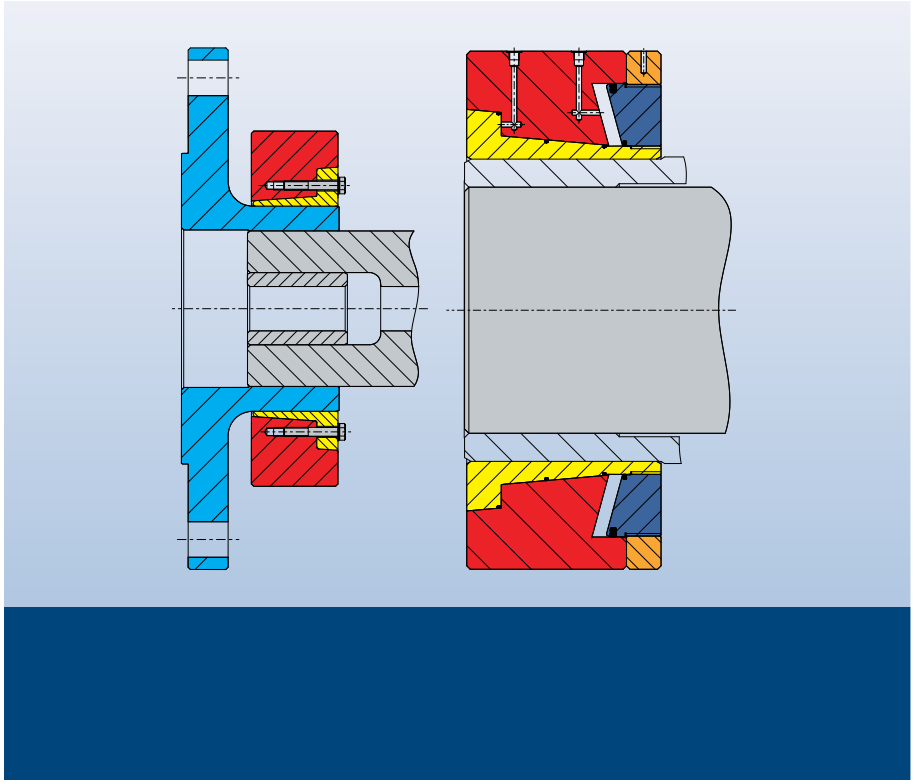
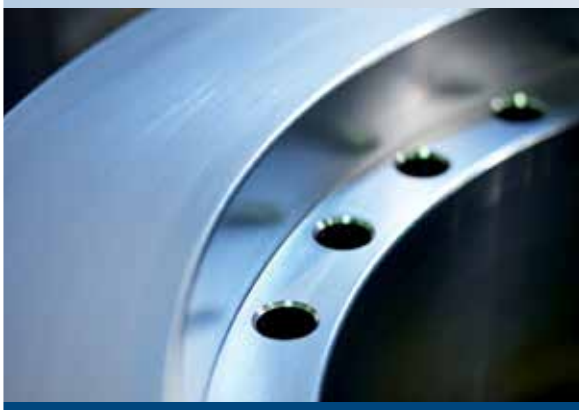


STÜWE®

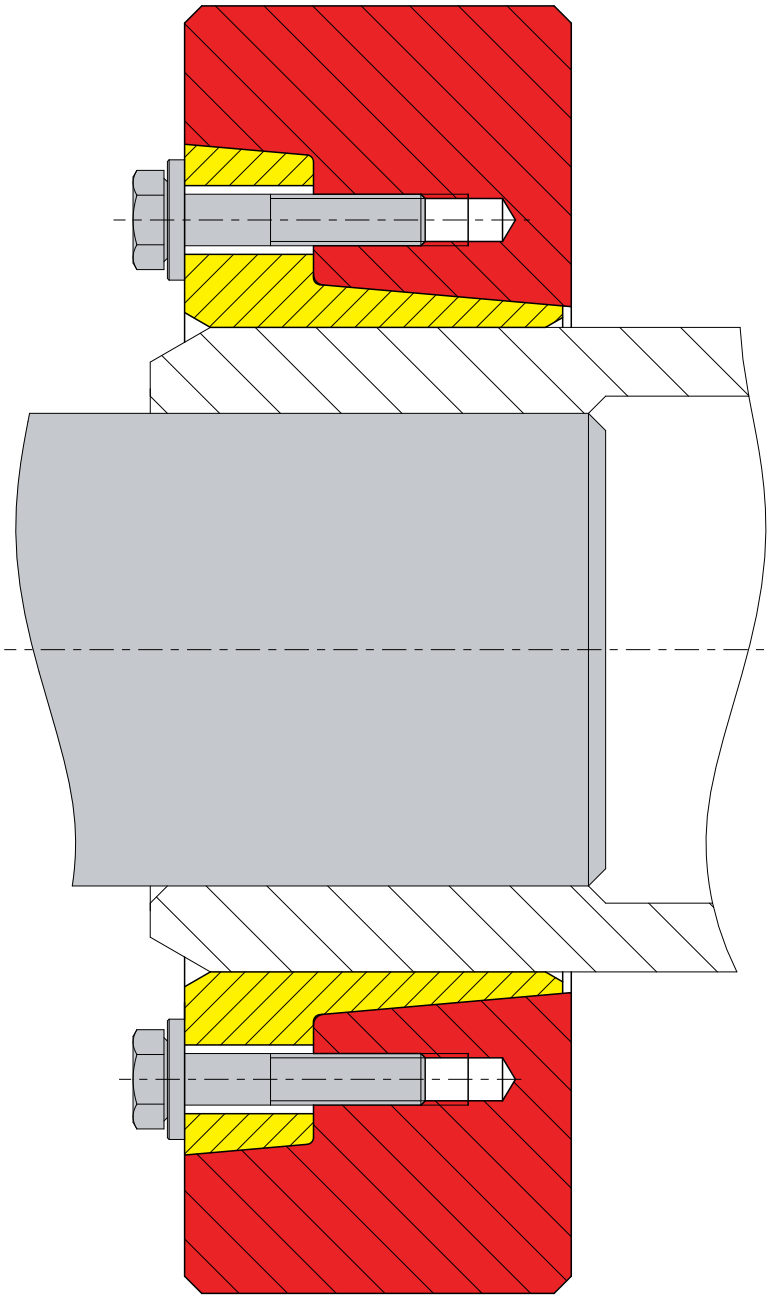


FRICTIONAL CONNECTIONS CATALOGUE

Maschinenfabrik STÜWE GmbH & Co. KG

Production: Studio Salewski GmbH, Bochum
Print: paffrath print & medien gmbh, Remscheid
Printed in Germany september 2014

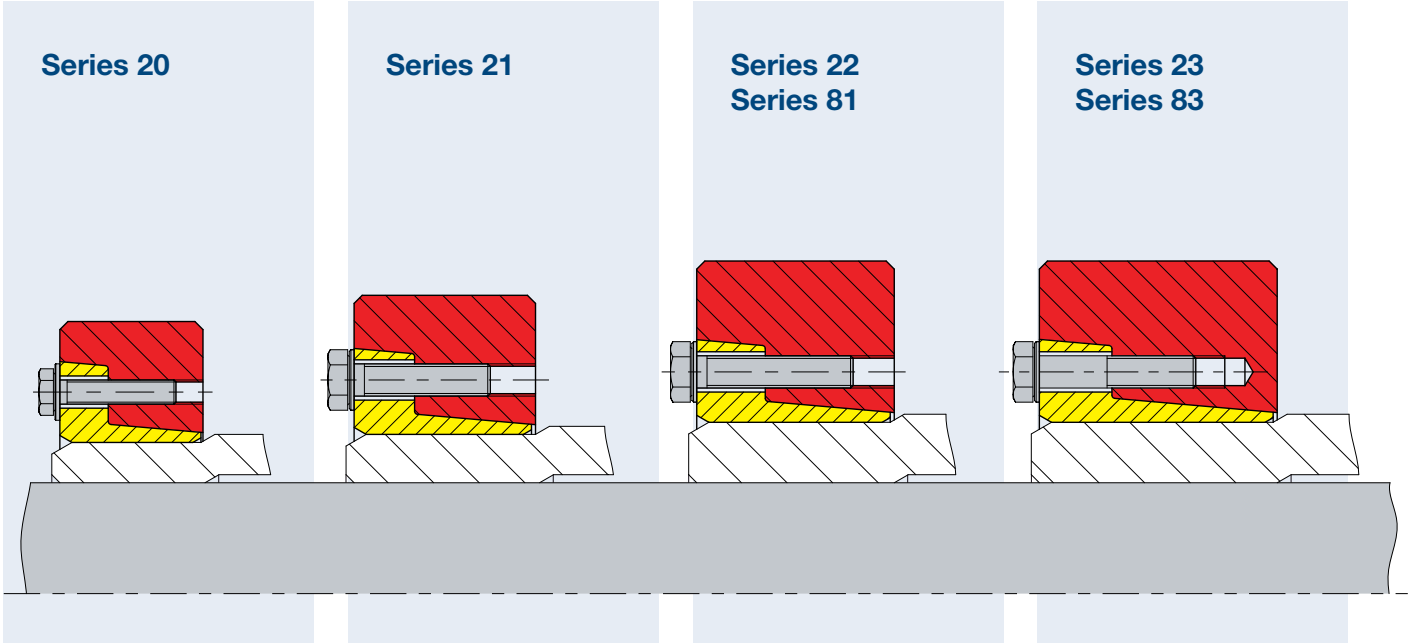
Shrink Disc Type HSD



Delivery Program

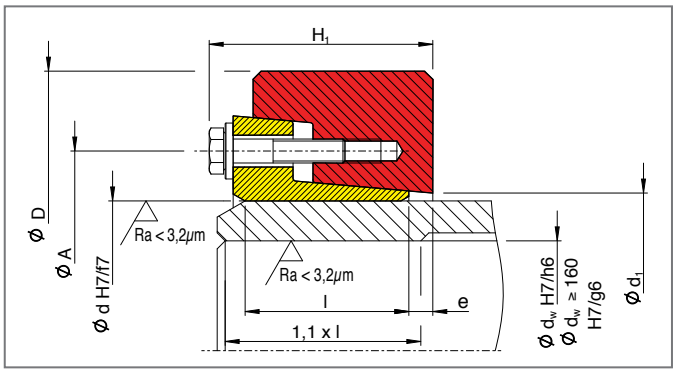
Shrink Disc Type HSD

Shrink Disc Type HSD are supplied as standard in six types.



Shrink Disc HSD

Series 20



Code:

M_t maximum transmissible torque of a shrink disc with $P_{ax} = 0$

P_{ax} maximum transmissible axial load of a shrink disc with $M_t = 0$

M_a required tightening torque of the tightening bolts (see also “Mounting and Removal Instructions“)

Dimensions H_1 and e apply to untightened units.

Type	d	d_w	M_t	P_{ax}	M_a	B*	D	l	H_1	A	d_1	e	kg
	mm	mm	kNm	kN	Nm		mm	mm	mm	mm	mm	mm	
HSD 24 - 20	24	20	0,15	15	12	M6	50	11,5	16	38	25	4,2	0,1
		21	0,17	17									
		22	0,21	19									
HSD 29 - 20	29	25	0,22	18	12	M6	58	12,5	18	44	32	5,5	0,1
		26	0,25	19									
		27	0,29	21									
HSD 35 - 20	34	29	0,22	15	12	M6	64	12,5	18	52	38	5,5	0,2
	35	30	0,25	16									
		32	0,31	19									
HSD 40 - 20	38	34	0,28	16	12	M6	69	12,2	18	55	43	5,5	0,2
	40	35	0,31	18									
		36	0,34	19									
HSD 46 - 20	46	38	0,41	22	12	M6	80	13	23	62	49	2,5	0,3
	47	40	0,50	25									
		42	0,60	28									
HSD 51 - 20	51	44	0,55	25	12	M6	86	13	23	67	54	2,5	0,4
		45	0,60	27									
		47	0,70	30									
HSD 56 - 20	55	48	0,57	24	12	M6	90	13	23	72	59	2,5	0,4
	56	50	0,66	26									
	57	52	0,76	29									
HSD 61 - 20	61	53	0,68	26	12	M6	96	13	24	76	64	3,5	0,4
		55	0,79	29									
		57	0,90	32									
HSD 66 - 20	65	58	0,74	26	12	M6	100	13	24	82	69	3,5	0,5
	66	60	0,85	28									
		62	0,97	31									
HSD 73 - 20	70	63	0,94	30	29	M8	115	18	30	94	77	2,7	0,9
	72	65	1,07	33									
	73	68	1,29	38									
HSD 78 - 20	76	68	1,21	36	29	M8	120	18	30	100	82	2,7	1,0
	78	70	1,36	39									
		72	1,52	42									
HSD 83 - 20	81	73	1,24	34	29	M8	125	18	30	104	87	2,7	1,0
	83	75	1,38	37									
		77	1,54	40									
HSD 88 - 20	86	78	1,47	38	29	M8	130	18	30	110	92	2,7	1,1
	88	80	1,62	40									
		82	1,78	43									
HSD 93 - 20	93	83	1,63	39	29	M8	135	18	31	114	97	3,7	1,1
	94	85	1,80	42									
		87	1,97	45									
HSD 98 - 20	96	88	1,72	39	29	M8	140	18	31	120	102	3,7	1,1
	98	90	1,89	42									
		92	2,07	45									

*Tightening bolts: standard DIN EN ISO 4014/4017 Grade 10.9, alternative DIN EN ISO 4762 Grade 10.9
M16 and upwards with washers: DIN EN ISO 7416

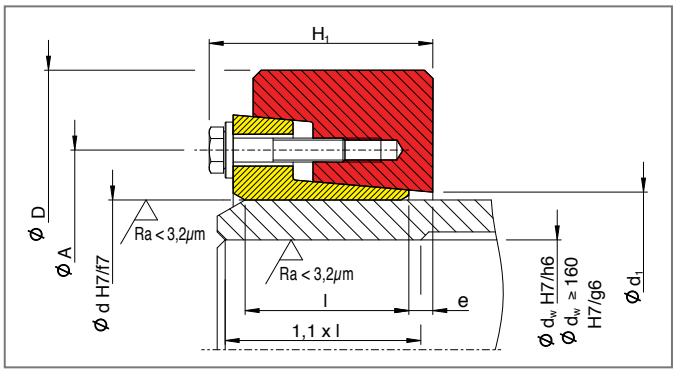
When ordering please state: e. g. HSD 51 - 20 x 51 (Type x Ø d)

Type	d	d_w	M_t	P_{ax}	M_a	B*	D	l	H_1	A	d_1	e	kg
	mm	mm	kNm	kN	Nm		mm	mm	mm	mm	mm	mm	
HSD 103 - 20	103	93	2,13	46	29	M8	145	18	31	124	107	3,7	1,2
		95	2,31	49									
		97	2,50	52									
HSD 108 - 20	106	98	2,16	44	29	M8	150	18	31	128	112	3,7	1,2
	108	100	2,34	47									
		102	2,53	50									
HSD 115 - 20	112	103	2,34	45	29	M8	160	22	35	134	118	3,7	1,8
	115	105	2,54	48									
		108	2,86	53									
HSD 120 - 20	118	108	2,82	52	29	M8	164	22	35	140	124	3,7	1,7
	120	110	3,03	55									
		113	3,37	60									
HSD 125 - 20	125	113	2,94	52	29	M8	169	22	35	144	129	3,7	1,7
		115	3,16	55									
		118	3,49	59									
HSD 130 - 20	130	118	3,15	53	29	M8	174	22	35	150	134	3,7	1,8
		120	3,37	56									
		123	3,71	60									
HSD 135 - 20	135	123	3,57	58	29	M8	179	22	35	154	139	3,7	1,9
		125	3,81	61									
		128	4,19	66									
HSD 140 - 20	138	128	3,93	61	29	M8	184	22	36	160	144	4,7	2,0
	140	130	4,18	64									
		132	4,44	67									
HSD 145 - 20	145	133	4,39	66	29	M8	189	22	36	164	149	4,7	2,0
		135	4,65	69									
		137	4,92	72									
HSD 150 - 20	150	138	4,89	71	29	M8	194	22	36	170	154	4,7	2,0
		140	5,16	74									
		142	5,44	77									
HSD 160 - 20	160	146	4,86	67	29	M8	204	22	36	180	164	4,7	2,2
		150	5,39	72									
		152	5,67	75									
HSD 170 - 20	166	156	5,20	67	29	M8	214	22	36	190	174	4,7	2,5
	170	160	5,73	72									
		162	6,01	74									
HSD 182 - 20	182	166	7,62	92	29	M8	230	25	41	206	188	4,7	3,0
		170	8,35	98									
		172	8,73	101									
HSD 192 - 20	189	176	8,35	95	29	M8	240	25	41	216	198	4,7	3,4
	192	180	9,09	101									
		182	9,47	104									
HSD 202 - 20	202	186	8,88	95	29	M8	250	25	41	224	208	4,7	3,3
	198	190	9,67	102									
	197	192	10,08	105									
HSD 212 - 20	212	196	9,74	99	29	M8	260	25	41	234	218	4,7	3,5
		200	10,55	106									
		202	10,97	109									
HSD 222 - 20	220	206	10,83	105	29	M8	270	25	42	244	228	5,7	3,6
	222	210	11,66	111									
		212	12,09	114									
HSD 232 - 20	230	216	14,40	133	29	M8	280	25	42	254	238	5,7	3,8
	232	220	15,35	140									
		222	15,83	143									
HSD 242 - 20	242	226	15,27	135	29	M8	290	25	42	264	248	5,7	3,9
		230	16,22	141									
		232	16,72	144									
HSD 252 - 20	252	234	15,98	137	29	M8	300	25	42	274	258	5,7	4,1
		238	16,94	142									
		240	17,44	145									
HSD 262 - 20	262	244	16,84	138	29	M8	310	25	42	286	268	5,7	4,2
		248	17,80	144									
		250	18,30	146									

Further sizes on request. Technical changes to be reserved without notice.
*Tightening bolts: standard DIN EN ISO 4014/4017 Grade 10.9, alternative DIN EN ISO 4762 Grade 10.9
M16 and upwards with washers: DIN EN ISO 7416 When ordering please state : e. g. HSD 108 - 20 x 106 (Type x Ø d)

Shrink Disc HSD

Series 21



Code:

M_t maximum transmissible torque of a shrink disc with $P_{ax} = 0$

P_{ax} maximum transmissible axial load of a shrink disc with $M_t = 0$

M_a required tightening torque of the tightening bolts (see also “Mounting and Removal Instructions“)

Dimensions H_1 and e apply to untightened units.

