

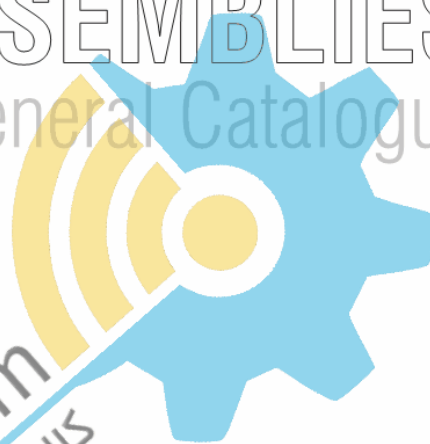
گروه کالا صنعتی

بروشور شرینگ دیسک



LOCKING ASSEMBLIES

General Catalogue



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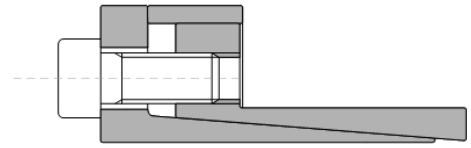


Locking Assemblies

OK110

Page 6

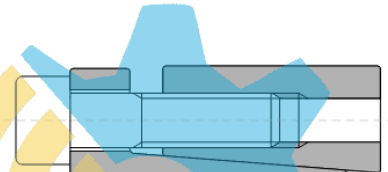
Self-centering
 Medium-high torque
 Available from 6 mm to 130 mm diameter
 Restricted radial encumbrance



OK130

Page 8

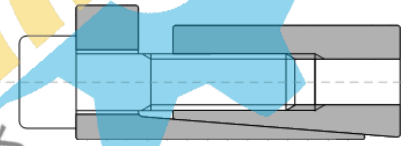
Self-centering
 High torque
 Available from 20 mm to 180 mm diameter
 Quick installation time



OK131

Page 8

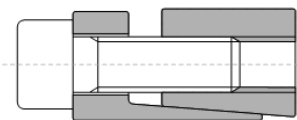
Self-centering
 Medium torque
 Available from 20 mm to 180 mm diameter
 Low surface pressures



OK132/139

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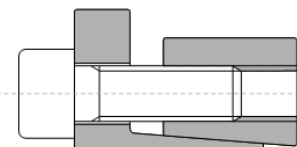
Self-centering
 Medium-high torque
 OK 132: Available from 20 mm to 200 mm diameter
 OK 139: Available from 18 mm to 90 mm diameter



OK133/134

Page 10 / Page 12

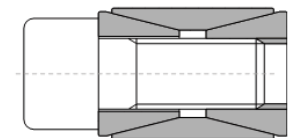
Self-centering
 Medium torque
 OK 133: Available from 20 mm to 200 mm diameter
 OK 134: Available from 14 mm to 50 mm diameter



OK200

Page 14

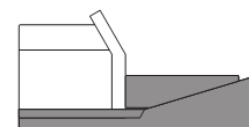
Not self-centering
 Medium torque
 Available from 20 mm to 900 mm diameter
 Self dismantling



OK250/250L

Page 16

Low torque
 Available from 14 mm to 70 mm diameter
 OK 250: not self-centering
 OK 250L: self-centering



Locking Assemblies

OK300

Page 18

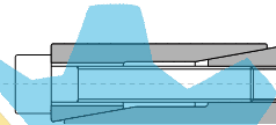
Not self-centering
Low torque
Available from 6 mm to 600 mm diameter
Restricted radial encumbrance



OK350

Page 20

Self-centering
Medium-high torque
Available from 6 mm to 50 mm diameter
Restricted radial encumbrance



OK400/401

Page 21

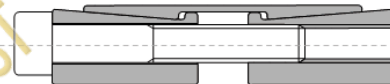
Self-centering
Very high torque
Available from 45 mm to 400 mm diameter
Even pressures distribution



OK450/451

Page 24

Self-centering
Very high torque
Available from 25 mm to 600 mm diameter
Application economically advantageous

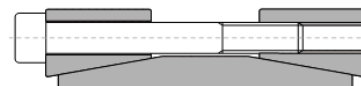


Shrink Discs

OK500

Page 27

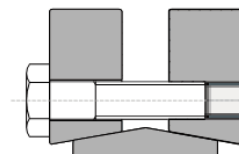
Rigid coupling
Medium torque
Available from 17 mm to 80 mm diameter
Quick installation and dismantling



OK601/602/603

Page 28

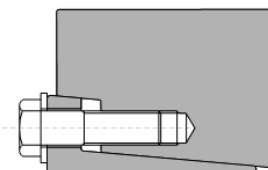
Self-centering
High / very high torque
Available from 14 mm to 480 mm diameter
Quick installation time



OK622/623/681/683

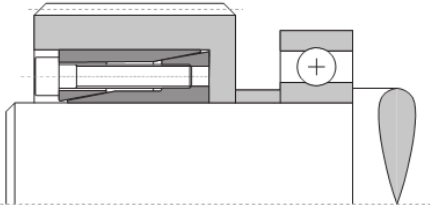
Page 34

Self-centering
High / very high torque
Available from 12 mm to 620 mm diameter
Quick installation time



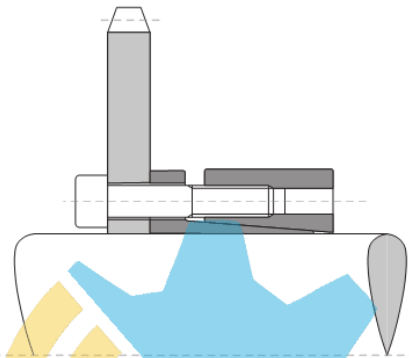
Locking assemblies

Application examples



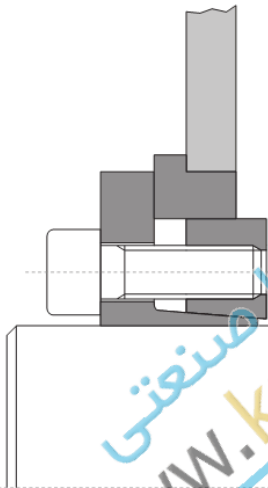
AE01

Bearing axial fastening and gear locking by means of model OK 350



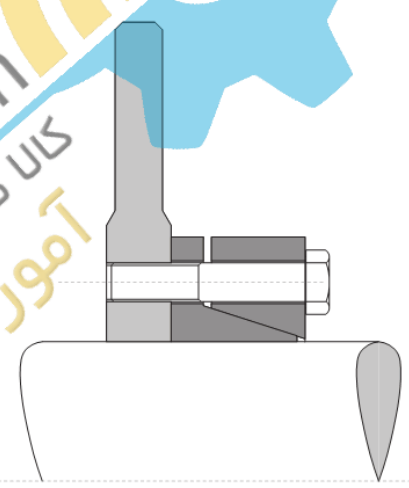
AE02

Chain sprocket locking by means of model OK 130 with no split outside ring



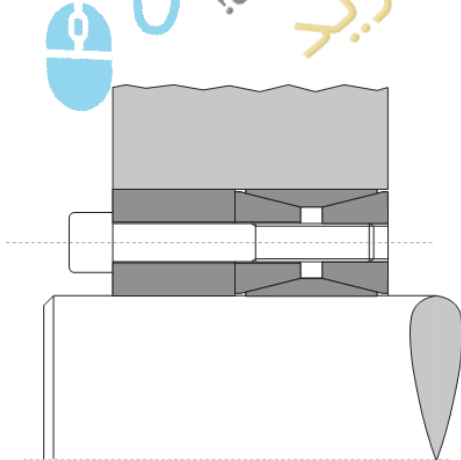
AE03

Thin plate locking by means of model OK 133 with adapter ring



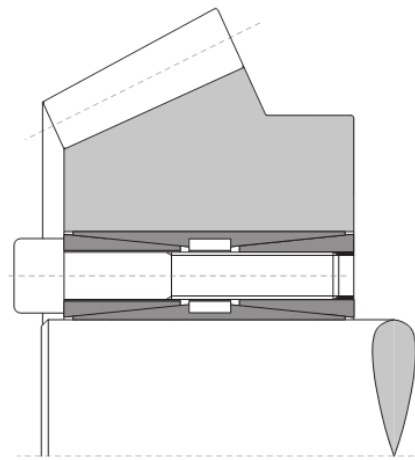
AE04

Break disc locking by means of special model OK 700



AE05

Hub locking by means of model OK 200 with a special centering ring

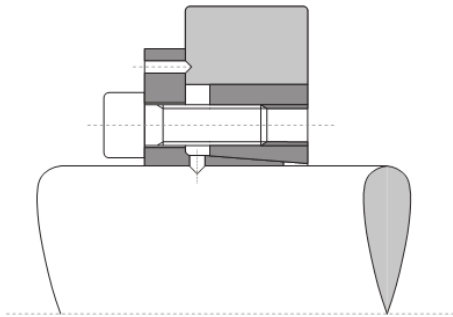


AE06

Large hub locking by means of special version of model OK 400

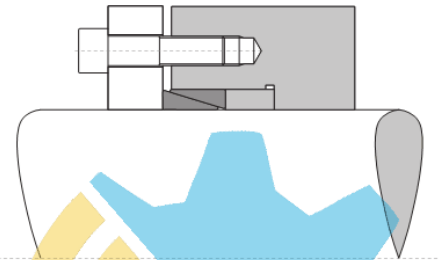
Locking assemblies

Application examples



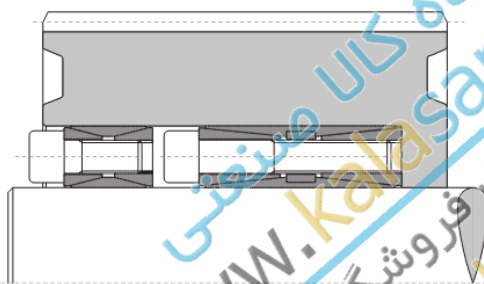
AE07

Cam locking by means of special model OK 133



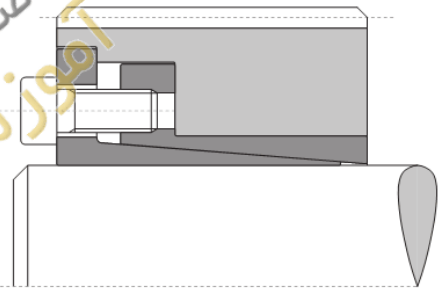
AE08

Use of model OK 300 without spacer



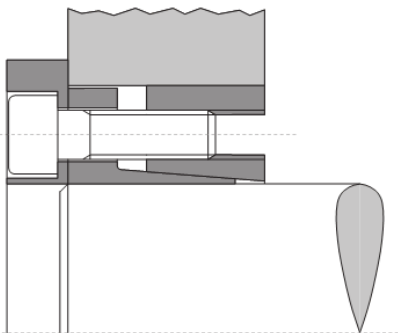
AE09

Use of several locking assemblies in presence of very heavy torque



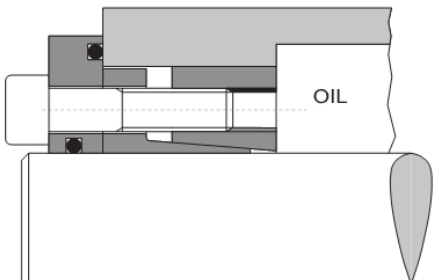
AE10

Use of model OK 110 in presence of high rpm



AE11

Special version of model OK 132 with screws protection ring



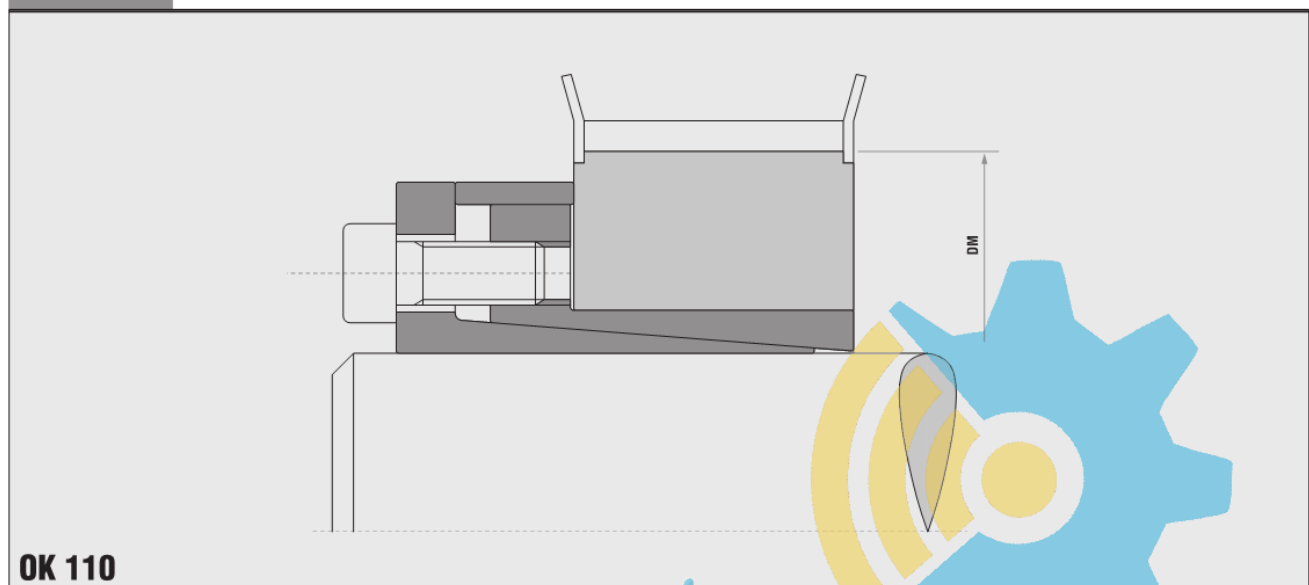
AE12

Special version of model OK 132 with retaining ring

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Locking assembly self-centering

OK 110



Characteristics

Medium-high torque
Restricted hub diameter
Limited installation time
Very low surface pressure

Installation

Carefully clean the hub and shaft contact surfaces and apply a light oil film. Slide the locking assembly into the hub bore, insert the shaft and tighten all screws gradually and regularly in crossed sequence to reach the tightening torque **Ms** as indicated in the table.

The values **Mt** and **F ass** indicated in the table are valid only in case of oil installation. Do not use any oil with **molibdenum bisulphide** or high pressure additives and not grease. Above substances notably reduce the friction coefficient.

Dismantling

Loosen the clamping screws. Insert the screws into the dismantling threading and tighten gradually and regularly in crossed sequence until the bottom cone is released.
If the element is to be reused, relubricate both screws and threadings.

Tolerances, surface finish

A good surface finish by machine tool is sufficient.
Maximum allowable surface finish:

Rt max 16 µm (Ra 3 µm - Rz 13 µm)

Maximum permissible tolerances:

h8 for shaft
H8 for hub

Axial movement

OK 110: during screws tightening the hub has no axial movement with respect to the shaft.

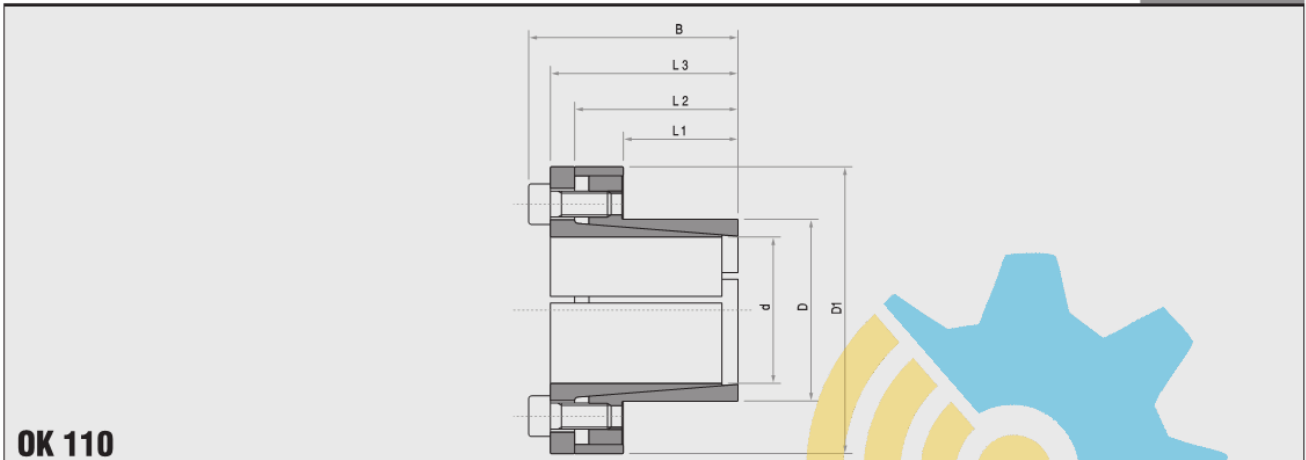
DM hub calculation

The pressure P_n in the hub can be compared to the inside pressure on a thick hollow cylinder.

For DM calculation see page 38.

Locking assembly self-centering OK 110

OK 110



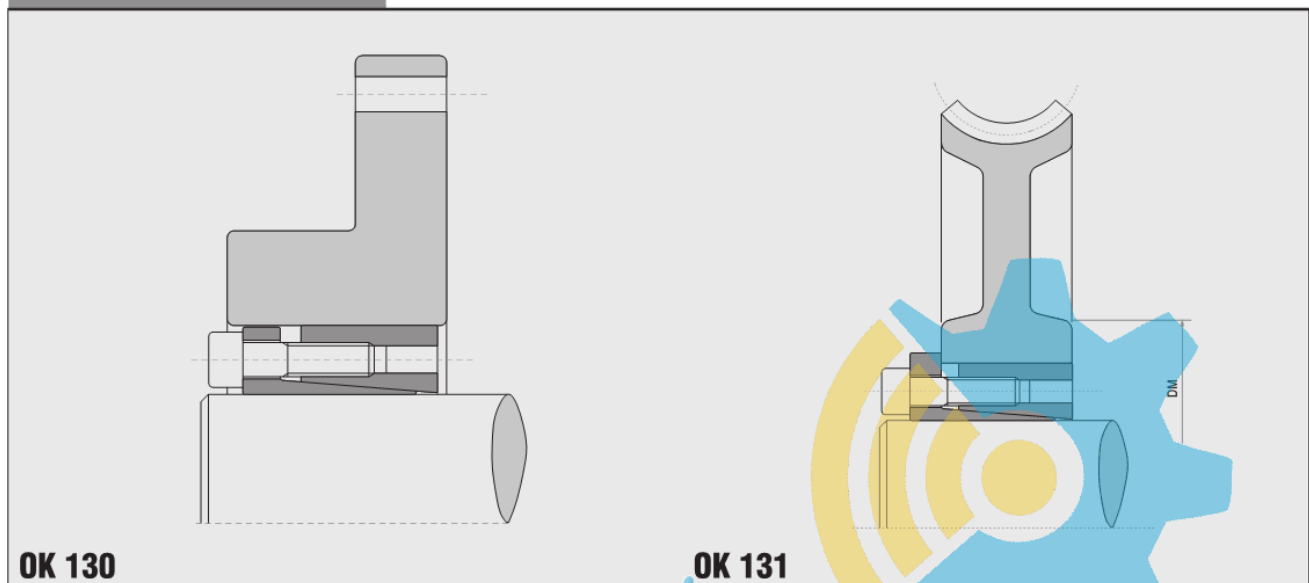
OK 110

dxD mm	L1 mm	L2 mm	L3 mm	B mm	D1 mm	Torque Mt Nm	Axial Thrust F axis kN	Surface pressures on		Tightening screws		Weight Kg
								Shaft pw N/mm ²	Hub pn N/mm ²	DIN 912 12.9 N° x type	Tightening torque Ms Nm	
6 x 14	10	18,5	21	24	25	12	4	185	80	3 x M3	2	0,04
7 x 15	12	22	25	29	27	25	7	235	110	3 x M4	5	0,06
8 x 15	12	22	25	29	27	29	7	205	110	3 x M4	5	0,05
9 x 16	14	23	26	30	28	44	10	205	115	4 x M4	5	0,06
10 x 16	14	23	26	30	28	49	10	185	115	4 x M4	5	0,06
11 x 18	14	23	26	30	32	53	10	170	105	4 x M4	5	0,07
12 x 18	14	23	26	30	32	58	10	160	105	4 x M4	5	0,07
13 x 23	14	23	26	30	38	63	10	140	80	4 x M4	5	0,11
14 x 23	14	23	26	30	38	68	10	130	80	4 x M4	5	0,10
* 15 x 23	14	24	30	35	39	120	16	205	135	4 x M5	10	0,14
15 x 24	16	29	36	42	45	127	17	185	115	3 x M6	17	0,22
16 x 24	16	29	36	42	45	136	17	175	115	3 x M6	17	0,22
17 x 26	18	31	38	44	47	180	22	190	125	4 x M6	17	0,25
18 x 26	18	31	38	44	47	200	22	180	125	4 x M6	17	0,24
19 x 27	18	31	38	44	49	210	22	170	120	4 x M6	17	0,26
* 19 x 28	18	31	38	43	49	150	16	125	85	4 x M5	10	0,27
20 x 28	18	31	38	44	50	220	22	160	115	4 x M6	17	0,27
22 x 32	25	36	45	51	54	250	22	115	80	4 x M6	17	0,34
24 x 34	25	36	45	51	56	270	22	105	75	4 x M6	17	0,36
25 x 34	25	38	45	51	56	280	22	100	75	4 x M6	17	0,35
28 x 39	25	38	45	51	61	465	33	135	97	6 x M6	17	0,48
30 x 41	25	38	45	51	62	510	33	127	90	6 x M6	17	0,48
32 x 43	25	38	45	51	65	540	33	120	90	6 x M6	17	0,47
35 x 47	32	45	52	58	69	790	45	105	80	8 x M6	17	0,58
38 x 50	32	45	52	58	72	860	45	100	75	8 x M6	17	0,61
40 x 53	32	45	52	58	75	900	45	95	70	8 x M6	17	0,68
42 x 55	32	45	52	58	78	950	45	90	70	8 x M6	17	0,76
45 x 59	45	62	70	78	86	1890	84	110	85	8 x M8	41	1,2
48 x 62	45	62	70	78	87	2010	84	105	80	8 x M8	41	1,2
50 x 65	45	62	70	78	92	2100	84	100	75	8 x M8	41	1,4
55 x 71	55	72	80	88	98	2600	94	85	65	9 x M8	41	1,6
60 x 77	55	72	80	88	104	2840	94	75	60	9 x M8	41	1,8
65 x 84	55	72	80	88	111	3070	94	70	55	9 x M8	41	2,1
70 x 90	65	86	96	106	119	5250	150	90	70	9 x M10	83	3,0
75 x 95	65	86	96	106	126	5600	150	80	65	9 x M10	83	3,0
80 x 100	65	86	96	106	131	8020	200	100	80	12 x M10	83	3,5
85 x 106	65	86	96	106	137	8500	200	95	75	12 x M10	83	3,6
90 x 112	65	86	96	106	144	9000	200	90	75	12 x M10	83	3,9
95 x 120	65	86	96	106	149	11000	230	100	80	14 x M10	83	4,4
100 x 125	65	86	96	106	154	15000	300	120	95	18 x M10	83	4,6
110 x 140	90	114	128	140	180	16000	290	80	65	12 x M12	145	8,7
120 x 155	90	114	128	140	198	17500	290	70	55	12 x M12	145	10,6
130 x 165	90	114	128	140	208	25000	384	90	70	16 x M12	145	11,3

For larger diameter please contact us. * upon request

Locking assemblies self-centering

OK 130 • OK 131



Characteristics

High torque
Application economically advantageous
Limited installation time
Excellent shaft-hub perpendicularity

Installation

Carefully clean the hub and shaft contact surfaces and apply a light oil film. Slide the locking assembly into the hub bore, insert the shaft and tighten gradually and regularly in crossed sequence all screws to reach the tightening torque **M_s** as indicated in the table. The values **M_t** and **F_{ass}** indicated in the table are valid only in case of oil installation. Do not use any oil with molybdenum bisulphide or high pressure additives and not grease. Above substances notably reduce the friction coefficient.

