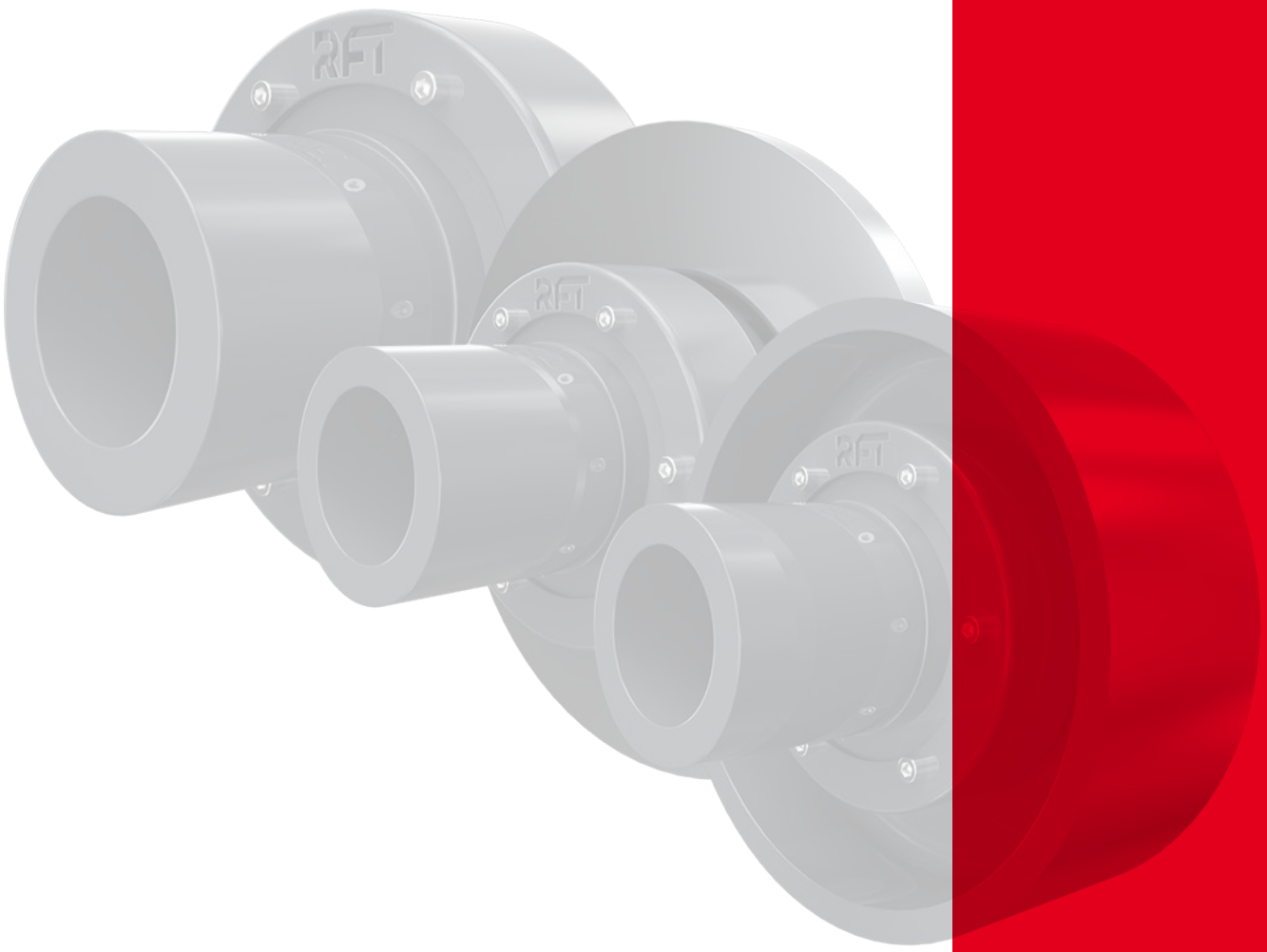
TECHNICAL CATALOGUE

RFT COUPLINGS



ORIGINAL – MADE IN GERMANY

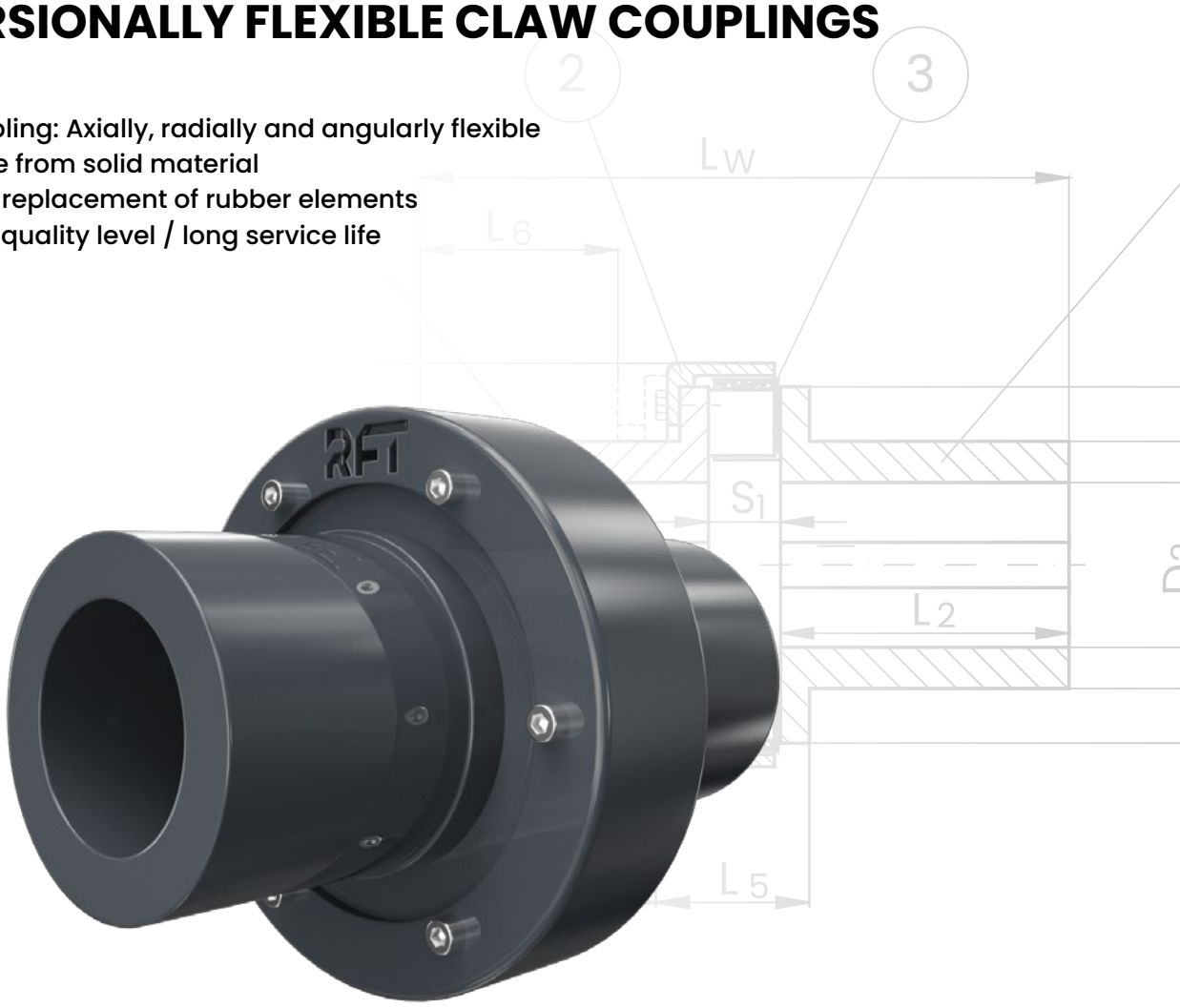
RFT
RÖMER FÖRDERTECHNIK



TYPE RKK-W

TORSIONALLY FLEXIBLE CLAW COUPLINGS

- Coupling: Axially, radially and angularly flexible
- Made from solid material
- Easy replacement of rubber elements
- High quality level / long service life