Type	d	d_w	M_t	P_{ax}	M_a	B*	D	l	H_1	A	d_1	e	kg
	mm	mm	kNm	kN	Nm		mm	mm	mm	mm	mm	mm	
HSD 140 - 21	140	110	16	298	100	M12	215	38	52	164	143	6,5	6
		120	20	341									
		130	25	385									
HSD 155 - 21	155	130	26	398	100	M12	245	38	52	184	164	6,5	8
	160	135	28	420									
		140	31	443									
HSD 165 - 21	165	135	29	432	160	M14	263	43	58	200	174	6,2	11
	170	140	32	456									
		145	35	480									
HSD 175 - 21	175	145	36	497	160	M14	275	43	59	208	184	7,2	12
	180	150	39	522									
		155	42	547									
HSD 185 - 21	185	155	50	645	160	M14	290	51	68	220	195	8,2	16
	190	160	54	675									
		165	58	704									
HSD 195 - 21	195	165	68	822	160	M14	320	51	68	230	204	8,2	20
	200	170	73	855									
		180	83	922									
HSD 220 - 21	220	180	80	892	240	M16	340	55	79	254	227	10	23
		190	91	962									
		200	103	1032									
HSD 240 - 21	240	200	103	1026	240	M16	370	55	80	274	246	11	27
		210	115	1095									
		220	128	1165									
HSD 260 - 21	260	220	132	1197	240	M16	405	55	80	294	266	11	33
		230	146	1271									
		240	161	1344									
HSD 280 - 21	280	230	160	1392	470	M20	430	65	93	320	288	12	43
		240	177	1473									
		250	194	1555									
HSD 300 - 21	300	250	191	1529	470	M20	460	65	94	340	307	13	49
		260	209	1610									
		270	228	1691									
HSD 320 - 21	320	270	243	1804	470	M20	485	77	106	364	327	13	63
		280	265	1894									
		290	288	1986									

*Tightening bolts: standard DIN EN ISO 4014/4017 Grade 10.9, alternative DIN EN ISO 4762 Grade 10.9
M16 and upwards with washers: DIN EN ISO 7416

When ordering please state : e. g. HSD 185 - 21 x 190 (Type x Ø d)

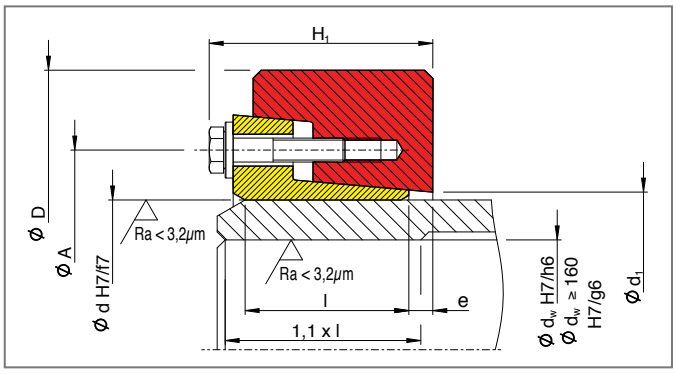
Type	d	d_w	M_t	P_{ax}	M_a	B*	D	l	H_1	A	d_1	e	kg
	mm	mm	kNm	kN	Nm		mm	mm	mm	mm	mm	mm	
HSD 340 - 21	340	280	274	1958	470	M20	520	77	106	384	347	13	73
		290	297	2050									
		300	322	2143									
HSD 360 - 21	360	300	356	2373	470	M20	570	89	122	410	367	13	107
		310	384	2476									
		330	443	2686									
HSD 390 - 21	390	330	438	2654	470	M20	590	89	123	440	398	14	107
		340	469	2759									
		350	501	2865									
HSD 420 - 21	420	350	624	3564	820	M24	630	120	160	470	428	21	163
		360	665	3697									
		370	709	3831									
HSD 440 - 21	440	370	778	4203	820	M24	660	132	174	494	448	21	196
		380	826	4350									
		390	877	4497									
HSD 460 - 21	460	390	852	4370	820	M24	690	132	174	516	468	21	230
		400	903	4514									
		410	955	4658									
HSD 480 - 21	480	410	1086	5298	820	M24	720	152	194	540	488	23	269
		420	1147	5461									
		430	1210	5626									
HSD 500 - 21	500	420	1137	5415	820	M24	745	152	197	560	508	24	285
		430	1200	5581									
		450	1331	5914									
HSD 530 - 21	530	450	1376	6114	1210	M27	790	166	209	594	540	20	341
		460	1446	6287									
		480	1592	6635									
HSD 560 - 21	560	480	1578	6576	1210	M27	830	166	211	626	570	22	373
		490	1653	6748									
		510	1809	7093									
HSD 590 - 21	590	510	1873	7344	1210	M27	880	172	219	658	598	197	450
		520	1957	7526									
		540	2131	7891									
HSD 620 - 21	620	540	2097	7768	1210	M27	930	172	222	690	630	28	508
		550	2186	7948									
		570	2368	8309									
HSD 660 - 21	660	570	2426	8511	1640	M30	990	182	235	734	670	29	609
		580	2522	8696									
		610	2823	9255									
HSD 700 - 21	700	610	2772	9088	1640	M30	1040	182	234	774	710	210	661
		620	2874	9271									
		640	3084	9638									
HSD 750 - 21	750	640	3104	9700	1640	M30	1100	192	246	826	760	30	764
		650	3214	9888									
		680	3555	10456									
HSD 800 - 21	800	680	3443	10128	1640	M30	1150	192	248	876	810	32	805
		700	3673	10495									
		730	4033	11049									

Further sizes on request.
Technical changes to be reserved without notice.

*Tightening bolts: standard DIN EN ISO 4014/4017 Grade 10.9, alternative DIN EN ISO 4762 Grade 10.9
M16 and upwards with washers: DIN EN ISO 7416 When ordering please state : e. g. HSD 660 - 21 x 660 (Type x Ø d)

Shrink Disc HSD

Series 22



Code:

M_t maximum transmissible torque of a shrink disc with $P_{ax} = 0$

P_{ax} maximum transmissible axial load of a shrink disc with $M_t = 0$

M_a required tightening torque of the tightening bolts (see also “Mounting and Removal Instructions“)

Dimensions H_1 and e apply to untightened units.

Type	d	d_w	M_t	P_{ax}	M_a	B*	D	l	H_1	A	d_1	e	kg
	mm	mm	kNm	kN	Nm		mm	mm	mm	mm	mm	mm	
HSD 12 - 22	12	9 10	0,02 0,04	5 8	12	M6	35	10	16	24	13	2	0,1
HSD 14 - 22	14	11 12	0,03 0,05	6 9	12	M6	38	10	16	26	15	2	0,1
HSD 16 - 22	16	13 14	0,07 0,09	10 13	12	M6	41	13,5	20	28	17	2,5	0,1
HSD 18 - 22	18	15 16	0,08 0,11	11 14	12	M6	44	13,5	20	30	19	2,5	0,1
HSD 20 - 22	20	17 18	0,15 0,18	18 20	12	M6	47	13,5	20	32	21	2,5	0,1
HSD 24 - 22	24	19 20 22	0,16 0,20 0,28	17 20 25	12	M6	50	16	23	36	26	2,5	0,2
HSD 30 - 22	30	24 25 26	0,27 0,32 0,36	23 25 28	12	M6	60	18	26	44	32	3	0,3
HSD 36 - 22	36 38	28 30 33	0,49 0,61 0,82	35 41 50	29	M8	72	20	29	52	39	3,4	0,5
HSD 44 - 22	44 40	34 35 36	0,69 0,77 0,84	41 44 47	29	M8	80	22	33	61	47	4,7	0,6
HSD 50 - 22	50	38 40 42	1,10 1,29 1,50	58 65 71	29	M8	90	24	34	68	53	4,4	0,8
HSD 55 - 22	55	42 45 48	1,23 1,53 1,86	59 68 78	29	M8	100	26	36	72	58	4,4	1,1
HSD 62 - 22	62 60	48 50 52	1,67 1,89 2,12	70 76 81	29	M8	110	26	36	80	66	4,4	1,3
HSD 68 - 22	68	50 55 60	1,87 2,45 3,12	75 89 104	29	M8	115	26	36	86	72	4,4	1,3
HSD 75 - 22	75	55 60 65	2,33 3,02 3,80	85 101 117	58	M10	138	28	40	100	79	4,6	2,3
HSD 80 - 22	80	60 65 70	3,19 4,00 4,90	106 123 140	58	M10	141	28	40	104	84	4,6	2,3

*Tightening bolts: standard DIN EN ISO 4014/4017 Grade 10.9, alternative DIN EN ISO 4762 Grade 10.9
M16 and upwards with washers: DIN EN ISO 7416 When ordering please state : e. g. HSD 62 - 22 x 62 (Type x Ø d)

Type	d	d_w	M_t	P_{ax}	M_a	B*	D	l	H_1	A	d_1	e	kg
	mm	mm	kNm	kN	Nm		mm	mm	mm	mm	mm	mm	
HSD 90 - 22	90 85	65 70 75	5,4 6,5 7,8	166 187 208	58	M10	155	30	46	114	94	5,1	3,2
HSD 100 - 22	100 95	70 75 80	6,0 7,2 8,5	171 192 213	58	M10	170	34	51	124	104	5,1	4,3
HSD 110 - 22	110 105	80 85 90	10,0 11,7 13,6	249 275 302	100	M12	185	39	59	137	119	5,5	5,8
HSD 120 - 22	120 115	85 90 95	11,9 13,8 15,9	280 307 334	100	M12	197	42	63	147	124	6,5	6,9
HSD 125 - 22	125	90 95 100	14,4 16,5 18,7	319 347 375	100	M12	215	42	63	152	129	6,5	8,7
HSD 135 - 22	135 130	95 100 110	18,1 20,6 26,0	382 412 473	160	M14	230	46	69	165	139	7,2	10,8
HSD 140 - 22	140	100 105 115	19,6 22,1 27,6	392 421 481	160	M14	230	46	70	172	146	8,2	10,3
HSD 155 - 22	155 150	110 115 125	26,5 29,5 36,1	482 514 578	160	M14	263	50	74	186	159	8,7	15,2
HSD 165 - 22	165 160	120 125 135	37,3 41,2 49,6	622 659 734	240	M16	290	56	85	198	169	9	21,5
HSD 175 - 22	175 170	130 135 145	45 49 58	692 730 805	240	M16	300	56	85	208	179	9	22,5
HSD 185 - 22	185 180	140 145 155	64 70 82	916 961 1053	240	M16	320	71	102	222	191	10	32,7
HSD 200 - 22	200 195 190	150 155 165	80 87 100	1073 1120 1216	240	M16	340	71	102	238	206	10	36,3
HSD 220 - 22	220	160 170 180	103 119 136	1283 1395 1509	470	M20	370	93	121	270	230	12	53
HSD 240 - 22	240	170 180 200	122 140 179	1439 1555 1790	470	M20	405	95	124	288	248	12	66
HSD 260 - 22	260	190 200 220	163 184 231	1715 1842 2099	470	M20	430	105	136	306	268	14	82
HSD 280 - 22	280	210 220 240	215 240 295	2051 2186 2458	470	M20	460	114	146	328	288	16	103
HSD 300 - 22	300	220 230 250	270 300 363	2456 2605 2906	820	M24	485	123	158	354	308	16	120
HSD 320 - 22	320	240 250 270	301 332 398	2511 2655 2945	820	M24	520	125	159	380	328	14	138
HSD 340 - 22	340	250 260 280	390 427 506	3118 3283 3617	820	M24	570	134	171	402	349	16	189
HSD 350 - 22	350	270 280 290	493 535 580	3649 3825 4001	820	M24	580	140	177	414	365	16	202
HSD 360 - 22	360	270 280 300	496 539 631	3676 3852 4206	820	M24	590	140	178	424	369	17	207
HSD 380 - 22	380	290 300 310	585 632 681	4034 4215 4397	1210	M27	640	146	188	444	388	19	244

*Tightening bolts: standard DIN EN ISO 4014/4017 Grade 10.9, alternative DIN EN ISO 4762 Grade 10.9
M16 and upwards with washers: DIN EN ISO 7416 When ordering please state : e. g. HSD 200 - 22 x 195 (Type x Ø d)

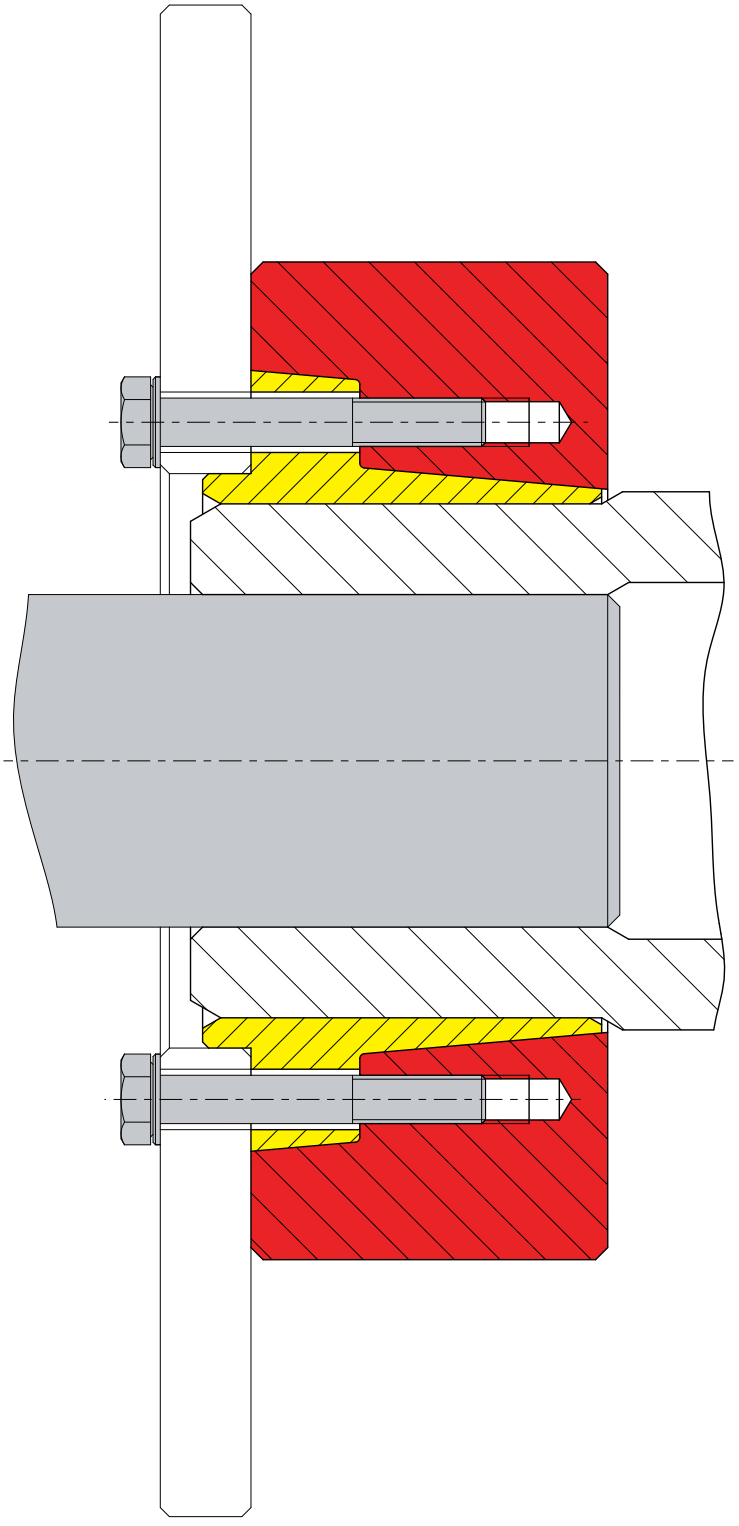
Type	d	d_w	M_t	P_{ax}	M_a	B*	D	l	H_1	A	d_1	e	kg
	mm	mm	kNm	kN	Nm		mm	mm	mm	mm	mm	mm	
HSD 390 - 22	390	290	640	4411	1210	M27	645	146	189	454	398	20	249
		300	691	4605									
		320	799	4996									
HSD 420 - 22	420	320	742	4640	1210	M27	670	167	210	490	428	20	285
		330	797	4829									
		350	912	5209									
HSD 440 - 22	440	340	945	5557	1210	M27	710	174	219	506	448	22	341
		350	1009	5764									
		370	1143	6181									
HSD 460 - 22	460	360	1104	6133	1210	M27	745	174	222	534	470	25	386
		370	1174	6345									
		390	1320	6771									
HSD 480 - 22	480	380	1300	6843	1640	M30	770	192	239	552	488	22	435
		390	1378	7066									
		410	1541	7516									
HSD 500 - 22	500	400	1496	7478	1640	M30	800	192	241	572	509	24	507
		410	1581	7711									
		430	1759	8180									
HSD 530 - 22	530	430	1930	8976	1640	M30	845	213	266	606	540	29	589
		440	2031	9234									
		460	2243	9752									
HSD 560 - 22	560	450	2097	9318	1640	M30	900	213	264	632	568	27	639
		460	2201	9572									
		480	2420	10081									
HSD 590 - 22	590	470	2593	11032	1640	M30	950	230	287	664	598	32	821
		480	2715	11314									
		500	2970	11881									
HSD 620 - 22	620	500	2904	11616	1640	M30	960	254	310	706	630	30	872
		520	3169	12190									
		540	3447	12767									
HSD 660 - 22	660	530	3329	12562	2210	M33	1020	260	320	748	670	34	1004
		550	3614	13140									
		570	3911	13722									
HSD 700 - 22	700	560	3804	13585	2210	M33	1085	260	318	780	710	32	1141
		580	4109	14169									
		600	4427	14756									
HSD 750 - 22	750	600	4801	16004	2210	M33	1150	278	344	850	760	38	1346
		620	5157	16636									
		650	5716	17589									
HSD 800 - 22	800	640	5620	17562	2210	M33	1230	296	376	900	814	52	1646
		660	6012	18219									
		700	6839	19541									
HSD 850 - 22	850	650	5942	18282	2850	M36	1300	315	386	950	860	43	1942
		700	6994	19983									
		730	7669	21011									
HSD 900 - 22	900	700	6967	19905	2850	M36	1350	332	413	992	920	51	2142
		730	7640	20930									
		760	8345	21961									
HSD 950 - 22	950	750	8295	22121	2850	M36	1400	360	438	1050	970	50	2425
		780	9041	23182									
		820	10088	24606									
HSD 1000 - 22	1000	800	9568	23920	2850	M36	1460	380	461	1100	1020	53	2740
		830	10380	25013									
		860	11228	26111									
HSD 1050 - 22	1050	850	11241	26449	2850	M36	1520	400	481	1150	1070	53	3078
		880	12135	27579									
		920	13383	29092									
HSD 1100 - 22	1100	900	13045	28990	2850	M36	1570	430	511	1200	1120	53	3438
		930	14023	30156									
		960	15038	31328									
HSD 1200 - 22	1200	940	12902	27452	2850	M36	1630	460	541	1300	1220	53	3566
		1000	14803	29606									
		1050	16493	31415									

Further sizes on request.
Technical changes to be reserved without notice.