Dismantling

Loosen the clamping screws. Insert the screws into the dismantling threading and tighten gradually and regularly in crossed sequence until the back cone is released. If the element is to be reused, relubricate both screws and threads.

Tolerances, surface finish

A good surface finish by the machine tool is sufficient.
Maximum allowable surface finish:

Rt max 16 μm (Ra 3 μm - Rz 13 μm)

Maximum permissible tolerances:

h8 for shaft
H8 for hub

Axial movement

OK 130: during screws tightening the hub has a slight axial movement with respect to the shaft.

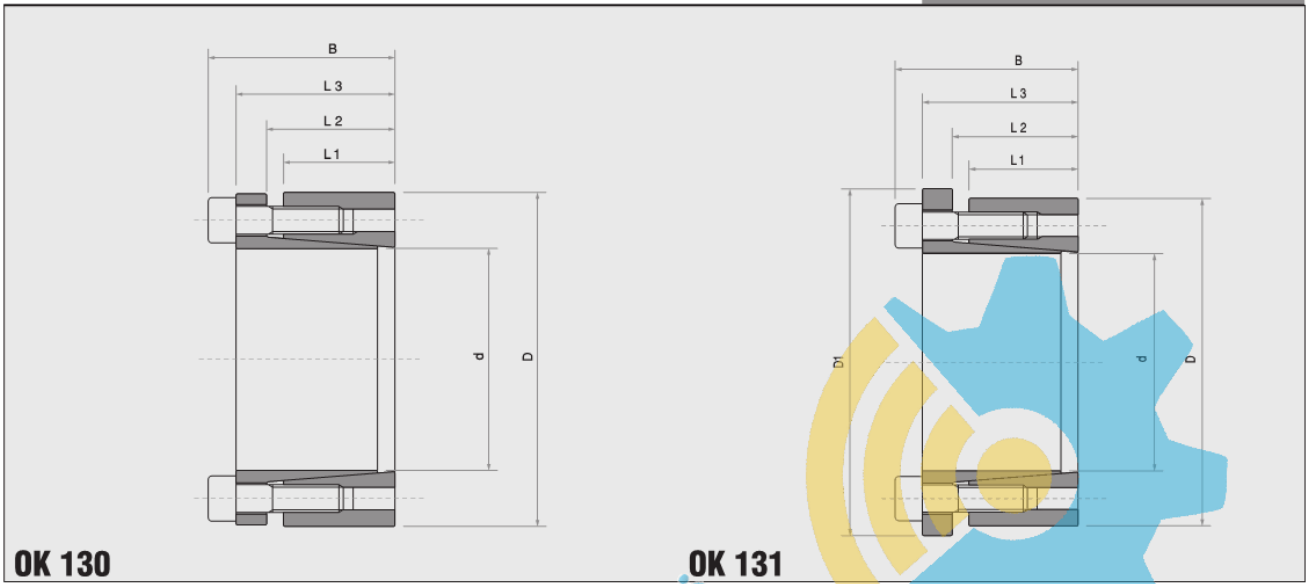
OK 131: during screws tightening the hub has no axial movement with respect to the shaft.

DM hub calculation

The pressure **P_n** in the hub can be compared to the inside pressure on a thick hollow cylinder.

For DM calculation see page 38.

Locking assemblies self-centering OK 130 • OK 131



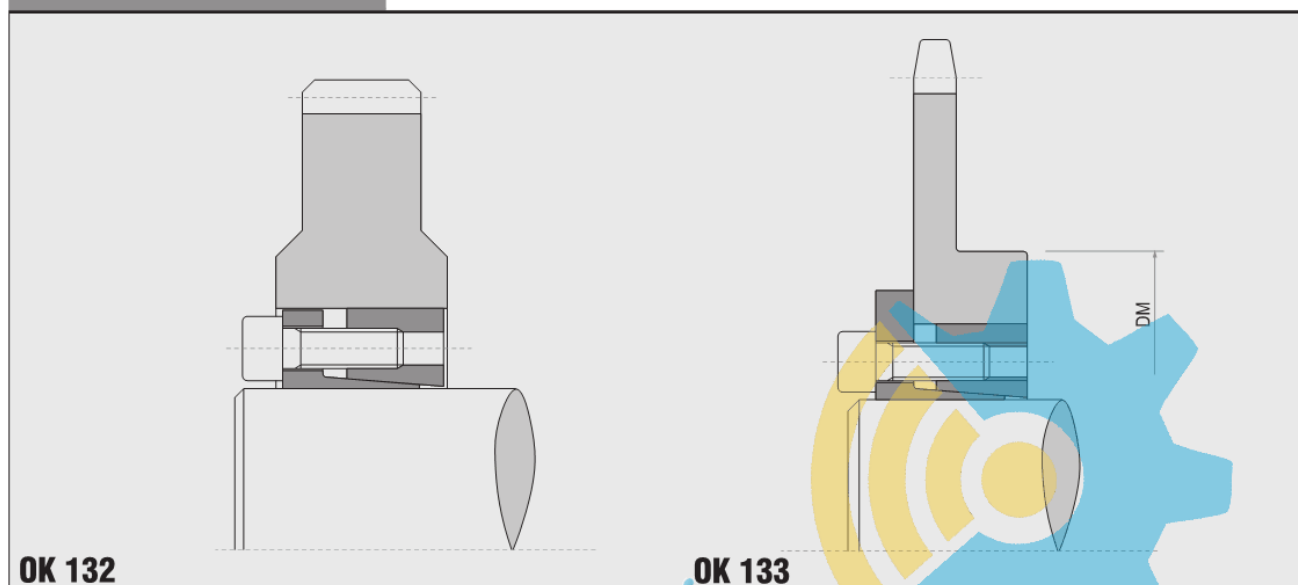
dxD mm	L1 mm	L2 mm	L3 mm	B mm	D1 mm	Tightening screws			Axial Thrust F ass KN	Surface pressures on		Weight Kg	Torque Mt Nm	Axial Thrust F ass. KN	Surface pressures on		Weight Kg
						DIN 912 12.9 N° x type	Tightening torque Ms Nm	Torque Mt Nm		Shaft pw N/mm²	Hub p N/mm²				Shaft pw N/mm²	Hub pn N/mm²	
20 x 47	26	30	41	47	53	6 x M6	17	540	54	230	120	0,4	330	34	175	75	0,5
22 x 47	26	30	41	47	53	6 x M6	17	600	54*	255	120	0,4	370	34	160	75	0,5
24 x 50	26	30	41	47	56	6 x M6	17	650	54	235	115	0,4	400	34	145	70	0,5
25 x 50	26	30	41	47	56	6 x M6	17	680	54	225	115	0,4	420	34	140	70	0,5
28 x 55	26	30	41	47	61	6 x M6	17	760	54	200	105	0,5	470	34	125	65	0,6
30 x 55	26	30	41	47	61	6 x M6	17	820	54	185	105	0,5	510	34	115	65	0,6
32 x 60	26	30	41	47	66	8 x M6	17	1160	73	235	125	0,6	720	45	145	80	0,7
35 x 60	26	30	41	47	66	8 x M6	17	1270	73	215	125	0,5	790	45	135	80	0,6
38 x 65	26	30	41	47	71	8 x M6	17	1380	73	200	115	0,6	860	45	125	70	0,8
40 x 65	26	30	41	47	71	8 x M6	17	1450	73	190	115	0,6	900	45	120	70	0,6
42 x 75	30	35	49	57	81	6 x M8	41	2130	101	215	120	1	1320	63	135	75	1,2
45 x 75	30	35	49	57	81	6 x M8	41	2280	101	200	120	1	1410	63	125	75	1,1
48 x 80	30	35	49	57	86	8 x M8	41	2430	101	190	115	1,1	1510	63	120	70	1,3
50 x 80	30	35	49	57	86	6 x M8	41	2530	101	180	115	1	1570	63	110	70	1,1
55 x 85	30	35	49	57	94	8 x M8	41	3700	135	220	140	1,1	2310	84	135	90	1,2
60 x 90	30	35	49	57	96	8 x M8	41	4000	135	200	135	1,2	2520	84	124	85	1,3
65 x 95	30	35	49	57	102	8 x M8	41	4380	135	185	125	1,3	2730	84	115	80	1,4
70 x 110	40	45	59	69	117	8 x M10	83	7500	214	205	130	2,2	4650	133	125	80	2,5
75 x 115	40	45	59	69	122	8 x M10	83	8000	214	190	125	2,5	5000	133	120	80	2,6
80 x 120	40	45	59	69	127	8 x M10	83	8560	214	180	120	2,6	5330	133	110	75	2,8
85 x 125	40	45	59	69	132	10 x M10	83	11370	268	210	145	2,8	7080	167	130	90	2,8
90 x 130	40	45	59	69	137	10 x M10	83	12000	268	200	135	2,7	7500	167	125	85	3
95 x 135	40	45	59	69	142	10 x M10	83	12600	268	190	130	2,9	7900	167	115	85	3
100 x 145	46	52	68	80	153	8 x M12	145	15580	312	180	125	3,9	9700	194	115	80	5,5
110 x 155	46	52	68	80	163	8 x M12	145	17100	312	165	115	4,2	10650	194	100	75	4,8
120 x 165	46	52	68	80	173	10 x M12	145	23370	390	190	135	4,8	14550	243	120	85	5,5
130 x 180	46	52	68	80	188	12 x M12	145	30380	467	210	150	5	18950	291	130	95	6
140 x 190	50	57	76	90	199	8 x M14	230	29900	428	165	120	6,5	18650	267	100	75	7,5
150 x 200	50	57	76	90	209	10 x M14	230	40000	535	190	145	7	25000	333	120	90	7,7
160 x 210	50	57	76	90	219	10 x M14	230	42750	535	180	135	7	26650	333	110	85	8
170 x 225	50	57	76	90	234	12 x M14	230	54500	641	200	150	8,5	34000	400	125	95	9,8
180 x 235	50	57	76	90	244	12 x M14	230	57700	641	190	145	9	36000	400	120	90	9,8

For larger diameter or inch series please contact us.

NOTE: it is possible to reduce the screws tightening torque down to 60% of the values indicated in above table; as a result Mt, F ass, Pw, Pn are reduced proportionally.

Locking assemblies self-centering

OK 132 • OK 133



Characteristics

Medium-high torque
Application economically advantageous
Limited installation time
Interchangeable with OK 200

Installation

Carefully clean the hub and shaft contact surfaces and apply a light oil film. Slide the locking assembly into the hub bore, insert the shaft and tighten gradually and regularly in crossed sequence all screws to reach the tightening torque M_s as indicated in the table.

The values M_t and F_{ass} indicated in the table are valid only in case of oil installation. Do not use any oil with **molibdenum bisulphide** or high pressure additives and not grease. Above substances notably reduce the friction coefficient.

Dismantling

Loosen the clamping screws. Insert the screws into the dismantling threading and tighten gradually and regularly in crossed sequence until the back cone is released. If the element is to be reused, relubricate both screws and threads.

Tolerances, surface finish

A good surface finish by the machine tool is sufficient.
Maximum allowable surface finish:

$R_t \text{ max } 16 \mu\text{m}$ ($R_a \text{ } 3 \mu\text{m}$ - $R_z \text{ } 13 \mu\text{m}$)

Maximum permissible tolerances:

h8 for shaft
H8 for hub

Axial movement

OK 132: during screws tightening the hub has a slight axial movement with respect to the shaft.

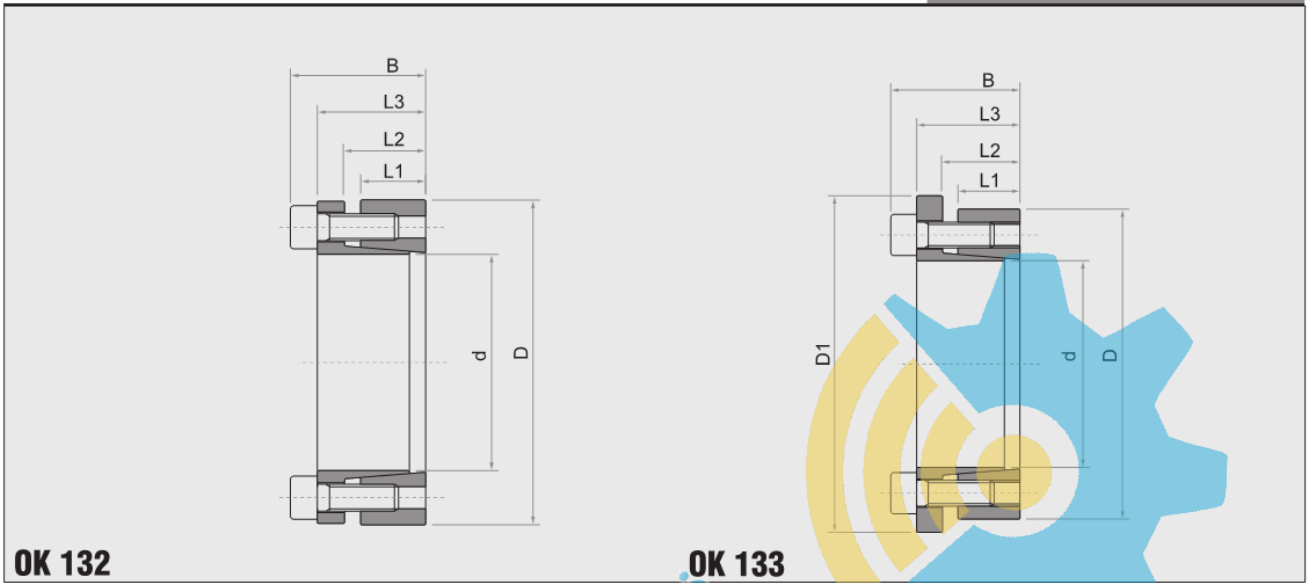
OK 133: during screws tightening the hub has no axial movement with respect to the shaft.

DM hub calculation

The pressure P_n in the hub can be compared to the inside pressure on a thick hollow cylinder.

For DM calculation see page 38.

Locking assemblies self-centering OK 132 • OK 133



OK 132

OK 133

OK 132

OK 133

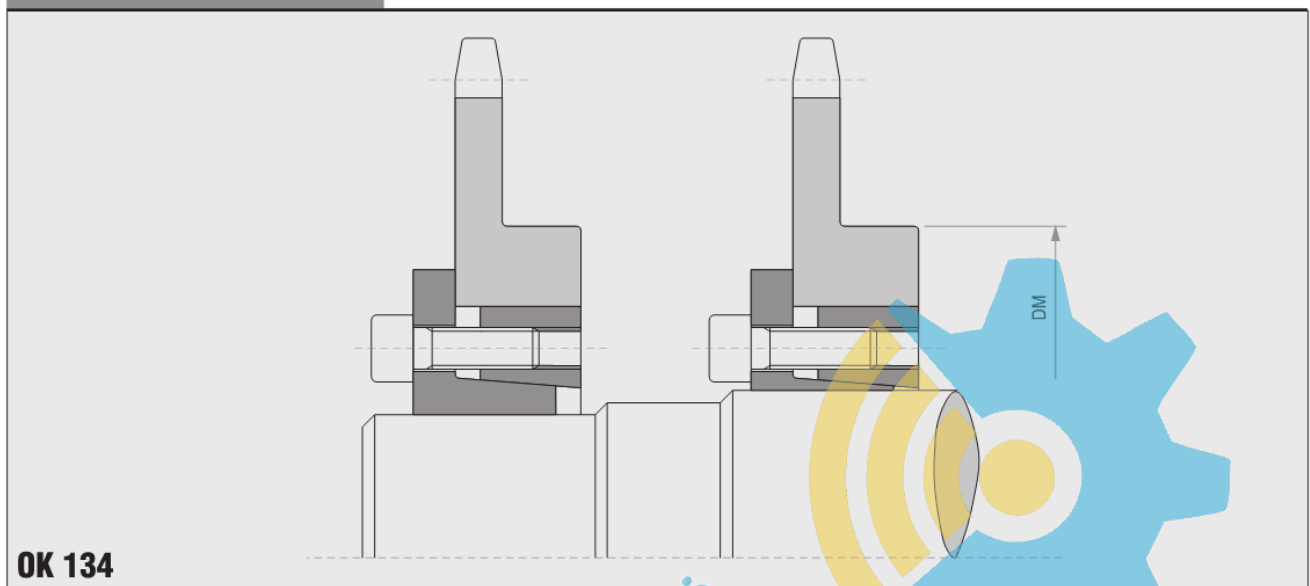
dxD mm	L1 mm	L2 mm	L3 mm	B mm	D1 mm	Tightening screws		Torque Mt Nm	Axial Thrust F ass. kN	Surface pressures on		Weight Kg	Torque Mt Nm	Axial Thrust F ass. kN	Surface pressures on		Weight Kg
						DIN 912 12.9 N° x type	Tightening torque OK 132 OK 133			Shaft pw N/mm²	Hub pn N/mm²				Shaft pw N/mm²	Hub pn N/mm²	
20 x 47	17	22	28	34	54	5 x M6	14 17	380	38	295	125	0,3	280	28	220	95	0,3
22 x 47	17	22	28	34	54	5 x M6	14 17	410	38	270	125	0,3	300	28	200	95	0,3
24 x 50	17	22	28	34	57	5 x M6	14 17	450	38	245	120	0,3	330	28	180	90	0,3
25 x 50	17	22	28	34	57	6 x M6	14 17	570	46	285	140	0,3	420	34	210	105	0,3
28 x 55	17	22	28	34	62	6 x M6	14 17	630	46	255	130	0,4	470	34	190	95	0,4
30 x 55	17	22	28	34	62	6 x M6	14 17	660	46	235	130	0,3	500	34	175	95	0,4
32 x 60	17	22	28	34	67	8 x M6	14 17	970	60	295	155	0,4	720	45	220	115	0,4
35 x 60	17	22	28	34	67	8 x M6	14 17	1060	60	270	155	0,4	790	45	200	115	0,4
38 x 65	17	22	28	34	72	8 x M6	14 17	1150	60	250	145	0,4	850	45	185	105	0,5
40 x 65	17	22	28	34	72	8 x M6	14 17	1210	60	235	145	0,4	900	45	175	105	0,5
42 x 75	20	25	33	41	82	7 x M8	35 41	2050	98	300	170	0,8	1530	73	225	125	0,8
45 x 75	20	25	33	41	82	7 x M8	35 41	2200	98	290	170	0,6	1650	73	215	125	0,7
48 x 80	20	25	33	41	87	7 x M8	35 41	2350	98	270	160	0,8	1760	73	200	120	0,8
50 x 80	20	25	33	41	87	7 x M8	35 41	2450	98	260	160	0,8	1830	73	195	120	0,8
55 x 85	20	25	33	41	92	8 x M8	35 41	3080	112	270	175	0,8	2300	83	200	130	0,9
60 x 90	20	25	33	41	97	8 x M8	35 41	3360	112	245	165	0,8	2510	83	185	125	0,9
65 x 95	20	25	33	41	102	9 x M8	35 41	4090	126	255	175	0,9	3060	94	190	130	1
70 x 110	24	30	40	50	117	8 x M10	70 83	6300	179	280	180	1,8	4670	133	210	135	1,9
75 x 115	24	30	40	50	122	8 x M10	70 83	6700	179	260	170	1,8	5000	133	195	125	2
80 x 120	24	30	40	50	127	8 x M10	70 83	7150	179	250	170	1,8	5300	133	185	125	2
85 x 125	24	30	40	50	132	9 x M10	70 83	8500	200	260	180	2	6300	148	195	135	2
90 x 130	24	30	40	50	137	9 x M10	70 83	9100	200	250	170	2,1	6750	148	185	130	2,2
95 x 135	24	30	40	50	142	10 x M10	70 83	10600	224	260	180	2,1	7900	166	195	135	2,3
100 x 145	26	32	44	56	152	8 x M12	125 145	13400	268	270	190	2,8	9700	194	200	140	3
110 x 155	26	32	44	56	162	8 x M12	125 145	14600	268	240	180	3	10600	194	180	130	3,2
120 x 165	26	32	44	56	172	9 x M12	125 145	17900	298	250	180	3,2	13000	216	185	135	3,4
130 x 180	34	40	54	66	187	12 x M12	125 145	26000	400	240	170	4,8	18900	290	175	125	5,2
140 x 190	34	40	54	66	197	9 x M14	190 230	27000	384	210	150	5,2	20500	290	165	120	5,4
150 x 200	34	40	54	68	207	10 x M14	190 230	33000	440	230	170	5,4	25000	333	175	130	5,7
160 x 210	34	40	54	68	217	11 x M14	190 230	38000	479	230	170	5,7	29000	362	180	135	6
170 x 225	44	50	64	78	232	12 x M14	190 230	45000	530	180	130	8	34000	400	140	105	8,3
180 x 235	44	50	64	78	242	12 x M14	190 230	47000	530	170	130	8,3	36000	400	135	105	8,8
190 x 250	44	50	64	78	257	15 x M14	190 230	62900	660	210	150	9,6	47500	500	160	120	10
200 x 260	44	50	64	78	267	15 x M14	190 230	66000	660	190	150	10	50000	500	150	115	10,5

For larger diameter or inch series please contact us.

NOTE: it is possible to reduce the screws tightening torque down to 60% of the values indicated in above table; as a result Mt, F ass, Pw, Pn are reduced proportionally.