ORIGINAL – MADE IN GERMANY

RÖMER FÖRDERTECHNIK

Torsionally Elastic Claw Coupling
Series: RKK…W

RÖMER FÖRDERTECHNIK

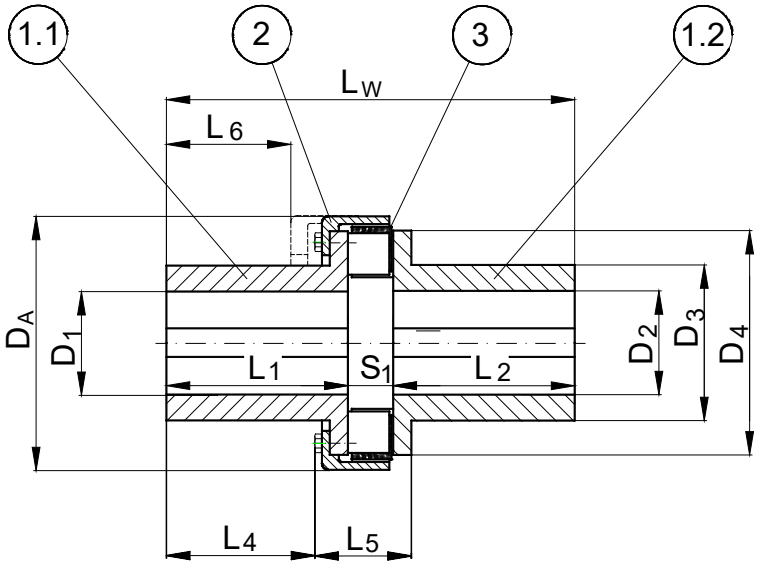


Fig. 3: Claw coupling

Basic Version

Partl	Designation	Material
1	hub / motor- and gear side are equal	C45
2	Retaining cap: size RKK 25 - 1600	Steell
3	Coupling elements flex. saddle elements NK	NK/SBR 75° Shore A