*Tightening bolts: standard DIN EN ISO 4014/4017 Grade 10.9, alternative DIN EN ISO 4762 Grade 10.9
M16 and upwards with washers: DIN EN ISO 7416 When ordering please state : e. g. HSD 750 - 22 x 750 (Type x Ø d)

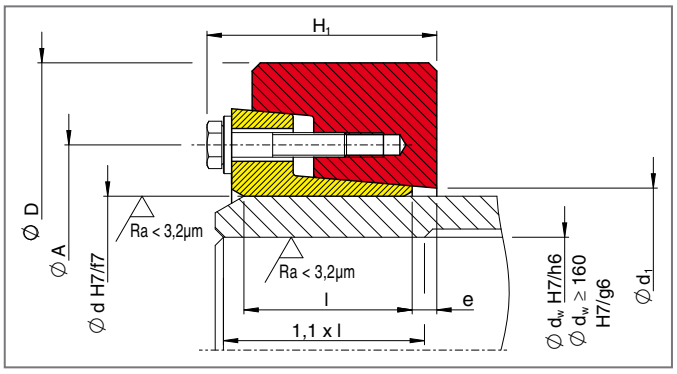
Shrink Disc Type HSD

Combined with brake disc,
economic solution for wind turbine, conveyor etc.



Shrink Disc HSD

Series 23



Code:

M_t maximum transmissible torque of a shrink disc with $P_{ax} = 0$

P_{ax} maximum transmissible axial load of a shrink disc with $M_t = 0$

M_a required tightening torque of the tightening bolts (see also “Mounting and Removal Instructions“)

Dimensions H_1 and e apply to untightened units..

Type	d	d_w	M_t	P_{ax}	M_a	B*	D	l	H_1	A	d_1	e	kg
	mm	mm	kNm	kN	Nm		mm	mm	mm	mm	mm	mm	
HSD 140 - 23	140	100	26	523	240	M16	230	64	89	174	144	10	13
	135	105	30	562									
		115	37	641									
HSD 155 - 23	155	110	36	646	240	M16	263	70	95	194	160	11	19
	150	115	40	687									
		125	48	772									
HSD 165 - 23	165	120	50	828	240	M16	290	78	102	200	169	10	26
	160	125	55	877									
		135	66	977									
HSD 175 - 23	175	130	61	943	240	M16	300	78	103	210	179	11	27
	170	135	67	993									
		145	79	1094									
HSD 185 - 23	185	140	89	1269	470	M20	320	92	122	232	189	12	40
	180	145	96	1330									
		155	113	1455									
HSD 200 - 23	200	150	104	1391	470	M20	340	92	125	246	204	15	44
	195	155	113	1453									
		165	130	1577									
HSD 220 - 23	220	160	127	1591	470	M20	370	117	148	266	224	14	64
		165	137	1661									
		180	169	1876									
HSD 240 - 23	240	170	157	1847	470	M20	405	120	154	286	244	15	81
		180	180	1996									
		200	230	2300									
HSD 260 - 23	260	190	230	2424	470	M20	430	136	171	306	265	17	102
		200	260	2600									
		220	325	2957									
HSD 280 - 23	280	210	306	2918	820	M24	460	148	185	334	285	16	126
		220	342	3105									
		240	418	3485									
HSD 300 - 23	300	230	360	3132	820	M24	485	152	191	354	305	18	141
		240	398	3314									
		250	437	3498									
HSD 320 - 23	320	240	430	3580	820	M24	520	160	199	374	325	18	171
		250	473	3781									
		270	565	4186									
HSD 340 - 23	340	250	551	4407	1210	M27	570	176	219	404	345	19	235
		260	603	4637									
		280	714	5100									
HSD 360 - 23	360	270	671	4969	1210	M27	590	180	224	424	365	20	251
		280	729	5204									
		300	852	5679									
HSD 390 - 23	390	290	850	5860	1210	M27	650	190	238	456	398	24	324
		300	917	6116									
		320	1061	6633									

*Tightening bolts: standard DIN EN ISO 4014/4017 Grade 10.9, alternative DIN EN ISO 4762 Grade 10.9
M16 and upwards with washers: DIN EN ISO 7416 When ordering please state : e. g. HSD 240 - 23 x 240 (Type x Ø d)

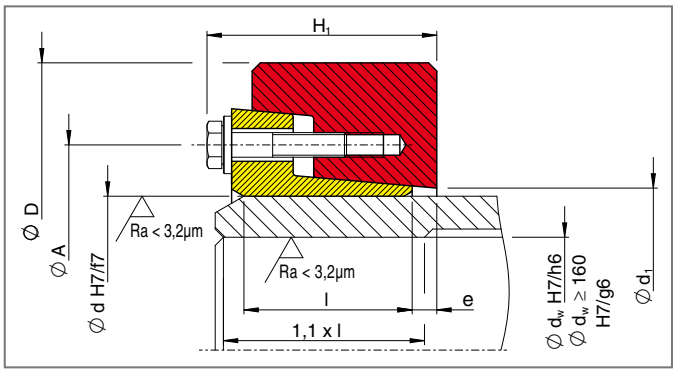
Type	d	d_w	M_t	P_{ax}	M_a	B*	D	l	H_1	A	d_1	e	kg
	mm	mm	kNm	kN	Nm		mm	mm	mm	mm	mm	mm	
HSD 420 - 23	420	320	1008	6301	1210	M27	670	214	264	486	428	26	372
		330	1082	6555									
		350	1237	7067									
HSD 440 - 23	440	340	1218	7166	1640	M30	740	224	278	514	448	24	464
		350	1301	7433									
		370	1475	7972									
HSD 460 - 23	460	360	1402	7791	1640	M30	750	226	278	534	468	28	501
		370	1491	8062									
		390	1678	8606									
HSD 480 - 23	480	380	1712	9008	1640	M30	760	246	304	552	488	32	592
		390	1814	9302									
		410	2028	9893									
HSD 500 - 23	500	400	1993	9963	1640	M30	800	246	303	572	508	31	688
		410	2106	10273									
		430	2342	10895									
HSD 530 - 23	530	430	2549	11857	2210	M33	860	276	340	616	538	36	807
		440	2683	12196									
		460	2962	12878									
HSD 560 - 23	560	450	2849	12660	2210	M33	900	276	340	646	568	34	937
		460	2990	13002									
		480	3285	13689									
HSD 590 - 23	590	470	3310	14084	2210	M33	960	296	366	672	598	40	1082
		480	3467	14446									
		500	3793	15171									
HSD 620 - 23	620	500	4069	16276	2210	M33	1020	330	401	706	630	41	1294
		510	4251	16672									
		540	4824	17866									
HSD 660 - 23	660	530	4746	17909	2850	M36	1070	330	402	760	670	40	1536
		540	4944	18313									
		570	5566	19530									
HSD 700 - 23	700	560	5316	18985	2850	M36	1070	330	413	800	710	45	1702
		570	5525	19387									
		600	6179	20596									
HSD 750 - 23	750	600	6326	21086	2850	M36	1170	360	430	850	760	42	1958
		620	6794	21917									
		650	7530	23169									
HSD 800 - 23	800	640	7358	22993	2850	M36	1280	360	439	900	810	51	2290
		660	7871	23851									
		700	8952	25576									
HSD 850 - 23	850	650	7354	22627	2850	M36	1300	380	469	950	860	58	2342
		700	8653	24723									
		730	9486	25989									
HSD 900 - 23	900	700	8455	24156	2850	M36	1350	400	493	1000	915	60	2580
		730	9271	25400									
		760	10127	26649									
HSD 950 - 23	950	750	10018	26714	2850	M36	1400	430	525	1050	965	64	2897
		780	10917	27993									
		820	12181	29709									
HSD 1000 - 23	1000	800	11388	28470	2850	M36	1450	460	555	1100	1020	66	3231
		830	12357	29775									
		860	13367	31087									
HSD 1050 - 23	1050	850	12814	30152	2850	M36	1490	480	579	1150	1070	68	3418
		880	13839	31451									
		920	15269	33194									
HSD 1100 - 23	1100	900	14735	32743	2850	M36	1540	510	613	1200	1120	70	3774
		930	15844	34073									
		960	16996	35409									
HSD 1200 - 23	1200	940	15404	32775	2850	M36	1630	540	649	1300	1220	76	4187
		1000	17670	35340									
		1050	19684	37494									

Further sizes on request.
Technical changes to be reserved without notice.

*Tightening bolts: standard DIN EN ISO 4014/4017 Grade 10.9, alternative DIN EN ISO 4762 Grade 10.9
M16 and upwards with washers: DIN EN ISO 7416 When ordering please state : e. g. HSD 420 - 23 x 420 (Type x Ø d)

Shrink Disc HSD

Series 81



Code:

M_t maximum transmissible torque of a shrink disc with $P_{ax} = 0$

P_{ax} maximum transmissible axial load of a shrink disc with $M_t = 0$

M_a required tightening torque of the tightening bolts (see also “Mounting and Removal Instructions“)

Dimensions H_1 and e apply to untightened units.

Type	d	d_w	M_t	P_{ax}	M_a	B*	D	l	H_1	A	d_1	e	kg
	mm	mm	kNm	kN	Nm		mm	mm	mm	mm	mm	mm	
HSD 50 - 81	50	38	1,5	79	35	M8	90	22	34	68	53	4,4	0,8
		40	1,7	87									
		42	2,0	94									
HSD 55 - 81	55	42	1,6	78	35	M8	100	23	36	72	58	4,4	1,1
		45	2,0	88									
		48	2,4	99									
HSD 62 - 81	62	48	2,2	92	35	M8	110	23	36	80	66	4,4	1,3
	60	50	2,5	98									
		52	2,7	105									
HSD 68 - 81	68	50	2,4	94	35	M8	115	23	36	86	72	4,4	1,3
		55	3,0	111									
		60	3,8	128									
HSD 75 - 81	75	55	3,7	135	70	M10	138	25	40	100	79	4,6	2,3
		60	4,7	156									
		65	5,8	177									
HSD 80 - 81	80	60	4,2	141	70	M10	141	25	41	104	84	5,6	2,3
		65	5,2	160									
		70	6,3	180									
HSD 90 - 81	90	65	5,9	182	70	M10	155	30	47	114	94	6,1	3,2
	85	70	7,2	204									
		75	8,5	227									
HSD 100 - 81	100	70	7,4	213	70	M10	170	39	51	124	104	5,1	4,3
	95	75	8,9	236									
		80	10,4	260									
HSD 110 - 81	110	80	12,6	314	121	M12	185	39	60	137	114	6,5	5,8
	105	85	14,6	345									
		90	16,9	376									
HSD 120 - 81	120	85	13,6	320	121	M12	197	42	62	147	124	5,5	6,9
	115	90	15,7	349									
		95	18,0	379									
HSD 125 - 81	125	90	16,4	365	121	M12	215	42	63	152	129	6,5	8,7
		95	18,8	395									
		100	21,3	425									
HSD 135 - 81	135	95	20,3	428	193	M14	230	46	69	165	139	7,2	10,8
	130	100	23,0	461									
		110	29,0	527									
HSD 140 - 81	140	100	23,0	460	193	M14	230	46	70	170	146	8,2	10,3
		105	25,9	493									
		115	32,2	561									

*Tightening bolts: standard DIN EN ISO 4014/4017 Grade 12.9, alternative DIN EN ISO 4762 Grade 12.9
M16 and upwards with washers: DIN EN ISO 7416 When ordering please state : e. g. HSD 62 - 81 x 60 (Type x Ø d)

Type	d	d_w	M_t	P_{ax}	M_a	B*	D	l	H_1	A	d_1	e	kg
	mm	mm	kNm	kN	Nm		mm	mm	mm	mm	mm	mm	
HSD 155 - 81	155	110	31,1	566	193	M14	263	50	74	186	159	8,7	15,2
	150	115	34,6	602									
		125	42,1	673									
HSD 165 - 81	165	120	44,0	734	295	M16	290	56	85	198	169	9,0	21,5
	160	125	48,5	776									
		135	58,1	860									
HSD 175 - 81	175	130	54	831	295	M16	300	56	86	208	179	10	22,5
	170	135	59	874									
		145	70	960									
HSD 185 - 81	185	140	81	1153	295	M16	320	71	103	222	191	11	32,7
	180	145	88	1207									
		155	102	1315									
HSD 200 - 81	200	150	96	1280	295	M16	340	71	103	238	206	11	36,3
	195	155	103	1335									
	190	165	119	1446									
HSD 220 - 81	220	160	129	1614	570	M20	370	88	122	270	230	13	53
		170	149	1751									
		180	170	1888									
HSD 240 - 81	240	170	151	1778	570	M20	405	92	125	288	248	13	66
		180	172	1916									
		200	220	2195									
HSD 260 - 81	260	190	212	2234	570	M20	430	103	137	306	268	15	82
		200	239	2391									
		220	298	2707									
HSD 280 - 81	280	210	279	2657	570	M20	460	114	149	328	288	19	103
		220	311	2823									
		240	379	3158									
HSD 300 - 81	300	220	332	3016	900	M24	485	122	158	345	308	16	120
		230	367	3194									
		250	444	3554									
HSD 320 - 81	320	240	404	3371	900	M24	520	122	160	380	328	15	138
		250	444	3554									
		270	530	3924									
HSD 340 - 81	340	250	489	3909	900	M24	570	134	170	402	349	15	189
		260	534	4109									
		280	632	4511									
HSD 360 - 81	360	270	625	4626	900	M24	590	140	178	424	369	17	207
		280	678	4841									
		300	791	5275									
HSD 390 - 81	390	290	780	5377	1310	M27	645	144	190	454	398	21	249
		300	841	5608									
		320	972	6074									
HSD 420 - 81	420	320	969	6055	1310	M27	680	164	210	486	428	22	300
		330	1038	6292									
		350	1185	6769									
HSD 440 - 81	440	340	1212	7129	1310	M27	725	172	222	506	448	25	365
		350	1293	7386									
		370	1462	7904									
HSD 460 - 81	460	360	1397	7759	1310	M27	770	172	225	534	468	28	402
		370	1484	8020									
		390	1666	8545									
HSD 480 - 81	480	380	1658	8729	1800	M30	790	192	243	552	488	26	473
		390	1756	9006									
		410	1961	9564									
HSD 500 - 81	500	400	1888	9441	1800	M30	835	192	244	572	508	27	537
		410	1994	9727									
		430	2215	10304									

*Tightening bolts: standard DIN EN ISO 4014/4017 Grade 12.9, alternative DIN EN ISO 4762 Grade 12.9
M16 and upwards with washers: DIN EN ISO 7416 When ordering please state : e. g. HSD 360 - 81 x 360 (Type x Ø d)

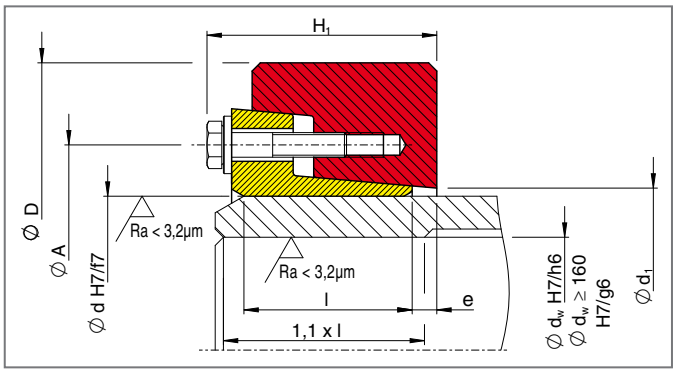
Type	d	d_w	M_t	P_{ax}	M_a	B*	D	l	H_1	A	d_1	e	kg
	mm	mm	kNm	kN	Nm		mm	mm	mm	mm	mm	mm	
HSD 530 - 81	530	430	2397	11148	1800	M30	890	213	270	606	538	33	696
		440	2521	11461									
		460	2781	12090									
HSD 560 - 81	560	450	2546	11314	1800	M30	920	213	268	632	632	31	725
		460	2672	11617									
		480	2934	12225									
HSD 590 - 81	590	470	2969	12634	1800	M30	960	228	288	664	598	33	835
		480	3109	12955									
		500	3400	13600									
HSD 620 - 81	620	500	3404	13617	1800	M30	970	254	314	706	630	34	903
		520	3713	14281									
		540	4036	14949									
HSD 660 - 81	660	530	4034	15222	2400	M33	1060	260	324	748	670	38	1178
		550	4373	15902									
		570	4726	16584									
HSD 700 - 81	700	560	4605	16447	2400	M33	1140	260	321	782	710	35	1345
		580	4969	17134									
		600	5347	17823									
HSD 750 - 81	750	600	5806	19354	2400	M33	1205	278	345	848	760	42	1640
		620	6231	20099									
		650	6896	21219									
HSD 800 - 81	800	640	6798	21244	2400	M33	1270	296	370	900	810	48	1835
		660	7265	22016									
		700	8249	23569									
HSD 850 - 81	850	650	7214	22197	3100	M36	1340	315	392	950	860	49	2154
		700	8470	24199									
		730	9274	25408									
HSD 900 - 81	900	700	8453	24152	3100	M36	1400	332	419	1000	915	56	2433
		730	9256	25360									
		760	10098	26573									
HSD 950 - 81	950	750	10060	26826	3100	M36	1450	360	444	1050	965	56	2752
		780	10949	28076									
		820	12197	29750									
HSD 1000 - 81	1000	800	11614	29034	3100	M36	1510	380	467	1100	1020	56	3099
		830	12582	30319									
		860	13592	31609									
HSD 1050 - 81	1050	850	13636	32086	3100	M36	1570	400	487	1150	1070	56	3472
		880	14702	33414									
		920	16189	35193									
HSD 1100 - 81	1100	900	15818	35151	3100	M36	1620	430	517	1200	1120	56	3875
		930	16983	36523									
		960	18192	37900									
HSD 1200 - 81	1200	940	15680	33361	3100	M36	1670	460	551	1300	1220	60	3953
		1000	17946	35892									
		1050	19958	38016									

Further sizes on request.
Technical changes to be reserved without notice.

*Tightening bolts: standard DIN EN ISO 4014/4017 Grade 12.9, alternative DIN EN ISO 4762 Grade 12.9
M16 and upwards with washers: DIN EN ISO 7416
When ordering please state : e. g. HSD 800 - 81 x 800 (Type x Ø d)

Shrink Disc HSD

Series 83



Code:

M_t maximum transmissible torque of a shrink disc with $P_{ax} = 0$

P_{ax} maximum transmissible axial load of a shrink disc with $M_t = 0$

M_a required tightening torque of the tightening bolts (see also “Mounting and Removal Instructions“)

Dimensions H_1 and e apply to untightened units.

