

Cone Clamping Elements RLK 300

for individual clamping connections

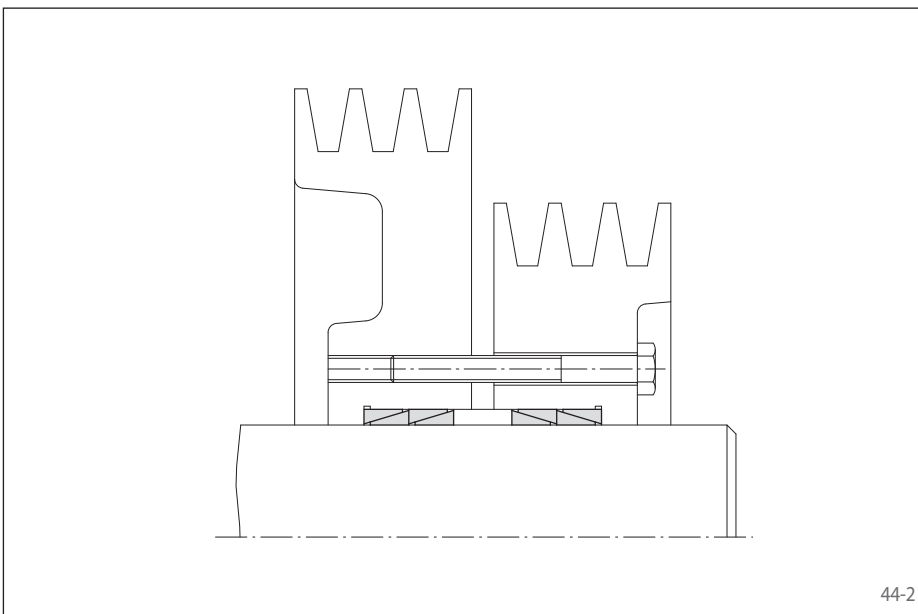
Morskate®



44-1

Features

- For individual clamping connections
- Compact design
- For shaft diameters between 10 mm and 200 mm



44-2

Application example

Backlash free connection of two V-belt pulleys with two Cone Clamping Elements RLK 300 each. In this assembly, the screw force is used on both sides. By this, both packages with two clamping elements each are charged with the preload force. Due to the double arrangement of the clamping elements, the transmissible torque is increased. Because of the recessed hub, separate pressure flanges are not required. This makes the solution very cost-effective.

Transmissible torques and axial forces

The transmissible torques or axial forces listed on pages 46 through 47 are subject to the following tolerances, surface characteristics, materials and preload force requirement. Please contact us in the case of deviations.

Tolerances

d		Hub bore ISO	Shaft ISO
> mm	≤ mm		
10	40	H7	h6
40	96	H8	h8

Surfaces

Average surface roughness at the contact surfaces between the shaft and the hollow shaft $R_a \leq 1 \mu\text{m}$.

Materials

The following apply to the shaft and the hub:

- E-module ca. 170 kN/mm^2

Preload force

The preload force is achieved by the clamping screws provided by the customer. The preload force E_1 or E_2 stated in the table may be increased or decreased according to the technical notes on page 54.

Installation

Please request our installation and operating instructions for Cone Clamping Elements RLK 300.

Simultaneous transmission of torque and axial force

The transmissible torques M which are shown in the tables apply for axial forces $F = 0 \text{ kN}$ and conversely, the indicated axial forces F apply to torques $M = 0 \text{ Nm}$. If torque and axial force are to be transmitted simultaneously, the transmissible torque and the transmissible axial force are reduced. Please refer to the technical points on pages 54 and 55.