Data

Size	D_A	T_{KN} [Nm]	$T_{K\,max}$ [Nm]	T_{KW} (10 Hz) [Nm]	D_1 / D_2 max.	D_3	D_4	L_1 / L_2 max.	L_4	L_5	L_6	L_W max.	S_1	J [1] [kgm²]	Weight [kg] [1]	max. speed. {min^{-1}]
RKK 25	139	300	900	130	60	87	120	110	89	51	74	242	22	0,0150	9,7	5700
RKK 40	155	500	1500	210	65	94	135	110	88	57	70	246	26	0,0236	12,0	5100
RKK 63	174	750	2150	330	75	110	152	110	87	63	65	250	30	0,0413	16,3	4500
RKK 100	195	1250	3750	530	80	120	173	140	111	76	87	315	35	0,0780	25,2	3900
RKK 160	222	2000	6000	840	85	130	198	140	116	87	79	321	41	0,1301	31,9	3400
RKK 250	250	3000	9000	1300	100	145	223	170	133	99	101	387	47	0,2454	47,2	3000
RKK 400	284	5000	15000	2100	105	160	251	170	139	112	100	396	56	0,4218	62,7	2700
RKK 630	328	7500	22500	3300	130	192	294	210	174	118	119	484	64	0,9844	107,8	2300
RKK 1000	378	12500	37500	5000	150	225	338	210	160	137	95	495	75	1,8612	148,7	2000
RKK 1600	432	20000	60000	8400	170	255	390	210	156	147	83	505	85	3,3681	199,0	1760

Dimensions in mm!

1) Masses and mass moments of inertia J for the length L_W with medium bores (= 70% $D_{1max.}$ / $D_{2max.}$)

Admissible rotational speed

The max. speeds specified in “technical details” only refer to actual coupling components. For brake drum and brake disk combined couplings the following speeds n_{max} in min^{-1} are admissible.

Diameter BT/BS [mm]	200	250	315	400	500	630	710	800	1000	Material
Brake drum BT n_{max} [min^{-1}]	5250	4200	3300	2600	2100	1650	1450	-	-	GGG 40
Brake disk BS n_{max} [min^{-1}]	7000	6000	4800	3800	3000	2400	2150	1900	1500	St 52-3

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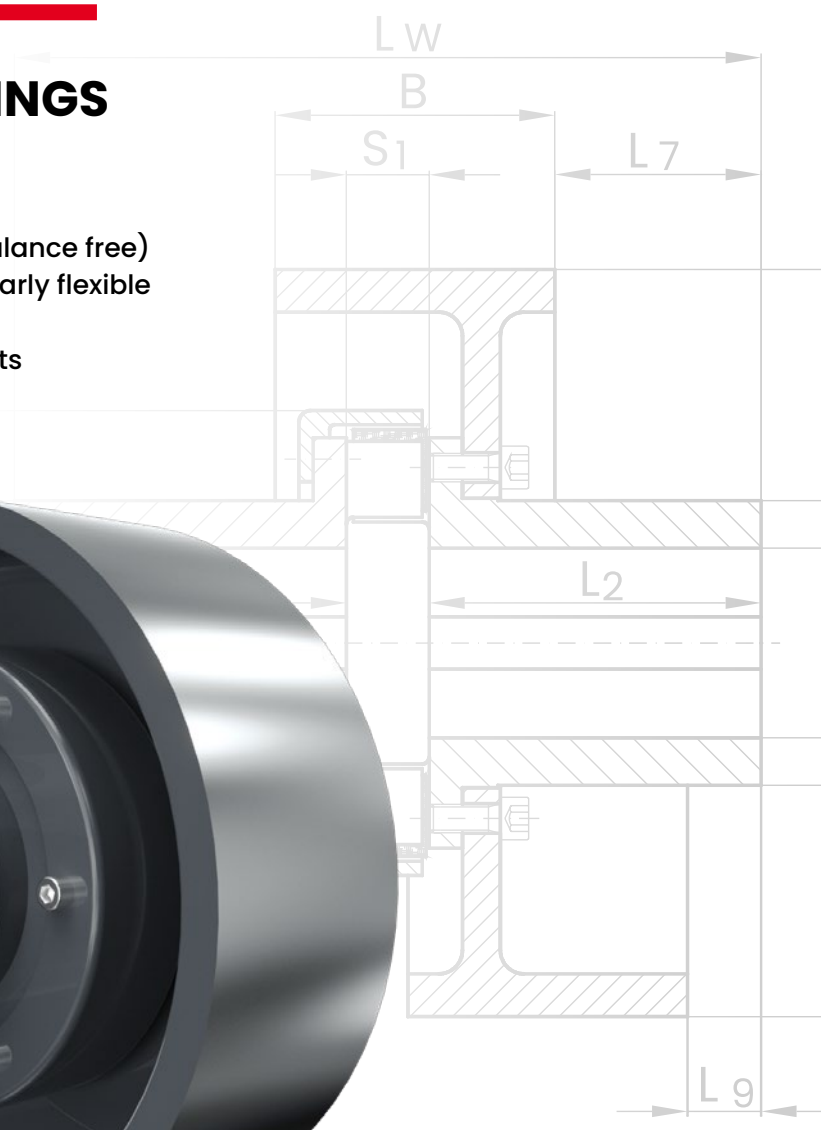