Type	d	d_w	M_t	P_{ax}	M_a	B*	D	l	H_1	A	d_1	e	kg
	mm	mm	kNm	kN	Nm		mm	mm	mm	mm	mm	mm	
HSD 140 - 83	140	100	30	608	295	M16	240	60	89	174	144	10	15
	135	105	34	652									
		115	43	742									
HSD 155 - 83	155	110	45	816	295	M16	263	66	95	186	154	11	21
	150	115	50	867									
		125	61	970									
HSD 165 - 83	165	120	64	1062	295	M16	290	72	103	200	169	11	26
	160	125	70	1122									
		135	84	1244									
HSD 175 - 83	175	130	74	1132	295	M16	300	72	104	210	179	12	27
	170	135	80	1191									
		145	95	1309									
HSD 185 - 83	185	140	106	1519	570	M20	320	92	124	232	189	13,5	40
	180	145	115	1592									
		155	135	1737									
HSD 200 - 83	200	150	127	1696	570	M20	340	92	124	246	204	13,5	44
	195	155	137	1769									
		165	158	1917									
HSD 220 - 83	220	160	163	2042	570	M20	370	117	149	266	224	14,5	64
		165	176	2128									
		180	215	2391									
HSD 240 - 83	240	170	209	2459	570	M20	405	122	154	286	244	14,5	81
		180	238	2647									
		200	303	3029									
HSD 260 - 83	260	190	288	3036	570	M20	430	136	173	306	265	18,5	102
		200	325	3247									
		220	404	3675									
HSD 280 - 83	280	210	361	3437	900	M24	460	148	186	334	285	17	126
		220	402	3654									
		240	491	4092									
HSD 300 - 83	300	230	465	4047	900	M24	485	152	189	354	305	18	141
		240	513	4273									
		250	563	4501									
HSD 320 - 83	320	240	510	4250	900	M24	520	160	200	374	325	19	171
		250	560	4484									
		270	669	4955									
HSD 340 - 83	340	250	664	5316	1310	M27	570	176	221	404	345	21	235
		260	726	5587									
		280	859	6135									
HSD 360 - 83	360	270	763	5655	1310	M27	590	180	226	424	365	22	251
		280	829	5921									
		300	969	6457									
HSD 390 - 83	390	290	972	6703	1310	M27	650	190	240	456	398	26	324
		300	1049	6994									
		320	1213	7580									

*Tightening bolts: standard DIN EN ISO 4014/4017 Grade 12.9, alternative DIN EN ISO 4762 Grade 12.9
M16 and upwards with washers: DIN EN ISO 7416 When ordering please state : e. g. HSD 200 - 83 x 195 (Type x Ø d)

Type	d	d_w	M_t	P_{ax}	M_a	B*	D	l	H_1	A	d_1	e	kg
	mm	mm	kNm	kN	Nm		mm	mm	mm	mm	mm	mm	
HSD 420 - 83	420	320	1297	8105	1310	M27	690	214	268	486	428	30	409
		330	1389	8421									
		350	1585	9057									
HSD 440 - 83	440	340	1585	9323	1800	M30	750	226	280	520	448	30,3	526
		350	1690	9659									
		370	1912	10336									
HSD 460 - 83	460	360	1747	9706	1800	M30	760	226	280	534	468	30,3	544
		370	1856	10035									
		390	2086	10697									
HSD 480 - 83	480	380	2105	11076	1800	M30	800	246	309	552	488	37,3	642
		390	2229	11430									
		410	2489	12142									
HSD 500 - 83	500	400	2552	12762	1800	M30	860	246	306	572	508	34,3	767
		410	2695	13147									
		430	2993	13922									
HSD 530 - 83	530	430	3108	14455	2400	M33	890	280	346	616	538	40	899
		440	3270	14861									
		460	3606	15678									
HSD 560 - 83	560	450	3452	15341	2400	M33	940	280	348	642	568	40	1002
		460	3622	15749									
		480	3976	16567									
HSD 590 - 83	590	470	4027	17138	2400	M33	980	296	367	666	600	41	1155
		480	4217	17571									
		500	4610	18439									
HSD 620 - 83	620	500	5040	20160	2400	M33	1020	330	406	706	630	46	1379
		510	5263	20641									
		540	5964	22089									
HSD 660 - 83	660	530	5833	22013	3100	M36	1090	334	405	750	670	42,5	1722
		540	6075	22501									
		570	6832	23972									
HSD 700 - 83	700	560	6485	23160	3100	M36	1160	334	416	802	710	47,5	1897
		570	6738	23642									
		600	7528	25095									
HSD 750 - 83	750	600	7671	25569	3100	M36	1250	370	446	852	760	47,5	2124
		620	8234	26562									
		650	9119	28059									
HSD 800 - 83	800	640	9085	28390	3100	M36	1350	360	450	920	810	56	2651
		660	9709	29422									
		700	11024	31497									
HSD 850 - 83	850	650	8924	27459	3100	M36	1440	380	469	950	860	60,5	3271
		700	10474	29927									
		730	11467	31416									
HSD 900 - 83	900	700	10259	29310	3100	M36	1520	400	493	1000	915	60	3443
		730	11233	30774									
		760	12253	32245									
HSD 950 - 83	950	750	12147	32392	3100	M36	1520	430	525	1050	965	66,5	3857
		780	13220	33898									
		820	14726	35917									
HSD 1000 - 83	1000	800	13823	34557	3100	M36	1560	460	555	1100	1020	66,5	4201
		830	14978	36091									
		860	16181	37631									
HSD 1050 - 83	1050	850	15550	36589	3100	M36	1580	480	579	1150	1070	70,5	4263
		880	16771	38116									
		920	18474	40162									
HSD 1100 - 83	1100	900	17871	39712	3100	M36	1630	510	613	1200	1120	74,5	4701
		930	19193	41274									
		960	20564	42842									
HSD 1200 - 83	1200	940	18711	39812	3100	M36	1720	540	649	1300	1220	80,5	5224
		1000	21413	42826									
		1050	23811	45354									

Further sizes on request.
Technical changes to be reserved without notice.

*Tightening bolts: standard DIN EN ISO 4014/4017 Grade 12.9, alternative DIN EN ISO 4762 Grade 12.9
M16 and upwards with washers: DIN EN ISO 7416 When ordering please state : e. g. HSD 420 - 83 x 420 (Type x Ø d)

Technical Specifications

Torque "M_t"
The transmissible torque depends on the coefficient of friction between shaft and hub, the fit clearance and the shaft diameter.

• Coefficient of friction
The coefficient of friction of dry and grease free surface (steel/steel) ranges from 0.15 to 0.33.

The chart is based on a coefficient of friction (μ_w) of 0,15!

The coefficient of friction will increase to approximately 0.2 provided that the surfaces are carefully degreased and additionally cleansed by using lime milk. The transmissible torque can thus be increased accordingly.

• Fit clearance
The torque calculations is based on the maximum clearance (up to 150 mm shaft diameter H7/h6, from 160 mm H7/g6) and the surface roughness.

If the actual fit between shaft and hub is tighter, then the transmissible torque consequently increases and vice versa.

• Shaft diameter
The shaft diameter range for each shrink disc is specified in the chart. The transmissible torque can be interpolated with sufficient accuracy for shaft diameters which lie between two sizes given in the chart. (Larger shaft diameters can be chosen if hub material permits. The transmissible torque can be extrapolated.)

Axial load "P_{ax}"
The maximum transmissible axial load can be determined on the basis of the following equation:

$$P_{ax,\max} = M_{t,Liste} \cdot \frac{2}{d_w}$$

Transmission of torque combined with axial load
If torsional and axial loads are to be transmitted simultaneously, use the following equation:

$$M_t'' = \sqrt{M_{t,Liste}^2 - \left(\frac{d_w \cdot P_{ax}}{2}\right)^2}$$

M_t" is the torque reduced by axial load P_{ax}.

Hub material
As hub material steel, cast steel or nodular cast iron with a yield strength of at least 360 N/mm² can be used.

On assemblies which have to transmit also bending moments (rotating bending) the hub should be of heat-treatable steel like 42CrMo4 or higher quality cast steel or nodular cast iron.

Grey cast iron can be used for assemblies where negligible bending moments occur.

Surface quality
The surface roughness (R_t) of shaft and hub should be below 16 µm (turning on a lathe is sufficient).

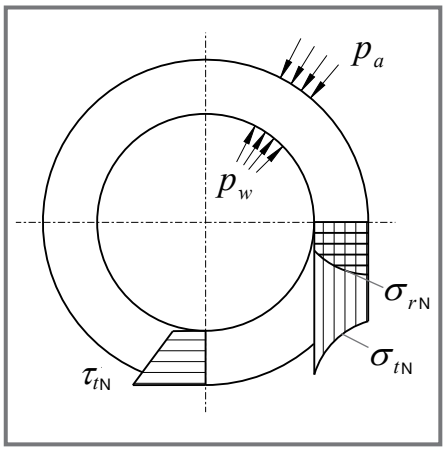
Lubricant
Conical surfaces are greased with a MoS_2-lubricant (Combination of bonding coating and paste). The following lubricants (coefficient of friction appr. 0.04) are examples of commercially available lubricants:

Lubricant	Source
Molykote D 321 R (bonded coating)	Dow Corning
Aema-Sol MO 84-K (bonded coating)	A.C. Matthes
Molykote G Rapid + (paste)	Dow Corning
Aema-Sol M 19 P (paste)	A.C. Matthes

The bolts are lubricated with commercially available bolt lubricants (µ=0,1).

Tightening bolts
All units are equipped with commercial available hexagonal bolts DIN EN ISO 4014/4017, quality 10.9 or 12.9.

Hub Calculation



When tensioning the **shrink disc** multidirectional stresses occur in the hub. Tangential and radial stress can be calculated by using the following equation for the thick-walled pipes (axial stress can be neglected).

Maximum stress occurs on the inner diameter.

$$\sigma_t = \frac{p_w\left(1+\left(\frac{d_w}{d}\right)^2\right) - 2 \cdot p_a}{1-\left(\frac{d_w}{d}\right)^2}$$

$$\sigma_r = -p_w$$

Resultant stress can be calculated on the basis of the following equation:

$$\sigma_V = \sqrt{\sigma_t^2 + \sigma_r^2 - \sigma_t \cdot \sigma_r + 3\tau^2}$$

Pressure p_w determined by means of equation (with the maximum transmissible torque M_t).

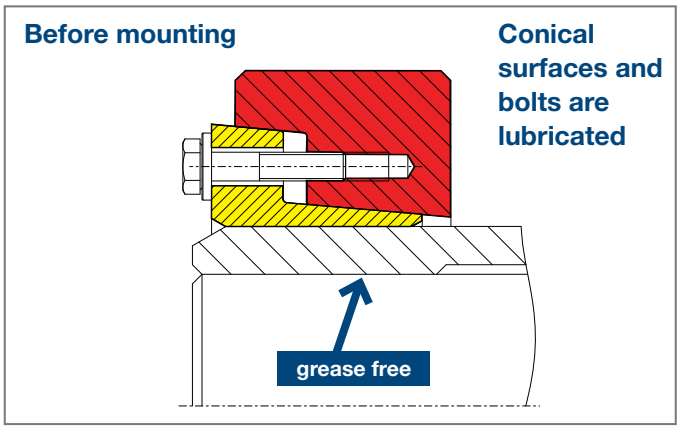
$$p_w = \frac{2 \cdot M_t}{\pi \cdot d_w^2 \cdot l \cdot \mu_w}$$

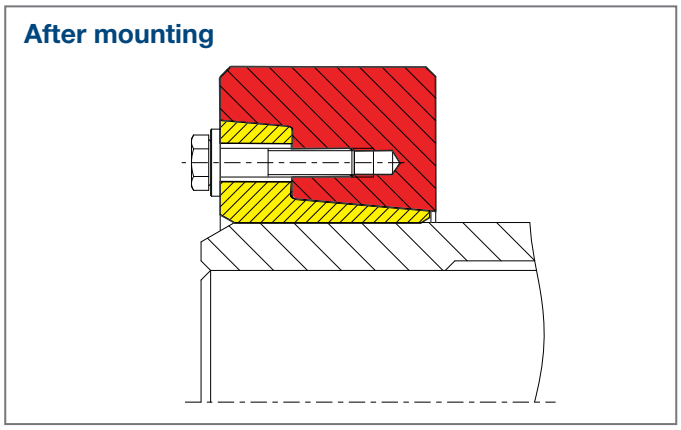
$$p_a = p_w + \frac{\Delta d_w \cdot E\left(1-\left(\frac{d_w}{d}\right)^2\right)}{2 \cdot d_w}$$

with
Δd_w = fit clearance between shaft and hub
E = modulus of elasticity

Mounting and Removal Instructions for

Shrink Disc Type HSD





Mounting

The STÜWE shrink discs type HSD are supplied ready to be mounted. Therefore they should not be dismantled prior to employing the unit for the first time.

1. Degrease shaft and hub bore.
   The outer surface of the hub may be greased.
2. Slide shrink disc onto hub.

Do not tighten the tightening bolts before the shaft is mounted.

3. Fit the shaft or slide the hub onto the shaft.
4. Tighten four bolts distributed evenly over the circumference by reduced torque (approx. 50 to 70% of maximum tightening torque).
5. Afterwards tighten all tightening bolts uniformly, one by one, over several revolutions until the outer ring and inner ring are flush.
   This indicates that the full transmissible torque is achieved.
6. Check each tightening bolt twice for the required tightening torque.

Dismounting

This is similar to mounting.

1. Loosen all tightening bolts, initially not more than a quarter turn per bolt, one after one.

Under no circumstances should the locking bolts be completely removed as this could be dangerous and result in injury.

2. Should the outer ring, when loosening the bolts, not slide automatically from the inner ring, this can be assisted by removing those locking bolts adjacent to the tapped bores provided for jacking purposes and screwing them into these. The jacking procedure must be continued until a complete release of the outer ring is achieved.
3. Dismount shaft or draw off hub. Remove rust which may have formed on the shaft in front of the hub.
4. Remove shrink disc from hub.

Cleaning and lubrication

Dismounted shrink discs do not have to be dismantled and re-lubricated before remounting.
The shrink disc has to be cleaned and re-lubricated only if employed in dirty environment.

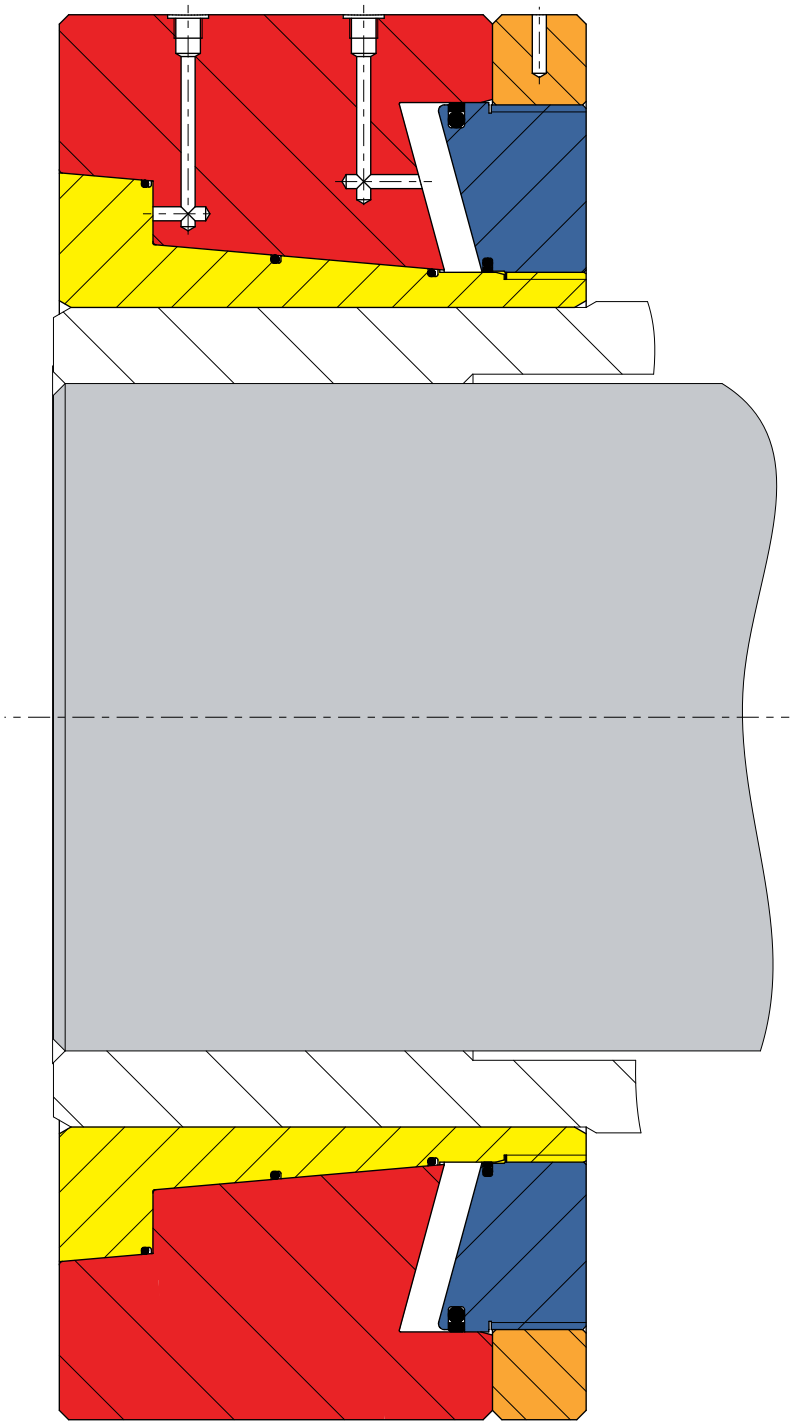
Use a solid containing lubricant with a high content of MoS_2 and a coefficient of friction of $\mu = 0{,}04$ to lubricate the conical surfaces.
Usually a combination of bonded coating and paste is chosen.

The bolts have to be renewed if possible.
The bolts are lubricated with commercially availabe bolt lubricants ($\mu = 0{,}1$).