Example for ordering

Cone Clamping Element RLK 300 for shaft diameter $d = 50 \text{ mm}$:

- RLK 300, size 50 x 57
Article number 4203.050.001.000000

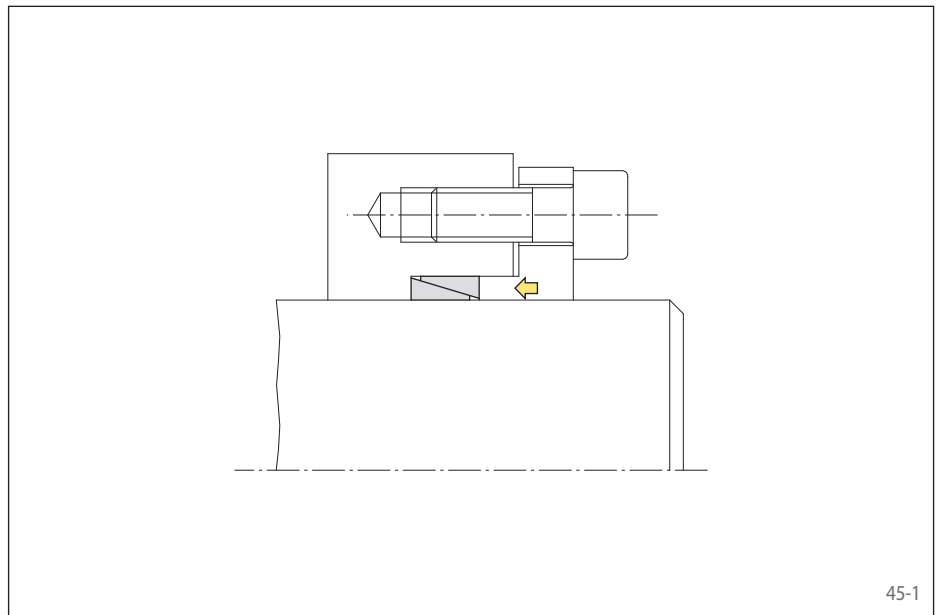
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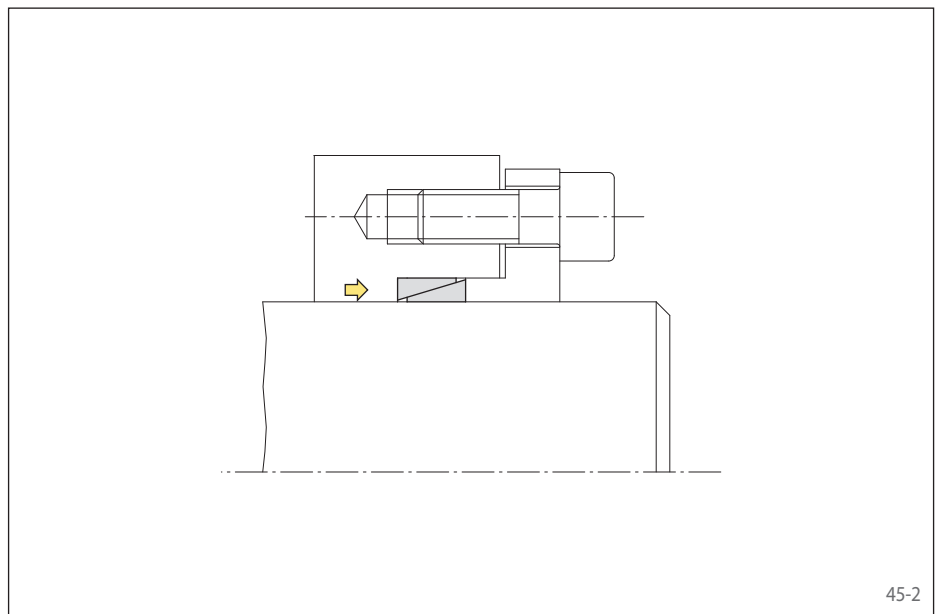
Installation case 1

The adjusted axial position of the hub is not changed during clamping. The preload force E_1 must be provided for.



