								191.5	193.5	
SB 135/20				70.3								216	225.5	
SC 135/20	158	167	176	90.3	M6	70	100	176	89	67	M12	18.2	216	225.5
SD 135/20				110.3							20.7	224	224	
SC 165/24				90.3							18.5	231	234.8	
SD 165/24	186	195	204	110.3	M6	75	110	204	94	70	M16	21	231	233.3
SE 165/24				130.3								254.3	254.3	
SD 200/30	212	222	232	130	M6	90	120	232	133	98	M16	25.7	288	290
SE 200/30														

¹⁾ Bores H7 with keyway to DIN 6885 sheet 1 [JS9] ²⁾ Total length without flange hub = L_S

Technical data											
Size	T _K max [Nm] with 20 °C	Internal rotor				Containment shroud				External rotor (+ flange hub optionally)	
		Standard material		Standard material		Max. pressure		Max. temperature		Standard material	
		Hub	Magnets	Clamping ring	Cont. shroud	P _N [bar]	t _{max.} [°C]	Hub	Magnets		
SA 75/10	10	1.4571	Sm2Co17	-	PEEK	16	130	S355J2	NdFeB		
SB 75/10	24	1.4571	Sm2Co17	-	PEEK	16	130	S355J2	NdFeB		
SC 75/10	40	1.4571	Sm2Co17	-	PEEK	16	130	S355J2	NdFeB		
SB 110/16	70	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB		
SC 110/16	100	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB		
SB 135/20	110	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB		
SC 135/20	155	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB		
SD 135/20	210	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB		
SC 165/24	220	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB		
SD 165/24	300	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB		
SE 165/24	390	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB		
SD 200/30	460	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB		
SE 200/30	600	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB		

■ = Years of experience with applications at customer sites and additional test series in the KTR test field in Rheine enabled us to determine potentials allowing for an increase of the pressure resistance with some sizes of this series.

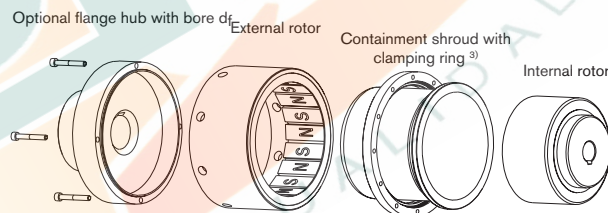
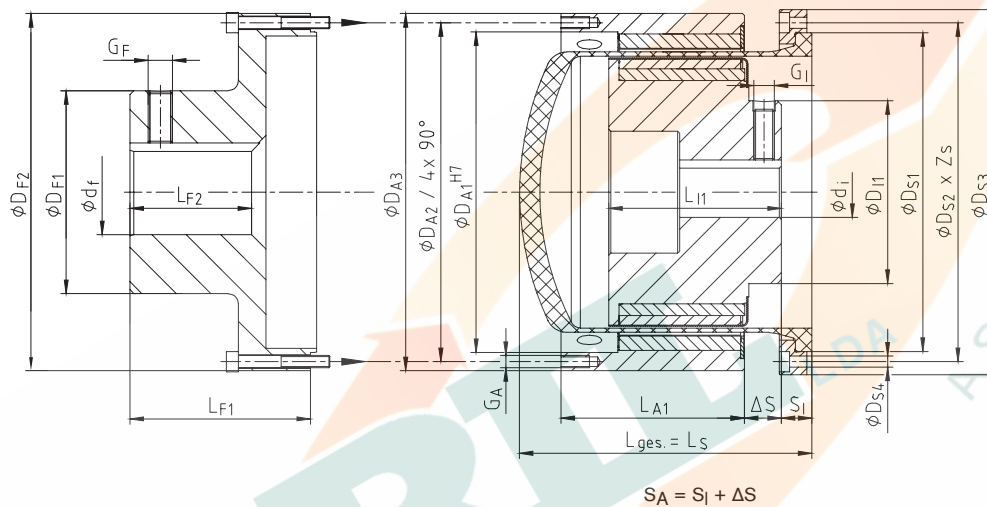
Ordering example:	MINEX® SB 75/10	NdFeB	d _i Ø20 mm	d _a Ø24 mm	PEEK
	Coupling size	NdFeB – t _{max.} = 150 °C	Finish bore (H7), feather keyway acc. to DIN 6885 sheet 1 (JS9)		Containment shroud type

Examples of application

MINEX® couplings with containment shroud made of PEEK are an economic, energy-efficient alternative to the metallic types. They do not generate any eddy current losses and as a result do not generate any heat so that usually expensive cooling measures can be done without. Moreover, they are characterized by low susceptibility to fracture, low weight and easy handling.