Examples:

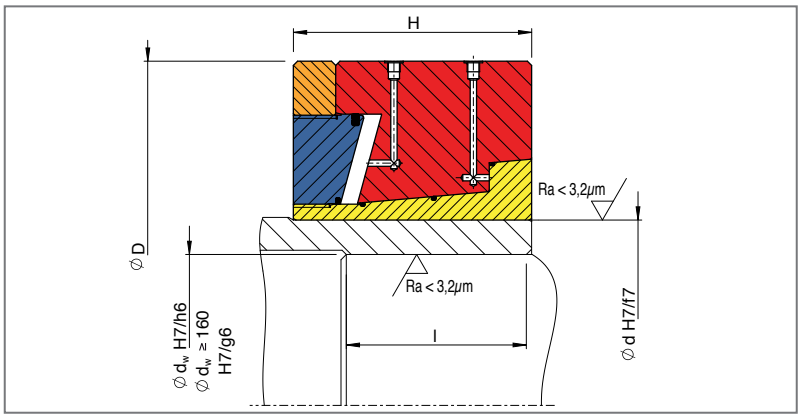
Lubricant	Source
Molykote D 321 R (bonded coating)	Dow Corning
Aema-Sol MO 84-K (bonded coating)	A.C. Matthes
Molykote G Rapid + (paste)	Dow Corning
Aema-Sol M 19 P (paste)	A.C. Matthes

Shrink Disc Type HYD



Shrink Disc HYD

Series 22



Code:

M_t maximum transmissible torque of a shrink disc with $P_{ax} = 0$

P_{ax} maximum transmissible axial load with $M_t = 0$

Type	d	d_w	M_t	P_{ax}	max. hyd. press	D	l	H	
	mm	mm	kNm	kN	bar	mm	mm	mm	kg
HYD 62 - 22	62	50	2,7	107	450	130	25	60	5
		52	3,0	114					
		53	3,1	118					
HYD 80 - 22	80	55	3,1	112	450	155	33	60	6
		60	3,9	130					
		65	4,8	148					
HYD 100 - 22	100	70	7,6	217	450	185	45	70	10
		75	9,0	241					
		80	10,6	265					
HYD 125 - 22	125	90	18	390	450	230	45	75	16
		95	20	421					
		100	23	453					
HYD 140 - 22	140	100	25	495	450	263	50	84	24
		105	28	529					
		110	31	563					
HYD 155 - 22	155	110	33	592	450	300	50	90	34
	150	115	36	628					
		120	40	663					
HYD 165 - 22	165	120	40	667	450	320	53	90	39
		125	44	706					
		130	48	744					
HYD 175 - 22	175	130	50	770	450	320	53	90	37
		135	55	809					
		140	59	849					
HYD 185 - 22	185	140	74	1058	450	340	71	117	55
		145	80	1107					
		150	87	1157					
HYD 200 - 22	200	150	86	1148	450	370	71	117	65
		160	100	1247					
		165	107	1296					
HYD 220 - 22	220	160	105	1311	450	405	88	140	93
		170	121	1425					
		180	139	1540					
HYD 240 - 22	240	180	145	1610	450	430	88	142,3	103
		190	165	1732					
		200	186	1855					
HYD 260 - 22	260	200	199	1991	450	460	100	160	133
		210	223	2124					
		220	248	2259					

When ordering please state : e. g. HYD 155 - 22 x 150 (Type x Ø d)

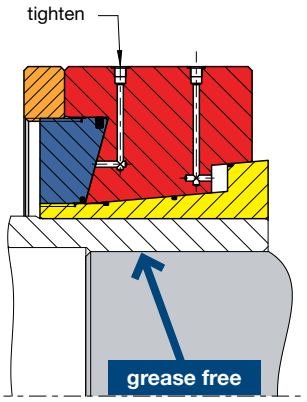
Type	d	d_w	M_t	P_{ax}	max. hyd. press	D	l	H	
	mm	mm	kNm	kN	bar	mm	mm	mm	kg
HYD 280 - 22	280	220	285	2593	450	485	122	180	163
		230	316	2747					
		240	348	2902					
HYD 300 - 22	300	230	326	2837	450	520	120	180	187
		240	359	2994					
		250	394	3153					
HYD 320 - 22	320	250	397	3178	450	570	140	220	282
		260	435	3344					
		270	474	3512					
HYD 340 - 22	340	260	541	4158	450	640	140	220	372
		270	588	4359					
		280	638	4560					
HYD 360 - 22	360	280	646	4616	450	660	140	220	388
	350	290	699	4819					
		300	753	5023					
HYD 390 - 22	390	310	791	5103	450	690	140	220	410
	380	320	849	5307					
		330	909	5511					
HYD 420 - 22	420	330	850	5153	450	720	178	255	502
		340	910	5352					
		350	972	5553					
HYD 440 - 22	440	340	915	5385	450	740	168	256,3	520
		350	977	5585					
		360	1041	5786					
HYD 460 - 22	460	360	1016	5643	450	760	168	256,3	537
		370	1080	5839					
		380	1147	6036					
HYD 480 - 22	480	380	1386	7293	450	830	188	295	779
		390	1468	7526					
		400	1552	7760					
HYD 500 - 22	500	400	1720	8600	450	850	188	295	803
		410	1816	8859					
		420	1915	9118					
HYD 530 - 22	530	430	2141	9959	450	910	223	330	1040
		440	2252	10237					
		450	2366	10516					
HYD 560 - 22	560	450	2397	10653	450	980	223	330	1229
		460	2515	10934					
		470	2636	11216					
HYD 590 - 22	590	470	2726	11600	450	1020	230	360	1435
		480	2854	11892					
		490	2985	12185					
HYD 620 - 22	620	500	3203	12810	450	1070	230	360	1577
		510	3345	13119					
		520	3491	13428					
HYD 660 - 22	660	530	4079	15393	450	1160	245	380	1991
		540	4248	15732					
		550	4420	16073					
HYD 700 - 22	700	560	4501	16076	450	1210	260	420	2356
		580	4858	16752					
		600	5229	17430					
HYD 750 - 22	750	600	5209	17363	450	1260	300	450	2656
		620	5594	18044					
		640	5992	18726					
HYD 800 - 22	800	640	6108	19086	450	1310	340	480	2974
		660	6534	19802					
		680	6977	20519					

Further sizes on request. Technical changes to be reserved without notice.
When ordering please state : e. g. HYD 360 - 22 x 360 (Type x Ø d)

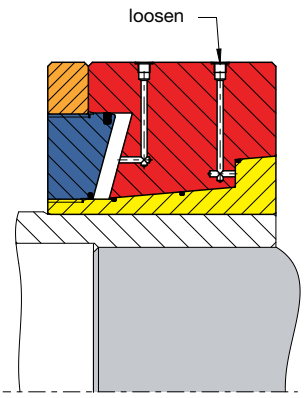
Mounting and Removal Instructions for

Shrink Disc Type HYD 22

Before mounting



After mounting



Mounting

The STÜWE shrink discs type HYD are supplied ready to be mounted. The pressure chamber contains hydraulic oil.

1. Shaft and hub must be absolutely free of grease in the fit area. Full torque transmission is absolutely dependant on this measure. Do not use contaminated cleaning solvents and unclean rags.
2. Slide the shrink disc onto the hub. The outer surface of the hub may be greased.

   The shrink disc has to be in contact with the hub on its full length. Do not tighten the shrink disc before the shaft is mounted!
3. Fit the shaft or slide the hub onto the shaft.
4. Remove screw plugs from the ”Spannen” (Tighten) and ”Entspannen” (Loosen) connections. Collect any oil leakage.
5. Connect pressure line to the connection marked ”Spannen” (Tighten).
6. Tighten the shrink disc by applying hydraulic pressure. The correct tightening force is reached as soon as the end faces of the outer and inner ring are aligned (visually observed to be flush). **Maximum allowable hydraulic pressure is 450 bar!**
7. Tighten the ring counter nut by hand against the outer ring.
8. Release the hydraulic pressure. The ring nut will then be tightly pressed against the outer ring due to the stored energy.
9. Replace the screw plugs to retain the hydraulic oil in the shrink disc.t

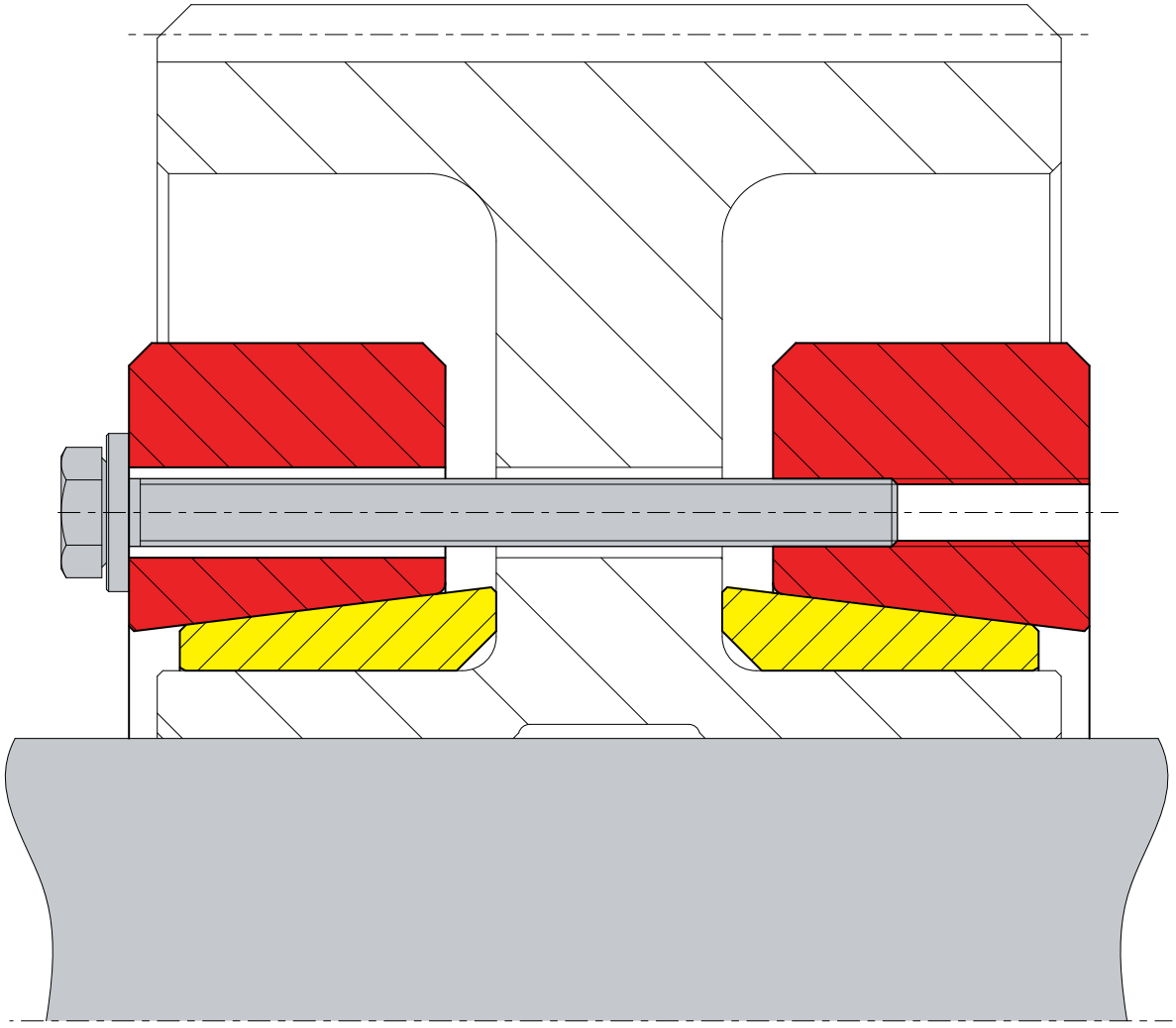
Dismounting

1. Remove screw plugs from the ”Spannen” (Tighten) and ”Entspannen” (Loosen) connections. Collect any oil leakage.
2. Connect hydraulic pump to the ”Spannen” (Tighten) connection. Increase the hydraulic pressure (max. 450 bar!) until the ring nut can be loosened by hand.

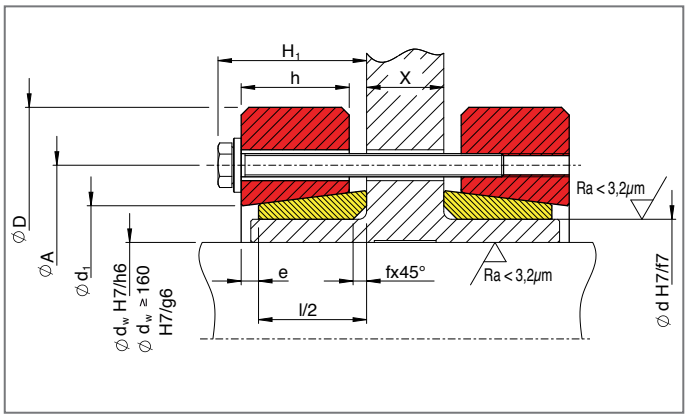
   Make sure that a minimum of two turns remain connected when loosening the ring nut. Otherwise the nut might fall off! This could be dangerous and result in injury.
3. Release the hydraulic pressure and then connect pump to the ”Entspannen” (Loosen) connection.
4. Increasing the oil pressure (**max. 450 bar!**) will initiate the release of the connection. **As soon as the outer ring starts sliding towards the ring nut reduce the oil pressure immediately to max. 150 bar.** When the outer ring reaches the support ring the oil pressure will automatically increase. **At this point fully release the oil pressure. Make sure the oil pressure does not exceed 180 bar.**
5. The connection is loose now.
   Collect oil leakage coming out of the ”Spannen” (Tighten) connection.
6. Leave all hydraulic oil within the shrink disc and replace the ”Spannen” (Tighten) and ”Entspannen” (Loosen) screw plugs so that the shrink disc is oil tight.
7. Remove the shaft or slide the hub off the shaft. Prior to removal clean off any rust from the shaft in the immediate vicinity of the hub.
8. Remove the shrink disc off the hub.

Shrink Disc Type SDG

Series 71, 72 and 90



Shrink Disc SDG



Code:

M_t maximum transmissible torque of a shrink disc with $P_{ax} = 0$

P_{ax} maximum transmissible axial load of a shrink disc with $M_t = 0$

M_a required tightening torque of the tightening bolts (see also “Mounting and Removal Instructions“)

Dimensions H_1 and e apply to untightened units.

Type	d	d_w	M_t	P_{ax}	M_a	Tightening	D	l/2	h	H_1	A	d_1	e	f	kg
	mm	mm	kNm	kN	Nm	bolts*	mm	mm	mm	mm	mm	mm	mm	mm	
SDG 24 - 72	24	19	0,26	28	5	6 x M5	50	9	7,8	16	36	25,5	4	1,5	0,2
		20	0,31	31											
		21	0,36	34											
SDG 30 - 72	30	24	0,34	28	5	6 x M5	60	10	8,5	17	44	32	4	1,5	0,3
		25	0,39	31											
		26	0,44	34											
SDG 36 - 72	36	28	0,61	44	12	5 x M6	70	11	10	19	52	38	4	2	0,5
		30	0,76	50											
		33	1,00	60											
SDG 44 - 72	44	34	0,83	49	12	6 x M6	80	12	10,5	20	61	46	4	2	0,6
		35	0,91	52											
		36	1,00	55											
SDG 50 - 72	50	38	1,4	72	12	8 x M6	90	13	11,5	20	75	52,5	3	2,5	0,8
		40	1,6	79											
		42	1,8	87											
SDG 55 - 72	55	42	1,5	71	12	8 x M6	100	14	12,5	23	75	57,5	5	2,5	1,1
		45	1,8	81											
		48	2,2	92											
SDG 62 - 72	62	48	2,0	85	12	9 x M6	110	14	12,5	23	86	65	5	2,5	1,3
		50	2,3	92											
		52	2,6	98											
SDG 68 - 72	68	50	2,0	79	12	9 x M6	115	14	12,5	23	86	71	5	2,5	1,4
		55	2,6	94											
		60	3,3	110											
SDG 80 - 72	80	60	3,8	128	29	7 x M8	138	17	13	27	100	83,5	5	4	2,5
	75	65	4,8	147											
		70	5,8	165											
SDG 90 - 72	90	65	5,8	178	29	10 x M8	155	20	16,5	31	114	96	6	5	3,7
	85	70	7,0	200											
		75	8,4	223											
SDG 100 - 72	100	70	7,3	209	29	12 x M8	168	22	19	32	124	104	5	5	4,9
	95	75	8,7	233											
		80	10,3	257											
SDG 110 - 72	110	80	10,5	261	58	9 x M10	185	24	21,5	37	136	114	7	5	6,2
	105	85	12,2	288											
		90	14,2	315											
SDG 125 - 72	125	90	15,0	333	58	12 x M10	215	26	23	39	160	134	7	5	9,3
	120	95	17,1	361											
	130	100	19,5	389											
SDG 140 - 71	140	95	19,3	407	100	10 x M12	230	28	25	43	175	146	8	5	10,9
	135	105	24,6	469											
		110	27,6	501											
SDG 155 - 71	155	110	28,0	510	100	12 x M12	263	30	26	45	192	165	8	5	15,8
	150	115	31,2	542											
	160	120	34,5	575											

*Tightening bolts: standard DIN EN ISO 4014/4017 Güte 10.9, alternative DIN EN ISO 4762 Grade 10.9
M 16 and upwards with washers: DIN EN ISO 7416

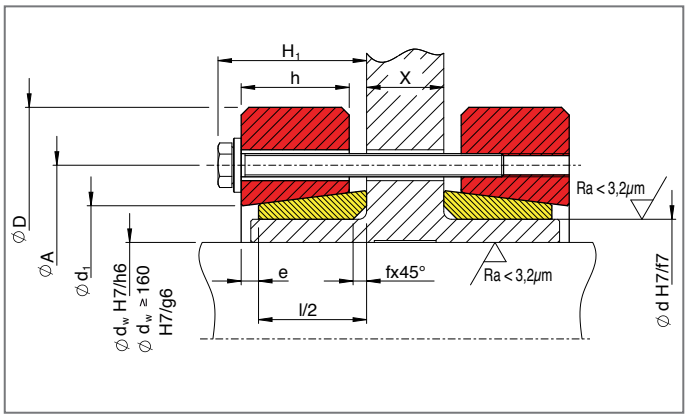
When ordering please state : SDG 125 - 72 x 120 (Type x Ø d) Dimension X