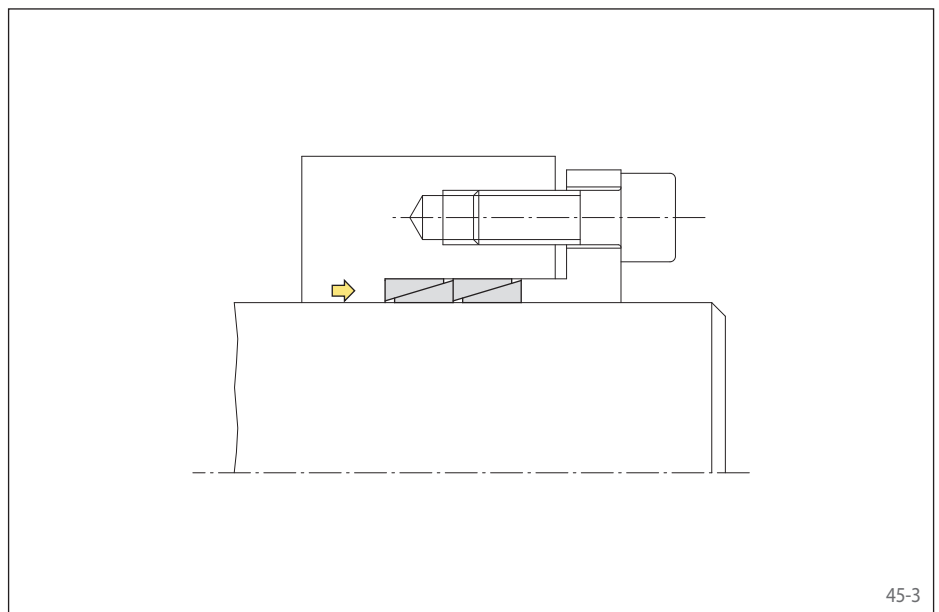
Installation case 2

During clamping, the hub is displaced slightly to the right compared to the shaft. The preload force E_2 must be provided for. The connection can easily be released when the clamping element is assembled according to figure 45-2.