TYPE RKK-WBT

BRAKE DRUM COUPLINGS

- Inclusive brake drum
  (Drum made from solid material, balance free)
- Coupling: Axially, radially and angularly flexible
- Made from solid material
- Easy replacement of rubber elements
- High quality level / long service life





ORIGINAL – MADE IN GERMANY

RFT
RÖMER FÖRDERTECHNIK

Torsionally Elastic Brake Drum Coupling
Series: RKK…WBT

RÖMER FÖRDERTECHNIK

Brake Drum Coupling with Brake Drum for Drum Brakes

The flexible elements can be easily fitted and removed radially with no need for axial movement of the coupled machines after the retaining cap has been released and withdrawn. The alternative possibilities of mounting the brake drum provide the dimension L_7 or L_9.

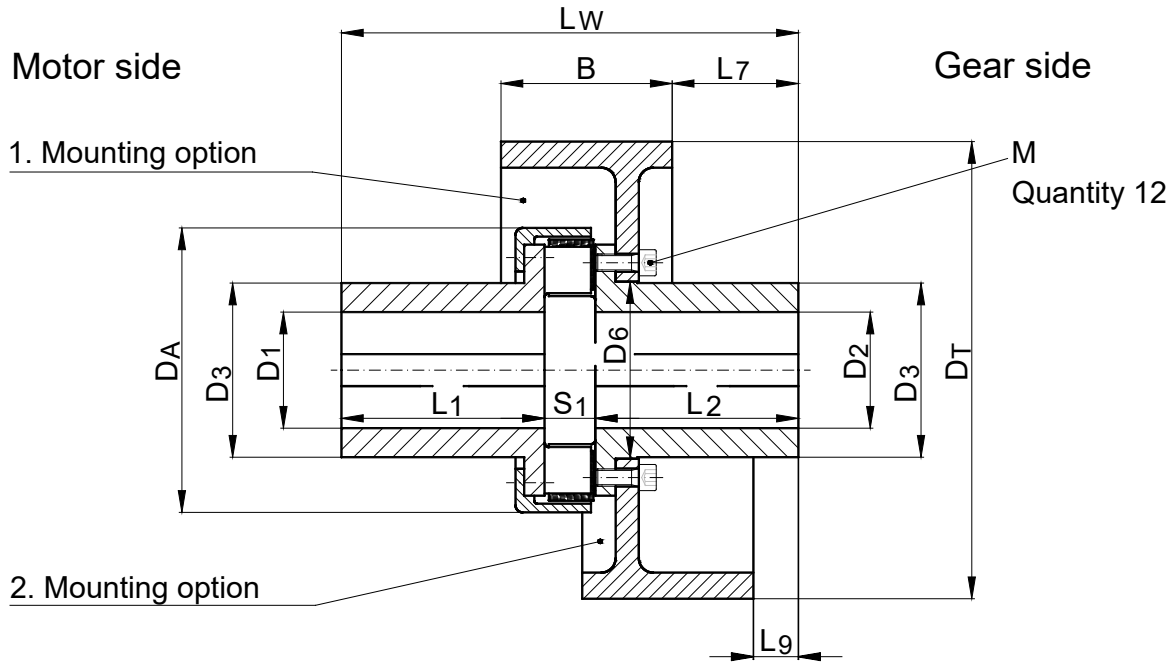


Fig. 4: Brake drum couplings series RKK…WBT

Size	D_T	B	T_{KN} [Nm]	$T_{K\,max}$ [Nm]	D_A	D_1/D_2 max.	D_3	D_6	L_1/L_2 max.	L_7	L_9	L_W max.	S_1	M	J [1] [kgm²]	Weight [kg] [1]
RKK 25	160	60	300	900	139	60	87	88 h7	110	77	57	242	22	M 8	0,027	12,13
RKK 25	200	75	300	900	139	60	87	88 h7	110	71	40	242	22	M 8	0,062	16,16
RKK 40	200	75	500	1500	155	65	94	95 h7	110	69	38	246	26	M 8	0,070	18,36
RKK 40	250	95	500	1500	155	65	94	95 h7	110	56	35	246	26	M 8	0,154	23,1
RKK 63	250	95	750	2150	174	75	110	112 h7	110	56	35	250	30	M 8	0,171	27,1
RKK 63	315	118	750	2150	174	75	110	112 h7	110	61	15	250	30	M 8	0,431	36,9