Type	d	d_w	M_t	P_{ax}	M_a	Tightening	D	l/2	h	H_1	A	d_1	e	f	kg
	mm	mm	kNm	kN	Nm	bolts*	mm	mm	mm	mm	mm	mm	mm	mm	
SDG 165 - 71	160	120	40	669	240	8 x M16	290	33	29	54	210	174	7	5	22
	165	125	44	707											
	170	130	49	747											
SDG 175 - 71	175	130	45	695	240	8 x M16	300	33	29	54	220	185	7	5	23
	180	135	49	732											
		140	54	770											
SDG 185 - 71	185	140	62	885	240	10 x M16	320	40	36	63	236	195	9	5	32
	190	145	67	929											
		150	73	973											
SDG 200 - 71	200	150	82	1088	240	12 x M16	340	40	36	63	246	210	9	5	35
	195	155	88	1136											
		160	95	1184											
SDG 220 - 71	220	160	102	1276	240	15 x M16	370	52	45	77	276	230	9	8	54
		165	110	1332											
		170	118	1388											
SDG 240 - 71	240	170	125	1474	470	12 x M20	405	54	49	81	295	248	11	8	67
		180	143	1591											
		190	162	1710											
SDG 260 - 71	260	190	173	1824	470	12 x M20	430	59	53	84	321	268	9	8	81
		200	196	1957											
		210	219	2090											
SDG 280 - 71	280	210	228	2168	470	15 x M20	460	67	58	95	346	288	12	10	104
		220	254	2308											
		230	282	2449											
SDG 300 - 71	300	220	247	2250	470	16 x M20	485	71	60	97	364	308	10	10	120
		230	275	2389											
		240	304	2529											
SDG 320 - 71	320	240	316	2631	470	18 x M20	520	71	60	97	386	328	10	10	139
		250	347	2779											
		260	381	2928											
SDG 340 - 71	340	250	439	3511	470	24 x M20	570	77	69	103	420	348	10	10	188
		260	480	3691											
		270	523	3873											
SDG 360 - 71	360	270	485	3593	470	24 x M20	590	80	73	107	432	367	11	10	204
	350	280	527	3765											
		290	571	3939											
SDG 390 - 71	390	290	696	4798	820	20 x M24	650	85	76	113	468	397	9	13	268
	380	300	751	5005											
		310	808	5213											
SDG 420 - 71	420	320	763	4768	820	20 x M24	670	95	82	123	504	428	9	13	302
		330	818	4960											
		340	876	5153											
SDG 440 - 71	440	340	927	5456	820	24 x M24	740	99	86	128	527	448	10	13	409
		350	990	5660											
		360	1056	5864											
SDG 460 - 71	460	360	1085	6028	820	24 x M24	760	99	86	127	547	468	9	13	441
		370	1154	6237											
		380	1225	6447											
SDG 480 - 71	480	380	1257	6618	820	28 x M24	785	109	97	143	570	490	15	15	521
		390	1333	6835											
		400	1411	7053											
SDG 500 - 71	500	400	1521	7603	1100	24 x M27	850	109	96	145	590	508	14	15	601
		410	1607	7839											
		420	1696	8076											
SDG 530 - 71	530	430	2086	9704	1100	30 x M27	910	122	108	156	620	538	12	15	779
		440	2195	9978											
		450	2307	10253											
SDG 560 - 71	560	450	2167	9631	1100	30 x M27	940	122	108	156	650	568	12	15	811
		460	2275	9891											
		470	2386	10152											

Further sizes on request.
Technical changes to be reserved without notice.

*Tightening bolts: standard DIN EN ISO 4014/4017 Güte 10.9, alternative DIN EN ISO 4762 Grade 10.9
M 16 and upwards with washers: DIN EN ISO 7416
When ordering please state : SDG 340 - 71 x 340 (Type x Ø d) Dimension X

Shrink Disc SDG



Code:

M_t maximum transmissible torque of a shrink disc with $P_{ax} = 0$

P_{ax} maximum transmissible axial load of a shrink disc with $M_t = 0$

M_a required tightening torque of the tightening bolts (see also “Mounting and Removal Instructions“)

Dimensions H_1 and e apply to untightened units.

Type	d	d_w	M_t	P_{ax}	M_a	Tightening	D	l/2	h	H_1	A	d_1	e	f	kg
	mm	mm	kNm	kN	Nm	bolts*	mm	mm	mm	mm	mm	mm	mm	mm	
SDG 140 - 91	140	95	23	476	100	12 x M12	230	35	32	51	175	145	9	5	14
		100	26	514											
		110	32	591											
SDG 155 - 91	155	110	34	618	100	15 x M12	263	38	35	54	198	165	9	5	20
	160	115	38	659											
		120	42	699											
SDG 165 - 91	165	120	49	818	240	10 x M16	290	41	38	64	210	176	9	5	27
	170	125	54	866											
		130	59	915											
SDG 175 - 91	175	130	55	852	240	10 x M16	300	41	38	65	220	186	10	5	28
	180	135	61	898											
		140	66	944											
SDG 185 - 91	185	140	93	1329	240	15 x M16	320	50	50	76	236	189	12	5	41
		145	101	1392											
		150	109	1456											
SDG 200 - 91	200	150	105	1393	240	15 x M16	340	51	50	76	246	205	11	5	45
	195	155	113	1455											
		160	121	1517											
SDG 220 - 91	220	160	140	1744	240	20 x M16	370	65	57	90	270	225	11	8	67
		165	150	1820											
		170	161	1895											
SDG 240 - 91	240	170	172	2025	470	15 x M20	405	68	65	98	295	245	14	8	84
		180	197	2184											
		190	223	2345											
SDG 260 - 91	260	190	205	2162	470	16 x M20	430	75,5	72	105	321	266	13	8	104
		200	232	2323											
		210	261	2486											
SDG 280 - 91	280	210	301	2870	470	20 x M20	460	84	78	114	340	285	14	10	131
		220	336	3054											
		230	373	3239											
SDG 300 - 91	300	220	307	2790	470	20 x M20	485	86	80	116	364	308	14	10	146
		230	341	2962											
		240	376	3137											
SDG 320 - 91	320	240	422	3518	470	24 x M20	520	90	82	118	386	328	12	10	176
		250	464	3710											
		260	507	3903											
SDG 340 - 91	340	250	515	4118	820	20 x M24	570	98	92	131	420	348	14	10	239
		260	564	4335											
		270	615	4554											
SDG 360 - 91	360	270	571	4232	820	20 x M24	590	100	92	131	432	365	12	10	255
	350	280	622	4440											
		290	674	4648											
SDG 390 - 91	390	300	793	5289	820	24 x M24	660	107	96	140	468	401	14	13	361
	380	310	855	5514											
		320	919	5741											

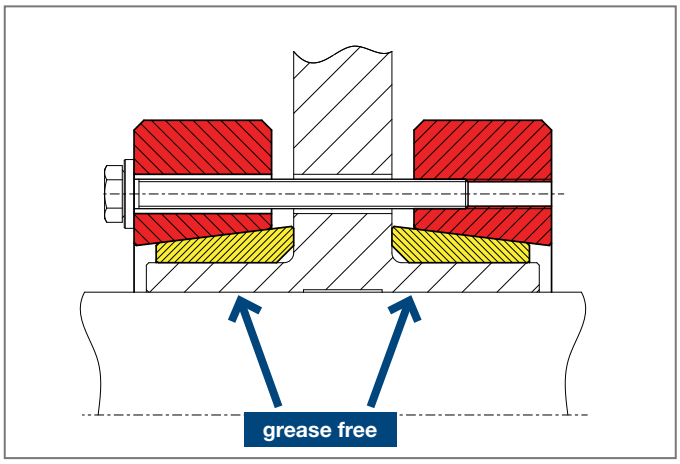
Further sizes on request. Technical changes to be reserved without notice.

*Tightening bolts: standard DIN EN ISO 4014/4017 Güte 10.9, alternative DIN EN ISO 4762 Grade 10.9

M 16 and upwards with washers: DIN EN ISO 7416 When ordering please state : SDG 200 - 91 x 200 (Type x Ø d) Dimension X

Mounting and Removal Instructions for

Shrink Disc Type SDG



Mounting

The STÜWE shrink discs type SDG are supplied ready to be installed. The conical surfaces are greased with a solid lubricant with a coefficient of friction of μ = 0,04 (MoS_2).

1. Degrease hub bore and shaft.
2. Push shrink disc on hub. The outer surface of the hub may be greased in the area of the shrink disc fit.

   Do not tighten the tightening bolts before attaching the shaft.
3. Mount hub on the shaft.
4. Tighten four bolts evenly distributed over the circumference by reduced torque (approx. 50 to 70 % of maximum tightening torque).
5. Afterwards tighten all tightening bolts uniformly, one by one, over several revolutions.
   Check the correct full tightening torque of all bolts by means of a torque wrench.
   When mounting shrink discs of type SDG, make sure that the outer ring faces remain parallel.

Dismounting

This is similar to mounting.

1. Loosen all locking bolts uniformly one by one, initially not more than a quarter turn per bolt, until it is observed that the outer ring has released from the inner ring.

   Under no circumstances should the locking bolts be completely removed as this could be dangerous and result in injury.
2. Dismount shaft or draw off hub.
   Remove rust which may have formed on the shaft in front of the hub.
3. Remove shrink disc from hub.

Cleaning and greasing

Dismantled shrink discs do not have to be taken apart and regreased before remounting.

The shrink disc has to be cleaned and regreased only if employed in dirty environment.

Use a solid lubricant with a high content of MoS_2 and a coefficient of friction of μ = 0,04 for the conical surfaces. Usually a combination of bonded coating and paste is chosen.

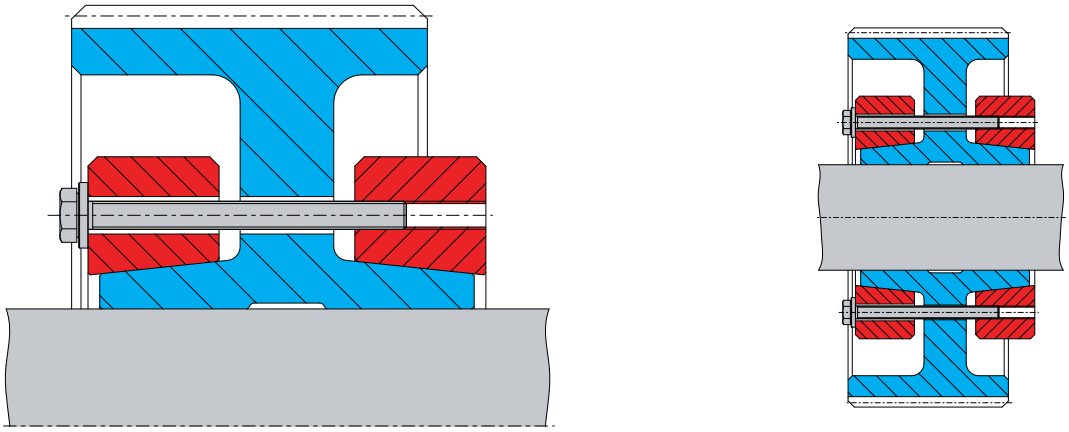
Examples:

Lubricant	Source
Molykote D 321 R (bonded coating)	Dow Corning
Aema-Sol MO 84-K (bonded coating)	A.C. Matthes
Molykote G Rapid + (paste)	Dow Corning
Aema-Sol M 19 P (paste)	A.C. Matthes

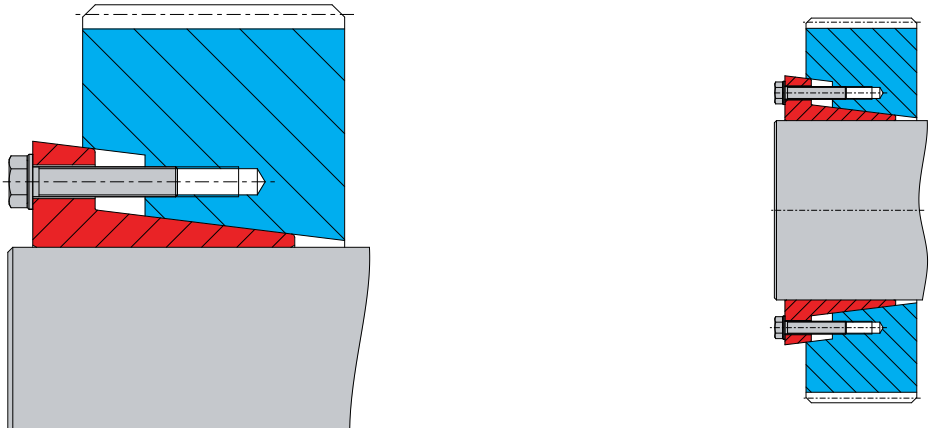
The bolts have to be renewed if possible.
The bolts are lubricated with commercially availabe bolt lubricants (μ = 0,1).

Gearwheel

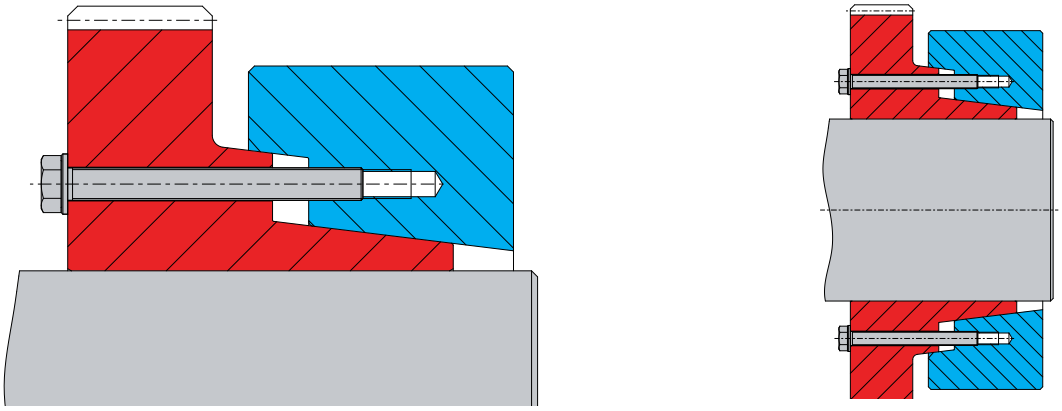
Combined with shrink disc
(Sold in gear including shrink discs)



ZSDG



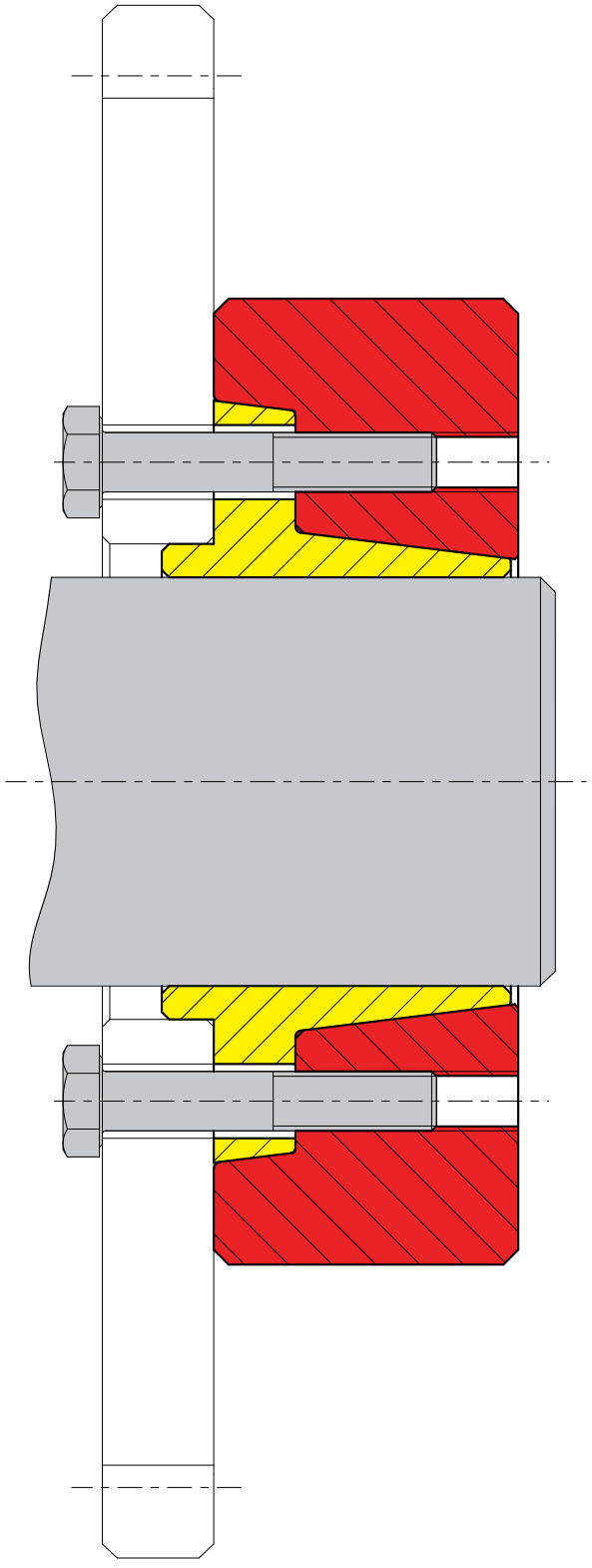
ZSDA



ZSDI

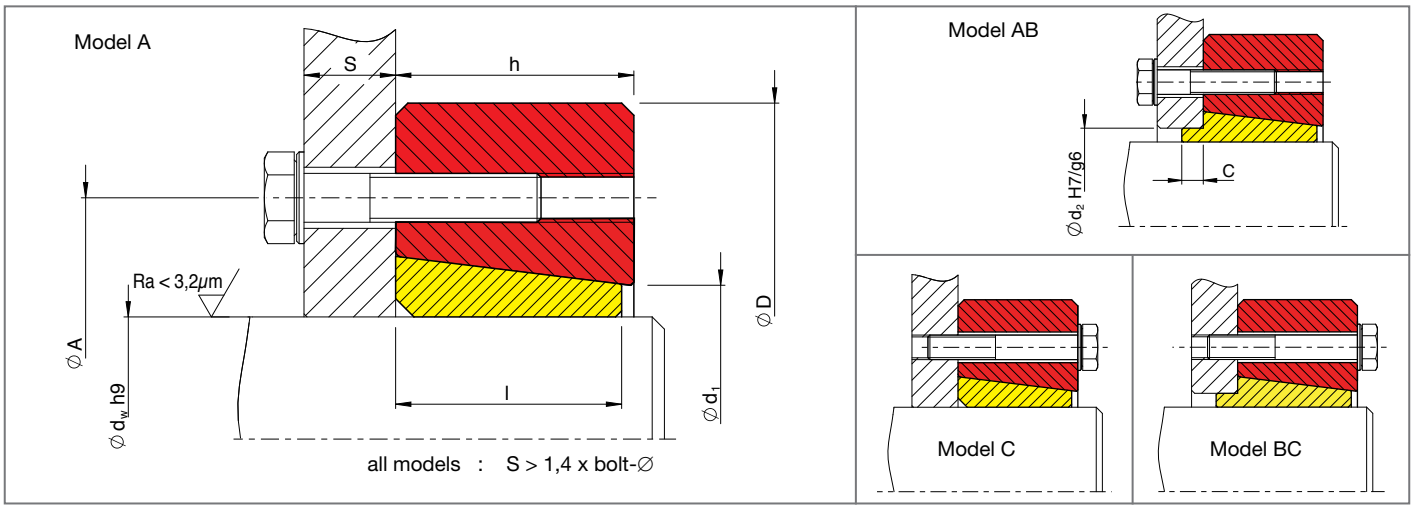
Locking Unit Type AS

Series 12, 22 and 23



Locking Unit Type AS

Series 12



For the transmission of torque only. For the transmission of both torque and bending moments select series 22 or 23.