They are ideally suitable for applications with low demands on temperature and pressure resistance.

Typical applications: vacuum pumps, fan drives, compressors, agitators, PU foaming lines



³⁾ Containment shroud size 75 also available as a one-piece design!

Use in potentially explosive atmospheres

MINEX® couplings with containment shrouds made of carbon fibre reinforced PEEK are suitable for power transmission in drives in potentially explosive atmospheres. They are assessed and approved as components of category II according to EU directive 2014/34/EU and thus suitable for the use in potentially explosive atmospheres of zone 2G.

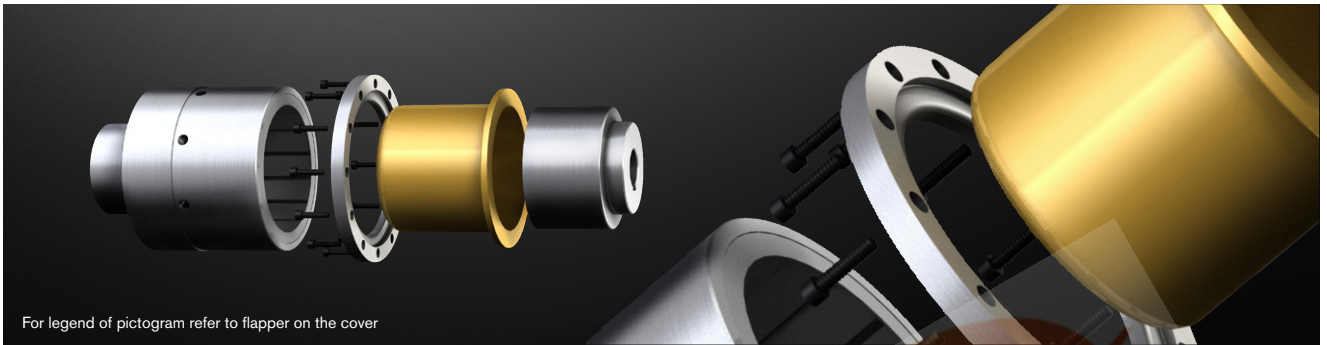
If the couplings operate in potentially explosive atmospheres, the user has to provide for special measures. Please read through our information included in the respective type examination certificate and the operating and assembly instructions at www.ktr.com.



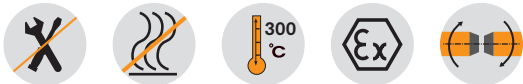
MINEX®-S

Magnetic couplings

Containment shroud – material oxide ceramics



For legend of pictogram refer to flapper on the cover



Technical data – Internal rotor and containment shroud

Size	TK max [Nm] with 20 °C	Dimensions [mm]												
		Internal rotor					Containment shroud							
		Finish bore ¹⁾ d _f		D _{I1}	L _{I1}	G _I	S _I		DS ₁	DS ₂	DS ₃	DS ₄	Z _S	L _S = L _{total}
min.	max.	min.	max.											
SB 60/8	14	12	22	36	56	M5	1	21	75	82	99	5.5	6	92
SC 60/8	22				76			2						
SB 75/10	24	12	32	45	58	M6	6.5	30.5	89	100	118	9	8	108
SC 75/10	40				80			8.5						
SB 110/16	70	14	55	72	65	M8	4	28.0	132	151	168	9	12	115
SC 110/16	100				85			9.0						
SB 135/20	110				65			46.5						
SC 135/20	155	20	70	90	85	M10	4	26.5	157	167	180	6.6	12	143
SD 135/20	210				110			4.0						
SC 165/24	220				85			28.0						150
SD 165/24	300	24	90	110	110	M12	4	4.0	196	210	228	9	12	185
SE 165/24	390				130			17.0						185
SD 200/30	460													
SE 200/30	600	38	90	130	135	M16	4	4.0	229	246	265	9	12	185