Locking assembly self-centering

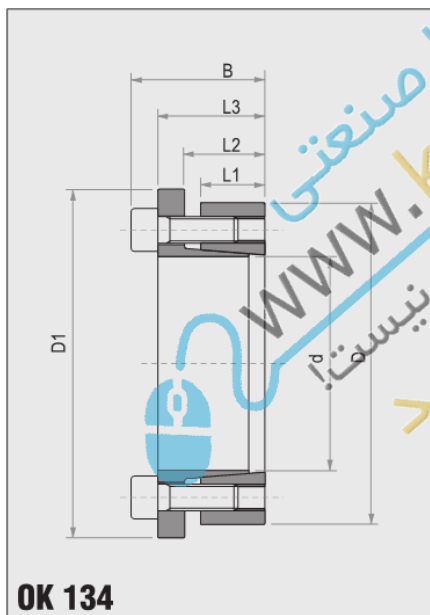
OK 134



OK 134

Characteristics

The same as OK 133 (pag.10)

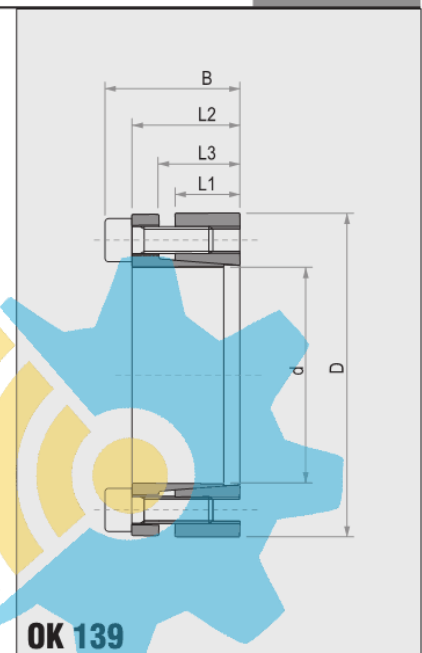


OK 134

n, D mm	L1 mm	L2 mm	L3 mm	B mm	D1 mm	Torque Ml Nm	Axial Thrust F ass. KN	Surface pressures on		Tightening screws		Weight Kg
								Shaft pw N/mm ²	Hub pn N/mm ²	DIN 912 12.9 N° x type	Tightening torque Ms Nm	
14 x 55						120	18	205	55		25	0,5
16 x 55						140	18	180	55		25	0,5
18 x 55						150	18	160	55		25	0,5
19 x 55						160	18	150	55		25	0,5
20 x 55	17	22	30	38	62	170	18	145	55	3 x M8	25	0,5
22 x 55						280	25	185	75		35	0,5
24 x 55						300	25	170	75		35	0,5
25 x 55						310	25	165	75		35	0,5
28 x 55						430	31	175	90		41	0,4
30 x 55						470	31	165	90		41	0,4
24 x 65						440	37	244	90		30	0,7
25 x 65						460	37	234	90		30	0,7
28 x 65						600	44	243	105		35	0,6
30 x 65						640	44	227	105		35	0,6
32 x 65	17	22	30	38	72	690	44	213	105	5 x M8	35	0,6
35 x 65						910	52	234	126		41	0,5
38 x 65						990	52	216	126		41	0,5
40 x 65						1050	52	205	126		41	0,5
30 x 80						780	52	232	87		30	1
32 x 80						830	52	217	87		30	1
35 x 80						1060	61	232	102		35	1
38 x 80						1150	61	214	102		35	1
40 x 80	20	25	33	41	87	1220	61	203	102	7 x M8	35	0,9
42 x 80						1540	73	233	122		41	0,9
45 x 80						1650	73	217	122		41	0,8

Locking assembly self-centering OK 134

dxD mm	L1 mm	L2 mm	L3 mm	B mm	Torque Mt Nm	Axial Thrust F ass. KN	Surface pressures on		Tightening screws		Weight Kg
							Shaft pw N/mm ²	Hub pn N/mm ²	DIN 912 12.9 N° x type	Tightening torque Ms Nm	
18 x 40	12	15	20	24	210	23,7	233	131	6 x M4	5	0,2
19 x 41	12	15	20	24	220	23,7	221	128	6 x M4	5	0,2
20 x 42	12	15	20	24	270	27,7	245	146	7 x M4	5	0,2
22 x 44	12	15	20	24	300	27,7	223	139	7 x M4	5	0,2
24 x 46	12	15	20	24	330	27,7	204	133	7 x M4	5	0,2
25 x 47	12	15	20	24	340	27,7	196	130	7 x M4	5	0,2
28 x 50	12	15	20	24	500	35,6	225	157	9 x M4	5	0,2
30 x 52	12	15	20	24	530	35,6	210	151	9 x M4	5	0,2
32 x 54	12	15	20	24	570	35,6	197	146	9 x M4	5	0,2
35 x 57	16	19	24	28	690	39,5	158	115	10 x M4	5	0,3
36 x 58	16	19	24	28	710	39,5	153	113	10 x M4	5	0,3
38 x 60	16	19	24	28	830	43,5	160	120	1 x M4	5	0,3
40 x 62	16	19	24	28	870	43,5	152	116	1 x M4	5	0,4
42 x 70	19	23	30	36	1530	73	200	146	8 x M6	17	0,6
45 x 73	19	23	30	36	1640	73	187	140	8 x M6	17	0,6
48 x 76	19	23	30	36	1750	73	175	134	8 x M6	17	0,6
50 x 78	19	23	30	36	1820	73	168	131	8 x M6	17	0,6
55 x 83	19	23	30	36	2000	73	153	123	8 x M6	17	0,7
56 x 84	19	23	30	36	2040	73	150	121	8 x M6	17	0,7
60 x 88	19	23	30	36	2460	82,1	158	130	9 x M6	17	0,7
63 x 91	19	23	30	36	2580	82,1	150	126	9 x M6	17	0,9
65 x 93	19	23	30	36	2660	82,1	146	123	9 x M6	17	1,1
70 x 105	23	28	37	45	4720	134,8	183	148	8 x M8	41	1,5
75 x 110	23	28	37	45	5050	134,8	170	141	8 x M8	41	1,5
80 x 115	23	28	37	45	5390	134,8	160	135	8 x M8	41	1,7
85 x 120	23	28	37	45	5730	134,8	150	130	8 x M8	41	2
90 x 125	23	28	37	45	7580	168,5	177	156	10 x M8	41	2,3



OK 139

Characteristics

Medium-low torque

Limited installation time

Application economically advantageous

Installation

Carefully clean the hub and shaft contact surfaces and apply a light oil film. Slide the locking assembly into the hub bore, insert the shaft and tighten gradually and regularly in crossed sequence all screws to reach the tightening torque **Ms** as indicated in the table.

The values **Mt** and **F ass** indicated in the table are valid only in case of oil installation. Do not use any oil with **molibdenum bisulphide** or high pressure additives and not grease. Above substances notably reduce the friction coefficient.

Dismantling

Loosen the clamping screws. Insert the screws into the dismantling threading and tighten gradually and regularly in crossed sequence till the back cone is released. If the element is to be reused, relubricate both screws and threads.

Tolerances, surface finish

A good surface finish by machine tool is sufficient.

Maximum allowable surface finish:

Rt max 16 µm (Ra 3 µm - Rz 13 µm)

Maximum permissible tolerances:

h8 for shaft

H8 for hub

Axial movement

OK 139: during screws tightening the hub has a slight axial movement with respect to the shaft.

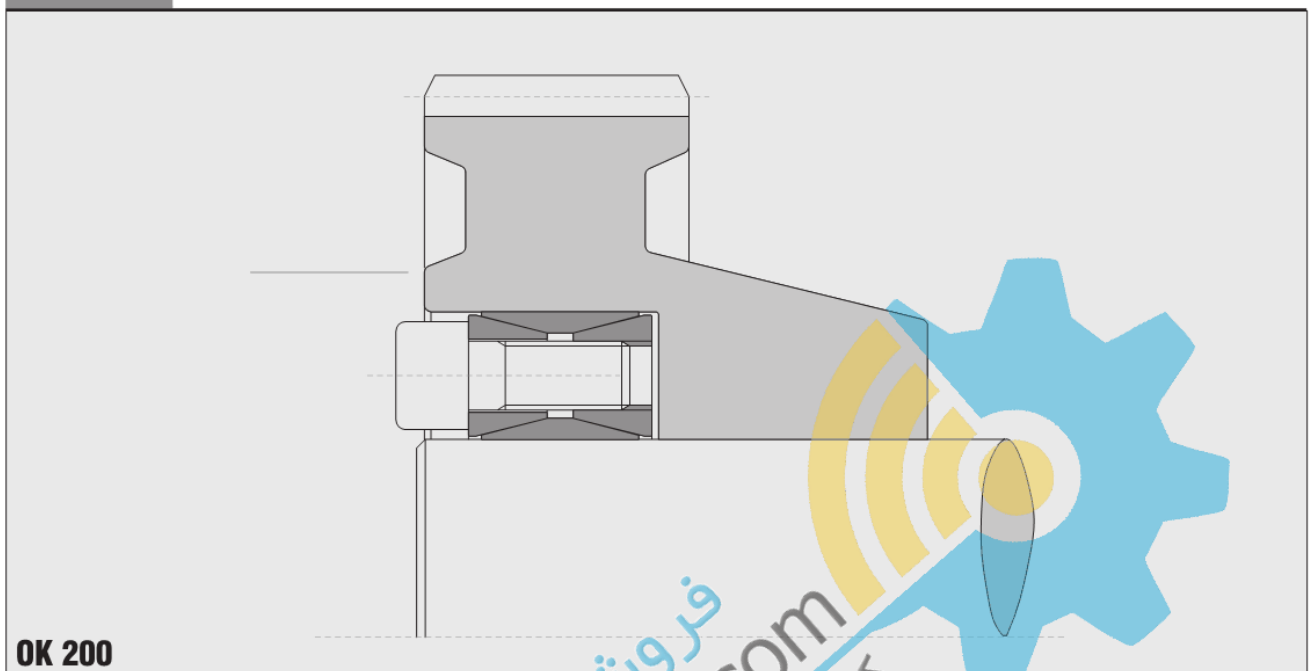
DM hub calculation

The pressure **Pn** in the hub can be compared to the inside pressure on a thick hollow cylinder.

For DM calculation see page 38.

Locking assembly not self-centering

OK 200



Charateristics

Medium-high torque
Wide tolerances
Easy availability
Easy dismantling

Installation

Carefully clean the hub and shaft contact surfaces and apply a light oil film. Slide the locking assembly into the hub bore and insert the shaft. Tighten cadmium plated clamping screws until inner ring grips the shaft and the outer ring grips the hub bore then tighten gradually and regularly in crossed sequence all screws to reach the tightening torque M_s indicated in the table. The values M_t and F_{ass} indicated in the table are valid only in case of oil installation.

Do not use any oil with **molibdenum bisulphide** or high pressure additives and not grease.

Dismantling

By loosening all tightening screws the clamping unit is normally released. In case of difficulties slightly hammer the released screws to push back the rear pressure cone.

Tolerances, surface finish

A good surface finish by machine tool is sufficient.
Maximum allowable surface finish:

Rt max 16 μm (Ra 3 μm - Rz 13 μm)

Maximum permissible tolerances:

h11 for shaft
H11 for hub

Centering

Mod. OK 200 is not self-centering. The hub concentricity with respect to the shaft depends on the guide surface tolerance and its length.

Axial movement

OK 200: during screws tightening the hub has no axial movement with respect to the shaft.

DM hub calculation

The pressure P_n on the hub can be compared to the inside pressure on a thick hollow cylinder.

For DM calculation see page 38.

Mt transmissible

If two or more clamping unit are installed together, as a result of carried tests, the M_t transmissible shall be calculated as follow:

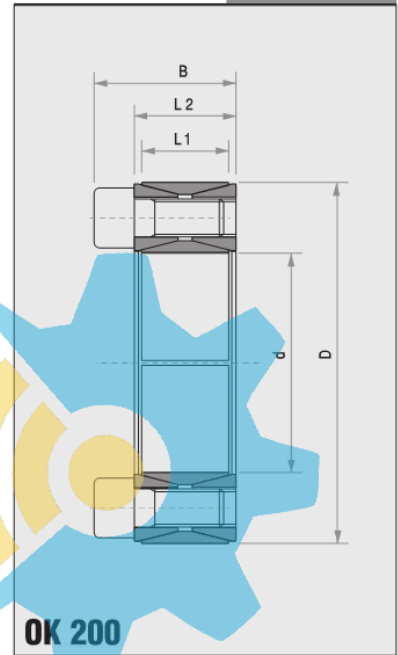
Nr. 1 OK 200 $M_t = M_t \text{ cat.}$

Nr. 2 OK 200 $M_t = M_t \text{ cat.} \cdot 1,9$

Nr. 3 OK 200 $M_t = M_t \text{ cat.} \cdot 2,7$

Locking assembly not self-centering **OK 200**

dxD mm	L1 mm	L2 mm	B mm	Torque		Surface pressures on		Tightening screws		Weight Kg
				Mt Nm	F ass. KN	Shaft pw N/mm ²	Hub pn N/mm ²	DIN 912 12.9 N° x type	Tightening torque Ms Nm	
20 x 47	17	20	27,5	280	29	225	95	8 x M6	15	0,2
22 x 47	17	20	27,5	310	29	210	95	8 x M6	15	0,2
24 x 50	17	20	27,5	370	32	210	100	8 x M6	15	0,3
25 x 50	17	20	27,5	400	32	200	100	8 x M6	15	0,3
28 x 55	17	20	27,5	500	36	200	100	10 x M6	15	0,3
30 x 55	17	20	27,5	530	36	185	100	10 x M6	15	0,3
32 x 60	17	20	27,5	680	42	205	110	12 x M6	15	0,3
35 x 60	17	20	27,5	750	43	190	110	12 x M6	15	0,3
38 x 65	17	20	27,5	930	49	200	115	14 x M6	15	0,4
40 x 65	17	20	27,5	980	49	190	115	14 x M6	15	0,3
42 x 75	20	24	33,5	1580	75	235	130	12 x M8	37	0,6
45 x 75	20	24	33,5	1700	76	220	130	12 x M8	37	0,6
48 x 80	20	24	33,5	1790	74	210	120	12 x M8	37	0,6
50 x 80	20	24	33,5	1870	75	200	120	12 x M8	37	0,6
55 x 85	20	24	33,5	2390	88	210	135	14 x M8	37	0,6
60 x 90	20	24	33,5	2610	88	190	125	14 x M8	37	0,7
65 x 95	20	24	33,5	3210	98	200	135	16 x M8	37	0,7
70 x 110	24	28	39,5	4600	132	210	130	14 x M10	70	1,3
75 x 115	24	28	39,5	4900	131	195	125	14 x M10	70	1,3
80 x 120	24	28	39,5	5200	131	180	120	14 x M10	70	1,4
85 x 125	24	28	39,5	6300	148	195	130	16 x M10	70	1,4
90 x 130	24	28	39,5	6600	147	180	125	16 x M10	70	1,5
95 x 135	24	28	39,5	7900	167	195	135	18 x M10	70	1,6
100 x 145	26	33	47	9750	195	195	135	14 x M12	127	2,2
110 x 155	26	33	47	10650	194	180	125	14 x M12	127	2,5
120 x 165	26	33	47	13300	221	185	135	16 x M12	127	2,6
130 x 180	34	38	52	17850	276	165	115	20 x M12	127	3,8
140 x 190	34	38	52	21200	302	165	125	22 x M12	127	3,9
150 x 200	34	38	52	24500	329	170	125	24 x M12	127	4
160 x 210	34	38	52	28400	355	170	130	26 x M12	127	4,3
170 x 225	38	44	60	33600	396	165	120	22 x M14	195	5,8
180 x 235	38	44	60	38700	431	170	130	24 x M14	195	6
190 x 250	46	52	68	44700	502	155	120	28 x M14	195	8,5
200 x 260	46	52	68	53500	538	155	120	30 x M14	195	8,6
220 x 285	50	56	74	68500	630	155	120	26 x M16	300	11
240 x 305	50	56	74	86000	717	165	130	30 x M16	300	12
260 x 325	50	56	74	105000	810	165	135	34 x M16	300	13
280 x 355	60	66	86,5	128500	920	150	120	32 x M18	410	19
300 x 375	60	66	86,5	153600	1025	155	125	36 x M18	410	20
320 x 405	72	78	100,5	210500	1325	155	125	36 x M20	590	30
340 x 425	72	78	100,5	225000	1325	150	120	36 x M20	590	30
360 x 455	84	90	116	294700	1635	150	120	36 x M22	790	42
380 x 475	84	90	116	309100	1625	140	120	36 x M22	790	44
400 x 495	84	90	116	321500	1617	135	110	36 x M22	790	46
420 x 515	84	90	116	374000	1780	135	110	40 x M22	790	50
440 x 545	96	102	130	455000	2060	130	105	40 x M24	1000	65
460 x 565	96	102	130	470000	2040	125	100	40 x M24	1000	67
480 x 585	96	102	130	515000	2160	125	100	42 x M24	1000	71
500 x 605	96	102	130	560000	2240	125	100	44 x M24	1000	73
520 x 630	96	102	130	600000	2320	125	100	45 x M24	1000	80
540 x 650	96	102	130	630000	2340	120	100	45 x M24	1000	82
560 x 670	96	102	130	680000	2440	120	100	48 x M24	1000	85
580 x 690	96	102	130	735000	2540	120	100	50 x M24	1000	88
600 x 710	96	102	130	775000	2580	120	100	50 x M24	1000	91
620 x 730	96	102	130	825000	2660	120	100	52 x M24	1000	93
640 x 750	96	102	130	865000	2700	115	100	54 x M24	1000	96
660 x 770	96	102	130	925000	2800	120	100	56 x M24	1000	99
680 x 790	96	102	130	965000	2840	115	100	56 x M24	1000	102
700 x 810	96	102	130	1030000	2960	115	100	60 x M24	1000	104
720 x 830	96	102	130	1070000	2980	115	100	60 x M24	1000	107
740 x 850	96	102	130	1140000	3080	115	100	62 x M24	1000	110
760 x 870	96	102	130	1210000	3180	115	100	64 x M24	1000	113
780 x 890	96	102	130	1250000	3220	115	100	65 x M24	1000	116
800 x 910	96	102	130	1300000	3260	115	100	66 x M24	1000	118
820 x 930	96	102	130	1370000	3340	115	100	68 x M24	1000	121
840 x 950	96	102	130	1450000	3460	115	100	70 x M24	1000	124
860 x 970	96	102	130	1520000	3540	115	100	72 x M24	1000	127
880 x 990	96	102	130	1590000	3620	115	100	74 x M24	1000	129
900 x 1010	96	102	130	1650000	3680	115	100	75 x M24	1000	132

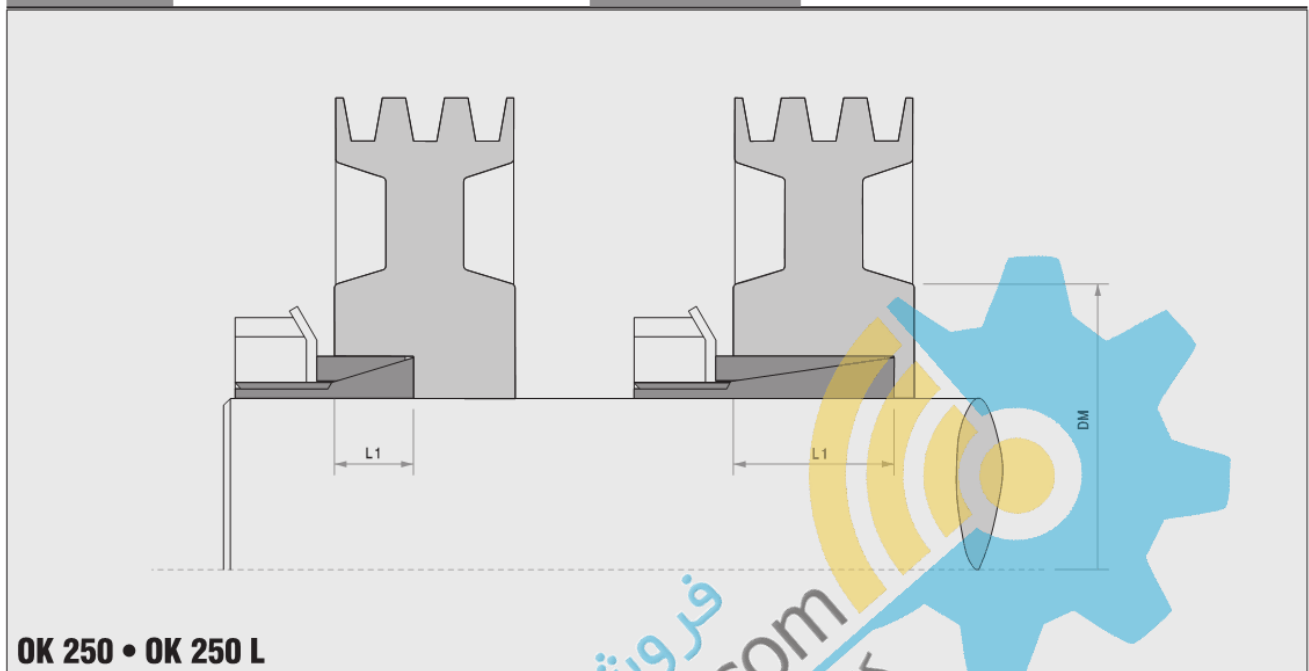


For larger diameter or inch series please contact us.

Locking assemblies

OK 250 not self-centering

OK 250 L self-centering



Characteristics

- Medium-low torque
- Restricted hub diameter
- Limited installation time
- Application economically advantageous

Installation

Carefully clean the hub and shaft contact surfaces and apply a light oil film. Slide the locking assembly into the hub bore, insert the shaft and tighten the nut at tightening torque **Ms** as indicated in the table and fold down the security washer tooth if fitted. The values **Mt** and **F_{ass}** indicated in the table are valid only in case of oil installation.

Do not use any oil with **molybdenum bisulphide** or high pressure additives and not grease. Above substances notably reduce the friction coefficient.

Dismantling

Loosen the tightening collar. As the cone angle of OK 250 is about 17°, the unit is self releasing. To avoid dismantling difficulties for model OK 250 L, because of restricted angle, we recommend the use of mod. OK 250.

Tolerances, surface finish

A good surface finish by machine tool is sufficient.
Maximum allowable surface finish:
Rt max 16 µm (Ra 3 µm - Rz 13 µm)

Maximum permissible tolerances:
h8 for shaft
H8 for hub

Axial movement

OK 250 + OK 250L: during screws tightening the hub has a slight axial movement with respect to the shaft.

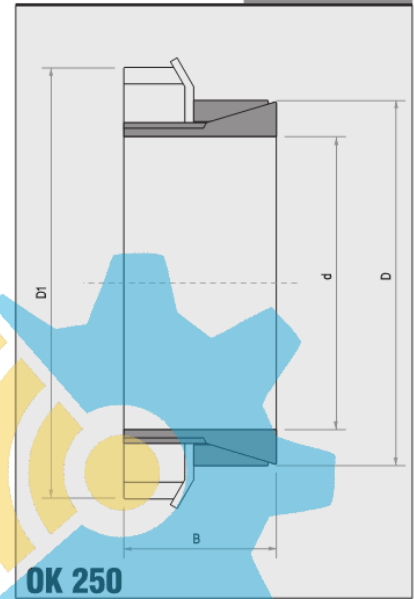
DM hub calculation

The pressure **Pn** in the hub can be compared to the inside pressure on a thick hollow cylinder.

For DM calculation see page 38.