RKK 100	250	95	1250	3750	195	80	120	122 h7	140	82	61	315	35	M 12	0,208	36,0
RKK 100	315	118	1250	3750	195	80	120	122 h7	140	87	31	315	35	M 12	0,468	45,8
RKK 160	315	118	2000	6000	222	85	130	132 h7	140	87	31	321	41	M 12	0,520	52,3
RKK 160	400	150	2000	6000	222	85	130	132 h7	140	70	11	321	41	M 12	1,358	72,9
RKK 250	400	150	3000	9000	250	100	145	147 h7	170	98	39	387	47	M 12	1,471	87,7
RKK 250	500	190	3000	9000	250	100	145	147 h7	170	75	22	387	47	M 12	3,393	113,5
RKK 400	400	150	5000	15000	284	105	160	165 h7	170	96	27	396	56	M 16	1,648	102,8
RKK 400	500	190	5000	15000	284	105	160	165 h7	170	73	20	396	56	M 16	3,569	128,6
RKK 400	630	236	5000	15000	284	105	160	165 h7	170	41	0	396	56	M 16	10,31	195,4
RKK 630	500	190	7500	22500	328	130	192	200 h7	210	111	58	484	64	M 16	4,124	172,5
RKK 630	630	236	7500	22500	328	130	192	200 h7	210	80	39	484	64	M 16	10,86	239
RKK 630	710	265	7500	22500	328	130	192	200 h7	210	70	20	484	64	M 16	15,70	261
RKK 1000	630	236	12500	37500	378	150	225	230 h7	210	67	26	495	75	M 20	10,86	266
RKK 1000	710	265	12500	37500	378	150	225	230 h7	210	57	7	495	75	M 20	16,57	301
RKK 1600	710	265	20000	60000	432	170	255	258 h7	210	50	0	505	85	M 20	18,06	350

1) For medium bores (= 70% $D_{1max.}$ / $D_{2max.}$) and lengths $L_{Wmax.}$

Dimensions in mm!

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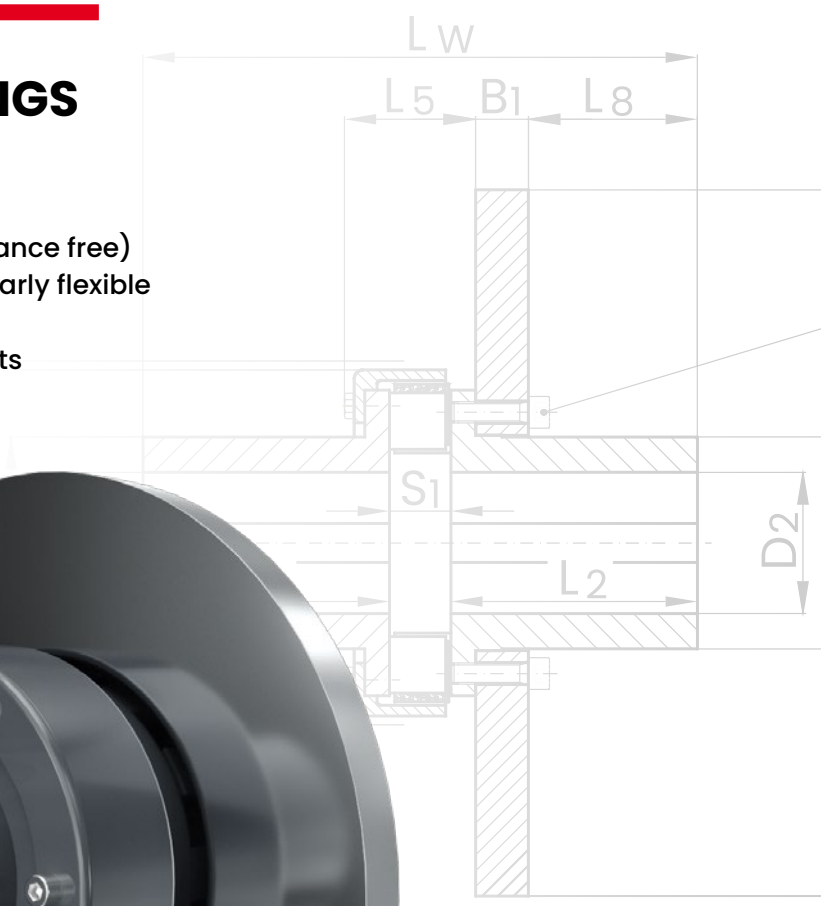