Technical data – External rotor, flange hub and general

Size	Dimensions [mm]											General		
	External rotor					Flange hub						Total length ²⁾ (with flange hub)		
	DA1	DA2	DA3	LA1	GA	Max. finish bore ¹⁾ d _f	DF1	DF2	LF1	LF2	GF	ΔS	min.	max.
SB 60/8	76	84	94	79.5	M6	38	60	94	42	38	M6	12.5	135	156
SC 60/8														
SB 75/10	90	100	110	61.3	M6	42	80	114	84.5	35.5	M6	11.9	148.5	170.4
SC 75/10				83.8								13.9	170.5	
SB 110/16	130	138	150	61.3	M6	55	85	153	87.5	45.5	M10	18.7	171.5	195.5
SC 110/16				81.3									191.5	196.5
SB 135/20				70.3								18.2	215	224
SC 135/20	158	167	176	90.3	M6	70	100	176	89	67	M12		215	224
SD 135/20				110.3								20.7	220	220
SC 165/24				90.3								18.5	225	230.5
SD 165/24	186	195	204	110.3	M6	75	110	204	94	70	M16	20.7	229	229
SE 165/24				130.3									260	260
SD 200/30														
SE 200/30	212	222	232	130.3	M6	80	120	240	120	88	M16	25.7	280	280

¹⁾ Bores H7 with keyway to DIN 6885 sheet 1 [JS9]

²⁾ Total length without flange hub = L_S

Technical data

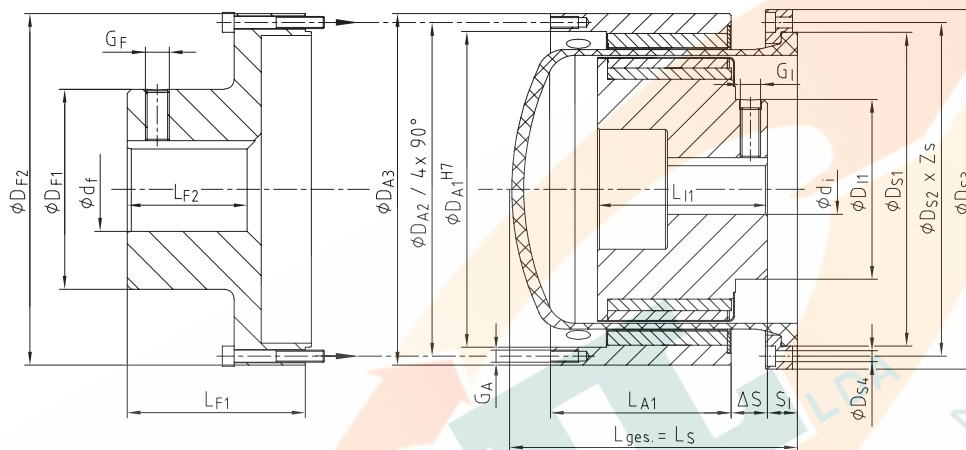
Size	TK max [Nm] with 20 °C	Internal rotor		Containment shroud		External rotor (+ flange hub optionally)				
		Standard material		Max. temperature t _{max.} [°C]	Standard material		Max. pressure P _N /P _{max.} [bar]	Standard material		Max. temperature t _{max.} [°C]
		Hub	Magnets		Hub	Cont. shroud		Hub	Magnets	
SB 60/8	14	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	40/60	S355J2	Sm2Co17	300
SC 60/8	22	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	40/60	S355J2	Sm2Co17	300
SB 75/10	24	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	40/60	S355J2	Sm2Co17	300
SC 75/10	40	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	40/60	S355J2	Sm2Co17	300
SB 110/16	60	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300
SC 110/16	95	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300
SB 135/20	100	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300
SC 135/20	145	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300
SD 135/20	200	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300
SC 165/24	210	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300
SD 165/24	280	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300
SE 165/24	370	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300
SD 200/30	460	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300
SE 200/30	600	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300