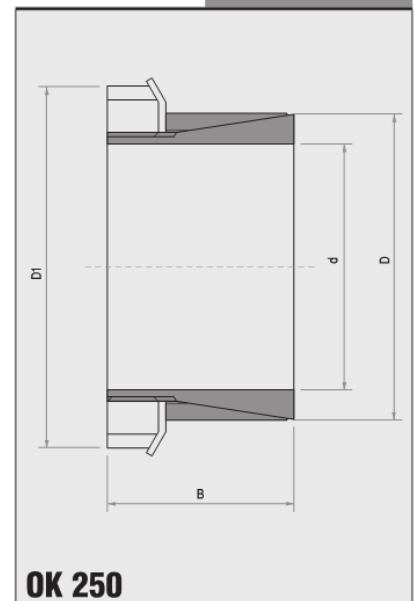
Locking assembly not self-centering OK 250

dxD mm	B mm	L1 mm	D1 mm	Torque		Axial Thrust F ass. KN	Surface pressures on		Tightening nut		Weight Kg
				Mt Nm			Shaft pw N/mm2	Hub pn N/mm2	Type	Tightening torque Ms Nm	
14 x 25	16,5	6,5	32	38	5	200	110	KM4	95	0,05	
15 x 25	16,5	6,5	32	41	5	185	110	KM4	95	0,05	
16 x 25	16,5	6,5	32	43	5	174	110	KM4	95	0,04	
17 x 30	18	6,5	38	55	6	197	112	KM5	160	0,08	
18 x 30	18	6,5	38	58	6	186	112	KM5	160	0,08	
19 x 30	18	6,5	38	62	7	176	112	KM5	160	0,08	
20 x 30	18	6,5	38	66	7	167	111	KM5	160	0,07	
22 x 35	18	6,5	45	96	8	202	127	KM6	220	0,1	
24 x 35	18	6,5	45	105	9	185	127	KM6	220	0,09	
25 x 35	18	6,5	45	110	9	178	127	KM6	220	0,09	
28 x 40	19,5	7	52	150	10	176	123	KM7	340	0,07	
30 x 40	19,5	7	52	160	11	164	123	KM7	340	0,07	
32 x 45	21,5	8	58	210	12	167	120	KM8	480	0,18	
35 x 45	21,5	8	58	230	13	153	120	KM8	480	0,17	
36 x 45	21,5	8	58	240	13	149	120	KM8	480	0,15	
38 x 52	24,5	10	65	290	14	126	93	KM9	680	0,25	
40 x 52	24,5	10	65	310	15	120	93	KM9	680	0,24	
42 x 57	25,5	10	70	370	17	131	96	KM10	870	0,3	
45 x 57	25,5	10	70	400	18	122	96	KM10	870	0,28	
48 x 62	25,5	10	75	500	21	135	105	KM11	970	0,32	
50 x 62	25,5	10	75	520	21	130	105	KM11	970	0,3	
55 x 68	27,5	12	80	610	22	103	84	KM12	1100	0,37	
56 x 68	27,5	12	80	620	22	101	82	KM12	1100	0,34	
60 x 73	28,5	12	85	800	27	113	93	KM13	1300	0,4	
63 x 79	30,5	14	92	980	31	107	86	KM14	1600	0,56	
65 x 79	30,5	14	92	1010	31	104	86	KM14	1600	0,52	
70 x 84	31,5	14	98	1240	35	110	92	KM15	2000	0,6	



Locking assembly self-centering OK 250 L

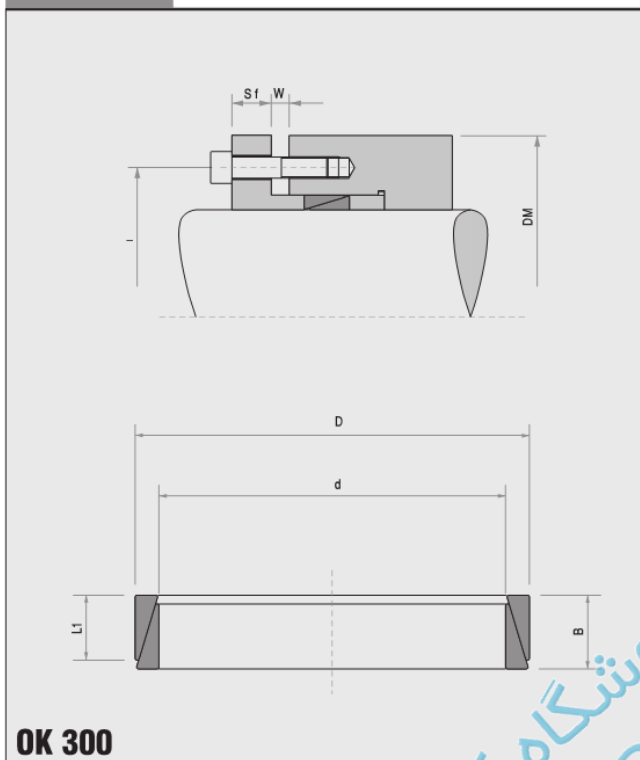
dxD mm	B mm	L1 mm	D1 mm	Torque		Axial Thrust F ass. KN	Surface pressures on		Tightening nut		Weight Kg
				Mt Nm			Shaft pw N/mm2	Hub pn N/mm2	Type	Tightening torque Ms Nm	
14 x 25	30	20	32	64	9	85	45	KM4	95	0,08	
15 x 25	30	20	32	70	9	80	45	KM4	95	0,08	
16 x 25	30	20	32	73	9	75	45	KM4	95	0,07	
17 x 25	32	20	32	80	9	70	45	KM4*	95	0,07	
18 x 30	32	20	38	100	10	80	45	KM5	160	0,12	
19 x 30	32	20	38	105	11	75	45	KM5	160	0,12	
20 x 30	32	20	38	112	11	70	45	KM5	160	0,11	
22 x 35	36	25	45	163	14	70	45	KM6	220	0,18	
24 x 35	36	25	45	178	14	65	45	KM6	220	0,16	
25 x 35	36	25	45	185	14	60	45	KM6	220	0,15	
28 x 40	42	30	52	250	17	55	40	KM7	340	0,24	
30 x 40	42	30	52	270	17	50	40	KM7	340	0,21	
32 x 45	44	30	58	350	21	60	45	KM8	480	0,32	
35 x 45	44	30	58	390	21	55	45	KM8	480	0,26	
38 x 50	45	30	65	500	26	60	45	KM9	680	0,35	
40 x 50	45	30	65	520	26	55	45	KM9	680	0,33	
42 x 55	46	30	70	630	30	65	50	KM10	870	0,43	
45 x 55	46	30	70	680	30	60	50	KM10	870	0,39	
48 x 60	46	30	75	840	35	60	50	KM11	970	0,45	
50 x 60	46	30	75	880	35	60	50	KM11	970	0,4	
55 x 65	46	30	80	1030	37	60	50	KM12	1100	0,44	
60 x 70	52	30	85	1360	45	65	55	KM13	1300	0,55	



* Without washer

Locking elements not self-centering

OK 300



dg	DIN 912			C=0,140		
	Pv in N			Ms in Nm		
	8.8	10.9	12.9	8.8	10.9	12.9
M4	3900	5450	6550	2,9	4,1	4,9
M5	6350	8950	10700	6	8,5	10
M6	9000	12600	15100	10	14	17
[M7]	13200	18500	22200	16	23	28
M8	16500	23200	27900	25	35	41
[M9]	22000	30900	37100	36	51	61
M10	26200	36900	44300	49	69	83
M12	38300	54000	64500	86	120	145
M14	52500	74000	88500	135	190	230
M16	73000	102000	123000	210	295	355
M18	88000	124000	148000	290	405	485
M20	114000	160000	192000	410	580	690
M22	141000	199000	239000	550	780	930
M24	164000	230000	276000	710	1000	1200
M27	215000	302000	363000	1050	1500	1800
M30	262000	368000	442000	1450	2000	2400

$$Pa = N^{\circ} \text{ of screws} \cdot Pv$$

$$Pt = \text{see page 19}$$

$$Mt \text{ transmissible} = \frac{Pa - Pt}{0,54} \cdot 0,12 \cdot \frac{d}{2000}$$

Screws center distance $l = D + 12 + dg$ (screws fixed on the hub)
Screws center distance $l = d - 12 - dg$ (screws fixed on the shaft)

Flange thickness $Sf = dg \cdot 1,3$ (screws quality 8.8)
Flange thickness $Sf = dg \cdot 1,8$ (screws quality 12.9)

Note: On request the type OK 300 can be supplied also with split rings: therefore the transmissible torque Mt increases. Please contact our technical department.

Characteristics

Medium low torque
Restricted radial encumbrance
Limited installation time
Application economically advantageous

Installation

Carefully clean the hub and shaft contact surfaces and apply a light oil film. Slide the locking elements into the hub bore, insert the shaft and tighten gradually and regularly in crossed sequence all screws to reach the tightening torque Ms as indicated in the table. The values Mt and F_{ass} indicated in the table are valid only in case of oil installation. Do not use any oil with **molybdenum bisulphide** or high pressure additives and not grease. Above substances notably reduce the friction coefficient.

Dismantling

By loosening all tightening screws the locking elements are released and the clamping is free. However in case of difficulties slightly hammer the hub.

Tolerances, surface finish

A good surface finish by machine tool is sufficient.
Maximum allowable surface finish:
 $Rt \text{ max } 6 \mu\text{m} (Ra \text{ } 1 \mu\text{m} - Rz \text{ } 5 \mu\text{m})$

Maximum permissible tolerances:

shaft h6 - hub H7 (up to 40mm d. diameter)
shaft h8 - hub H8 (over 42mm d. diameter)

Mt transmissible

Nr. 1 OK 300 $Mt = Mt \text{ cat.}$
Nr. 2 OK 300 $Mt = Mt \text{ cat.} \cdot 1,55$
Nr. 3 OK 300 $Mt = Mt \text{ cat.} \cdot 1,85$
Nr. 4 OK 300 $Mt = Mt \text{ cat.} \cdot 2,02$

DM hub calculation

The pressure Pn in the hub can be compared to the inside pressure on a thick hollow cylinder.

For DM calculation see page 38.

Locking elements not self-centering

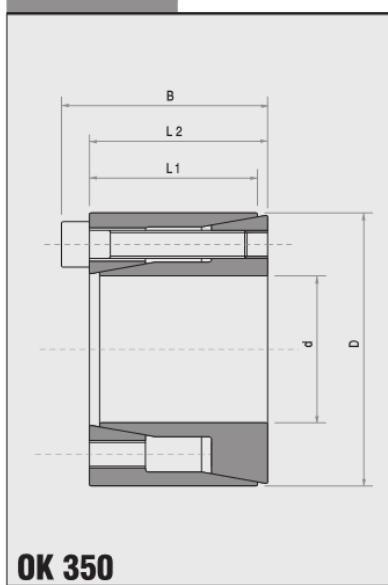
OK 300

Dimensions			Pre-load force	Total force	Torque	Axial thrust	Distance W before tightening			Spacer diameter		Surface pressures on		Weight	
dxD	B	L1	Pt	Pa	Mt	F	ass.	1	2	3	inside	outside	shaft	hub	
mm	mm	mm	N	N	Nm	KN	mm	mm	mm	mm	mm	d1	D1	pw	pn
													N/mm2	N/mm2	Kg
6 x 9	4,5	3,7	-	3800	2	0,84	2,5	2,5	3	4	6,1	8,9	115	75	0,002
7 x 10	4,5	3,7	-	3900	3	0,86	2,5	2,5	3	4	7,1	9,9	105	70	0,002
8 x 11	4,5	3,7	-	5300	5	1,17	2,5	2,5	3	4	8,1	10,9	120	90	0,002
9 x 12	4,5	3,7	7650	15600	8	1,76	2,5	2,5	3	4	9,1	11,9	140	105	0,00
10 x 13	4,5	3,7	7000	15600	10	1,91	2,5	2,5	3	4	10,1	12,9	135	105	0,002
12 x 15	4,5	3,7	7000	15600	11	1,91	2,5	2,5	3	4	12,1	14,9	115	90	0,002
13 x 16	4,5	3,7	6500	15600	13	2,02	2,5	2,5	3	4	13,1	15,9	110	90	0,00
14 x 18	6,3	5,3	11000	25400	22	3,18	3,5	3,5	4,5	5,5	14,1	17,9	115	90	0,005
15 x 19	6,3	5,3	10800	25400	24	3,24	3,5	3,5	4,5	5,5	15,1	18,9	110	85	0,005
16 x 20	6,3	5,3	10000	25400	27	3,42	3,5	3,5	4,5	5,5	16,1	19,9	105	85	0,006
17 x 21	6,3	5,3	9600	25400	30	3,51	3,5	3,5	4,5	5,5	17,1	20,9	105	85	0,006
18 x 22	6,3	5,3	9150	25400	32	3,61	3,5	3,5	4,5	5,5	18,1	21,9	100	80	0,007
19 x 24	6,3	5,3	12500	36000	49	5,22	3,5	3,5	4,5	5,5	19,2	23,8	140	110	0,007
20 x 25	6,3	5,3	12000	36000	53	5,33	3,5	3,5	4,5	5,5	20,2	24,8	135	105	0,009
22 x 26	6,3	5,3	9000	36000	66	6	3,5	3,5	4,5	5,5	22,2	25,8	135	115	0,007
24 x 28	6,3	5,3	8400	36000	73	6,13	3,5	3,5	4,5	5,5	24,2	27,8	130	110	0,008
25 x 30	6,3	5,3	10000	36000	72	5,77	3,5	3,5	4,5	5,5	25,2	29,8	115	95	0,009
28 x 32	6,3	5,3	7500	36000	88	6,33	3,5	3,5	4,5	5,5	28,2	31,8	115	100	0,01
30 x 35	6,3	5,3	8600	36000	91	6,08	3,5	3,5	4,5	5,5	30,2	34,8	100	85	0,011
32 x 36	6,3	5,3	7900	45000	131	8,24	3,5	3,5	4,5	5,5	32,2	35,8	130	115	0,011
35 x 40	7	6	10000	54000	171	9,77	3,5	3,5	4,5	5,5	35,2	39,8	125	110	0,016
36 x 42	7	6	11700	54000	169	9,39	3,5	3,5	4,5	5,5	36,2	41,8	115	100	0,019
38 x 44	7	6	11000	54000	181	9,55	3,5	3,5	4,5	5,5	38,2	43,8	110	95	0,021
40 x 45	8	6,6	13900	66000	231	11,57	3,5	3,5	4,5	5,5	40,2	44,8	115	105	0,021
42 x 48	8	6,6	15550	66000	235	11,22	3,5	3,5	4,5	5,5	42,2	47,8	110	95	0,026
45 x 52	10	8,6	28300	99000	353	15,71	3,5	3,5	4,5	5,5	45,2	51,8	105	95	0,045
48 x 55	10	8,6	24700	132000	572	23,84	3,5	3,5	4,5	5,5	48,2	54,8	155	135	0,043
50 x 57	10	8,6	23600	132000	602	24,08	3,5	3,5	4,5	5,5	50,2	56,8	150	130	0,045
55 x 62	10	8,6	21700	132000	670	24,35	3,5	3,5	4,5	5,5	55,2	61,8	140	125	0,049
56 x 64	12	10,4	29500	157200	790	29,2	3,5	3,5	4,5	5,5	56,2	63,8	130	115	0,07
60 x 68	12	10,4	27500	157200	860	28,6	3,5	3,5	4,5	5,5	60,2	67,8	125	110	0,07
63 x 71	12	10,4	26500	157200	910	28,8	3,5	3,5	4,5	5,5	63,2	70,8	120	105	0,08
65 x 73	12	10,4	25500	157200	950	29,2	3,5	3,5	4,5	5,5	65,2	72,8	115	100	0,09
70 x 79	14	12,2	31000	209600	1380	39,4	3,5	3,5	4,5	5,5	70,2	78,7	125	110	0,115
71 x 80	14	12,2	31000	209600	1400	39,4	3,5	3,5	4,5	5,5	71,2	79,7	120	110	0,11
75 x 84	14	12,2	34700	209600	1450	38,6	3,5	3,5	4,5	5,5	75,2	83,7	115	100	0,12
80 x 91	17	15	48000	290000	2200	55	6	6	6,5	8	80,3	90,7	125	105	0,21
85 x 96	17	15	45500	305000	2400	56,4	4	6	6,5	8	85,3	95,7	120	105	0,21
90 x 101	17	15	43600	320000	2790	60,5	4	6	6,5	8	90,3	100,7	120	105	0,22
95 x 106	17	15	41300	330000	3050	64,4	4	6	6,5	8	95,3	105,7	120	110	0,23
100 x 114	21	18,7	61000	449000	4200	84	5	6	7	9	100,3	113,7	120	105	0,39
110 x 124	21	18,7	66000	485000	5150	93,6	5	6	7	9	110,3	123,7	120	105	0,42
120 x 134	21	18,7	60300	510000	6050	100,8	5	6	7	9	120,2	133,7	120	105	0,46
130 x 148	28	25,3	96300	765000	9600	147,6	5	7	9	11	130,4	147,6	120	105	0,86
140 x 158	28	25,3	89000	800500	11000	158,5	6	7	9	11	140,4	157,6	120	105	0,96
150 x 168	28	25,3	85000	860000	12900	172	6	7	8	11	150,4	167,6	120	105	1
160 x 178	28	25,3	78600	900000	14600	182,5	6	7	9	11	160,4	177,6	120	110	1
170 x 191	33	30	117400	1180000	19500	229	7	9	10	12	170,5	190,5	120	105	1,54
180 x 201	33	30	111300	1200000	21300	236	7	9	10	12	180,5	200,5	120	105	1,5
190 x 211	33	30	105000	1260000	24200	255	7	9	10	12	190,5	210,5	120	110	1,8
200 x 224	38	34,8	134200	1550000	31000	310	7	8	11	13	200,6	223,4	120	105	2,4
210 x 234	38	34,8	127200	1610000	35000	333	7	9	11	13	210,6	233,4	120	110	2,5
220 x 244	38	34,8	122100	1690000	38000	345	7	9	11	13	220,6	243,4	120	110	2,6
230 x 257	43	39,5	164500	2000000	47000	408	7	10	12	14	230,6	256,4	120	105	3,4
240 x 267	43	39,5	157400	2250000	51000	425	7	10	12	14	240,6	266,4	120	110	3,8
250 x 280	48	44	190000	2060000	52000	415	7	10	13	16	250,8	279,2	100	89	4,8
260 x 290	48	44	182000	2132000	56500	435	7	10	13	16	260,8	289,2	100	89	4,9
270 x 300	48	44	177000	2207000	61000	450	7	10	13	16	270,8	299,2	100	89	5
280 x 313	53	49	206000	2536000	72500	520	7	11	14	17	280,8	312,2	100	89	6,4
290 x 323	53	49	222000	2632000	77500	535	7	11	14	17	290,8	322,2	100	89	6,5
300 x 333	53	49	214000	2704000	83000	555	7	11	14	17	300,8	332,2	100	89	6,8
320 x 360	65	59	292000	3492000	114000	710	10	15	20	25	321	359	100	89	11
340 x 380	65	59	272000	3672000	128500	755	10	15	20	25	341	379	100	89	11,5
360 x 400	65	59	258000	3858000	144000	800	10	15	20	25	361	399	100	90	12,3
380 x 420	65	59	269000	4069000	160500	845	10	15	20	25	381	419	100	90	13
400 x 440	65	59	256000	4256000	178000	890	10	15	20	25	401	439	100	90	13,7
420 x 460	65	59	244000	4444000	196000	935	10	15	20	25	421	459	100	90	14,1
440 x 480	65	59	234000	4633000	215000	980	10	15	20	25	441	479	100	90	14,8
460 x 500	65	59	224000	4824000	235000	1020	10	15	20	25	461	499	100	91	15,5
480 x 520	65	59	239000	5039000	256000	1070	10	15	20	25	481	519	100	91	16
500 x 540	65	59	229000	5229000	278000	1110	10	15	20	25	501	539	100	91	16,7
520 x 570	80	73	338000	6788000	372000	1430	12	18	24	30	521	569	100	91	27
540 x 590	80	73	326000	7026000	400000	1480	12	18	24	30	541	589	100	91	28

For larger diameter please contact us.

Locking assembly self-centering

OK 350



dxD mm	L1 mm	L2 mm	B mm	Torque Mt Nm	Axial Thrust F ass. KN	Surface pressures on		Tightening screws DIN 912 12.9 N° x type	Tightening torque Ms Nm	Weight Kg
						Shaft pw N/mm ²	hub pn N/mm ²			
6 x 16	10,5	11	13,5	9	3	184	69	3 x M2,5	1,2	0,012
6,35 x 16	10,5	11	13,5	10	3	173	69	3 x M2,5	1,2	0,012
7 x 17	10,5	11	13,5	11	3	157	65	3 x M2,5	1,2	0,013
8 x 18	10,5	11	13,5	12	3	138	61	3 x M2,5	1,2	0,015
9 x 20	12,5	13	15,5	18	4	138	62	4 x M2,5	1,2	0,02
9,53 x 20	12,5	13	15,5	19	4	130	62	4 x M2,5	1,2	0,02
10 x 20	12,5	13	15,5	20	4	124	62	4 x M2,5	1,2	0,019
11 x 22	12,5	13	15,5	22	4	113	56	4 x M2,5	1,2	0,024
12 x 22	12,5	13	15,5	24	4	104	56	4 x M2,5	1,2	0,022
14 x 26	16,5	17	20	42	6	99	53	4 x M3	2,1	0,039
15 x 28	16,5	17	20	44	6	93	50	4 x M3	2,1	0,044
16 x 32	16,5	17	21	83	10,4	152	76	4 x M4	4,9	0,067
17 x 35	20,5	21	25	88	10,4	116	56	4 x M4	4,9	0,09
18 x 35	20,5	21	25	93	10,4	109	56	4 x M4	4,9	0,087
19 x 35	20,5	21	25	99	10,4	104	56	4 x M4	4,9	0,083
20 x 38	20,5	21	26	170	17	161	85	4 x M5	10	0,1
22 x 40	20,5	21	26	187	17	146	80	4 x M5	10	0,11
24 x 47	25	26	32	287	24	153	78	4 x M6	17	0,2
25 x 47	25	26	32	299	24	147	78	4 x M6	17	0,19
25,4 x 47	25	26	32	304	24	144	78	4 x M6	17	0,18
28 x 50	25	26	32	503	36	196	110	6 x M6	17	0,22
30 x 55	25	26	32	539	36	183	100	6 x M6	17	0,27
32 x 55	25	26	32	575	36	172	100	6 x M6	17	0,25
35 x 60	30	31	37	838	48	176	102	8 x M6	17	0,36
38 x 65	30	31	37	910	48	162	95	8 x M6	17	0,43
40 x 65	30	31	37	952	48	154	95	8 x M6	17	0,4
42 x 75	35	36	44	1394	66,3	175	98	6 x M8	41	0,67
45 x 75	35	36	44	1493	66,3	163	98	6 x M8	41	0,63
48 x 80	35	36	44	2124	88,5	204	122	8 x M8	41	0,74
50 x 80	35	36	44	2242	88,5	196	122	8 x M8	41	0,7

Characteristics

- Medium-high torque
- Easy mounting
- Limited installation time
- Few clamping screws

Installation

Carefully clean the hub and shaft contact surfaces and apply a light oil film. Slide the locking assembly into the hub bore, insert the shaft and tighten gradually and regularly in crossed sequence all screws to reach the tightening torque Ms as indicated in the table. The values Mt and F ass indicated in the table are valid only in case of oil installation. Do not use any oil with **molibdenum bisulphide** or high pressure additives and not grease. Above substances notably reduce the friction coefficient.

Dismantling

Loosen the clamping screws. Insert the screws into the dismantling threading and tighten gradually and regularly in crossed sequence until the back cone is released. If the element is to be reused, relubricate both screws and threads.

Tolerances, surface finish

A good surface finish by the machine tool is sufficient. Maximum allowable surface finish:
Rt max 16 µm (Ra 3 µm - Rz 13 µm)

Maximum permissible tolerances:
h8 for shaft
H8 for hub

Axial movement

OK 350: during screws tightening the hub has a slight axial movement with respect to the shaft.

DM hub calculation

The pressure Pn in the hub can be compared to the inside pressure on a thick hollow cylinder.

For DM calculation see page 38.

Locking assemblies self-centering patented

OK 400 • OK 401



OK 400 • OK 401

Characteristics

- Very high torques
- Capacity to withstand bending moments
- Even pressures distribution
- No shaft-hub axial movement

Installation

Carefully clean the hub and shaft contact surfaces and apply a light oil film. Slide the locking assembly into the hub bore and insert the shaft. Tighten gradually and regularly in crossed sequence all screws up to 50% of the **Ms** value indicated in the table. Repeat the same operation by tightening all screws at the **Ms** torque indicated in the table. Starting from the last tightened screw, check, in continuous sequence, that all the screws are tightened at the tightening torque **Ms** indicated. Repeat this procedure maximum twice. After this control any further operation is needed. Do not use any oil with **molybdenum bisulphide** or high pressure additives and not grease. Above substances notably reduce the friction coefficient.

Dismantling

Loosen the clamping screws. Insert the screws into the dismantling threads of the front cone and tighten them gradually in crossed sequence up to 50% of the **Ms** value indicated in the table. Repeat the same operation by tightening the screws at the tightening torque **Ms** indicated in the table. When the front cone is loose, to release the rear cone, insert the screws in the middle ring, and repeat the same operation of the upper ring.

Tolerances, surface finish

A good surface finish by machine tool is sufficient.
Maximum allowable surface finish:

Rt max 16 µm (Ra 3 µm - Rz 13 µm)

Maximum permissible tolerances:

h8 for shaft
H8 for hub

Axial movement

During screws tightening the hub has no axial movement with respect to the shaft.

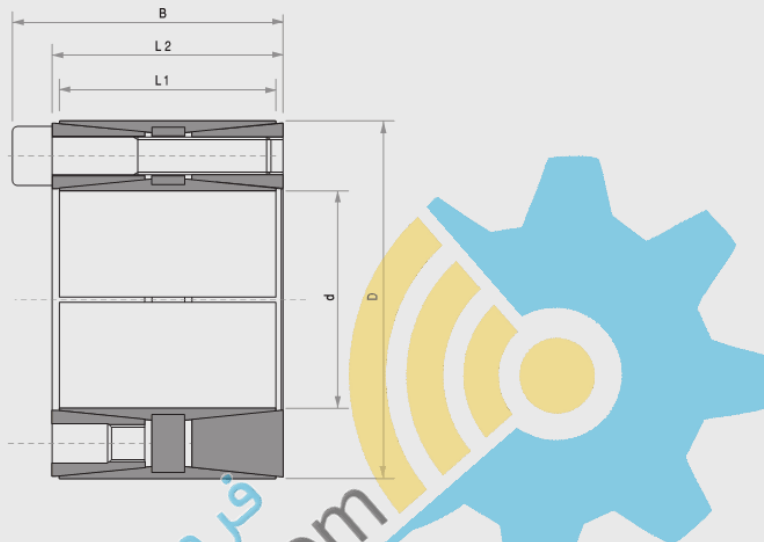
DM hub calculation

For DM hub calculation see page 38.