TYPE RKK-WBS

BRAKE DISC COUPLINGS

- Inclusive brake disc
  (Disc made from solid material, balance free)
- Coupling: Axially, radially and angularly flexible
- Made from solid material
- Easy replacement of rubber elements
- High quality level / long service life





ORIGINAL – MADE IN GERMANY

RÖMER FÖRDERTECHNIK

Torsionally Elastic Dik Brake Coupling
Series: RKK…WBS

RÖMER FÖRDERTECHNIK

Brake Disk Coupling with Brake Disk for Disk Brake

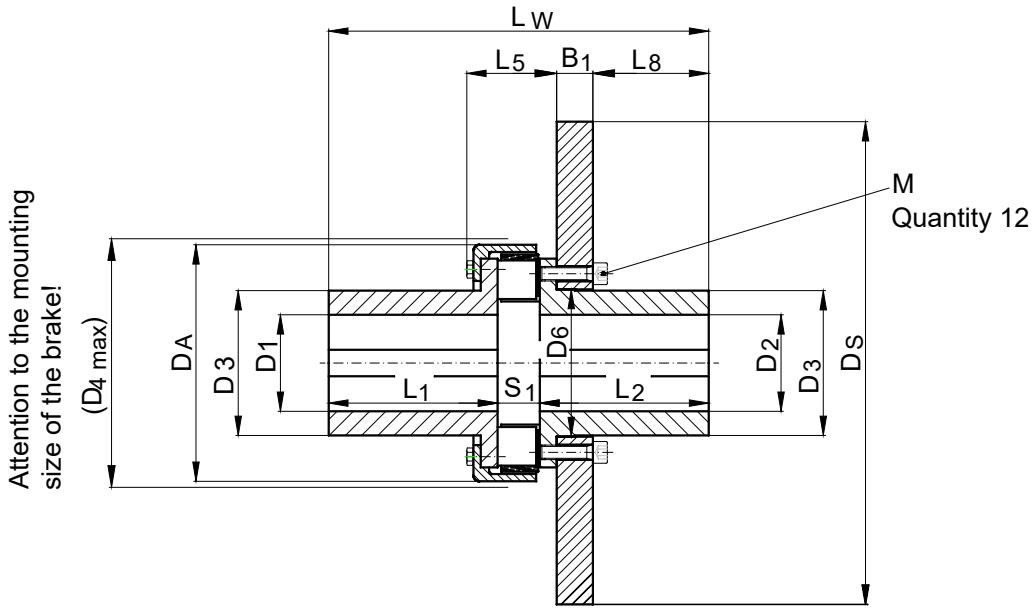


Fig. 5: Disk Brake Coupling with brake disk Series RKK…WBS

Size	D_S 1)	B_1 2)	T_{KN} [Nm]	$T_{K\,max}$ [Nm]	D_A	D_1/D_2 max.	D_3	D_6	L_1/L_2 max.	L_5	L_8	L_W max.	S_1	M	J 3) [kgm²]	Weight [kg] 3)
RKK 25	280	30	300	900	139	60	87	88 h7	110	51	72	242	22	M 8	0,154	22,8
RKK 25	315	30	300	900	139	60	87	88 h7	110	51	72	242	22	M 8	0,239	26,6
RKK 40	315	30	500	1500	155	65	94	95 h7	110	58	70	246	26	M 8	0,247	28,7
RKK 40	355	30	500	1500	155	65	94	95 h7	110	58	70	246	26	M 8	0,386	33,7
RKK 63	355	30	750	2150	174	75	110	112 h7	110	68	70	250	30	M 8	0,402	37,3
RKK 63	400	30	750	2150	174	75	110	112 h7	110	68	70	250	30	M 8	0,626	43,6
RKK 100	400	30	1250	3750	195	80	120	122 h7	140	76	96	315	35	M 12	0,658	52,3
RKK 100	450	30	1250	3750	195	80	120	122 h7	140	76	96	315	35	M 12	1,012	60,1
RKK 100	500	30	1250	3750	195	80	120	122 h7	140	76	96	315	35	M 12	1,507	68,9
RKK 160	450	30	2000	6000	222	85	130	132 h7	140	87	96	321	41	M 12	1,063	66,4
RKK 160	500	30	2000	6000	222	85	130	132 h7	140	87	96	321	41	M 12	1,558	75,2
RKK 160	560	30	2000	6000	222	85	130	132 h7	140	87	96	321	41	M 12	2,384	86,9
RKK 250	450	30	3000	9000	250	100	145	147 h7	170	102	124	387	47	M 12	1,175	80,9
RKK 250	500	30	3000	9000	250	100	145	147 h7	170	102	124	387	47	M 12	1,670	89,7
RKK 250	560	30	3000	9000	250	100	145	147 h7	170	102	124	387	47	M 12	2,496	101
RKK 250	630	30	3000	9000	250	100	145	147 h7	170	102	124	387	47	M 12	3,860	117
RKK 400	560	30	5000	15000	284	105	160	165 h7	170	117	122	396	56	M 16	2,657	116
RKK 400	630	30	5000	15000	284	105	160	165 h7	170	117	122	396	56	M 16	4,019	132
RKK 400	710	30	5000	15000	284	105	160	165 h7	170	117	122	396	56	M 16	6,243	152
RKK 630	630	30	7500	22500	328	130	192	200 h7	210	120	160	484	64	M 16	4,563	174
RKK 630	710	30	7500	22500	328	130	192	200 h7	210	120	160	484	64	M 16	6,787	194
RKK 630	800	30	7500	22500	328	130	192	200 h7	210	120	160	484	64	M 16	10,37	219
RKK 1000	710	30	12500	37500	378	150	225	230 h7	210	140	147	495	75	M 20	7,619	233
RKK 1000	800	30	12500	37500	378	150	225	230 h7	210	140	147	495	75	M 20	11,19	259
RKK 1000	100	30	12500	37500	378	150	225	230 h7	210	140	147	495	75	M 20	24,80	325
RKK 1600	100	30	20000	60000	432	170	255	258 h7	210	150	141	505	85	M 20	26,27	373

1) Other diameters / coupling combinations on request