Type	d_w	M_t	B*	M_a	A	D	l	h	C	d_1	d_2	kg
	mm	kNm	Grade 10.9	Nm	mm	mm	mm	mm	mm	mm	mm	
AS 10 - 12	11	0,02	3 x M6 x 18	12	25	39	9	10	1,5	13	12	0,1
	10	0,02										
	9	0,02										
AS 12 - 12	13	0,05	3 x M6 x 20	12	28	44	12	13	1,5	16	14	0,1
	12	0,05										
	11	0,05										
AS 15 - 12	16	0,13	3 x M8 x 25	29	36	52	14	15	2	21	18	0,2
	15	0,13										
	14	0,13										
AS 20 - 12	20	0,20	3 x M8 x 30	29	42	60	16	17	2	25	22	0,3
	18	0,20										
	16	0,20										
AS 25 - 12	25	0,34	5 x M8 x 30	29	48	66	18	19	2	32	27	0,4
	22	0,34										
	20	0,34										
AS 30 - 12	30	0,55	6 x M8 x 35	29	56	76	20	21	2	38	32	0,6
	28	0,55										
	25	0,55										
AS 40 - 12	40	1,06	6 x M10 x 35	58	70	96	24	25	3	47	43	1,2
	35	1,06										
	30	1,06										
AS 50 - 12	50	2,20	7 x M12 x 45	100	84	112	29	30	3	58	53	1,8
	45	1,80										
	40	1,00										
AS 60 - 12	60	3,23	9 x M12 x 50	100	94	120	32	34	3	66	63	2,2
	55	3,23										
	50	2,30										
AS 70 - 12	70	5,80	8 x M16 x 60	240	112	148	38	40	4	79	74	4,2
	65	5,80										
	60	4,50										
AS 80 - 12	80	8,64	9 x M16 x 65	240	130	170	42	44	4	94	84	6,1
	75	8,64										
	70	6,90										
AS 90 - 12	90	12,00	12 x M16 x 70	240	144	185	48	50	4	104	94	8,0
	85	12,00										
	80	10,70										
AS 100 - 12	100	15,80	14 x M16 x 75	240	156	197	52	54	4	113	104	9,5
	95	15,80										
	90	15,80										

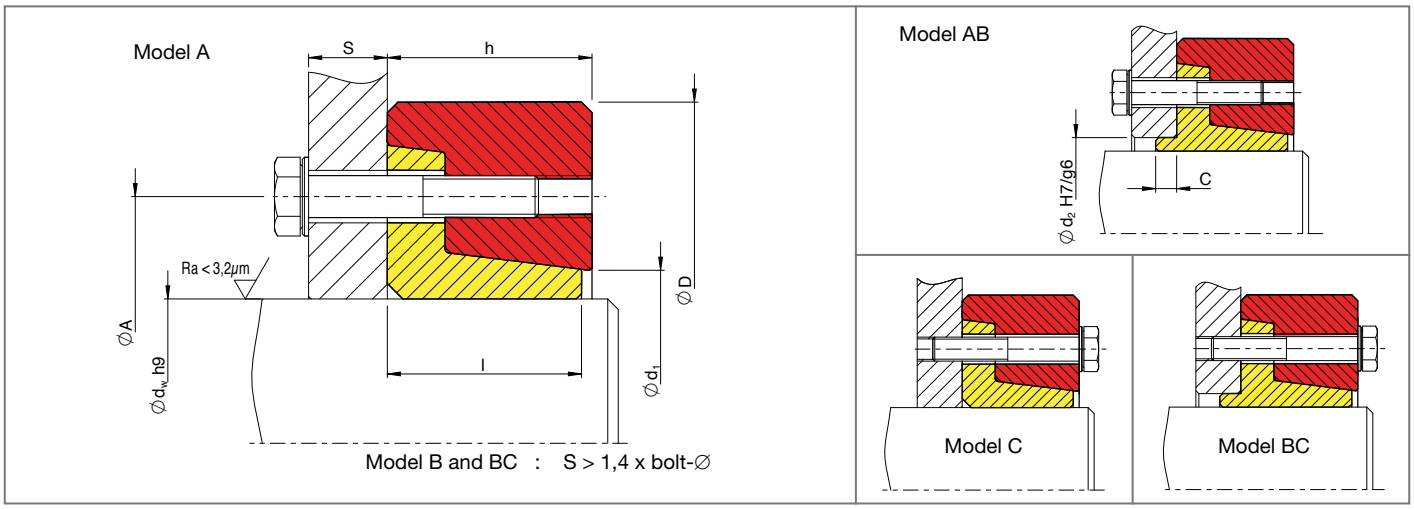
Further sizes on request. Technical changes to be reserved without notice.

*Tightening bolts: standard DIN EN ISO 4017/4014: length for model C and BC, alternative DIN EN ISO 4762 M16 and upwards with washers: DIN EN ISO 7416

When ordering please state : e. g. AS 70 - 12 x 65 x C (Type x Ø d_w x desired model) flange width for model A and AB

Locking Unit Type AS

Series 22



Type	d_w	M_t	B*	M_a	A	D	l	h	C	d_1	d_2	kg
	mm	kNm	Grade 10.9	Nm	mm	mm	mm	mm	mm	mm	mm	
AS 12 - 22	12 11	0,05 0,05	3 x M6 x 20	12	24	35	10	7	1,5	13	14	0,1
AS 14 - 22	14 13	0,07 0,07	3 x M6 x 20	12	26	38	10	7,3	1,5	15	16	0,1
AS 16 - 22	16 15	0,08 0,08	3 x M6 x 25	12	28	41	13,5	9	2	17	18	0,1
AS 18 - 22	18 17	0,13 0,13	4 x M6 x 25	12	30	44	13,5	9	2	19	20	0,1
AS 20 - 22	20 19	0,14 0,14	4 x M6 x 25	12	32	47	13,5	9	2	21	22	0,2
AS 25 - 22	25 24 22	0,20 0,20 0,20	5 x M6 x 30	12	36	50	17	17	2	26	27	0,2
AS 30 - 22	30 28 26	0,30 0,30 0,30	6 x M6 x 30	12	44	60	18	19	3	32	32	0,3
AS 35 - 22	36 35 32	0,50 0,50 0,45	5 x M8 x 35	29	52	72	20	21	3	38	38	0,5
AS 40 - 22	44 40 38	0,75 0,75 0,72	6 x M8 x 35	29	61	80	22	23	3	47	46	0,6
AS 50 - 22	50 45 42	1,3 1,3 1,0	8 x M8 x 40	29	68	90	24	25	3	53	53	0,9
AS 55 - 22	55 52 45	1,6 1,6 1,6	8 x M8 x 40	29	72	100	26	27	3	58	58	1,2
AS 60 - 22	62 60 50	2,0 2,0 2,0	9 x M8 x 40	29	80	110	26	27	3	66	63	1,4
AS 70 - 22	70 65 60	2,1 2,1 2,1	9 x M8 x 40	29	86	115	26	27	4	72	74	1,4
AS 80 - 22	80 75 70	4,0 4,0 4,0	10 x M10 x 45	58	100	141	28	29	4	84	84	2,2

*Tightening bolts: standard DIN EN ISO 4017/4014: length for model C and BC, alternative DIN EN ISO 4762
M16 and upwards with washers: DIN EN ISO 7416

When ordering please state : e. g. AS 60 - 22 x 62 x C (Type x Ø d_w x desired model) flange width for model A and AB

Type	d_w	M_t	B*	M_a	A	D	l	h	C	d_1	d_2	kg
	mm	kNm	Grade 10.9	Nm	mm	mm	mm	mm	mm	mm	mm	
AS 90 - 22	90	5,7	12 x M10 x 50	58	114	155	34	35	4	94	94	3,4
	85	5,7										
	80	5,7										
AS 100 - 22	100	8,4	12 x M12 x 60	100	124	170	39	40	4	104	104	5
	95	8,4										
	90	8,4										
AS 110 - 22	110	9,2	12 x M12 x 70	100	136	185	45	46	5	114	116	6
	105	9,2										
	100	9,2										
AS 125 - 22	125	21	12 x M16 x 75	240	160	215	47	49	5	133	126	9
	120	21										
	115	21										
AS 140 - 22	140	26	14 x M16 x 80	240	172	230	52	53	5	145	146	11
	135	26										
	130	26										
AS 155 - 22	160	31	15 x M16 x 80	240	192	263	54	55	5	162	166	15
	155	31										
	150	31										
AS 170 - 22	170	36	16 x M16 x 90	240	204	290	61	62	5	175	176	21
	165	36										
	160	36										
AS 180 - 22	180	43	18 x M16 x 90	240	218	300	61	62	5	185	186	22
	175	43										
	170	43										
AS 190 - 22	190	60	15 x M20 x 110	470	232	320	77	78	5	195	196	32
	185	60										
	180	60										
AS 200 - 22	200	67	16 x M20 x 110	470	246	340	75	78	5	209	206	37
	195	67										
	190	67										
AS 220 - 22	220	93	14 x M24 x 130	820	270	370	95	96	5	230	226	53
	210	93										
	200	93										
AS 240 - 22	240	117	16 x M24 x 140	820	296	405	98	100	5	248	246	66
	230	117										
	220	117										
AS 260 - 22	260	126	16 x M24 x 150	820	318	430	106	106	5	266	266	80
	250	126										
	240	126										
AS 280 - 22	280	151	18 x M24 x 160	820	340	460	118	118	5	288	286	103
	270	151										
	260	151										
AS 300 - 22	300	178	20 x M24 x 170	820	360	485	125	126	5	309	306	116
	290	178										
	280	178										
AS 320 - 22	320	248	20 x M27 x 170	1210	380	520	125	126	5	328	330	134
	300	248										
	280	248										
AS 340 - 22	340	275	21 x M27 x 180	1210	402	570	134	136	5	351	350	185
	320	275										
	300	275										
AS 360 - 22	360	290	21 x M27 x 180	1210	424	590	142	144	8	167	370	172
	340	290										
	320	290										
AS 390 - 22	390	363	20 x M30 x 190	1640	458	630	146	148	8	398	400	222
	370	363										
	350	363										
AS 420 - 22	420	407	21 x M30 x 210	1640	490	650	166	168	8	424	430	253
	400	407										
	380	407										
AS 440 - 22	440	426	21 x M30 x 220	1640	512	670	174	176	8	448	450	275
	420	426										
	400	426										

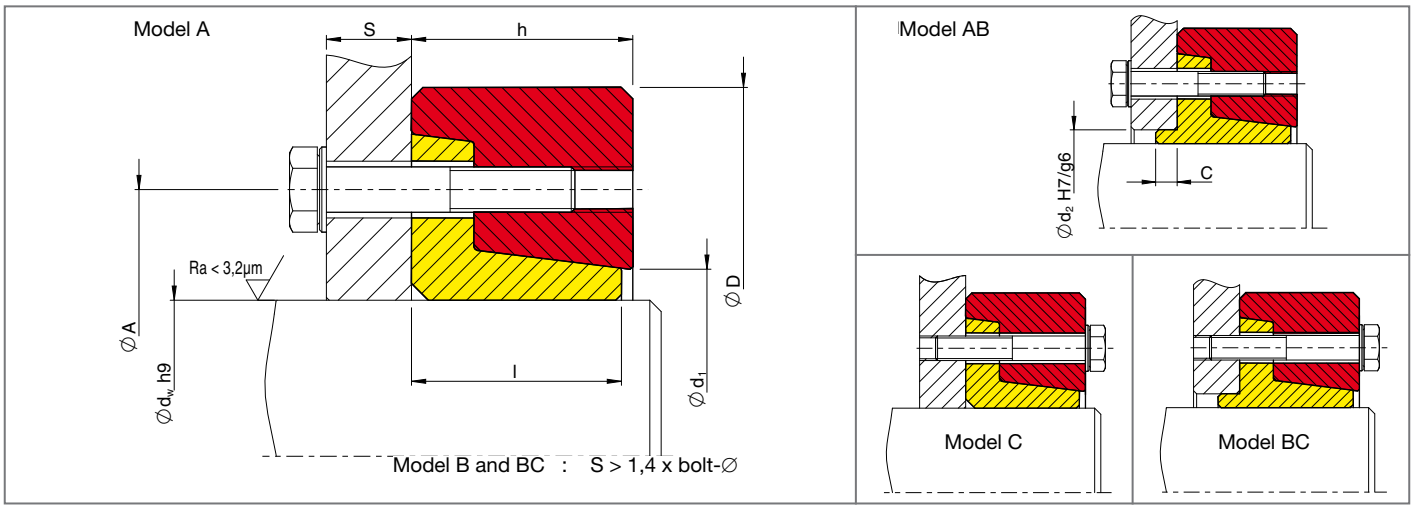
Further sizes on request. Technical changes to be reserved without notice.

*Tightening bolts: standard DIN EN ISO 4017/4014: length for model C and BC, alternative DIN EN ISO 4762
M16 and upwards with washers: DIN EN ISO 7416

When ordering please state : e. g. AS 280 - 22 x 270 x C (Type x Ø d_w x desired model) flange width for model A and AB

Locking Unit Type AS

Series 23



Type	d_w	M_t	B*	M_a	A	D	l	h	C	d_1	d_2	kg
	mm	kNm	Grade 10.9	Nm	mm	mm	mm	mm	mm	mm	mm	
AS 50 - 23	50	3,3	7 x M12 x 45	100	84	115	29	30	3	58	53	2,0
	45	2,2										
	40	1,4										
AS 60 - 23	60	4,7	9 x M12 x 50	100	94	120	32	34	3	66	63	2,2
	55	3,5										
	50	2,3										
AS 70 - 23	70	9,4	8 x M16 x 60	240	112	148	38	40	4	79	74	4,7
	65	7,6										
	60	5,8										
AS 80 - 23	80	12	9 x M16 x 65	240	130	167	42	44	4	94	84	6,1
	75	10										
	70	8										
AS 90 - 23	90	18	12 x M16 x 70	240	144	185	48	50	4	104	94	8,0
	85	15										
	80	12										
AS 100 - 23	100	23	14 x M16 x 75	240	156	197	52	54	4	114	104	9,5
	95	19										
	90	16										
AS 110 - 23	110	27	10 x M20 x 90	470	166	215	56	58	5	124	116	12,1
	105	26										
	100	22										
AS 120 - 23	120	43	14 x M20 x 90	470	186	230	62	65	5	134	126	15,3
	115	38										
	110	33										

*Tightening bolts: standard DIN EN ISO 4017/4014: length for model C and BC, alternative DIN EN ISO 4762
M16 and upwards with washers: DIN EN ISO 7416

When ordering please state : e. g. AS 110 - 23 x 105 x C (Type x Ø d_w x desired model) flange width for model A and AB

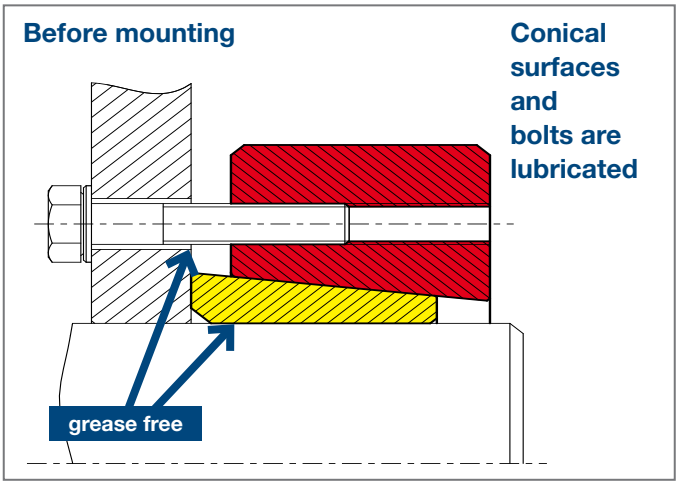
Type	d_w	M_t	B*	M_a	A	D	l	h	C	d_1	d_2	kg
	mm	kNm	Grade 10.9	Nm	mm	mm	mm	mm	mm	mm	mm	
AS 140 - 23	140	56	16 x M20 x 100	470	216	290	73	76	5	160	146	30,0
	130	50										
	120	39										
AS 160 - 23	160	77	14 x M24 x 110	820	234	320	80	80	5	185	166	39,1
	150	77										
	140	64										
AS 180 - 23	180	104	16 x M24 x 130	820	276	340	91	94	5	205	186	47,9
	170	101										
	160	85										
AS 200 - 23	200	144	16 x M27 x 140	1210	290	370	95	96	5	226	206	57,0
	190	133										
	180	114										
AS 220 - 23	220	178	18 x M27 x 140	1210	320	405	96	96	5	246	226	70,8
	210	178										
	200	159										
AS 240 - 23	240	211	20 x M27 x 150	1210	340	430	109	110	5	267	246	85,8
	230	211										
	220	211										
AS 260 - 23	260	232	21 x M27 x 160	1210	356	460	118	118	5	289	286	109,4
	250	234										
	240	234										
AS 280 - 23	280	234	21 x M27 x 180	1210	360	485	124	125	5	304	306	125,0
	270	234										
	260	234										
AS 300 - 23	300	247	21 x M27 x 180	1210	380	520	128	126	5	315	330	144,0
	290	247										
	280	247										
AS 320 - 23	320	299	24 x M27 x 180	1210	402	550	134	136	5	336	350	167,0
	310	299										
	300	299										
AS 340 - 23	340	315	24 x M27 x 180	1210	424	570	140	142	8	355	370	183,0
	330	315										
	320	315										
AS 360 - 23	360	410	24 x M30 x 190	1640	454	610	144	147	8	383	400	218,0
	350	410										
	340	410										
AS 390 - 23	390	439	24 x M30 x 200	1640	486	630	164	167	8	428	430	250,0
	380	439										
	360	439										
AS 420 - 23	420	457	24 x M30 x 220	1640	506	670	172	175	10	448	450	292,0
	410	457										
	390	457										
AS 440 - 23	440	562	28 x M30 x 220	1640	534	700	172	175	10	468	470	318,0
	420	562										
	400	562										

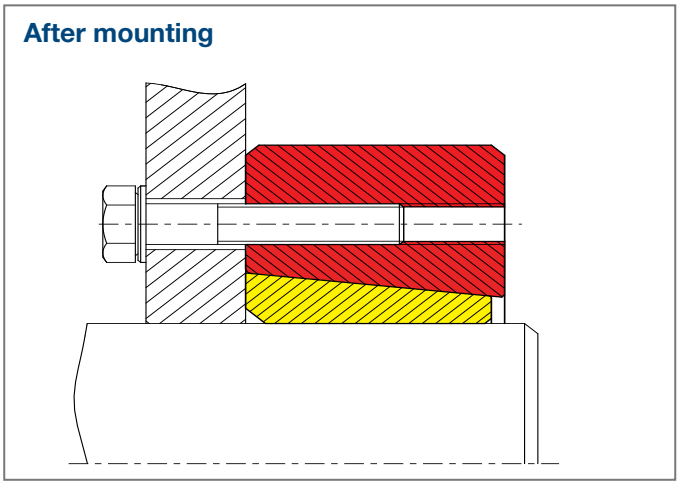
Further sizes on request.
Technical changes to be reserved without notice.