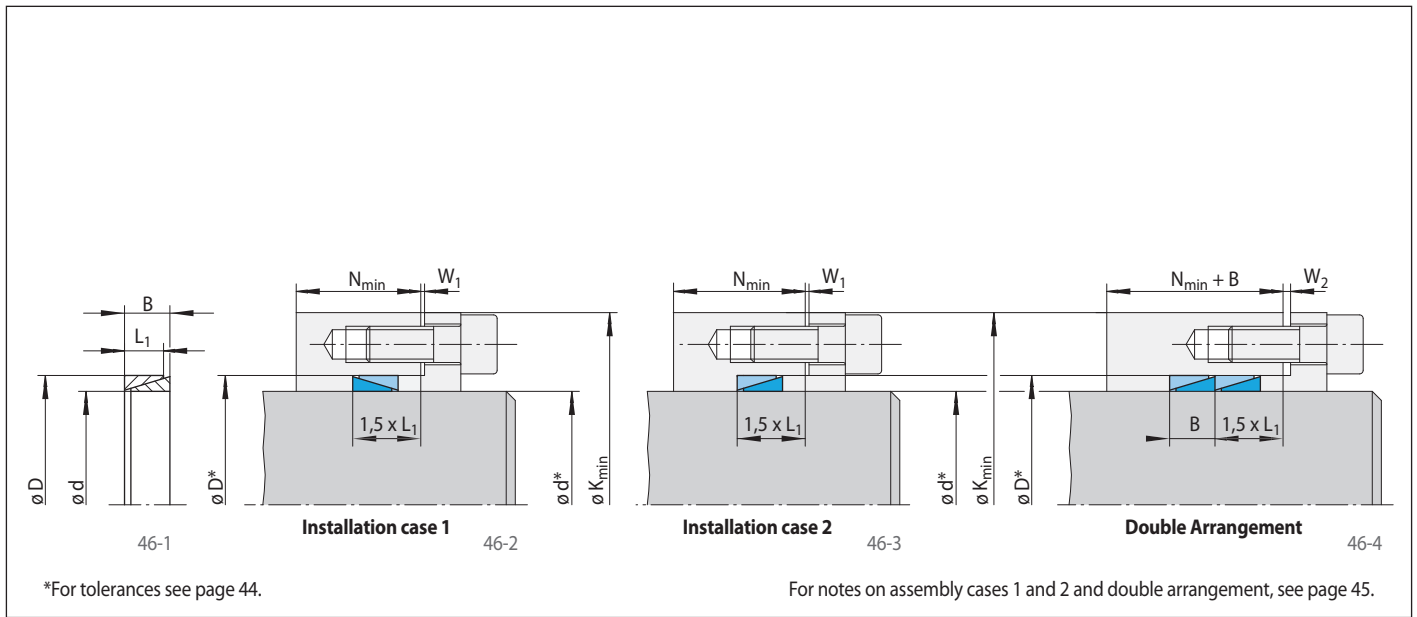
Double Arrangement

A double arrangement of two clamping elements must be built according to installation case 2. The transmissible torque or axial force are not doubled compared to the values for M or F listed in the tables but are increased by 55%. The preload force E_1 must be provided for. The hub stress σ_V must be verified (page 55)