2) Other widths on request

3) For medium bores (= 70% D1max. / D2max.) and lengths LWmax.

Dimensions in mm!

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GENERAL TECHNICAL INFORMATIONS

RFT COUPLINGS



ORIGINAL – MADE IN GERMANY

RFT
RÖMER FÖRDERTECHNIK

Torsionally Elastic Shaft Coupling
Type RKK

RÖMER FÖRDERTECHNIK

Characteristics

The torsionally elastic claw couplings (type RKK) compensate for axial, radial and angular misalignment. Thus they can compensate for shaft misalignment as a result of inaccurate assembly, foundation settlement or by terminal-induced changes in height and length.

The claw couplings operate with stressed rubber transmission elements form-fit and puncture-proof. The elastic transmission elements are normally made of a rubber material (NR-SBR 75 - 80° Shore = element design SN) which is suitable for temperatures from -40°C to +80°C.

Other rubber or silicone materials with different hardness levels and suited for higher temperatures are available on request.

The couplings are provided with progressive torsional characteristic with good damping properties with regard to torsional vibration and shock load.

A special feature of all couplings type RKK is a separate bolt-retaining cap that enables a radial mounting and dismounting of the elastic elements without axial displacement of the clutch hub.

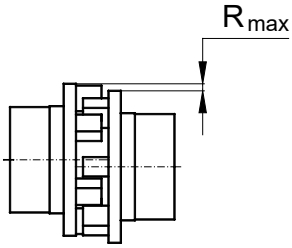
The elastic elements are in all sizes, designed as a semi-tunnel, where two rubber pads are connected to an outer belt.

The technical data mentioned below can be changed in the course of product improvement.

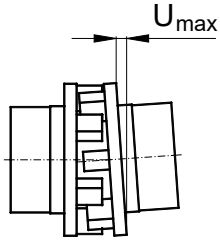
Mounting and alignment tolerances

The values given for alignment tolerances are within a reasonable expense for installation to be regarded as approximate, since the maximum compensation capability of the coupling strongly depends on the rotational speed and capacity of the clutch. Precise alignment of the coupling halves increases the life of the coupling elements.

radial alignment



angular alignment



axial alignment

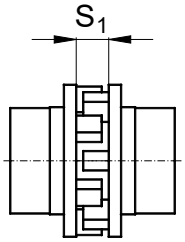


Fig. 1: Alignment

Size	25	40	63	100	160	250	400	630	1000	1600
R max. [mm]	0,3	0,4	0,4	0,4	0,4	0,5	0,5	0,6	0,7	0,8
U max. [mm]	0,4	0,4	0,5	0,6	0,7	0,8	0,9	1,0	1,1	1,2
S_1 ± [mm]	22±1	26±1	30±1	35±1	$41^{+1.2}_{-1}$	$47^{+1.2}_{-1}$	$56^{+1.5}_{-1}$	$64^{+1.5}_{-1}$	75^{+2}_{-1}	85^{+2}_{-1}

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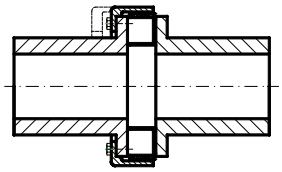
Torsionally Elastic Shaft Coupling
Type RKK

RÖMER FÖRDERTECHNIK

Types of couplings and applications

The standard coupling series consist of couplings for a torque range up to 16.000 Nm. The examples mentioned below represent some applications.