ATTENTION: In case of reuse of the OK400 or OK401 check that the position of the dismantling threads of the front cone and middle ring are like in new pieces.

Locking assembly self-centering patented

OK 400



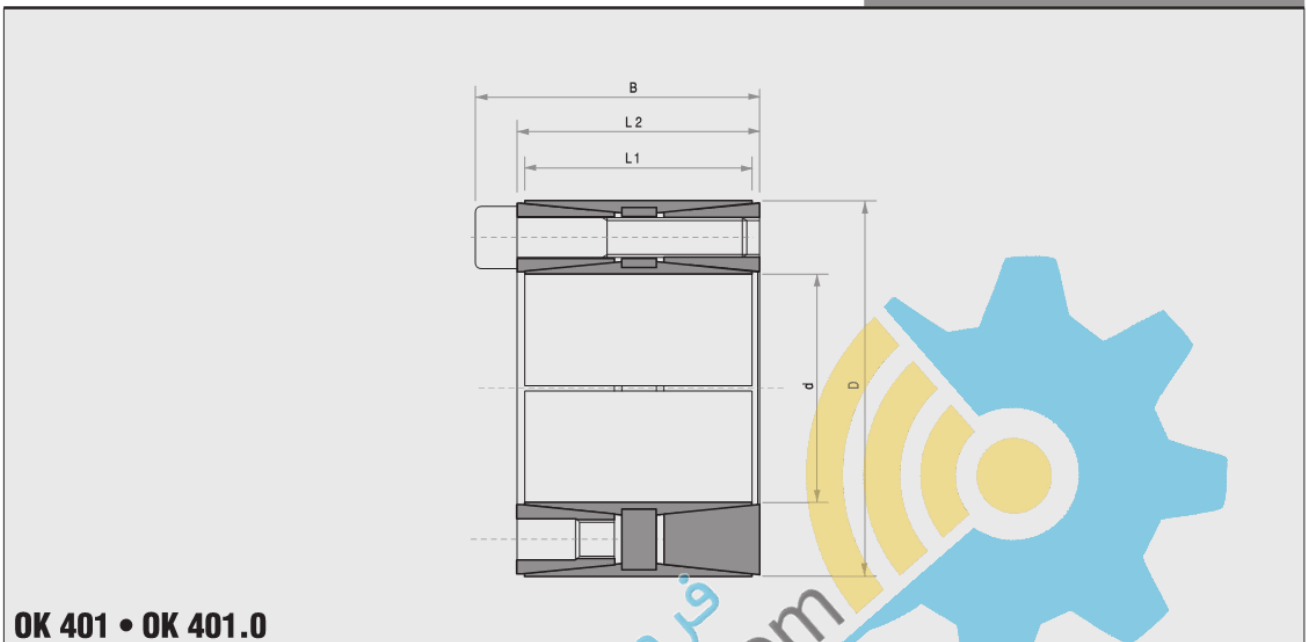
OK 400

dxD mm	L1 mm	L2 mm	B mm	Tightening screws			Axial Thrust F ass. G	Surface pressures on		Weight Kg
				DIN 912 12.9 N° & type	Tightening torque Ms Nm	Torque Mt Nm		Shaft pw N/mm ²	Hub pn N/mm ²	
45 x 75	56	64	72	8 x M8	41	3460	155	165	100	1,3
48 x 80	56	64	72	8 x M8	41	3680	155	150	95	1,5
50 x 80	56	64	72	8 x M8	41	3820	155	147	95	1,4
55 x 85	56	64	72	8 x M8	41	4260	155	135	85	1,5
60 x 90	56	64	72	10 x M8	41	5820	190	155	100	1,5
65 x 95	56	64	72	10 x M8	41	6270	190	140	95	1,6
70 x 110	70	78	88	10 x M10	83	10730	305	170	105	3
75 x 115	70	78	88	10 x M10	83	11540	305	155	100	3,1
80 x 120	70	78	88	12 x M10	83	14700	369	175	115	3,5
85 x 125	70	78	88	12 x M10	83	15700	369	165	110	3,5
90 x 130	70	78	88	12 x M10	83	16610	370	157	106	3,8
95 x 135	70	78	88	12 x M10	83	17530	370	150	102	4
100 x 145	90	100	112	12 x M12	145	26900	538	160	110	6
110 x 155	90	100	112	12 x M12	145	29530	538	143	102	6,2
120 x 165	90	100	112	14 x M12	145	37610	628	154	112	6,8
130 x 180	104	116	130	12 x M14	230	48000	738	143	106	9,8
140 x 190	104	116	130	14 x M14	230	60290	861	160	117	10,2
150 x 200	104	116	130	16 x M14	230	73800	985	165	125	10,9
160 x 210	104	116	130	16 x M14	230	78770	983	155	118	11,5
170 x 225	134	146	162	14 x M16	355	101730	1197	140	108	17,2
180 x 235	134	146	162	16 x M16	355	123200	1369	150	115	18
190 x 250	134	146	162	16 x M16	355	129880	1368	141	110	21,5
200 x 260	134	146	162	16 x M16	355	136840	1368	137	104	22
220 x 285	134	146	162	20 x M16	355	188000	1710	155	120	25
240 x 305	134	146	162	22 x M16	355	225000	1880	155	120	27
260 x 325	134	146	162	22 x M16	355	244000	1880	155	115	30
280 x 355	165	177	197	20 x M20	690	373000	2670	145	120	46
300 x 375	165	177	197	22 x M20	690	440000	2930	155	125	50
320 x 405	165	177	197	22 x M20	690	470000	2930	145	115	60
340 x 425	165	177	197	24 x M20	690	544000	3200	150	120	65
360 x 455	190	202	224	22 x M22	930	658000	3650	140	110	89
380 x 475	190	202	224	26 x M22	930	821000	4320	160	130	93
400 x 495	190	202	224	26 x M22	930	864000	4320	150	120	98

For larger diameter or inch series please contact us.

NOTE: it is possible to reduce the screws tightening torque down to 60% of the values indicated in the above table; as a result Mt, Fass, Pw, Pn are reduced proportionally.

Locking assemblies self-centering patented OK 401 • OK 401.0



OK 401 • OK 401.0

OK 401

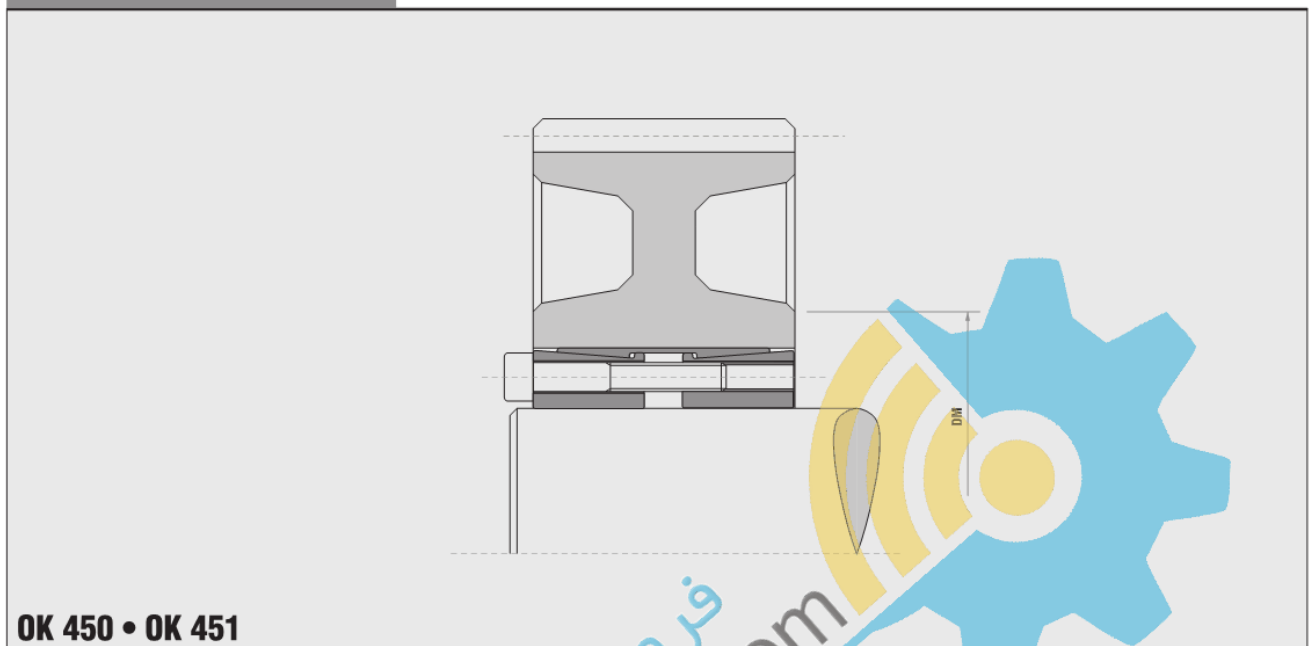
OK 401.0

dxD mm	L1 mm	L2 mm	B mm	Tightening screws DIN 912 N° x type	Tightening torque Ms Nm	Torque Mt Nm	Axial Force F ass. kNt	Surface pressures on		Tightening torque Ms Nm	Torque Mt Nm	Axial Force F ass. kN	Surface pressures on		Weight OK 401 OK 401.1 Kg
								Shaft pw N/mm²	Hub pn N/mm				Shaft pw N/mm²	Hub pn N/mm²	
70 x 110	50	58	68	8 x M10	49	5100	145	112	71	83	8620	245	190	120	2,3
75 x 115	50	58	68	8 x M10	49	5420	145	103	68	83	9160	245	174	115	2,4
80 x 120	50	58	68	8 x M10	49	5820	145	97	65	83	9840	245	164	110	2,5
85 x 125	50	58	68	10 x M10	49	7700	182	114	77	83	13000	307	193	130	2,6
90 x 130	50	58	68	10 x M10	49	8100	182	107	74	83	13700	307	181	125	2,7
95 x 135	50	58	68	10 x M10	49	8600	182	102	72	83	14540	307	173	122	2,8
100 x 145	60	70	80	10 x M10	49	9100	182	80	55	83	15380	307	135	93	4
110 x 155	60	70	80	10 x M10	49	10000	182	75	52	83	16900	307	127	88	4,5
120 x 165	60	70	80	12 x M10	49	13100	218	80	59	83	22150	365	135	100	4,8
130 x 180	68	80	92	12 x M12	86	20700	319	95	69	145	34860	537	160	116	6,3
140 x 190	68	80	92	12 x M12	86	22300	319	89	66	145	37550	537	150	111	6,6
150 x 200	68	80	92	12 x M12	86	23900	319	83	62	145	40250	537	140	105	7
160 x 210	68	80	92	14 x M12	86	29800	372	90	69	145	50180	626	152	116	7,4
170 x 225	75	87	99	16 x M12	86	36200	426	89	67	145	60960	717	150	113	10
180 x 235	75	87	99	16 x M12	86	38300	426	84	64	145	64500	717	142	108	11,3
190 x 250	88	100	112	18 x M12	86	45500	479	76	58	145	76620	806	128	98	14
200 x 260	88	100	112	18 x M12	86	47900	479	72	56	145	80660	806	122	95	15,2
220 x 285	98	110	124	14 x M14	135	56200	511	63	49	230	94730	861	107	83	19,5
240 x 305	98	110	124	18 x M14	135	78800	657	74	58	230	132830	1100	125	98	21,5
260 x 325	98	110	124	20 x M14	135	94900	730	76	61	230	159970	1230	128	103	23
280 x 355	120	132	148	20 x M16	210	142000	1015	80	63	355	239260	1710	135	106	29
300 x 375	120	132	148	24 x M16	210	182000	1218	89	72	355	306650	2050	150	121	30,5
320 x 405	135	147	163	24 x M16	210	194000	1218	75	60	355	326870	2050	127	101	47
340 x 425	135	147	163	24 x M16	210	207000	1218	71	57	355	348780	2050	120	96	50

For larger diameter or inch series please contact us.

Locking assemblies self-centering

OK 450 • OK 451



OK 450 • OK 451

Characteristics

Very high torques
Capacity to withstand bending moments
Standard sizes

Installation

Carefully clean the hub and shaft contact surfaces and apply a light oil film. Slide the locking assembly into the hub bore and insert the shaft. Tighten gradually and regularly in crossed sequence all screws up to 50% of the **Ms** value indicated in the table. Repeat the same operation by tightening all screws at the **Ms** torque indicated in the table.

Starting from the last tightened screw, check, in continuous sequence, that all the screws are tightened at the tightening torque **Ms** indicated. Repeat this procedure maximum twice. After this control any further operation is needed.

Do not use any oil with **molybdenum bisulphide** or high pressure additives and not grease. Above substances notably reduce the friction coefficient.

Dismantling

Loosen the clamping screws. Insert the screws into the dismantling threads of the front cone and tighten them gradually in crossed sequence up to 50% of the **Ms** value indicated in the table. Repeat the same operation by tightening the screws at the tightening torque **Ms** indicated in the table.

When the front cone is loose, to release the rear cone:

OK450: keep tightening the screws and repeat the sequence above.

OK451: insert the screws in the middle flange and repeat the same operation of the upper ring.

Tolerances, surface finish

A good surface finish by machine tool is sufficient
Maximum allowable surface finish:

Rt max 16 µm (Ra 3 µm - Rz 13 µm)

Maximum permissible tolerances:

h8 for shaft

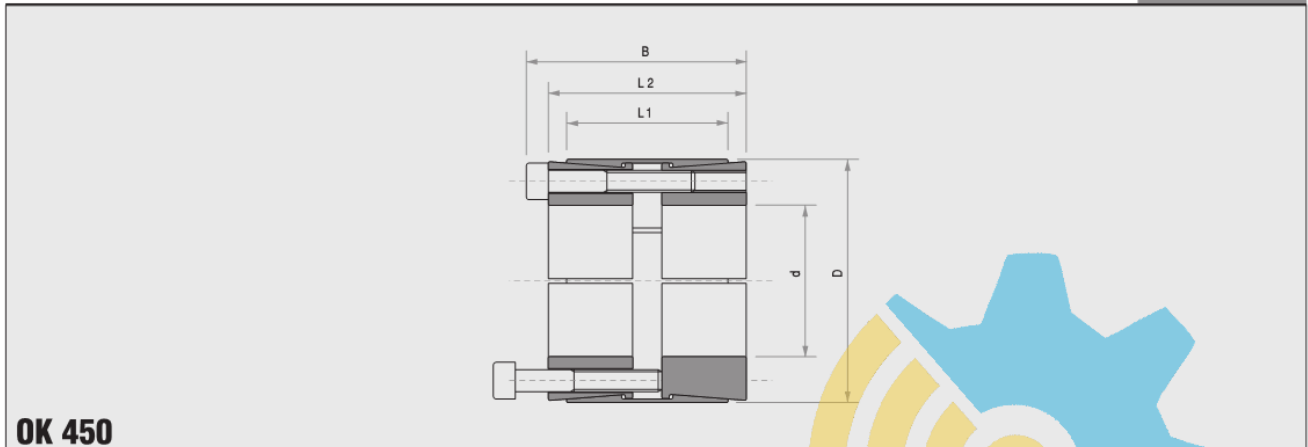
H8 for hub

DM hub calculation

For DM hub calculation see page 38.

ATTENTION: In case of reuse of the OK451 check that the position of the dismantling threads of the front cone and middle flange are like in new pieces.

Locking assembly self-centering OK 450



OK 450

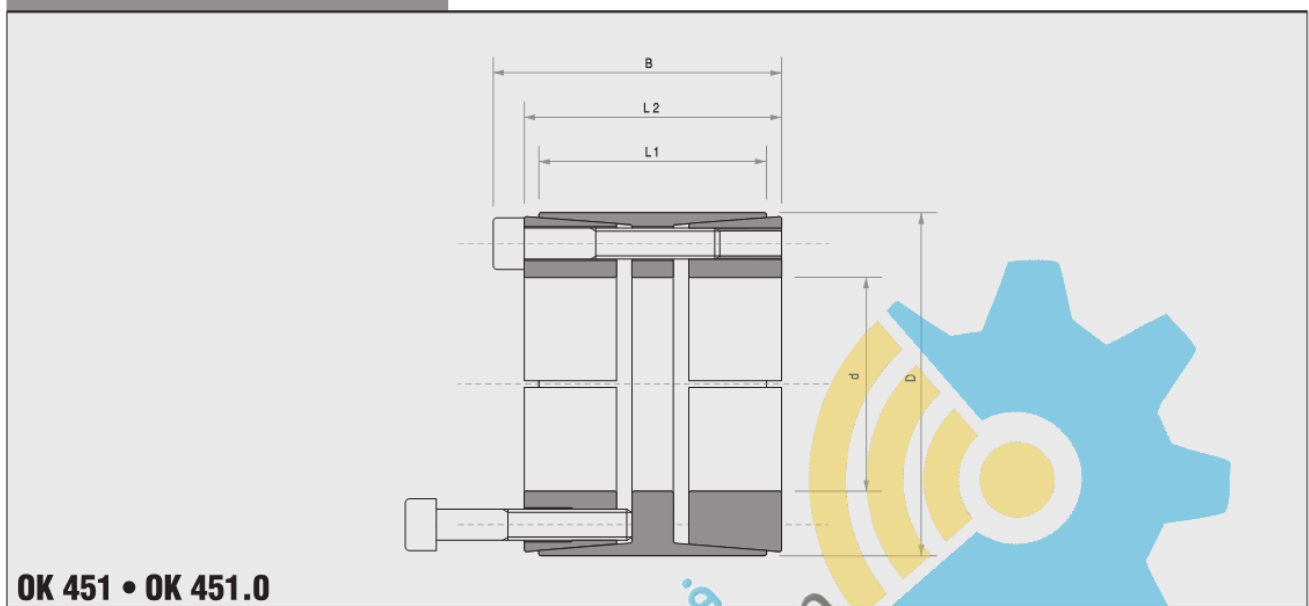
dxD mm	L1 mm	L2 mm	B mm	Tightening screws		Torque Mt Nm	Axial Thrust F _{ass.} KN	Surface pressures on		Weight Kg
				DIN 912 N° x type	Tightening torque Ms Nm			Shaft pw N/mm ²	Hub pn N/mm ²	
25 x 50	39	45	51	8 x M6	17	950	76	245	122	0,5
28 x 55	39	45	51	8 x M6	17	1070	76	219	111	0,6
30 x 55	39	45	51	8 x M6	17	1150	76	204	111	0,6
35 x 60	39	45	51	8 x M6	17	1340	76	175	102	0,7
38 x 65	39	45	51	8 x M6	17	1450	76	161	94	0,7
40 x 65	39	45	51	8 x M6	17	1530	76	153	94	0,7
42 x 75	56	64	72	8 x M8	41	2970	141	188	105	1
45 x 75	56	64	72	8 x M8	41	3150	141	175	105	0,9
48 x 80	56	64	72	8 x M8	41	3400	166	164	98	1,4
50 x 80	56	64	72	8 x M8	41	4150	166	158	98	1,3
55 x 85	56	64	72	8 x M8	41	4550	166	143	93	1,5
60 x 90	56	64	72	10 x M8	41	6200	207	164	109	1,6
65 x 95	56	64	72	10 x M8	41	6750	207	152	104	1,8
70 x 110	70	78	88	10 x M10	83	11550	330	179	114	3
75 x 115	70	78	88	10 x M10	83	12350	330	167	109	3,3
80 x 120	70	78	88	12 x M10	83	15800	396	188	125	3,5
85 x 125	70	78	88	12 x M10	83	16800	396	177	120	3,7
90 x 130	70	78	88	12 x M10	83	17800	396	167	115	3,8
95 x 135	70	78	88	12 x M10	83	18800	396	158	111	5
100 x 145	90	100	112	12 x M12	145	28800	576	170	117	6
110 x 155	90	100	112	12 x M12	145	31700	576	155	110	6,2
120 x 165	90	100	112	14 x M12	145	40300	673	165	120	7,2
130 x 180	104	116	130	12 x M14	230	51400	791	155	112	10
140 x 190	104	116	130	14 x M14	230	64600	923	168	124	10,2
150 x 200	104	116	130	16 x M14	230	79100	1055	179	135	10,8
160 x 210	104	116	130	16 x M14	230	84400	1055	168	128	11,5
170 x 225	134	146	162	14 x M16	355	109000	1283	149	113	17
180 x 235	134	146	162	16 x M16	355	132000	1466	161	124	18,5
190 x 250	134	146	162	16 x M16	355	139000	1466	153	116	21,5
200 x 260	134	146	162	16 x M16	355	146500	1466	145	112	22
220 x 285	134	146	162	20 x M16	355	201500	1833	165	127	25
240 x 305	134	146	162	22 x M16	355	242000	2017	166	131	27
260 x 325	134	146	162	22 x M16	355	262000	2017	154	123	30
280 x 355	165	177	197	20 x M20	690	400000	2862	164	130	46
300 x 375	165	177	197	22 x M20	690	472000	3148	169	135	50
320 x 405	165	177	197	22 x M20	690	503500	3148	158	125	60
340 x 425	165	177	197	24 x M20	690	583500	3434	162	130	65
360 x 455	190	202	224	22 x M22	930	705000	3918	152	120	89
380 x 475	190	202	224	26 x M22	930	880000	4631	170	136	93
400 x 495	190	202	224	26 x M22	930	926000	4631	162	131	98

For larger diameter or inch series please contact us.

NOTE: it is possible to reduce the screws tightening torque down to 60% of the values indicated in the above table;
as a result Mt, F_{ass}, P_w, P_n are reduced proportionally.