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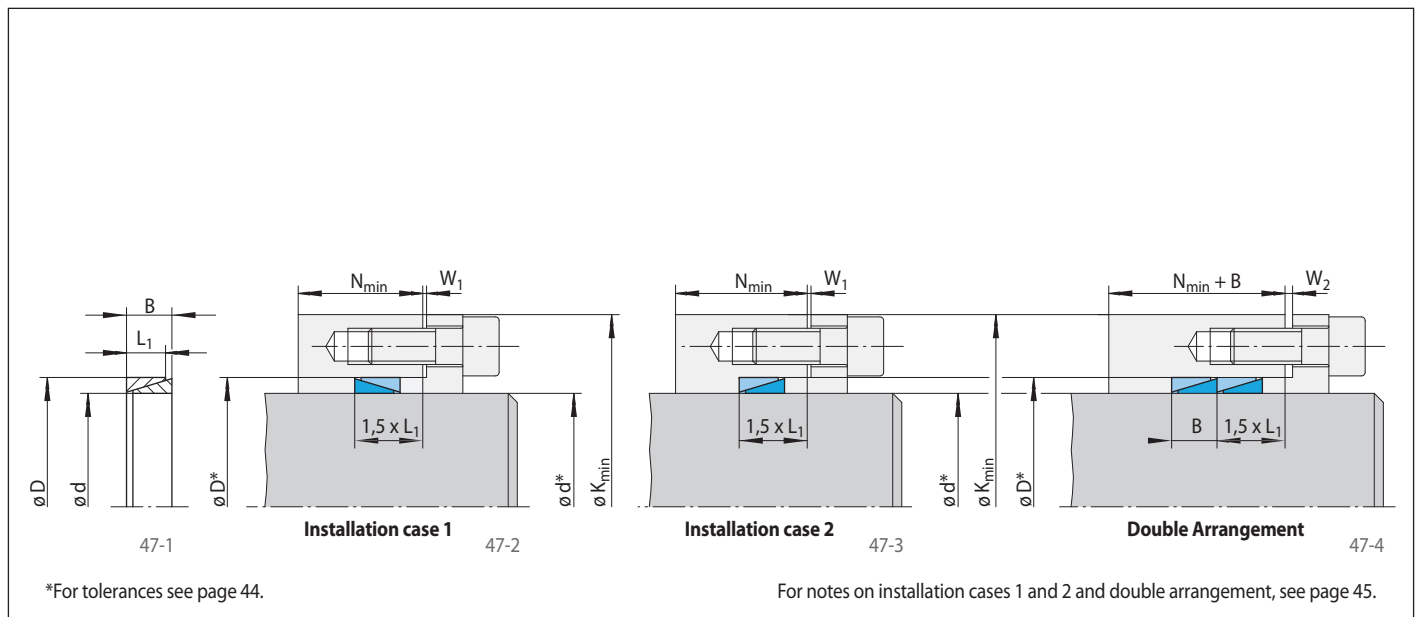
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Size		Dimensions										Technical Data						Article number	
d mm	D mm	B mm	L ₁ mm	W ₁ mm	W ₂ mm	Yield strength R _e of the hub material [N/mm ²]						Transmissible torque or axial force		Contact pressure at		Tightening torque		Weight kg	
						200		320		500		M Nm	F kN	P _W N/mm ²	P _N N/mm ²	E ₁ kN	E ₂ kN		
10	13	4,5	3,7	3	3	22	10	19	8	17	7	7,3	1,4	120	92	10,1	8,4	0,002	4203.010.001.000000
12	15	4,5	3,7	3	3	25	10	22	9	20	8	10,5	1,7	120	96	11,6	9,5	0,002	4203.012.001.000000
13	16	4,5	3,7	3	3	27	11	23	9	21	8	12,3	1,8	120	98	12,4	10,1	0,002	4203.013.001.000000
14	18	6,3	5,3	3	4	31	14	27	12	24	10	20,4	2,9	120	93	20,0	16,5	0,005	4203.014.001.000000
15	19	6,3	5,3	3	4	32	14	28	12	25	10	23,5	3,1	120	95	21,1	17,4	0,005	4203.015.001.000000
16	20	6,3	5,3	3	4	34	14	29	12	27	11	26,0	3,3	120	96	22,2	18,2	0,005	4203.016.001.000000
17	21	6,3	5,3	3	4	35	14	31	12	28	11	30,0	3,5	120	97	23,3	19,1	0,006	4203.017.001.000000
18	22	6,3	5,3	3	4	37	15	32	12	29	11	33,0	3,7	120	98	24,4	19,9	0,006	4203.018.001.000000
19	24	6,3	5,3	3	4	39	15	35	13	31	11	37,7	3,9	120	95	26,7	21,9	0,007	4203.019.001.000000
20	25	6,3	5,3	3	4	41	15	36	13	33	11	41,7	4,1	120	96	27,7	22,8	0,008	4203.020.001.000000
22	26	6,3	5,3	3	4	43	16	37	13	34	11	50,0	4,5	120	102	28,8	23,4	0,008	4203.022.001.000000
24	28	6,3	5,3	3	4	45	16	40	13	37	12	60,1	5,0	120	103	31,0	25,1	0,008	4203.024.001.000000
25	30	6,3	5,3	3	4	48	16	42	13	39	12	65,2	5,2	120	100	33,2	27,1	0,009	4203.025.001.000000
28	32	6,3	5,3	3	4	51	17	45	14	41	12	81,8	5,8	120	105	35,4	28,6	0,010	4203.028.001.000000
30	35	6,3	5,3	3	4	55	17	49	14	45	12	93,9	6,2	120	103	38,7	31,4	0,010	4203.030.001.000000
32	36	6,3	5,3	3	4	56	17	50	14	46	12	107	6,6	120	107	39,8	32,0	0,012	4203.032.001.000000
35	40	7	6,0	3	4	62	19	56	16	51	14	145	8,2	120	105	50,0	40,4	0,017	4203.035.001.000000
36	42	7	6,0	4	5	65	20	58	16	53	14	153	8,5	120	103	52,6	42,7	0,020	4203.036.001.000000
38	44	7	6,0	4	5	67	20	61	17	56	14	171	8,9	120	104	55,1	44,6	0,020	4203.038.001.000000
40	45	8	6,6	4	5	70	21	63	18	58	15	208	10,3	120	107	61,9	49,9	0,020	4203.040.001.000000
42	48	8	6,6	4	5	74	22	66	18	61	15	229	10,9	120	105	66,1	53,4	0,028	4203.042.001.000000
45	52	10	8,6	4	5	82	27	73	22	67	19	343	15,2	120	104	93,3	75,5	0,042	4203.045.001.000000
48	55	10	8,6	4	5	86	27	77	23	70	19	390	16,2	120	105	98,6	79,7	0,045	4203.048.001.000000
50	57	10	8,6	4	5	89	28	79	23	73	20	423	16,9	120	105	102	82,6	0,047	4203.050.001.000000
55	62	10	8,6	4	5	96	29	86	24	79	20	512	18,6	120	106	111	89,6	0,050	4203.055.001.000000
60	68	12	10,4	4	5	106	33	95	28	87	24	737	24,5	120	106	148	119	0,072	4203.060.001.000000
65	73	12	10,4	4	5	113	34	101	28	93	24	865	26,6	120	107	158	128	0,079	4203.065.001.000000
70	79	14	12,2	4	5	124	39	110	32	101	28	1176	33,6	120	106	201	162	0,111	4203.070.001.000000
75	84	14	12,2	4	5	130	40	116	33	107	28	1351	36,0	120	107	214	172	0,120	4203.075.001.000000
80	91	17	15,0	5	6	143	47	127	39	117	34	1889	47,2	120	105	285	230	0,190	4203.080.001.000000
85	96	17	15,0	5	6	150	48	134	40	123	34	2133	50,1	120	106	300	242	0,200	4203.085.001.000000
90	101	17	15,0	5	6	157	49	140	40	129	35	2391	53,1	120	107	316	254	0,220	4203.090.001.000000
95	106	17	15,0	5	6	164	50	146	41	135	35	2664	56,0	120	108	332	267	0,230	4203.095.001.000000
100	114	21	18,7	5	6	179	59	159	49	146	42	3680	73,6	120	105	445	359	0,380	4203.100.001.000000