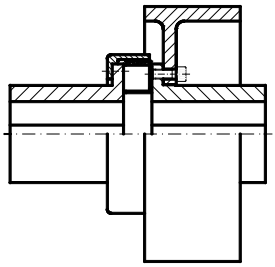
simple compact claw couplings



special feature: The assembly and disassembly of the elastic coupling elements are possible without axial movement of the coupling shafts.

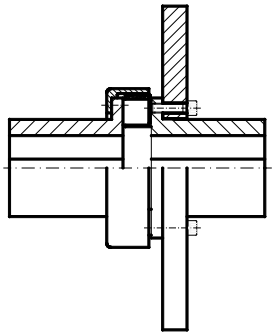
series: RKK . . . W

brake drum couplings
with brake drums
dimensions according DIN 15431

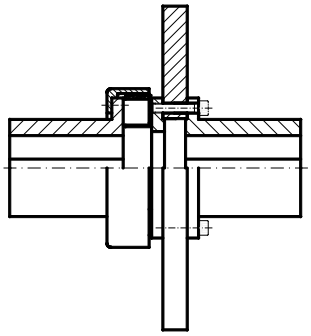


series: RKK . . . WBT

brake disk couplings
with disks



series: RKK . . . WBS



series: RKK . . . TBS
separable flange coupling
on request

Fig. 2: Applications of RKK

Torsionally Elastic Shaft Coupling
Type RKK

RÖMER FÖRDERTECHNIK

Selection of the coupling size

The coupling size should be adequately dimensioned to ensure that the admissible coupling load is not exceeded in any operating condition. For drives without periodically recurring vibratory torque stress / loads the coupling design may be selected according to the drive torque with reference to the corresponding service factors.

For drives with combustion engines or prime movers which are subject to periodically recurring vibratory torques the size determination of the coupling should be verified by a full torsional vibration analysis which we can do for you on request.

Calculation of the drive torque T_{AN}
with power P, angular speed ω and
number of rotation n.
With the use of dimensions P and n in units kW and 1/min T_{AN} is obtained in Nm.

$$T_{AN} = P / \omega = P / (2 \pi n)$$

$$T_{AN}\,(Nm) = 9550 \frac{P\,(kW)}{n\,(1/min)}$$

Determination of the nominal torque capacity T_{KN} of the coupling based on the drive torque T_{AN} with reference to service factors.

$$T_{KN} \geq T_{AN} \times S_m \times S_t \times S_z$$

The torsional vibration analysis for verifying the proper coupling choice shall prove that the admissible continuous vibratory torque capacity T_{KW} of the coupling is at least equal to the max. vibratory torque T_W which occurs at the operation speed range with reference to temperature and frequency.

$$T_{KW}\,[10Hz] \geq T_W \times S_t \times S_f$$

The frequency factor S_f considers the frequency dependence of the admissible permanent vibratory torque capacity T_{KW} (10 Hz) at operating frequency f.

$$S_f = \sqrt{\frac{f}{10}}$$

Design factors

Load classification factor S_m

prime mover	Load by the driven machine		
	G	M	S
electric motors, turbines, hydraulic motors	1,25	1,6	2,0
combustion engines ≥ 4 cylinders cyclic vibration ≥ 1: 100	1,5	2,0	2,5

Load classification factor for special applications on request!

Temperature factor S_t

ambient temperature	-40°C +30°C	+40°C	+60°C	+80°C	>+80°C
S_t	1,0	1,1	1,3	1,6	on request

Starting factor S_Z

starting frequency per hour	30	60	120	240
S_z	1,0	1,1	1,2	1□3

Design and ordering example

A coupling shall be installed between an e-motor (P = 125 kW at n = 1480 min^{-1}) and a hoisting gear train

operation mode (med. shock load) $S_m = 1,6$
ambient temperature <60°C $S_t = 1,3$
starting frequency 240/h $S_z = 1,3$

$$T_{AN} = 9550 \frac{125\ kW}{1480\ min^{-1}} = 806,6\ Nm$$

coupling:

$T_{KN} = T_{AN} \times S_m \times S_t \times S_z$
$= 806,6\ Nm \times 1,6 \times 1,3 \times 1,3$
$= 2181\ Nm$

selected coupling:

RKK 250 mit T_{KN} = 3000 Nm
> 2181 Nm

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As from 06.24 – Gestaltung: Erik Meurers · www.plusminusvier.de