Ordering example:	MINEX® SB 135/20	NdFeB	d _i Ø20 mm	d _a Ø24 mm	Oxide ceramics ZrO ₂ MgO
	Coupling size	NdFeB – t _{max.} = 150 °C Sm2Co17 – t _{max.} = 300 °C	Finish bore (H7), feather keyway acc. to DIN 6885 sheet 1 (JS9)		Containment shroud type

Examples of application

Like with the types with containment shroud made of PEEK, MINEX® couplings with containment shroud made of ceramics are an economic, energy-efficient alternative to the metallic types. Again they do not generate any eddy current losses and as a result do not generate any heat so that usually expensive cooling measures can be done without. Compared to PEEK, the containment shrouds made of ceramics are characterized by higher resistance to pressure and an excellent temperature resistance.

Typical applications: vacuum pumps, fan drives, compressors, agitators, PU foaming lines

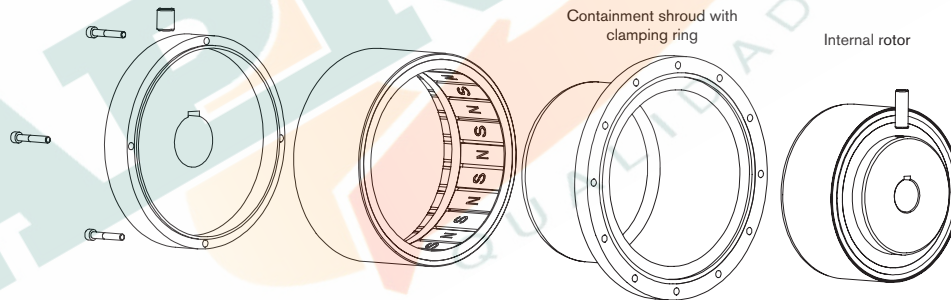


Optional flange hub with bore d_f

External rotor

Containment shroud with clamping ring

Internal rotor



Use in potentially explosive atmospheres

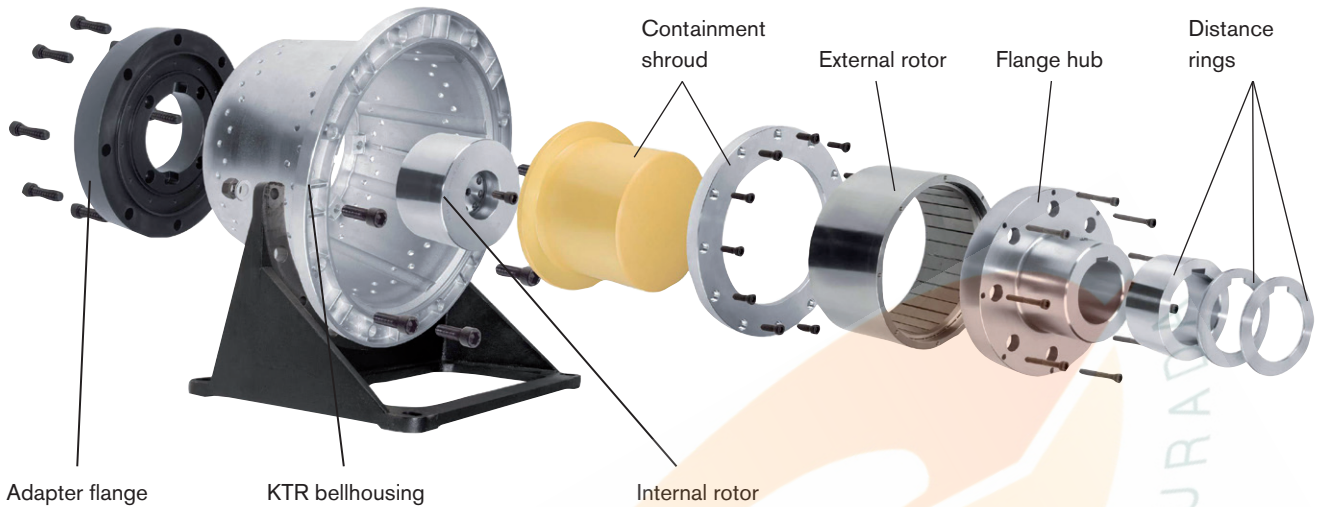
MINEX® couplings with containment shrouds made of oxide ceramics are suitable for power transmission in drives used in potentially explosive atmospheres. They are assessed and approved as components of category II according to EU directive 2014/34/EU and thus suitable for the use in potentially explosive atmospheres of zone 2G.