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d	D	B	L ₁	W ₁	W ₂	Yield strength R _e of the hub material [N/mm ²]						Transmissible torque or axial force		Contact pressure at		Tightening torque			Weight
mm	mm	mm	mm	mm	mm	200		320		500		M	F	Shaft	Hub	E ₁	E ₂	kg	
						K _{min}	N _{min}	K _{min}	N _{min}	K _{min}	N _{min}	Nm	kN	P _W	P _N	kN	kN		
110	124	21	18,7	5	6	193	61	172	50	158	43	4453	80,9	120	106	483	389	0,410	4203.110.001.000000
120	134	21	18,7	5	6	205	62	184	51	169	44	5299	88,3	120	107	516	415	0,452	4203.120.001.000000
130	148	28	25,3	6	7	232	78	206	65	188	56	8414	129	120	105	762	616	0,847	4203.130.001.000000
140	158	28	25,3	6	7	245	79	218	66	200	57	9758	139	120	106	808	652	0,910	4203.140.001.000000
150	168	28	25,3	6	7	258	81	231	67	212	58	11202	149	120	107	855	689	0,967	4203.150.001.000000
160	178	28	25,3	6	7	271	82	243	68	224	59	12746	159	120	108	902	726	1,020	4203.160.001.000000
170	191	33	30,0	7	8	294	94	262	78	241	67	17062	200	120	107	1138	917	1,500	4203.170.001.000000
180	201	33	30,0	7	8	307	95	275	79	253	68	19128	212	120	107	1195	962	1,580	4203.180.001.000000
190	211	33	30,0	7	9	320	97	287	80	265	69	21312	224	120	108	1252	1007	1,690	4203.190.001.000000
200	224	38	34,8	7	9	342	108	306	90	281	78	27393	273	120	107	1530	1233	2,320	4203.200.001.000000