Locking assemblies self-centering

OK 451 • OK 451.0



OK 451 • OK 451.0

OK 451

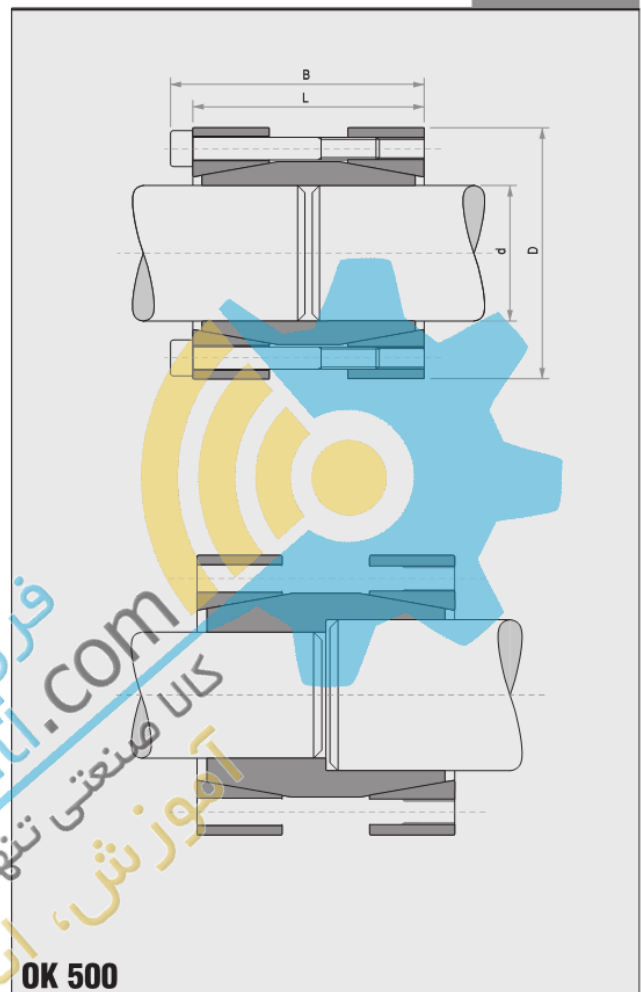
OK 451.0

dxD mm	L1 mm	L2 mm	B mm	Tightening screws DIN 912 12.9 N° x type	Tightening torque M _s Nm	Torque M _t Nm	Axial Force F _{ass.} KN	Surface pressures on		Tightening torque M _s Nm	Torque M _t Nm	Axial Force F _{ass.} KN	Surface pressures on		Weight OK 451 OK 451.0 Kg
								Shaft p ₁ ? N/mm ²	Hub p _n N/mm ²				Shaft p _w N/mm ²	Hub p _n N/mm ²	
70 x 110	50	60	70	8 x M10	49	4180	120	113	64	83	7090	203	192	109	2,3
80 x 120	50	60	70	10 x M10	49	5960	150	124	73	83	10130	253	210	124	2,5
90 x 130	50	60	70	11 x M10	49	7400	165	121	75	83	12540	279	205	126	2,7
100 x 145	60	70	82	10 x M12	86	10930	219	121	74	145	18440	369	204	125	4,1
110 x 155	60	70	82	10 x M12	86	12000	219	110	69	145	20200	369	185	117	4,4
120 x 165	60	70	82	11 x M12	86	14400	241	111	72	145	24300	406	187	121	4,8
130 x 180	65	79	91	14 x M12	86	19900	306	118	77	145	33500	516	199	129	6,3
140 x 190	65	79	91	15 x M12	86	22900	328	117	78	145	38700	553	198	131	6,6
150 x 200	65	79	91	15 x M12	86	24600	328	110	74	145	41400	553	185	124	7,8
160 x 210	65	79	91	16 x M12	86	28000	350	110	75	145	47200	590	185	126	7,4
170 x 225	78	92	106	15 x M14	135	37800	446	109	74	230	64500	759	185	126	10,7
180 x 235	78	92	106	15 x M14	135	40100	446	103	71	230	68300	759	175	121	11,3
190 x 250	88	102	116	16 x M14	135	45100	475	90	62	230	76900	810	153	106	14,6
200 x 260	88	102	116	18 x M14	135	53400	535	96	67	230	91100	911	163	115	15,3
220 x 285	96	108	124	15 x M16	210	68600	624	94	66	355	116000	1055	159	112	20,2
240 x 305	96	108	124	20 x M16	210	99800	832	115	82	355	168800	1407	194	139	21,8
260 x 325	96	108	124	20 x M16	210	108000	832	106	77	355	182000	1407	179	130	23,4
280 x 355	96	110	130	15 x M20	410	137000	979	122	85	690	230000	1647	205	143	30
300 x 375	96	110	130	16 x M20	410	156000	1044	121	86	690	263000	1757	204	145	31,2
320 x 405	124	136	156	20 x M20	410	208000	1305	104	75	690	351000	2196	175	126	48
340 x 425	124	136	156	20 x M20	410	221000	1305	98	71	690	373000	2196	165	120	51
360 x 455	140	155	177	20 x M22	550	291000	1617	101	73	930	492000	2734	171	124	69
380 x 475	140	155	177	20 x M22	550	307000	1617	96	70	930	519000	2734	162	118	73
400 x 495	140	155	177	22 x M22	550	355000	1778	100	74	930	601000	3007	169	125	76
420 x 515	140	155	177	24 x M22	550	407000	1940	104	77	930	688000	3280	176	131	80
440 x 535	140	155	177	24 x M22	550	426000	1940	99	75	930	721000	3280	168	126	81
460 x 555	140	155	177	24 x M22	550	446000	1940	95	72	930	754000	3280	160	122	85
480 x 575	140	155	177	25 x M22	550	485000	2021	95	72	930	820000	3417	160	122	88
500 x 595	140	155	177	25 x M22	550	505000	2021	91	70	930	854000	3417	154	118	91
520 x 615	140	155	177	28 x M22	550	588000	2263	98	76	930	995000	3827	165	128	95
540 x 635	140	155	177	28 x M22	550	611000	2263	94	73	930	1033000	3827	159	124	98
560 x 655	140	155	177	30 x M22	550	679000	2425	97	76	930	1148000	4101	165	129	101
580 x 675	140	155	177	30 x M22	550	703000	2425	94	74	930	1189000	4101	159	125	104
600 x 695	140	155	177	30 x M22	550	727000	2425	91	72	930	1230000	4101	154	121	108

For larger diameter or inch series please contact us.

Rigid coupling OK 500

dxD mm	L mm	B mm	Torque Mt Nm	Axial Thrust F ass. KN	Tightening screws		Weight Kg
					DIN 912 12.9	Tightening torque Ms Nm	
17 x 50	50	56	200	24	4 x M6	17	0,5
18 x 50	50	56	220	24	4 x M6	17	0,5
19 x 50	50	56	230	24	4 x M6	17	0,5
20 x 50	50	56	240	24	4 x M6	17	0,5
22 x 55	60	66	260	24	4 x M6	17	0,6
24 x 55	60	66	290	24	4 x M6	17	0,6
25 x 55	60	66	450	36	6 x M6	17	0,6
28 x 60	60	66	510	36	6 x M6	17	0,7
30 x 60	60	66	550	36	6 x M6	17	0,7
32 x 75	60	68	720	45	4 x M8	41	1,3
35 x 75	75	83	790	45	4 x M8	41	1,3
38 x 75	75	83	850	45	4 x M8	41	1,3
40 x 75	75	83	900	45	4 x M8	41	1,3
42 x 90	75	83	1400	67	6 x M8	41	2,8
45 x 90	85	93	1520	67	6 x M8	41	2,5
48 x 90	85	93	1620	67	6 x M8	41	2,4
50 x 90	85	93	1690	67	6 x M8	41	2,3
55 x 105	85	93	2470	90	8 x M8	41	3,3
60 x 105	85	93	2710	90	8 x M8	41	3,2
65 x 105	85	93	2930	90	8 x M8	41	3
70 x 125	100	110	3770	107	6 x M10	83	5,4
75 x 125	100	110	4030	107	6 x M10	83	5
80 x 125	100	110	4300	107	6 x M10	83	4,7



Characteristics

Medium high torque
Restricted number of tightening screws
Easy installation
Application economically advantageous

Installation

Carefully clean the shafts contact surfaces. Fit the rigid coupling at the end of the connecting shafts. Tighten gradually and regularly in crossed sequence all screws to reach the tightening torque **Ms** indicated on the table.

Dismantling

By loosening all tightening screws the clamping cones are normally released. However in case of difficulties slightly hammer the released screws in a way to push back the rear pressure cone.

Tolerances, surface finish

A good surface finish by machine tool is sufficient.
Maximum allowable surface finish:

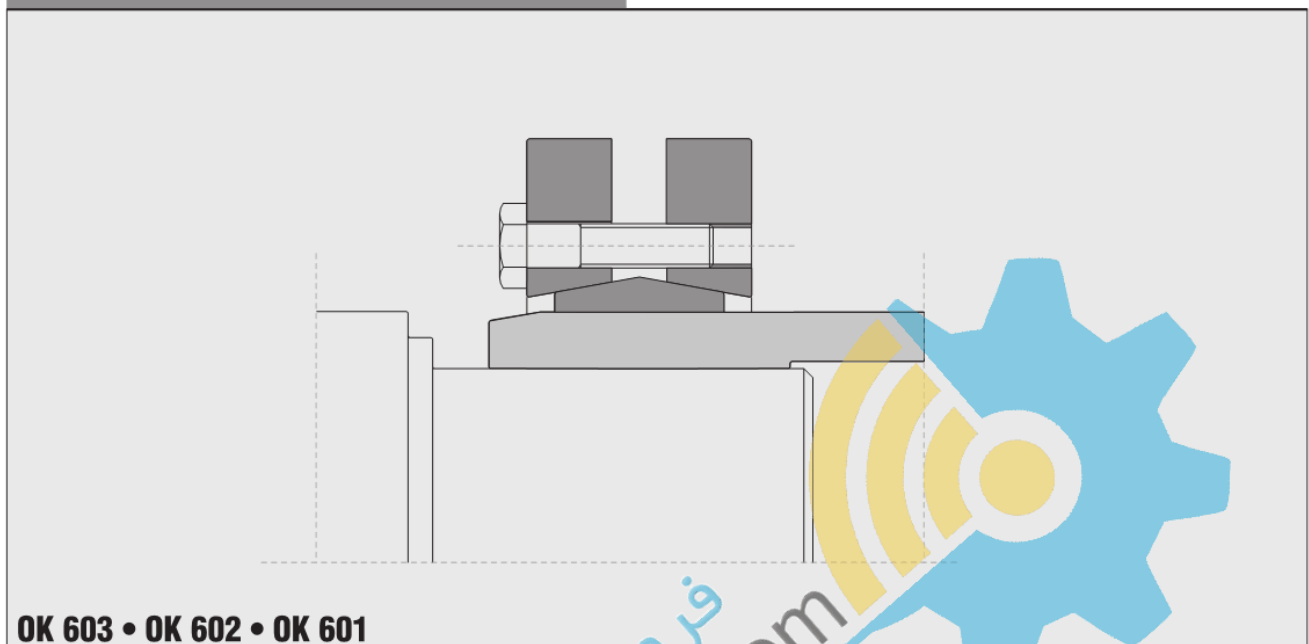
Rt max 16 µm (Ra 3 µm - Rz 13 µm)

Maximum permissible tolerances:

h8 for shaft

Shrink discs

OK 603 • OK 602 • OK 601



Characteristics

Medium-high torque
No shaft-hub axial movement
Limited installation time
Quick dismantling

Installation

Carefully clean the hub and shaft contact surfaces. Slide the shrink disc outside the hollow shaft. Tighten gradually and regularly in continuous sequence all screws to reach the tightening torque M_s indicated in the table. To reach the required tightening torque M_s it is necessary to repeat the procedure more than once. Do not use **molybdenum bisulphide** in the hub and shaft contact surfaces.

Dismantling

Loosen the clamping screws in a continuous and gradual sequence. Do not remove screws from threads. Normally with this operation the shrink disc is released. In case of reuse, apply a solid lubricant (that can guarantee a friction coefficient equal to 0,04) in the screws and in the tapered surfaces.

Tolerances, surface finish

A good surface finish by machine tool is sufficient.
Maximum allowable surface finish:
Rt max 16 μm (Ra 3 μm - Rz 13 μm)

Maximum permissible tolerances:
d = h8 for shaft

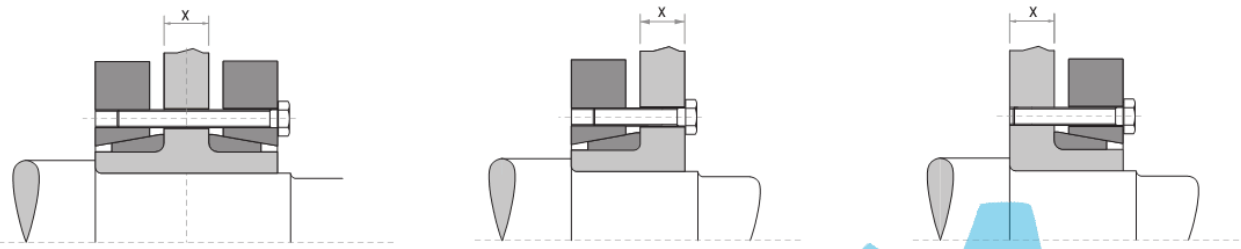
dw diameter tolerances

From 18 mm to 30 mm dw H6/j6
From 30 mm to 50 mm dw H6/h6
From 50 mm to 80 mm dw H6/g6
From 80 mm to 500 mm dw H7/g6

Axial movement

During screws tightening the hub has no axial movement with respect to the shaft.

Shrink discs Special applications



Split version

Half I version

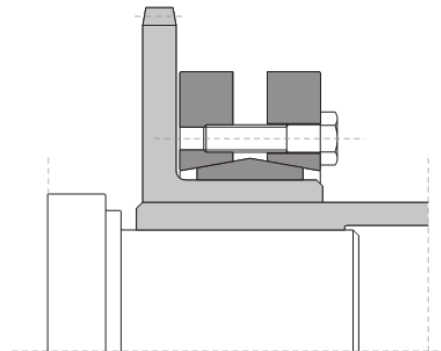
Half S version

When ordering please specify X dimension



Use of model OK 603 as coupling between different size shafts

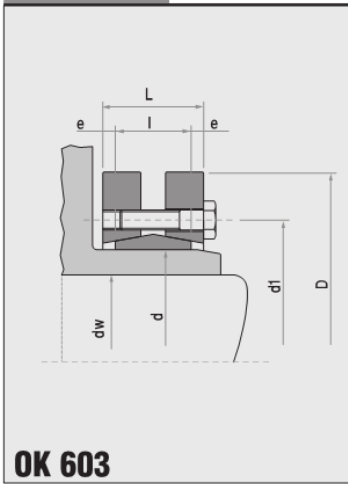
Special version equipped with housing for brake



Contemporaneous locking of a sprocket and a hollow shaft.

Shrink disc standard version

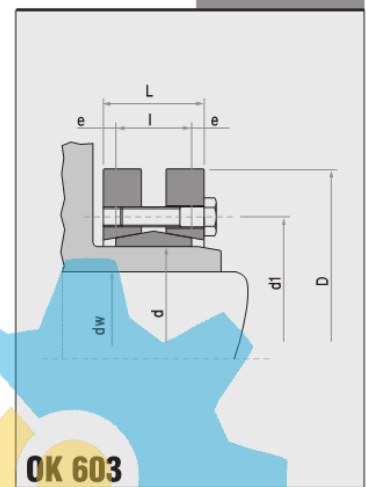
OK 603



Type	Shaft diameter	Torque	Axial Thrust	Dimensions					Tightening screws	Tightening torque	Weight
d mm	dw mm	Mt Nm	F ass. KN	D mm	l mm	L mm	d1 mm	e mm	N° x type	Ms Nm	kg
14	11 12	30 50	6 9	38	7	11,0	23	2,00	4 x M5*	4	0,1
16	13 14	70 90	10 13	41	11	15,0	26	2,00	5 x M5*	4	0,1
24	19 20 21	170 210 250	25 27 29	50	14	19,5	36	2,75	6 x M5*	4	0,2
30	24 25 26	300 340 380	29 31 33	60	16	21,5	44	2,75	7 x M5*	4	0,3
36	28 30 31	440 570 630	50 58 58	72	18	23,5	52	2,75	5 x M6	12	0,4
44	32 35 36	620 780 860	64 74 77	80	20	25,5	61	2,75	7 x M6	12	0,6
50	38 40 42	940 1160 1380	79 86 92	90	22	27,5	70	2,75	8 x M6	12	0,8
55	42 45 48	1160 1520 1880	79 88 97	100	23	30,5	75	3,75	8 x M6	12	1,1
62	48 50 52	1850 2200 2400	100 111 117	110	23	30,5	86	3,75	10 x M6	12	1,3
68	50 55 60	2000 2500 3150	97 106 120	115	23	30,5	86	3,75	10 x M6	12	1,4
75	55 60 65	2500 3200 3950	119 137 155	136	25	32,5	100	3,75	7 x M8	30	1,7
80	60 65 70	3200 3900 4600	124 140 158	145	25	32,5	100	3,75	7 x M8	30	1,9
85	65 70 75	4400 6100 7400	175 195 216	155	30	39,0	114	4,50	10 x M8	30	3,5
90	65 70 75	4750 6000 7250	170 190 210	155	30	39,0	114	4,50	10 x M8	30	3,3
100	70 75 80	6900 7500 9000	195 220 240	170	34	44,0	124	5,00	12 x M8	30	4,7
110	75 80 85	7200 9000 10800	229 252 262	185	39	50,0	136	5,50	9 x M10	59	5,9
115	80 85 90	7400 9200 11100	235 259 269	188	39	50,0	141	5,50	9 x M10	59	5,5
120	80 85 90	10600 13300 14500	285 314 340	215	42	54,0	160	6,00	12 x M10	59	9
125	85 90 95	11000 13000 15000	296 324 352	215	42	54,0	160	6,00	12 x M10	59	8,3
130	90 95 100	11300 13300 15400	304 333 362	215	42	54,0	160	6,00	12 x M10	59	8
140	95 100 105	15100 17600 20100	367 396 425	230	46	60,5	175	7,25	10 x M12	100	10
155	105 110 115	22000 25000 28000	447 478 509	265	50	64,5	192	7,25	12 x M12	100	15
160	110 115 120	22600 25700 28800	460 490 520	265	50	64,5	192	7,25	12 x M12	100	14,5
165	115 120 125	31000 35000 39000	595 630 655	290	56	71,0	210	7,50	8 x M16	250	22

Shrink disc standard version OK 603

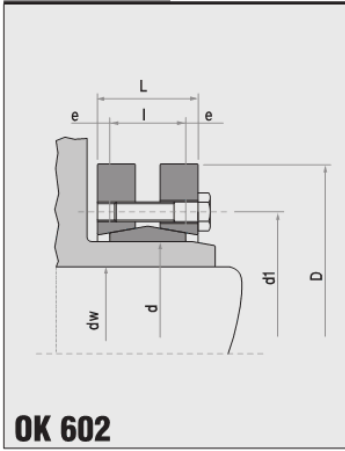
Type	Shaft diameter		Torque	Axial Thrust	Dimensions					Tightening screws DIN 931-10.9	Tightening torque	Weight
	d mm	dw mm			Mt Nm	F ass. KN	D mm	l mm	L mm			
170	120	120	31900	610	290	56	71	210	7,5	8 x M16	250	21
	125	125	36000	640								
	130	130	40100	670								
175	125	125	36000	605	300	56	71	220	7,5	8 x M16	250	22
	130	130	41000	639								
	135	135	45000	675								
180	130	130	37000	800	300	56	71	220	7,5	8 x M16	250	21
	135	135	42200	840								
	140	140	46300	885								
185	135	135	52000	778	330	71	86	236	7,5	10 x M16	250	37
	140	140	57000	819								
	145	145	62000	861								
190	140	140	53500	800	330	71	86	236	7,5	10 x M16	250	36
	145	145	58700	840								
	150	150	63800	885								
195	140	140	65000	933	350	71	86	246	7,5	12 x M16	250	41
	150	150	76000	1025								
	155	155	81500	1071								
200	150	150	74000	990	350	71	86	246	7,5	12 x M16	250	41
	155	155	80000	1035								
	160	160	86000	1080								
220	160	160	95000	1190	370	88	104	270	8,0	15 x M16	250	54
	165	165	102000	1239								
	170	170	110000	1290								
240	170	170	120000	1464	405	92	109	295	9,5	12 x M20	490	67
	180	180	138000	1576								
	190	190	156000	1675								
260	190	190	164000	1760	430	103	120	321	8,5	14 x M20	490	82
	200	200	184000	1880								
	210	210	205000	2010								
280	210	210	217000	2090	460	114	134	346	10,0	16 x M20	490	102
	220	220	244000	2220								
	230	230	270000	2350								
300	230	230	275000	2431	485	122	142	364	10,0	18 x M20	490	118
	240	240	295000	2567								
	245	245	315000	2636								
320	240	240	312000	2647	520	122	142	386	10,0	20 x M20	490	131
	250	250	340000	2786								
	260	260	374000	2900								
340	250	250	390000	3119	570	134	156	408	11,0	24 x M20	490	186
	260	260	422500	3249								
	270	270	460000	3400								
350	270	270	442000	3276	580	140	162	432	11,0	24 x M20	490	195
	280	280	480000	3430								
	285	285	500000	3500								
360	280	280	463000	3310	590	140	162	432	11,0	24 x M20	490	204
	290	290	502000	3461								
	295	295	522000	3536								
380	290	290	567000	3910	645	144	168	458	12,0	20 x M24	840	239
	300	300	610000	4080								
	310	310	658000	4248								
390	300	300	624000	4160	660	144	168	468	12,0	21 x M24	840	260
	310	310	671000	4330								
	320	320	718000	4484								
400	315	315	670000	4260	680	144	168	480	12,0	21 x M24	840	280
	320	320	695000	4345								
	330	330	744000	4500								
420	330	330	780000	4850	690	164	188	504	12,0	24 x M24	840	316
	340	340	840000	5040								
	350	350	900000	5220								
440	340	340	806000	4740	750	177	202	527	12,5	24 x M24	840	408
	350	350	860000	4910								
	360	360	917000	5090								
460	360	360	1000000	5670	770	177	202	547	12,5	28 x M24	840	420
	370	370	1070000	5860								
	380	380	1140000	6050								
480	380	380	1170000	6150	800	188	213	570	12,5	30 x M24	840	505
	390	390	1240000	6350								
	400	400	1310000	6550								



For larger diameter please contact us

Shrink disc heavy version

OK 602

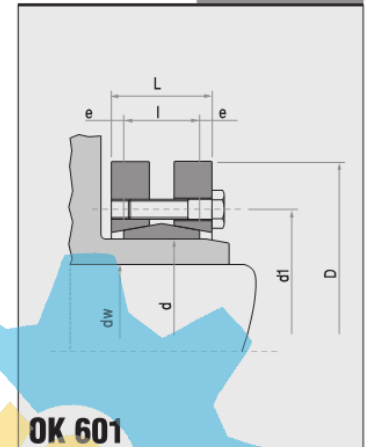


Type	Shaft diameter	Torque	Axial Thrust	Dimensions					Tightening screws DIN 931-10.9	Tightening torque	Weight
d mm	dw mm	Mt Nm	F ass. KN	D mm	l mm	L mm	d1 mm	e mm	Ms N° x type	Nm	kg
125	85	15000	355	215	55	65	160	5	10 x M12	100	11
	90	17500	388								
	95	20000	422								
140	95	20600	433	230	60	74	175	7	12 x M12	100	13
	100	23500	469								
	105	26500	500								
155	105	28600	550	265	66	80	198	7	15 x M12	100	20
	110	32500	590								
	115	36400	630								
165	115	41000	740	290	72	88	210	8	10 x M16	250	26
	120	46000	785								
	125	50700	815								
175	125	47000	750	300	72	88	220	8	10 x M16	250	29
	130	52000	795								
	135	57000	840								
185	135	72000	1100	330	92	112	236	10	14 x M16	250	47
	140	78000	1150								
	145	86000	1200								
195	140	75000	1075	350	92	112	246	10	14 x M16	250	53
	150	88000	1180								
	155	96000	1255								
200	145	85000	1170	350	92	112	246	10	15 x M16	250	50
	150	92500	1230								
	155	100000	1290								
220	160	127000	1590	370	114	134	270	10	20 x M16	250	65
	165	136000	1650								
	170	146500	1720								
240	170	155000	1820	405	120	144	295	12	15 x M20	490	87
	180	176000	1960								
	190	196000	2080								
260	190	213000	2260	430	136	160	321	12	18 x M20	490	100
	200	240000	2420								
	210	268000	2580								
280	210	285000	2740	460	148	172	346	12	21 x M20	490	132
	220	320000	2910								
	230	355000	3090								
300	230	341000	2960	485	152	176	364	12	22 x M20	490	140
	240	376000	3130								
	245	394000	3215								
320	240	378000	3150	520	160	184	386	12	24 x M20	490	165
	250	415000	3325								
	260	451000	3470								
340	250	489500	3910	570	176	200	420	12	21 x M24	840	240
	260	530000	4075								
	270	578000	4275								
350	270	556000	4122	580	176	200	425	12	21 x M24	840	247
	280	604000	4320								
	285	629000	4415								
360	280	612000	4370	590	180	204	432	12	22 x M24	840	250
	290	663000	4570								
	295	689000	4670								
380	290	618000	4270	645	180	204	458	12	22 x M24	840	320
	300	668000	4455								
	310	719000	4645								
390	300	708000	4715	660	188	212	468	12	24 x M24	840	350
	310	762000	4910								
	320	814500	5090								
400	315	765000	4855	680	188	212	480	12	24 x M24	840	370
	320	788000	4927								
	330	845000	5125								
420	330	999000	6055	690	214	238	504	12	30 x M24	840	410
	340	1068000	6285								
	350	1140000	6515								
440	340	1058000	6230	750	224	252	527	14	24 x M27	1250	525
	350	1130000	6460								
	360	1204000	6690								
460	360	1320000	7440	770	224	252	547	14	28 x M27	1250	540
	370	1420000	7700								
	380	1500000	7950								