Please read through our information included in the respective type examination certificate and the operating and assembly instructions at www.ktr.com.



MINEX®-S Magnetic couplings

Conversion kits and customised subassemblies



On request KTR provides customised special solutions in combination with KTR hydraulic components, allowing to easily retrofit existing systems with MINEX®-S.

Conversion kits for PUR foaming processes

When conveying and proportioning the media polyol and isocyanate in the processing plants for PUR, ambient air has to be prevented from penetrating into the process, since otherwise adverse reactions may be generated.

For a reliable sealing of such drives KTR provides standard conversion kits, among others for axial piston pumps type REXROTH A2VK/A7VK and ROTARY POWER C series offering the following benefits:

- maintenance-free operation
- downtimes are considerably reduced
- no more problems with sealing
- better efficiency and process reliability

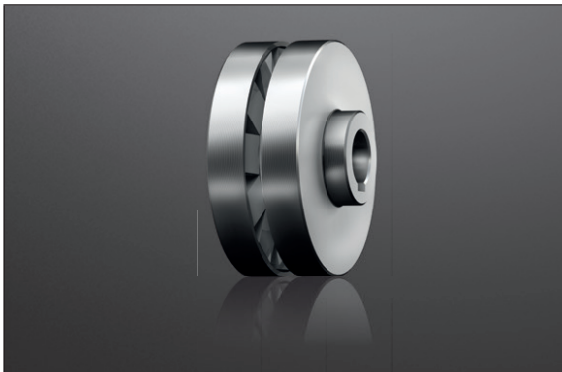
The subassemblies are available for all motor-pump-combinations and in various materials.



Maintenance-free sealing of proportioning pumps for polyol and isocyanate in high-pressure reaction moulding machines

Pump data		Motor data (4 poles, n=1500 rpm)			Coupling data		
Pump	Type	Engine	Power [kW]	Torque TN	Size	Max. torque TK max	Bellhousings
REXROTH A2VK/A7VK	A2/A7VK-12	132 S	5.5	35 Nm	SB 110/16	60 Nm	PL 300/13/...
		132 M	7.5	48 Nm	SC 110/16	95 Nm	
		160 M	11	70 Nm	SC 135/20	145 Nm	
	A2/A7VK-28	160 M	11	70 Nm	SC 135/20	145 Nm	PL 350/7...
		160 L	15	96 Nm	SD 135/20	200 Nm	
		180 M	18.5	118 Nm	SD 135/20	200 Nm	
A2/A7VK-55	A2/A7VK-55	160 L	15	96 Nm	SC 165/24	210 Nm	PL 350/7/...
		180 M	18.5	118 Nm	SC 165/24	210 Nm	
	A2/A7VK-55	180 L	22	144 Nm	SD 165/24	280 Nm	PL350/7/...
		200 L	30	196 Nm	SE 165/24	280 Nm	
		225 S/M	37/45	240/292 Nm	SE 165/24	370 Nm	
A2/A7VK-107	A2/A7VK-107	225 S/M	37/45	240/292 Nm	SE 165/24	370 Nm	PL400/5/...
ROTARY POWER C-Range	C 01	100L	2.2	14 Nm	SB 75/10	24 Nm	PK 250/13/...
	C 04	132 M	7.5	48 Nm	SC 110/16	95 Nm	PL300/13/...
		132 S	5.5	35 Nm	SB 110/16	60 Nm	
	C 07	132 M	7.5	48 Nm	SC 110/16	95 Nm	PL300/13/...
		160 L	15	96 Nm	SD 135/20	200 Nm	
	C20	C20	180 M	18.5	118 Nm	SD 135/20	200 Nm

Other types

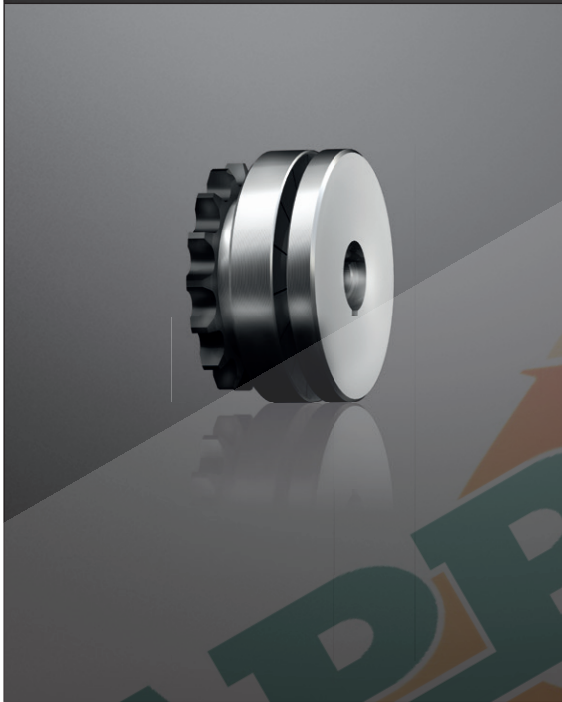


Disk coupling

With this type the magnets are arranged opposite each other in axial direction. Thus this type is able to transmit the torque through plane walls. Furthermore it provides the following benefits:

- compact
- drive of applications in closed liquid containers
- torque setting via air gap

Applications: Pumps, agitators, compressors, fans, swivel drives

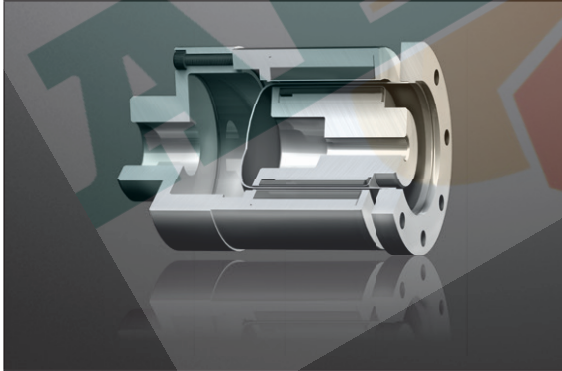
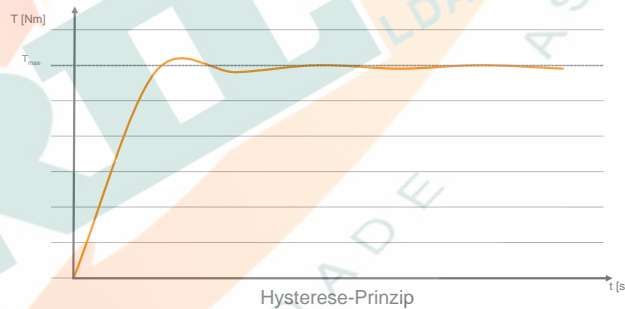


Hysteresis coupling MINEX[®]-H

Different from the MINEX[®]-S magnetic coupling this type switches to slipping operation once the maximum transmittable torque has been achieved, while it continues to transmit T_{max} as a holding torque.

- wear-free torque limitation
- maintenance-free & load-holding
- very good repeatability of torque
- applicable as a coupling or brake

Applications: roller conveyors, winder drives, capping machines, etc.



MINEX[®]-S fully made of stainless steel

If requested, KTR supplies MINEX[®]-S fully made of stainless steel. The magnets of the external rotor are encapsulated just like with the internal rotor.

Applications: offshore, marine, etc.