For larger diameter please contact us

Shrink disc light version OK 601

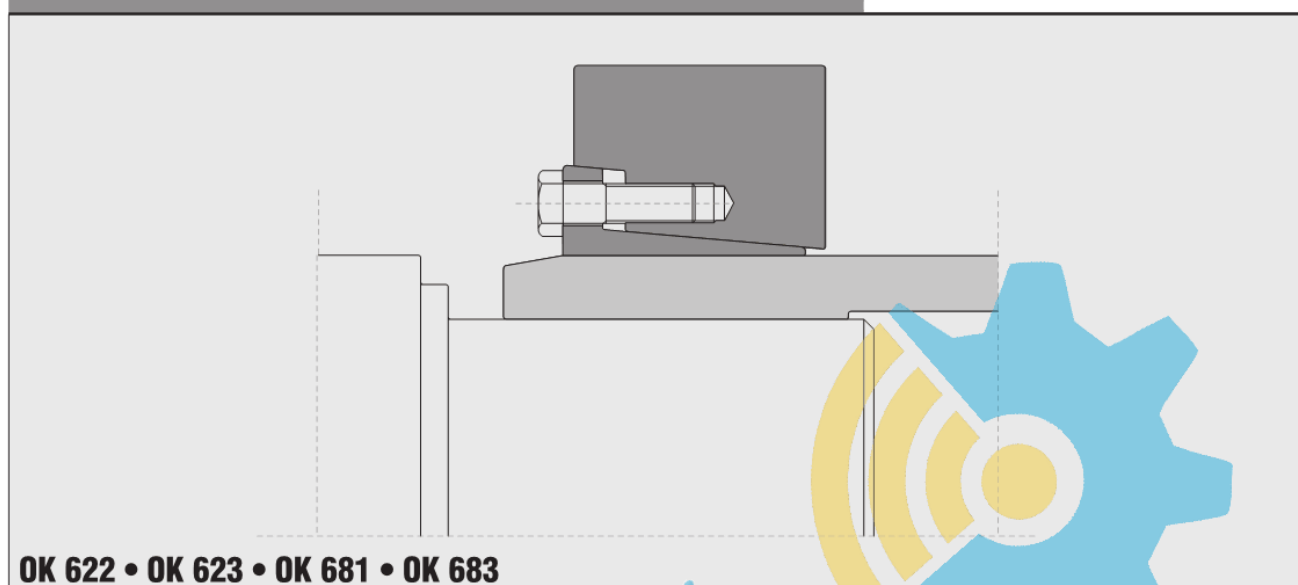
Type	Shaft diameter	Torque	Axial Thrust	Dimensions					Tightening screws DIN 931-10.9	Tightening torque	Weight
				d	l	L	d1	e			
d mm	dw mm	Mt Nm	F ass. KN	D mm	l mm	L mm	d1 mm	e mm			
125	95	10550	220	185	39	51	158	6	8 x M10	59	6
	100	12100	240								
	105	13800	260								
140	110	14800	265	220	39	51	175	6	9 x M10	59	8
	120	18640	310								
	125	20500	325								
155	130	24000	365	245	39	51	192	6	11 x M10	59	10
	135	26400	390								
	140	29000	410								
165	135	32000	475	260	46	62	210	8	10 x M12	100	14
	140	35200	500								
	145	38500	530								
175	145	39000	535	275	46	62	220	8	11 x M12	100	16
	150	42400	560								
	155	46000	590								
185	155	46600	600	295	46	62	225	8	12 x M12	100	20
	160	50300	625								
	165	54000	650								
195	165	63000	760	315	56	72	237	8	15 x M12	100	27
	170	67700	795								
	175	72500	825								
200	175	74000	850	330	56	72	242	8	16 x M12	100	30
	180	79500	890								
	185	84500	915								
220	180	82800	920	345	66	84	265	9	10 x M16	250	35
	190	93500	980								
	200	105000	1055								
240	200	113000	1135	370	66	84	290	9	12 x M16	250	44
	210	127500	1210								
	215	134500	1250								
260	220	149000	1350	395	72	92	310	10	14 x M16	250	48
	230	165000	1435								
	235	173000	1475								
280	230	171000	1485	425	84	104	333	10	16 x M16	250	60
	240	189000	1570								
	250	208000	1660								
300	250	215000	1720	460	84	104	358	10	18 x M16	250	75
	260	234000	1800								
	270	255000	1890								
320	270	260000	1940	495	84	106	378	11	20 x M16	250	84
	280	284000	2030								
	290	306000	2125								
340	290	300000	2070	535	84	106	402	11	21 x M16	250	100
	300	324000	2160								
	305	337000	2210								
350	300	372000	2485	545	100	122	413	11	16 x M20	490	120
	305	385000	2540								
	310	400000	2590								
360	300	360000	2400	555	100	122	423	11	16 x M20	490	125
	310	388000	2500								
	320	415000	2590								
380	320	435000	2720	585	112	136	442	12	18 x M20	490	150
	325	451000	2780								
	330	467000	2835								
390	330	505000	3060	595	112	136	452	12	20 x M20	490	156
	340	540000	3175								
	350	577000	3295								
400	340	550000	3235	615	112	136	462	12	21 x M20	490	170
	350	587000	3360								
	360	626000	3480								
420	350	578000	3300	630	120	144	485	12	22 x M20	490	185
	360	617000	3425								
	370	655000	3545								
440	370	677000	3660	660	120	144	505	12	24 x M20	490	205
	380	719000	3785								
	390	762000	3910								
460	390	840000	4320	685	132	158	527	13	28 x M20	490	235
	400	890000	4460								
	410	935000	4580								



For larger diameter please contact us

Shrink disc

OK 622 • OK 623 • OK 681 • OK 683



Characteristics

Very high torques
No shaft-hub axial movement
Limited installation time
Quick dismantling

Installation

Carefully clean the hub and shaft contact surfaces. Slide the shrink disc outside the hollow shaft. Tighten gradually and regularly in continuous sequence all screws to reach the tightening torque **Ms** indicated in the table.
To reach the required tightening torque **Ms** it is necessary to repeat the procedure more than once.
Do not use **molybdenum bisulphide** in the hub and shaft contact surfaces.

Dismantling

Loosen the clamping screws in a continuous and gradual sequence. Do not remove screws from threads. Normally with this operation the shrink disc is released.
In case of reuse, apply a solid lubricant (that can guarantee a friction coefficient equal to 0,04) in the screws and in the tapered surfaces.

Tolerances, surface finish

A good surface finish by machine tool is sufficient.
Maximum allowable surface finish:

• **Rt max 16 µm (Ra 3 µm - Rz 13 µm)**

Maximum permissible tolerances:

d = f7 for shaft

Dw diameter tolerances

dw: Up to 150 mm H7/h6
From 155 mm H7/g6

Axial movement

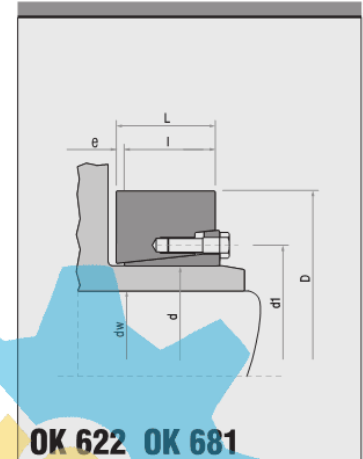
During screws tightening the hub has no axial movement with respect to the shaft.

Shrink disc OK 622 • OK 681

OK 622

OK 681

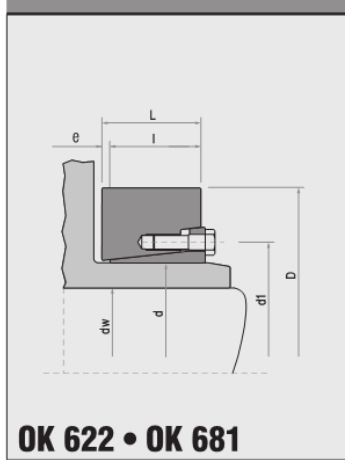
Type	Shaft diameter		Torque		Axial Thrust		Tightening torque		Dimensions					Tightening screws DIN 931	Weight Kg
	d mm	dw mm	Mt Nm	F ass. KN	Ms Nm	Mt Nm	F ass. KN	Ms Nm	D mm	l mm	L mm	d1 mm	e mm		
12	9	10	20	5	12	-	-	-	35	10	11	24	1	M6	0,1
14	11	12	30	6	12	-	-	-	38	10	11	26	1	M6	0,1
16	13	14	70	10	12	-	-	-	41	13,5	15	28	1,5	M6	0,1
18	15	16	80	11	12	-	-	-	44	13,5	15	30	1,5	M6	0,1
20	17	18	150	18	12	-	-	-	47	13,5	15	32	1,5	M6	0,1
24	19	20	160	17	12	-	-	-	50	16	18	36	2	M6	0,2
24	20	22	210	20	12	-	-	-	50	16	18	36	2	M6	0,2
30	24	25	270	23	12	-	-	-	60	18	20	44	2	M6	0,3
30	25	26	320	25	12	-	-	-	60	18	20	44	2	M6	0,3
30	26	26	360	28	12	-	-	-	60	18	20	44	2	M6	0,3
36	27	30	440	32	30	-	-	-	72	20	22	52	2	M8	0,5
36	30	33	610	41	30	-	-	-	72	20	22	52	2	M8	0,5
36	33	33	820	50	30	-	-	-	72	20	22	52	2	M8	0,5
44	34	35	690	41	30	-	-	-	80	22	24	61	2	M8	0,6
44	35	37	770	44	30	-	-	-	80	22	24	61	2	M8	0,6
44	37	37	920	50	30	-	-	-	80	22	24	61	2	M8	0,6
50	38	40	1110	58	30	1500	78	35	90	23,5	26	68	2,5	M8	0,8
50	40	42	1290	65	30	1700	85	35	90	23,5	26	68	2,5	M8	0,8
50	42	42	1510	71	30	1900	93	35	90	23,5	26	68	2,5	M8	0,8
55	42	45	1230	59	30	1600	78	35	100	26	29	72	3	M8	1,1
55	45	48	1530	68	30	2000	88	35	100	26	29	72	3	M8	1,1
55	48	48	1860	78	30	2400	99	35	100	26	29	72	3	M8	1,1
62	48	50	1670	70	30	2200	91	35	110	26	29	80	3	M8	1,3
62	50	52	1890	76	30	2400	98	35	110	26	29	80	3	M8	1,3
62	52	52	2120	81	30	2700	104	35	110	26	29	80	3	M8	1,3
68	50	55	1870	75	30	2400	94	35	115	26	28	86	3	M8	1,3
68	55	60	2450	89	30	3000	111	35	115	26	28	86	3	M8	1,3
68	60	60	3120	104	30	3800	127	35	115	26	28	86	3	M8	1,3
75	55	60	2330	85	59	3700	136	70	138	27	31	100	4	M10	2,3
75	60	65	3020	101	59	4700	157	70	138	27	31	100	4	M10	2,3
75	65	65	3810	117	59	5800	178	70	138	27	31	100	4	M10	2,3
80	60	65	3190	106	59	4200	142	70	141	27	31	104	4	M10	2,3
80	65	70	4060	123	59	5200	161	70	141	27	31	104	4	M10	2,3
80	70	70	4910	140	59	6300	181	70	141	27	31	104	4	M10	2,3
90	65	70	5400	166	59	5900	181	70	155	34	38	114	4	M10	3,2
90	70	75	6500	187	59	7100	203	70	155	34	38	114	4	M10	3,2
90	75	75	7800	208	59	8500	226	70	155	34	38	114	4	M10	3,2
100	70	75	6000	171	59	7400	213	70	170	39	43	124	4	M10	4,3
100	75	80	7200	192	59	8900	237	70	170	39	43	124	4	M10	4,3
100	80	80	8500	213	59	10400	261	70	170	39	43	124	4	M10	4,3
110	80	85	10000	249	100	12600	314	121	185	43,5	49	138	5,5	M12	5,8
110	85	90	11700	275	100	14600	344	121	185	43,5	49	138	5,5	M12	5,8
110	90	90	13600	302	100	16900	375	121	185	43,5	49	138	5,5	M12	5,8
120	85	90	11900	280	100	13600	320	121	197	46,5	53	147	6,5	M12	6,9
120	90	95	13800	307	100	15700	349	121	197	46,5	53	147	6,5	M12	6,9
120	95	95	15900	334	100	18000	378	121	197	46,5	53	147	6,5	M12	6,9
125	90	95	14400	319	100	16400	365	121	215	46,5	53	152	6,5	M12	8,7
125	95	100	16500	347	100	18800	395	121	215	46,5	53	152	6,5	M12	8,7
125	100	100	18700	375	100	21300	426	121	215	46,5	53	152	6,5	M12	8,7
135	95	100	18100	382	160	20300	427	195	230	49,5	58	165	8,5	M14	11
135	100	110	20600	412	160	23000	459	195	230	49,5	58	165	8,5	M14	11
135	110	110	26000	473	160	28900	525	195	230	49,5	58	165	8,5	M14	11
140	100	105	19600	392	160	23000	459	195	230	49,5	58	170	8,5	M14	10
140	105	115	22100	421	160	25800	492	195	230	49,5	58	170	8,5	M14	10
140	115	115	27600	481	160	32100	558	195	230	49,5	58	170	8,5	M14	10
155	110	115	26500	482	160	31100	565	195	263	53,5	62	184	8,5	M14	15
155	115	125	29500	514	160	34500	601	195	263	53,5	62	184	8,5	M14	15
155	125	125	36100	578	160	42000	672	195	263	53,5	62	184	8,5	M14	15
165	120	125	37300	622	250	44000	734	300	290	58	68	198	10	M16	22
165	125	135	41200	659	250	48500	776	300	290	58	68	198	10	M16	22
165	135	135	49600	734	250	58100	860	300	290	58	68	198	10	M16	22
175	130	135	45000	692	250	54000	834	300	300	58	68	208	10	M16	23
175	135	145	49000	730	250	59000	876	300	300	58	68	208	10	M16	23
175	145	145	58000	805	250	70000	962	300	300	58	68	208	10	M16	23



To be continued...

Shrink discs

OK 622 • OK 681



OK 622

OK 681

Type	Shaft diameter		Torque		Axial Thrust		Tightening torque		Dimensions					Tightening screws DIN 931	Weight Kg
	d mm	dw mm	Mt Nm	F ass. KN	Ms Nm	Mt Nm	F ass. KN	Ms Nm	D mm	I mm	L mm	d1 mm	e mm		
185	140	145	64000	916	250	81000	1157	300	320	75	85	222	10	M16	33
	145	155	70000	961		88000	1210								
	155		82000	1053		102000	1319								
200	150	155	81000	1073	250	96000	1279	300	340	75	85	238	10	M16	36
	155	165	87000	1120		103000	1333								
	165		100000	1216		119000	1442								
220	160	170	103000	1283	490	129000	1615	570	370	91	103	268	12	M20	53
	170	180	119000	1395		149000	1749								
	180		136000	1509		169000	1883								
240	170	180	122000	1439	490	151000	1773	570	405	94	107	288	13	M20	66
	180	200	140000	1555		172000	1909								
	200		179000	1790		218000	2183								
260	190	200	163000	1715	490	212000	2231	570	430	105	119	312	14	M20	82
	200	220	184000	1842		238000	2385								
	220		231000	2099		297000	2696								
280	210	220	215000	2051	490	279000	2661	570	460	116	132	334	16	M20	103
	220	240	240000	2186		311000	2825								
	240		295000	2458		379000	3156								
300	220	230	270000	2456	840	332000	3018	980	485	124	140	360	16	M24	120
	230	250	300000	2605		367000	3193								
	250		363000	2906		443000	3545								
320	240	250	301000	2511	840	404000	3370	980	520	124	140	380	16	M24	138
	250	270	332000	2655		444000	3543								
	270		398000	2945		528000	3911								
340	250	260	390000	3118	840	488000	3905	980	570	137	155	402	18	M24	189
	260	280	427000	3283		533000	4101								
	280		506000	3617		630000	4498								
350	270	280	493000	3649	840	616000	4563	980	580	142	162	414	20	M24	202
	280	290	535000	3825		669000	4778								
	290		580000	4001		725000	5000								
360	270	280	496000	3676	840	625000	4628	980	590	142	162	424	20	M24	207
	280	300	539000	3852		677000	4839								
	300		631000	4206		790000	5264								
380	290	300	585000	4034	1250	725000	5000	1450	640	146	166	454	20	M27	244
	300	310	632000	4215		783000	5220								
	310		681000	4397		844000	5445								
390	290	300	640000	4411	1250	781000	5384	1450	650	146	166	454	20	M27	249
	300	320	691000	4605		842000	5611								
	320		739000	4996		971000	6069								
420	320	330	742000	4640	1250	969000	6057	1450	670	166	186	486	20	M27	285
	330	350	797000	4829		1038000	6290								
	350		912000	5209		1183000	6758								
440	340	350	945000	5557	1250	1212000	7128	1450	720	174	194	506	20	M27	357
	350	370	1009000	5764		1292000	7382								
	370		1143000	6181		1460000	7891								
460	360	370	1104000	6133	1250	1393000	7739	1450	770	174	194	534	20	M27	419
	370	390	1174000	6345		1479000	7995								
	390		1320000	6771		1660000	8511								
480	380	390	1300000	6843	1640	1657000	8721	1970	800	191	213	552	22	M30	492
	390	410	1378000	7066		1754000	8993								
	410		1541000	7516		1956000	9542								
500	400	410	1496000	7478	1640	1887000	9435	1970	850	191	213	572	22	M30	567
	410	430	1581000	7711		1992000	9717								
	430		1759000	8180		2211000	10283								
530	430	440	1930000	8976	1640	2397000	11150	1970	910	216	238	606	22	M30	744
	440	460	2031000	9234		2521000	11459								
	460		2243000	9752		2778000	12078								
560	450	460	2097000	9318	1640	2545000	11313	1970	940	216	238	632	22	M30	776
	460	480	2201000	9572		2671000	11611								
	480		2420000	10081		2930000	12210								
590	470	480	2593000	11032	1640	2969000	12636	1970	960	235	260	664	25	M30	835
	480	500	2715000	11314		3108000	12952								
	500		2970000	11881		3397000	13587								
620	500	520	2904000	11616	1640	3402000	13608	1970	1020	261	286	706	25	M30	1064
	520	540	3169000	12190		3708000	14261								
	540		3447000	12767		4028000	14918								

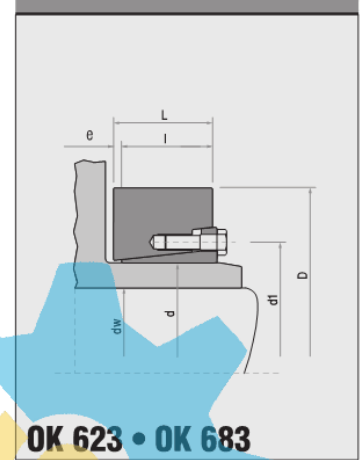
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Shrink disc OK 623 • OK 683

OK 623

OK 683

Type	OK 623			OK 683			Dimensions					Tightening screws DIN 931	Weight Kg	
	Shaft diameter	Torque	Axial Thrust	Tightening torque	Torque	Axial Thrust	Tightening torque	D	I	L	d1			e
d mm	dw mm	Mt Nm	F ass. KN	Ms Nm	Mt Nm	F ass. KN	Ms Nm	D mm	I mm	L mm	d1 mm	e mm		Kg
140	100	26000	523	250	30000	607	300	230	64	74	174	10	M16	13
	105	30000	562		34000	650								
	115	37000	641		42000	737								
155	110	36000	646	250	45000	810	300	263	70	80	194	10	M16	19
	115	40000	687		49000	860								
	125	48000	772		60000	959								
165	120	50000	828	250	63000	1047	300	290	77	88	204	11	M16	26
	125	55000	877		69000	1105								
	135	66000	977		83000	1223								
175	130	61000	943	250	73000	1121	300	300	77	88	214	11	M16	27
	135	67000	993		80000	1178								
	145	79000	1094		94000	1292								
185	140	89000	1269	490	106000	1512	570	320	100	112	232	12	M20	40
	145	96000	1330		115000	1582								
	155	113000	1455		134000	1723								
200	150	104000	1391	490	126000	1685	570	340	100	112	246	12	M20	44
	155	113000	1453		136000	1757								
	165	130000	1577		157000	1900								
220	160	127000	1591	490	162000	2027	570	370	121	134	266	13	M20	64
	165	137000	1661		174000	2112								
	180	169000	1876		213000	2366								
240	170	157000	1847	490	206000	2424	570	405	130	144	286	14	M20	81
	180	180000	1996		235000	2607								
	200	230000	2300		298000	2978								
260	190	230000	2424	490	285000	3000	570	430	144	160	306	16	M20	102
	200	260000	2600		321000	3207								
	220	325000	2957		399000	3623								
280	210	306000	2918	840	361000	3435	980	460	156	172	334	16	M24	126
	220	342000	3105		401000	3646								
	240	418000	3485		489000	4074								
300	230	360000	3132	840	461000	4010	980	485	158	176	364	18	M24	141
	240	398000	3314		508000	4230								
	250	437000	3498		556000	4452								
320	240	430000	3580	840	512000	4269	980	520	166	184	374	18	M24	171
	250	473000	3781		562000	4498								
	270	565000	4186		670000	4960								
340	250	551000	4407	1250	661000	5288	1450	570	186	206	404	20	M27	235
	260	603000	4637		722000	5552								
	280	714000	5100		853000	6086								
360	270	671000	4969	1250	763000	5694	1450	590	188	210	424	22	M27	251
	280	729000	5204		828000	5814								
	300	852000	5679		966000	6438								
390	290	850000	5860	1250	978000	6743	1450	650	196	220	456	24	M27	324
	300	917000	6116		1054000	7029								
	320	1061000	6633		1217000	7606								
420	320	1007000	6294	1250	1297000	8106	1450	690	221	246	486	25	M27	409
	330	1080000	6547		1389000	8416								
	350	1235000	7058		1582000	9040								
440	340	1218000	7166	1640	1583000	9312	1970	750	233	258	514	25	M30	526
	350	1301000	7433		1687000	9642								
	370	1475000	7972		1907000	10306								
460	360	1402000	7791	1640	1734000	9632	1970	770	233	258	534	25	M30	544
	370	1491000	8062		1841000	9953								
	390	1678000	8606		2067000	10599								
480	380	1707000	8984	1640	2076000	10926	1970	800	270	298	552	28	M30	642
	390	1809000	9277		2198000	11270								
	410	2023000	9867		2452000	11961								
500	400	1993000	9963	1640	2529000	12645	1970	850	270	300	572	30	M30	741
	410	2106000	10273		2669000	13021								
	430	2342000	10895		2962000	13777								
530	430	2549000	11857	2210	3093000	14385	2650	890	306	338	616	32	M33	899
	440	2683000	12196		3252000	14782								
	460	2962000	12878		3584000	15581								
560	450	2837000	12609	2210	3439000	15284	2650	940	306	338	646	32	M33	1000
	460	2978000	12950		3607000	15683								
	480	3272000	13634		3956000	16485								



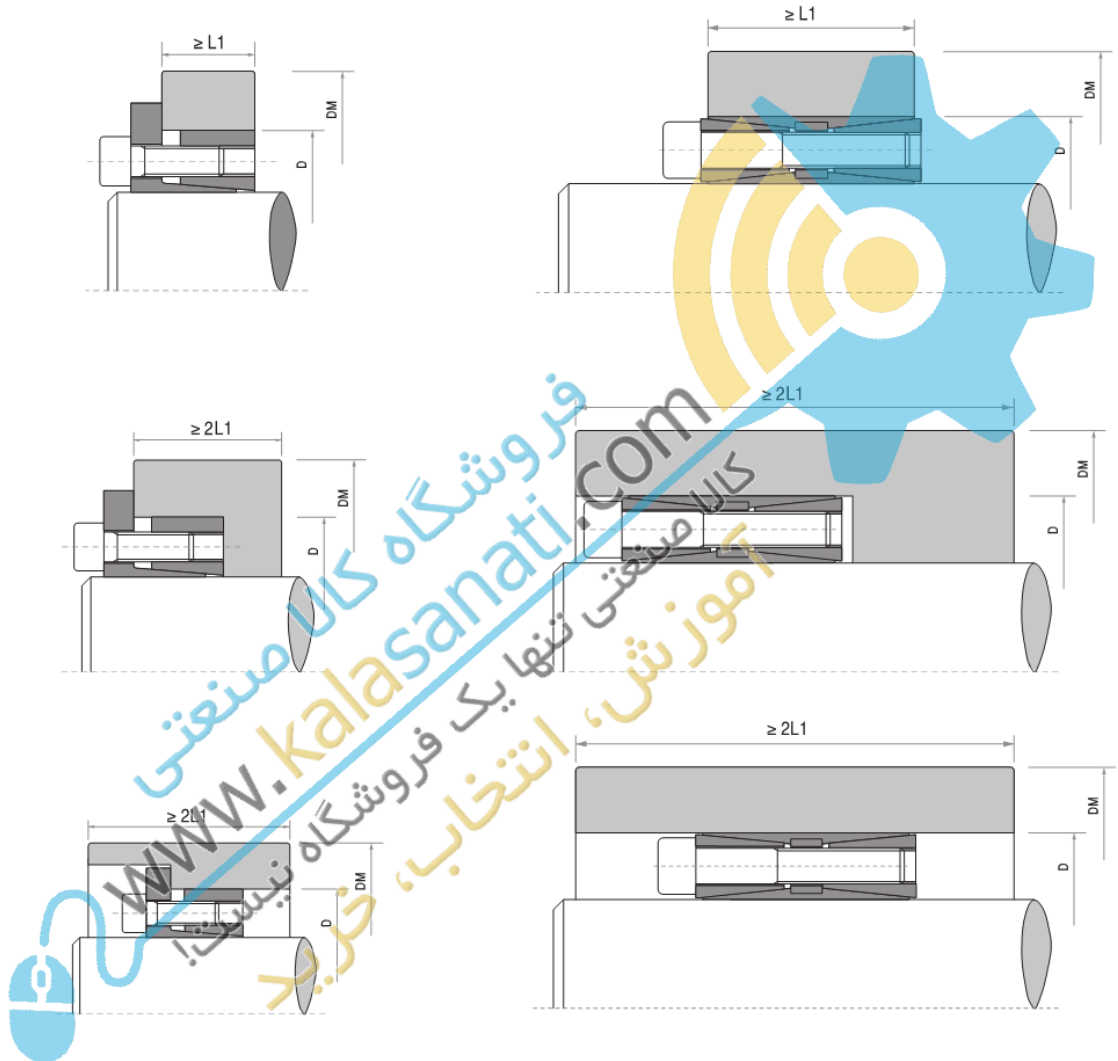
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Locking Assemblies

Calculation of minimum hub diameter DM

By installing OK locking assemblies the surface pressure **Pn**, existing between the clamping outer ring and related hub bore, generate a stress. To calculate the minimum hub diameter **DM** the formula normally used for thick hollow cylinder is valid. Depending from hub shape and length with respect to the dimension **L1** of locking assemblies, the real stresses change.