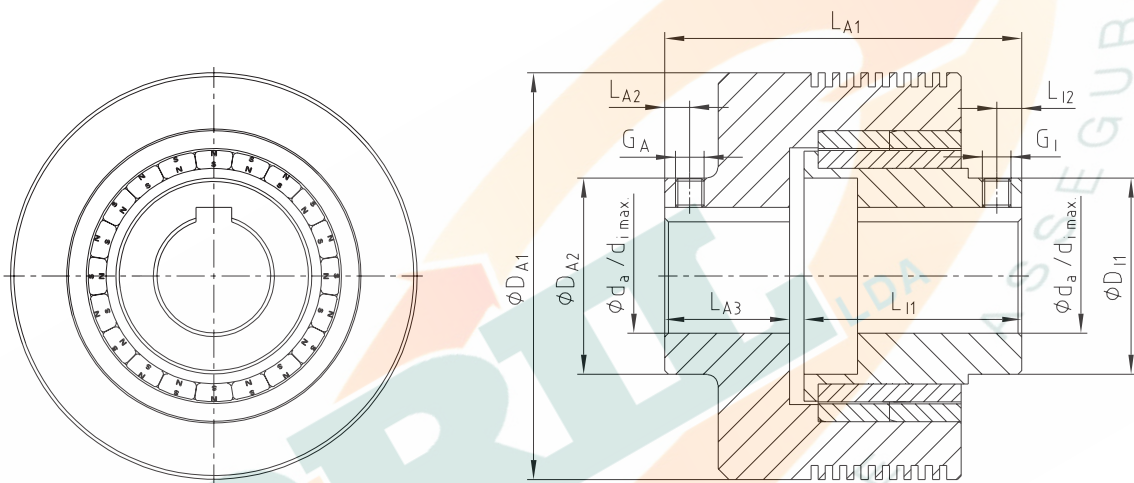
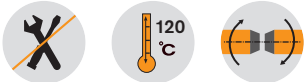
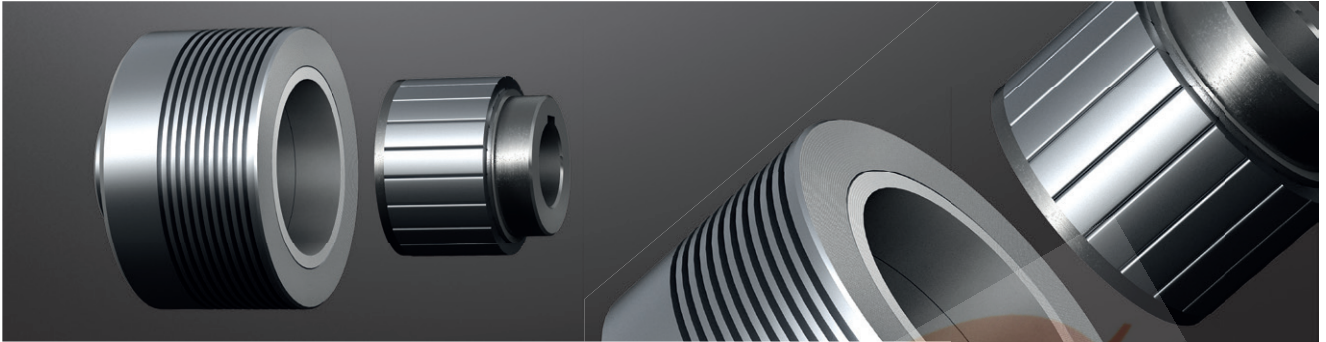
Customised special solutions

If requested, KTR supplies MINEX[®]-S in combination with the plain bearing required for the driven shaft.

MINEX®-H

Magnetic couplings

Hysteresis coupling



Technical data

Size	Overload torque T _{max. 20 °C} [Nm]	Finish bore d _a /d _i max. [mm]	Dimensions [mm]										permissible power loss PV perm. 20 °C [W]	Max. speed n _{max.} [rpm]	Max. temperature t _{max.} [°C]
			DA1	DA2	LA1	LA2	LA3	D ₁	L ₁	L ₁₂	G _A	G _I			
HA 48/12	1.2	16	82	35	80	7	35	35	41	7	M4	M4	80	1800	120
HB 48/12	2.4	16	82	35	100	7	35	35	61	7	M4	M4	88	1800	120
HA 60/16	2	22	94	45	80	7	35	45	41	7	M5	M5	87	1800	120
HB 60/16	4	22	94	45	100	7	35	45	61	7	M5	M5	96	1800	120
HA 71/20	3	32	114	55	80	7	35	55	41	7	M8	M8	98	1800	120
HB 71/20	6	32	114	55	100	7	35	55	61	7	M8	M8	110	1800	120