Factor C must be considered in function of application type.



For minimum hub diameter DM calculation following formula must be applied:

$$DM \geq D \cdot K$$

where K is equal to:
$$K = \sqrt{\frac{\delta_{01} + (C \cdot Pn)}{\delta_{02} - (C \cdot Pn)}}$$

To simplify the calculation our technical department has prepared the table on page 39.

Example:

Locking Assembly type OK 131 \varnothing 60x90.

Hub pressure $Pn = 85 \text{ N/mm}^2$ (see table page 9).

Hub material GGG40 (yielding limit $\delta_{02} = 250 \text{ N/mm}^2$).

Hub length and shape equivalent $C = 1$.

$$DM \geq 90 \cdot 1,42 \geq 127,8 \text{ mm}$$

Locking Assemblies

Calculation of minimum hub diameter DM

TABLE OF COEFFICIENT K

Pressure generated on the hub		S02 Yield point N/mm2										
		150	180	200	220	250	270	300	350	400	450	600
pn N/mm ²	Application type C	Material type										
		GG20	GG25 GS38	GG30 GTS35	GS45 ST37-2	GGG40 GS52	ST50-2 C35	GGG50 GS60 ST60-2	GGG60 GS62 ST70-2	GGG70 GS70 C60		
60	C = 0,6	1,28	1,25	1,20	1,18	1,15	1,14	1,12	1,10	1,09	1,08	1,06
	C = 0,8	1,39	1,30	1,24	1,23	1,22	1,20	1,18	1,15	1,12	1,11	1,08
	C = 1	1,52	1,42	1,36	1,32	1,28	1,25	1,22	1,18	1,16	1,14	1,10
65	C = 0,6	1,30	1,25	1,22	1,20	1,18	1,15	1,13	1,11	1,10	1,09	1,07
	C = 0,8	1,44	1,35	1,30	1,28	1,24	1,22	1,20	1,16	1,14	1,12	1,09
	C = 1	1,60	1,45	1,40	1,35	1,30	1,28	1,24	1,20	1,18	1,16	1,12
70	C = 0,6	1,34	1,26	1,24	1,22	1,18	1,16	1,15	1,12	1,11	1,10	1,07
	C = 0,8	1,48	1,38	1,34	1,30	1,25	1,23	1,20	1,18	1,15	1,13	1,10
	C = 1	1,65	1,50	1,45	1,40	1,34	1,30	1,26	1,22	1,20	1,17	1,13
75	C = 0,6	1,30	1,28	1,25	1,23	1,20	1,18	1,16	1,14	1,12	1,11	1,08
	C = 0,8	1,52	1,42	1,36	1,32	1,28	1,25	1,22	1,18	1,16	1,14	1,11
	C = 1	1,74	1,55	1,48	1,42	1,36	1,33	1,30	1,25	1,20	1,18	1,13
80	C = 0,6	1,39	1,31	1,28	1,25	1,21	1,20	1,18	1,15	1,13	1,11	1,08
	C = 0,8	1,58	1,45	1,39	1,35	1,30	1,27	1,24	1,20	1,18	1,15	1,11
	C = 1	1,81	1,61	1,53	1,46	1,39	1,36	1,31	1,26	1,22	1,20	1,14
85	C = 0,6	1,42	1,34	1,30	1,27	1,23	1,21	1,19	1,16	1,14	1,12	1,09
	C = 0,8	1,63	1,49	1,42	1,38	1,32	1,29	1,26	1,22	1,19	1,16	1,12
	C = 1	1,90	1,67	1,57	1,50	1,42	1,39	1,34	1,28	1,24	1,21	1,15
90	C = 0,6	1,46	1,36	1,32	1,28	1,25	1,22	1,20	1,17	1,15	1,13	1,09
	C = 0,8	1,69	1,53	1,46	1,40	1,34	1,31	1,28	1,23	1,20	1,18	1,13
	C = 1	2,00	1,73	1,62	1,54	1,46	1,41	1,36	1,30	1,26	1,22	1,16
95	C = 0,6	1,49	1,39	1,34	1,30	1,26	1,24	1,21	1,18	1,15	1,14	1,10
	C = 0,8	1,75	1,57	1,49	1,43	1,37	1,34	1,30	1,25	1,21	1,19	1,14
	C = 1	2,11	1,80	1,68	1,59	1,49	1,44	1,39	1,32	1,27	1,24	1,17
100	C = 0,6	1,53	1,41	1,36	1,32	1,28	1,25	1,22	1,19	1,16	1,14	1,11
	C = 0,8	1,81	1,61	1,53	1,46	1,39	1,36	1,31	1,26	1,22	1,20	1,14
	C = 1	2,24	1,87	1,73	1,63	1,53	1,48	1,41	1,34	1,29	1,25	1,18
105	C = 0,6	1,56	1,44	1,39	1,34	1,29	1,27	1,24	1,20	1,17	1,15	1,11
	C = 0,8	1,88	1,66	1,56	1,50	1,42	1,38	1,33	1,28	1,24	1,21	1,15
	C = 1	2,33	1,95	1,79	1,68	1,56	1,51	1,44	1,36	1,31	1,27	1,19
110	C = 0,6	1,60	1,47	1,41	1,36	1,31	1,28	1,25	1,21	1,18	1,16	1,12
	C = 0,8	1,96	1,71	1,60	1,53	1,44	1,41	1,35	1,29	1,25	1,22	1,16
	C = 1	2,55	2,04	1,86	1,73	1,60	1,54	1,47	1,38	1,33	1,28	1,20
115	C = 0,6	1,64	1,50	1,43	1,36	1,33	1,30	1,26	1,22	1,19	1,17	1,12
	C = 0,8	2,04	1,76	1,64	1,56	1,47	1,43	1,37	1,31	1,26	1,23	1,17
	C = 1	2,75	2,13	1,93	1,79	1,64	1,58	1,50	1,41	1,34	1,30	1,21
120	C = 0,6	1,69	1,53	1,46	1,40	1,34	1,31	1,28	1,23	1,20	1,18	1,13
	C = 0,8	2,13	1,81	1,69	1,60	1,50	1,45	1,39	1,33	1,28	1,24	1,18
	C = 1	3,00	2,24	2,00	1,84	1,69	1,61	1,53	1,43	1,36	1,31	1,22
125	C = 0,6	1,73	1,56	1,48	1,43	1,36	1,33	1,29	1,24	1,21	1,18	1,13
	C = 0,8	2,24	1,87	1,73	1,63	1,53	1,48	1,41	1,34	1,29	1,25	1,18
	C = 1	3,32	2,35	2,08	1,91	1,73	1,65	1,56	1,45	1,38	1,33	1,24
130	C = 0,6	1,78	1,59	1,51	1,45	1,38	1,35	1,30	1,25	1,22	1,19	1,14
	C = 0,8	2,35	1,93	1,78	1,67	1,56	1,50	1,44	1,36	1,30	1,27	1,19
	C = 1	3,74	2,49	2,17	1,97	1,78	1,69	1,59	1,48	1,40	1,35	1,25
135	C = 0,6	1,83	1,62	1,54	1,47	1,40	1,36	1,32	1,27	1,23	1,20	1,15
	C = 0,8	2,48	2,00	1,83	1,71	1,59	1,53	1,46	1,38	1,32	1,28	1,20
	C = 1	4,36	2,65	2,27	2,04	1,83	1,73	1,62	1,50	1,42	1,36	1,26
140	C = 0,6	1,88	1,66	1,56	1,50	1,42	1,38	1,33	1,28	1,24	1,21	1,15
	C = 0,8	2,63	2,07	1,88	1,75	1,62	1,55	1,48	1,39	1,33	1,29	1,21
	C = 1	5,39	2,83	2,38	2,12	1,88	1,78	1,66	1,53	1,44	1,38	1,27
145	C = 0,6	1,94	1,69	1,59	1,52	1,44	1,40	1,35	1,29	1,25	1,22	1,16
	C = 0,8	2,80	2,15	1,94	1,80	1,65	1,58	1,50	1,41	1,35	1,30	1,22
	C = 1	7,68	3,05	2,50	2,21	1,94	1,82	1,69	1,55	1,46	1,40	1,28
150	C = 0,6	2,00	1,73	1,62	1,54	1,46	1,41	1,36	1,30	1,26	1,23	1,16
	C = 0,8	3,00	2,24	2,00	1,84	1,69	1,61	1,53	1,43	1,36	1,31	1,23
	C = 1	---	3,32	2,65	2,30	2,00	1,87	1,73	1,58	1,48	1,41	1,29
155	C = 0,6	2,06	1,77	1,65	1,57	1,48	1,43	1,38	1,31	1,27	1,24	1,17
	C = 0,8	3,25	2,33	2,06	1,89	1,72	1,65	1,55	1,45	1,38	1,33	1,23
	C = 1	---	3,66	2,80	2,40	2,06	1,92	1,77	1,61	1,51	1,43	1,30
160	C = 0,6	2,13	1,81	1,69	1,60	1,50	1,45	1,39	1,33	1,28	1,24	1,18
	C = 0,8	3,55	2,43	2,13	1,94	1,76	1,67	1,58	1,47	1,39	1,34	1,24
	C = 1	---	4,12	3,00	2,52	2,13	1,98	1,81	1,64	1,53	1,45	1,31
165	C = 0,6	2,21	1,86	1,72	1,62	1,52	1,47	1,41	1,34	1,29	1,25	1,18
	C = 0,8	3,96	2,55	2,21	2,00	1,80	1,71	1,60	1,49	1,41	1,35	1,25
	C = 1	---	4,80	3,23	2,65	2,21	2,04	1,86	1,67	1,55	1,47	1,33

Locking Assemblies

Calculation of minimum hub diameter DM

TABLE OF COEFFICIENT K

Pressure generated on the hub		σ ₀₂ Yield point N/mm ²										
		150	180	200	220	250	270	300	350	400	450	600
pn N/mm ²	Application type C	Material type										
		GG20	GG25 GS38	GG30 GTS35	GS45 ST37-2	GGG40 GS52	ST50-2 C35	GGG50 GS60 ST60-2	GGG60 GS62 ST70-2	GGG70 GS70 C60		
60	C = 0,6	1,28	1,25	1,20	1,18	1,15	1,14	1,12	1,10	1,09	1,08	1,06
	C = 0,8	1,39	1,30	1,24	1,23	1,22	1,20	1,18	1,15	1,12	1,11	1,08
	C = 1	1,52	1,42	1,36	1,32	1,28	1,25	1,22	1,18	1,16	1,14	1,10
65	C = 0,6	1,30	1,25	1,22	1,20	1,18	1,15	1,13	1,11	1,10	1,09	1,07
	C = 0,8	1,44	1,35	1,30	1,28	1,24	1,22	1,20	1,16	1,14	1,12	1,09
	C = 1	1,60	1,45	1,40	1,35	1,30	1,28	1,24	1,20	1,18	1,16	1,12
70	C = 0,6	1,34	1,26	1,24	1,22	1,18	1,16	1,15	1,12	1,11	1,10	1,07
	C = 0,8	1,48	1,38	1,34	1,30	1,25	1,23	1,20	1,18	1,15	1,13	1,10
	C = 1	1,65	1,50	1,45	1,40	1,34	1,30	1,26	1,22	1,20	1,17	1,13
75	C = 0,6	1,30	1,28	1,25	1,23	1,20	1,18	1,16	1,14	1,12	1,11	1,08
	C = 0,8	1,52	1,42	1,36	1,32	1,28	1,25	1,22	1,18	1,16	1,14	1,11
	C = 1	1,74	1,55	1,48	1,42	1,36	1,33	1,30	1,25	1,20	1,18	1,13
80	C = 0,6	1,39	1,31	1,28	1,25	1,21	1,20	1,18	1,15	1,13	1,11	1,08
	C = 0,8	1,58	1,45	1,39	1,35	1,30	1,27	1,24	1,20	1,18	1,15	1,11
	C = 1	1,81	1,61	1,53	1,46	1,39	1,36	1,31	1,26	1,22	1,20	1,14
85	C = 0,6	1,42	1,34	1,30	1,27	1,23	1,21	1,19	1,16	1,14	1,12	1,09
	C = 0,8	1,63	1,49	1,42	1,38	1,32	1,29	1,26	1,22	1,19	1,16	1,12
	C = 1	1,90	1,67	1,57	1,50	1,42	1,39	1,34	1,28	1,24	1,21	1,15
90	C = 0,6	1,46	1,36	1,32	1,28	1,25	1,22	1,20	1,17	1,15	1,13	1,09
	C = 0,8	1,69	1,53	1,46	1,40	1,34	1,31	1,28	1,23	1,20	1,18	1,13
	C = 1	2,00	1,73	1,62	1,54	1,46	1,41	1,36	1,30	1,26	1,22	1,16
95	C = 0,6	1,49	1,39	1,34	1,30	1,26	1,24	1,21	1,18	1,15	1,14	1,10
	C = 0,8	1,75	1,57	1,49	1,43	1,37	1,34	1,30	1,25	1,21	1,19	1,14
	C = 1	2,11	1,80	1,68	1,59	1,49	1,44	1,39	1,32	1,27	1,24	1,17
100	C = 0,6	1,53	1,41	1,36	1,32	1,28	1,25	1,22	1,19	1,16	1,14	1,11
	C = 0,8	1,81	1,61	1,53	1,46	1,39	1,36	1,31	1,26	1,22	1,20	1,14
	C = 1	2,24	1,87	1,73	1,63	1,53	1,48	1,41	1,34	1,29	1,25	1,18
105	C = 0,6	1,56	1,44	1,39	1,34	1,29	1,27	1,24	1,20	1,17	1,15	1,11
	C = 0,8	1,88	1,66	1,56	1,50	1,42	1,38	1,33	1,28	1,24	1,21	1,15
	C = 1	2,38	1,95	1,79	1,68	1,56	1,51	1,44	1,36	1,31	1,27	1,19
110	C = 0,6	1,60	1,47	1,41	1,36	1,31	1,28	1,25	1,21	1,18	1,16	1,12
	C = 0,8	1,96	1,71	1,60	1,53	1,44	1,41	1,35	1,29	1,25	1,22	1,16
	C = 1	2,55	2,04	1,86	1,73	1,60	1,54	1,47	1,38	1,33	1,28	1,20
115	C = 0,6	1,64	1,50	1,43	1,36	1,33	1,30	1,26	1,22	1,19	1,17	1,12
	C = 0,8	2,04	1,76	1,64	1,56	1,47	1,43	1,37	1,31	1,26	1,23	1,17
	C = 1	2,75	2,13	1,93	1,79	1,64	1,58	1,50	1,41	1,34	1,30	1,21
120	C = 0,6	1,69	1,53	1,46	1,40	1,34	1,31	1,28	1,23	1,20	1,18	1,13
	C = 0,8	2,13	1,81	1,69	1,60	1,50	1,45	1,39	1,33	1,28	1,24	1,18
	C = 1	3,00	2,24	2,00	1,84	1,69	1,61	1,53	1,43	1,36	1,31	1,22
125	C = 0,6	1,73	1,56	1,48	1,43	1,36	1,33	1,29	1,24	1,21	1,18	1,13
	C = 0,8	2,24	1,87	1,73	1,63	1,53	1,48	1,41	1,34	1,29	1,25	1,18
	C = 1	3,32	2,35	2,08	1,91	1,73	1,65	1,56	1,45	1,38	1,33	1,24
130	C = 0,6	1,78	1,59	1,51	1,45	1,38	1,35	1,30	1,25	1,22	1,19	1,14
	C = 0,8	2,35	1,93	1,78	1,67	1,56	1,50	1,44	1,36	1,30	1,27	1,19
	C = 1	3,74	2,49	2,17	1,97	1,78	1,69	1,59	1,48	1,40	1,35	1,25
135	C = 0,6	1,83	1,62	1,54	1,47	1,40	1,36	1,32	1,27	1,23	1,20	1,15
	C = 0,8	2,48	2,00	1,83	1,71	1,59	1,53	1,46	1,38	1,32	1,28	1,20
	C = 1	4,36	2,65	2,27	2,04	1,83	1,73	1,62	1,50	1,42	1,36	1,26
140	C = 0,6	1,88	1,66	1,56	1,50	1,42	1,38	1,33	1,28	1,24	1,21	1,15
	C = 0,8	2,63	2,07	1,88	1,75	1,62	1,55	1,48	1,39	1,33	1,29	1,21
	C = 1	5,39	2,83	2,38	2,12	1,88	1,78	1,66	1,53	1,44	1,38	1,27
145	C = 0,6	1,94	1,69	1,59	1,52	1,44	1,40	1,35	1,29	1,25	1,22	1,16
	C = 0,8	2,80	2,15	1,94	1,80	1,65	1,58	1,50	1,41	1,35	1,30	1,22
	C = 1	7,68	3,05	2,50	2,21	1,94	1,82	1,69	1,55	1,46	1,40	1,28
150	C = 0,6	2,00	1,73	1,62	1,54	1,46	1,41	1,36	1,30	1,26	1,23	1,16
	C = 0,8	3,00	2,24	2,00	1,84	1,69	1,61	1,53	1,43	1,36	1,31	1,23
	C = 1	---	3,32	2,65	2,30	2,00	1,87	1,73	1,58	1,48	1,41	1,29
155	C = 0,6	2,06	1,77	1,65	1,57	1,48	1,43	1,38	1,31	1,27	1,24	1,17
	C = 0,8	3,25	2,33	2,06	1,89	1,72	1,65	1,55	1,45	1,38	1,33	1,23
	C = 1	---	3,66	2,80	2,40	2,06	1,92	1,77	1,61	1,51	1,43	1,30
160	C = 0,6	2,13	1,81	1,69	1,60	1,50	1,45	1,39	1,33	1,28	1,24	1,18
	C = 0,8	3,55	2,43	2,13	1,94	1,76	1,67	1,58	1,47	1,39	1,34	1,24
	C = 1	---	4,12	3,00	2,52	2,13	1,98	1,81	1,64	1,53	1,45	1,31
165	C = 0,6	2,21	1,86	1,72	1,62	1,52	1,47	1,41	1,34	1,29	1,25	1,18
	C = 0,8	3,96	2,55	2,21	2,00	1,80	1,71	1,60	1,49	1,41	1,35	1,25
	C = 1	---	4,80	3,23	2,65	2,21	2,04	1,86	1,67	1,55	1,47	1,33



امروزه توسعه فروشگاه های اینترنتی و معرفی محصولات از طریق اینترنت باعث شده است تا رشد قابل توجهی در بهبود کیفیت ارائه خدمات فروشگاههای شکل گیرد. بزرگترین مزیت فروشگاه های اینترنتی صرفه جویی در زمان برای انتخاب بهترین محصول است. از طرفی امروزه کمتر کسی است که بدون تحقیق و بررسی مشخصات کالا، اقدام به خرید نماید و در فروشگاه های اینترنتی این مهم قابل دسترس خواهد بود. کالا صنعتی تنها یک فروشگاه اینترنتی نیست بلکه همواره سعی دارد با آموزش مشتریان از طریق برگزاری سمینارهای آموزشی و ارائه کتب راهنما آنها را در انتخاب بهترین کالا یاری نماید. استفاده از جدید ترین متدهای آموزشی، ارائه خدمات کارشناسی و آشنا کردن هر چه بیشتر مخاطبین یا کالاهای صنعتی از جمله رسالت های این مجموعه است.

هدف ما در مجموعه کالا صنعتی بهبود روز افزون کیفیت خدمات آموزشی و فروشگاههای، ارائه خدمات بر طبق برنامه زمانبندی منظم، آموزش مستمر پرسنل فروشگاههای و اینترنتی، ارائه خدمات طبق برنامه زمانبندی شده و افزایش رضایتمندی مشتریان بوده و هست. در این راستا، ضمن به خدمت گرفتن پرسنل کارآموده و تربیت متخصصان فنی و گرفتن نمایندگی های معتبر، با ایجاد سایت فروشگاههای پیشرفته برای کالاهای صنعتی، ساختمانی و ابزار دقیق به دنبال تحقق اهداف گروه و توسعه این مجموعه فروشگاههای است.

خاطر نشان می کند، گروه کالا صنعتی با همکاری شرکت ها و گروه های تخصصی در زمینه الکتروموتور، پمپ و گیربکس در مشهد، برای طراحی، تولید و تعمیر انواع کالای صنعتی و ارسال به سراسر ایران آمادگی دارد. لذا می توانید در قسمت **ثبت سفارش خاص**، هر نوع سفارش مربوط به کالای صنعتی را ثبت کرده و با کد رهگیری آنرا تا حصول نتیجه پیگیری نمایید. همچنین سفارشات مربوط به تعمیر الکتروموتور، تعمیر پمپ صنعتی و تعمیر گیربکس را نیز می توانید در قسمت **تعمیرات** ثبت نمایید تا کارشناسان فنی پس از بررسی، با شما تماس حاصل فرمایند.

تلفن تماس: ۰۵۱ - ۳۳۴ ۹۹ ۱۰۰