Technical selection:

$$PV = \frac{T_{\max. 20\text{ °C}} \cdot n_{\text{Slip}}}{9.55} \quad * Z \leq PV_{\text{perm. } 20\text{ °C}}$$

$$Z = \frac{t_{\text{Slip}}}{t_{\text{Cycle}}}$$

PV = Power loss

T_{max. 20 °C} = Transmittable torque [Nm]

PV_{all. 20 °C} = Permissible power loss [Nm]

n_{Slip} = Slip speed [1/min]

Z = Cycle factor (continuous slip operation Z=1)

t_{Slip} = Slip time [s]

t_{Cycle} = Cycle time [s]

Ordering
example:

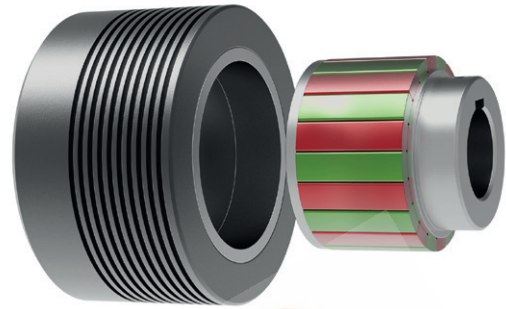
MINEX® HB 60/16	d _i Ø18 mm	d _a Ø20 mm
Coupling size	Finish bore (H7), feather keyway acc. to DIN 6885 sheet 1 (JS9)	

Torque curve with overload

The MINEX[®]-H transfers the torque contactlessly by means of magnetic forces and serves as a wear-free torque limiter in case of overload.

Function standard mode:

The torque is transmitted from the drive to the output element contactlessly by means of magnetic forces. The speed is synchronously transmitted as long as the operating torque is below the selection torque (slip torque).

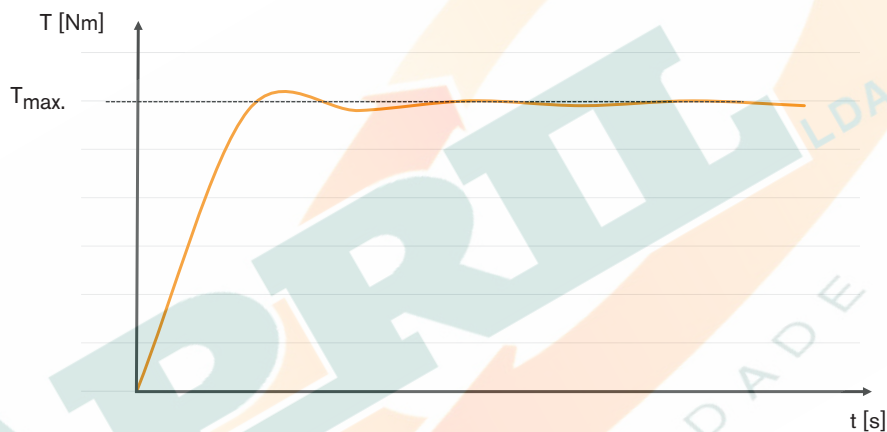


MINEX[®]-S

Function of overload mode:

As soon as the operating torque exceeds the selection torque, the coupling slips and a relative speed sets in between the drive and output side. During this, the hysteresis material is continuously reversed and heats up. The selection torque is almost constant in case of an overload. As the relative speed increases, the slip torque increases due to the eddy current effect.

Torque curve with overload



Characteristics:

- Contactless torque transmission by means of magnetic forces
- Wear-free torque limitation
- Maintenance-free
- Load-holding
- Very good repeatability of torque
- Applicable as a coupling or brake

Examples of application:



Filling systems



Film winder



Materials handling



Medical technology



Unwinding and winding equipment