*Tightening bolts: standard DIN EN ISO 4017/4014: length for model C and BC, alternative DIN EN ISO 4762
M16 and upwards with washers: DIN EN ISO 7416
When ordering please state : e. g. AS 320 - 23 x 320 x C (Type x Ø d_w x desired model)
flange width for model A and AB

Mounting and Removal Instructions for

Locking Unit AS





Mounting

The STÜWE locking units AS are supplied ready to be mounted. Therefore they should not be dismantled prior to employing the unit for the first time.

1. Using a solvent, degrease the shaft, bores and faces of the inner ring and the pressure contact faces of the component. Safe torque transmission substantially depends on this procedure. Dirty solvent or cleaning clothes should not be used for degreasing.
2. Lubricate the threads and the heads of the tightening bolts with a suitable bolt lubricant.
3. Bolt component and locking unit together easily and push locking unit onto the shaft.

Do not tighten the tightening bolts before the shaft is mounted.

4. Tighten four bolts evenly distributed over the circumference by reduced torque (approx. 50 to 70 % of maximum tightening torque).
5. Afterwards tighten all tightening bolts uniformly, one by one, over several revolutions with the maximum torque.
   - Series 12: Tighten all tightening bolts until the side surfaces of the outer ring and inner ring abut against the component. This indicates that the full transmissible torque is achieved.
   - Series 22/23: Tighten all tightening bolts until the outer ring hits the inner ring and until the bolts can not be tightened with the max. torque anymore. A gap between outer ring and component can remain.
6. Check each tightening bolt twice for the required tightening torque.

Dismounting

1. Loosen all locking bolts uniformly one by one, initially not more than a quarter turn per bolt, until it is observed that the outer ring has released from the inner ring.

Under no circumstances should the locking bolts be completely removed as this could be dangerous and result in injury.

2. Should the outer ring not-self release from the inner ring, this can be assisted in the series 22 and 23 by removing those locking bolts adjacent to the tapped holes provided for jacking purposes and screwing them into these tapped holes. The jacking procedure must continue until release of the outer ring is achieved.
3. Remove component from locking unit and locking unit from shaft. Remove rust which may have formed on the shaft.

Cleaning and greasing

Dismantled locking unit does not have to be taken apart and regreased before remounting.

The locking unit has to be cleaned and regreased only if employed in dirty environment.

Use a solid containing lubricant with a high content of MoS_2 and a coefficient of friction of $\mu = 0{,}04$ for the **conical surfaces**.
Usually a combination of bonded coating and paste is chosen.

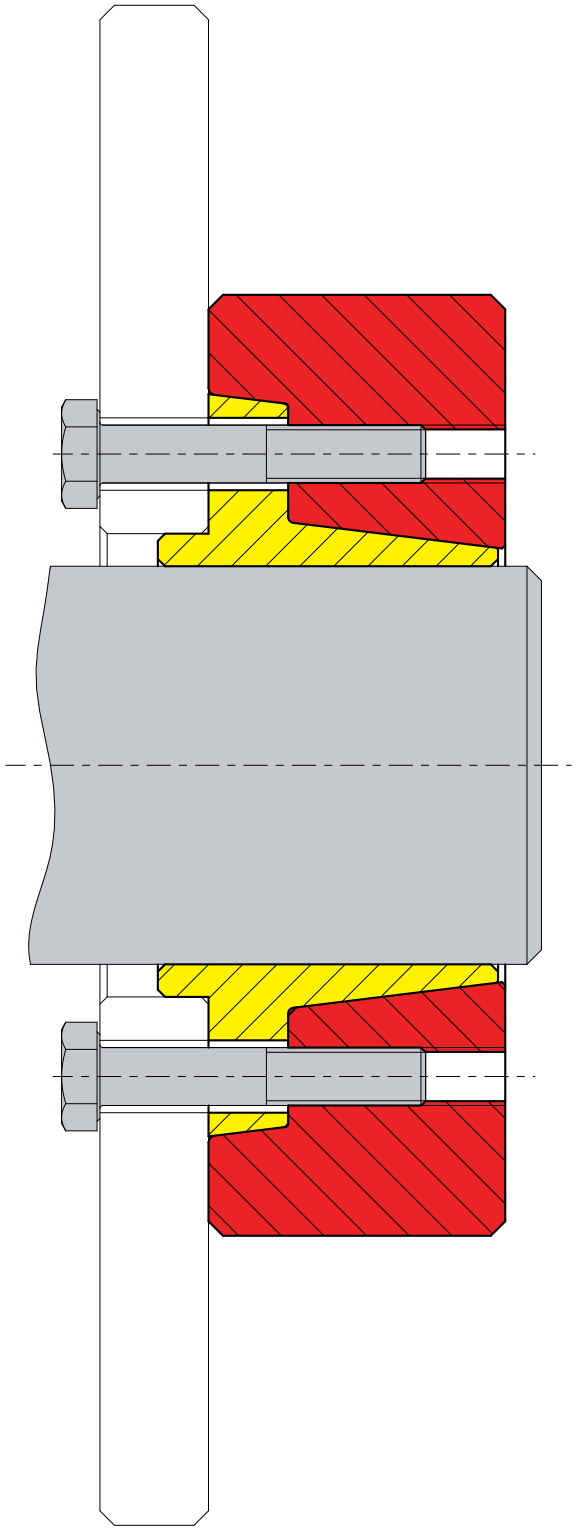
Examples:

Lubricant	Source
Molykote D 321 R (bonded coating)	Dow Corning
Aema-Sol MO 84-K (bonded coating)	A.C. Matthes
Molykote G Rapid + (paste)	Dow Corning
Aema-Sol M 19 P (paste)	A.C. Matthes

The bolts have to be renewed if possible.
The bolts are lubricated with commercially availabe bolt lubricants ($\mu = 0{,}1$).

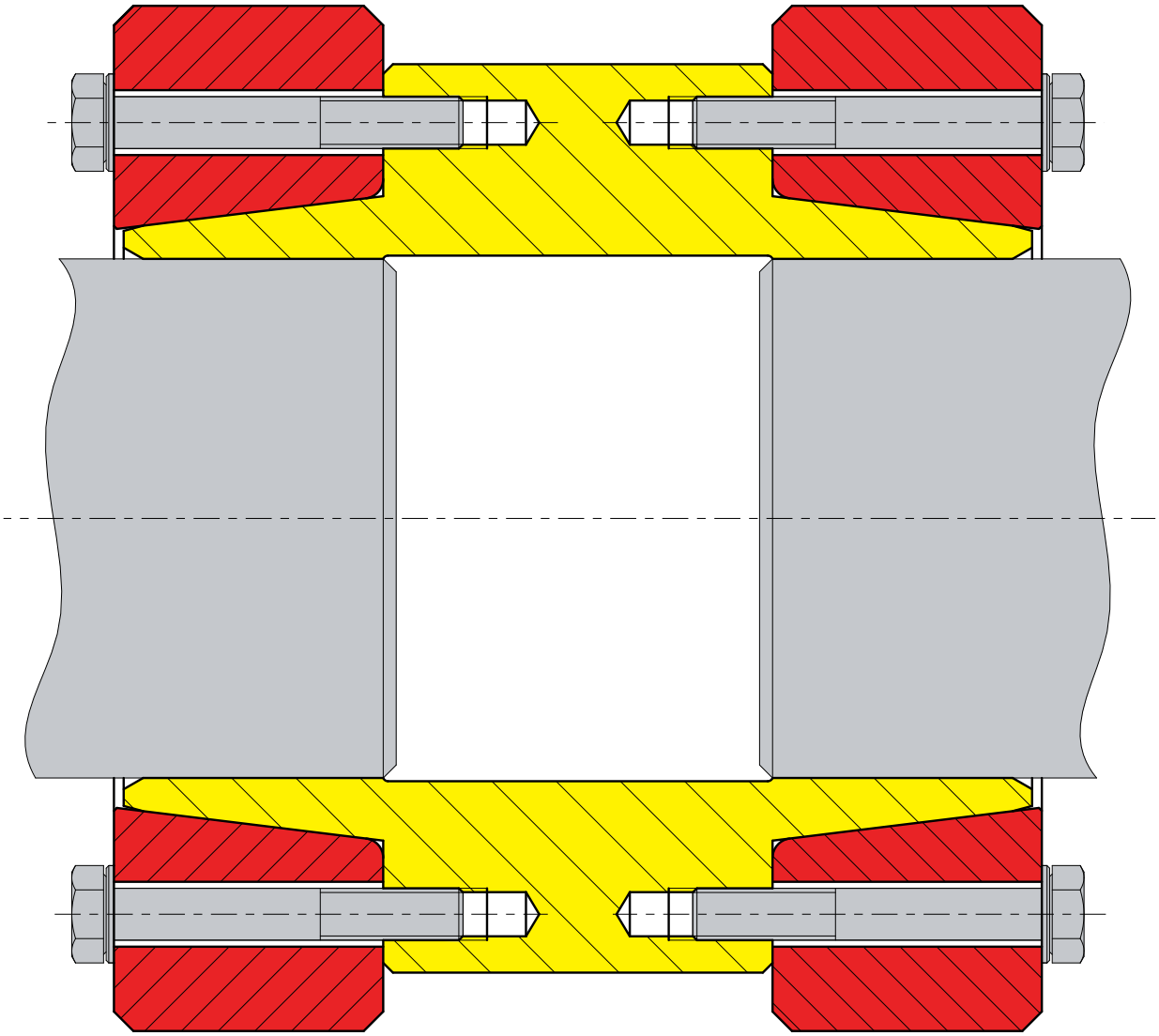
Locking Unit Type AS

Fixing a brake disc



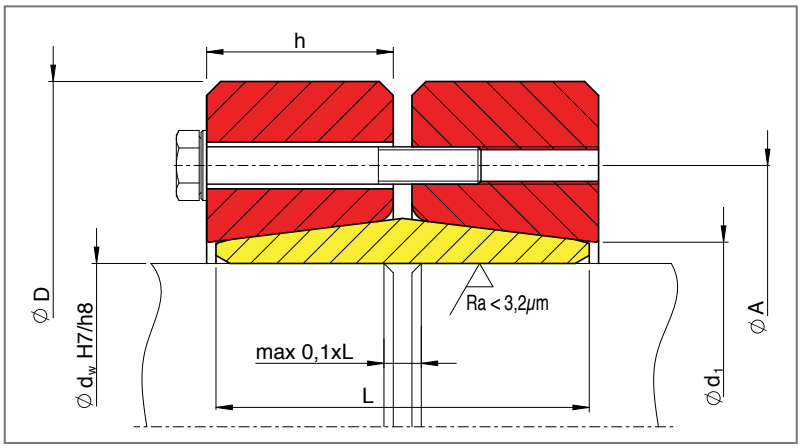
Shaft Coupling Type WK / WKL

If two shafts with different diameters are to be connected, shaft couplings can be supplied with adapted holes.



Shaft Coupling Type WK

Series 12



Code:

M_t maximum transmissible torque of a shrink disc with $P_{ax} = 0$

P_{ax} maximum transmissible axial load of a shrink disc with $M_t = 0$

M_a required tightening torque of the tightening bolts (see also “Mounting and Removal Instructions“)

Type	d_w	M_t	P_{ax}	M_a	B*	D	L	h	A	d_1	kg
	mm	kNm	kN	Nm		mm	mm	mm	mm	mm	
WK 10 - 12	9	0,04	8	12	M6	39	20	10	25	13	0,2
	10	0,04	9								
	11	0,05	10								
WK 12 - 12	12	0,07	11	12	M6	44	26	13	28	16	0,3
	13	0,08	12								
	14	0,09	13								
WK 15 - 12	15	0,16	21	29	M8	52	30	15	36	21	0,5
	17	0,20	24								
	19	0,26	27								
WK 20 - 12	20	0,29	29	29	M8	60	34	17	42	25	0,7
	22	0,35	32								
	24	0,41	35								
WK 25 - 12	25	0,49	40	29	M8	66	38	19	48	32	0,9
	27	0,58	43								
	29	0,66	46								
WK 30 - 12	30	0,77	51	29	M8	76	42	21	56	38	1,3
	32	0,87	55								
	35	1,05	60								
WK 40 - 12	36	1,3	70	58	M10	96	50	25	70	47	2,5
	40	1,8	92								
	43	2,3	109								
WK 50 - 12	44	2,3	102	100	M12	112	60	30	84	58	4,1
	50	3,4	137								
	54	4,3	161								
WK 60 - 12	55	4,1	150	100	M12	120	68	34	94	66	4,9
	60	5,5	184								
	62	6,1	197								
WK 70 - 12	63	6,2	196	100	M12	148	80	40	112	79	9,1
	70	8,6	245								
	73	9,7	266								
WK 80 - 12	74	10	275	160	M14	170	94	44	130	94	13,1
	80	13	320								
	85	15	358								
WK 90 - 12	86	16	381	240	M16	185	104	50	144	104	17,1
	90	19	417								
	95	22	461								
WK 100 - 12	96	23	483	240	M16	197	114	54	156	113	20,4
	100	26	521								
	106	31	578								
WK 120 - 12	107	35	648	240	M16	230	138	65	174	133	34,3
	120	47	787								
	125	53	841								

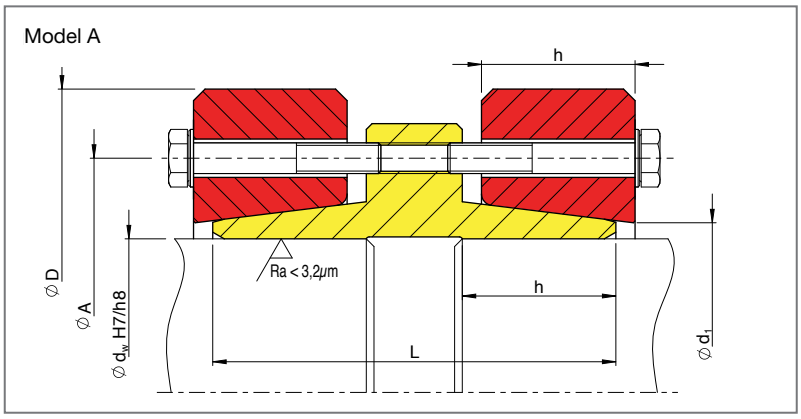
*Tightening bolts: standard DIN EN ISO 4014/4017 Grade 10.9, alternative DIN EN ISO 4762 Grade 10.9
M16 and upwards with washers: DIN EN ISO 7416 When ordering please state : e. g. WK 40 - 12 x 43 (Type x Ø d_w)

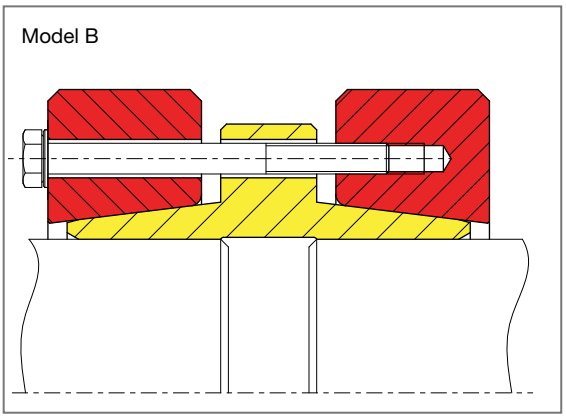
Type	d_w	M_t	P_{ax}	M_a	B*	D	L	h	A	d_1	kg
	mm	kNm	kN	Nm		mm	mm	mm	mm	mm	
WK 140 - 12	126	56	881	470	M20	290	160	76	216	160	66,1
	140	74	1052								
	150	88	1178								
WK 160 - 12	150	81	1081	470	M20	320	176	83	234	180	85
	160	96	1202								
	165	104	1264								
WK 180 - 12	165	114	1381	470	M20	340	200	94	260	205	106
	180	143	1594								
	185	154	1665								
WK 200 - 12	185	164	1778	470	M20	370	228	96	290	226	140
	200	201	2011								
	210	228	2169								
WK 220 - 12	210	231	2199	820	M24	405	250	118	320	246	180
	220	260	2362								
	230	291	2527								
WK 240 - 12	230	271	2353	820	M24	430	270	128	340	267	215
	240	302	2513								
	250	334	2675								
WK 260 - 12	240	322	2683	1210	M27	460	290	138	366	288	271
	250	357	2860								
	260	395	3039								
WK 280 - 12	260	424	3265	1210	M27	485	330	166	400	308	355
	270	467	3459								
	280	512	3656								
WK 300 - 12	280	530	3787	1210	M27	520	346	174	420	328	426
	290	579	3990								
	300	629	4195								
WK 320 - 12	300	662	4414	1640	M30	550	376	190	446	348	514
	310	718	4631								
	320	776	4849								
WK 340 - 12	320	806	5038	1640	M30	590	380	194	466	368	607
	330	869	5267								
	340	935	5499								
WK 360 - 12	340	967	5686	2210	M33	650	400	202	500	398	790
	350	1037	5924								
	360	1109	6163								
WK 390 - 12	370	1195	6459	2210	M33	670	440	224	530	428	891
	380	1274	6706								
	390	1356	6954								
WK 420 - 12	400	1637	8187	2210	M33	740	470	238	560	448	1175
	410	1737	8471								
	420	1839	8758								
WK 460 - 12	430	1841	8561	2210	M33	780	500	246	590	498	1291
	450	2050	9112								
	460	2160	9390								
WK 500 - 12	470	2568	10929	2850	M36	860	560	276	648	540	1772
	480	2700	11249								
	500	2974	11895								
WK 550 - 12	510	3014	11820	2850	M36	960	600	296	710	600	2421
	530	3301	12456								
	550	3602	13097								
WK 600 - 12	560	3610	12893	2850	M36	1000	620	310	760	650	2614
	580	3921	13520								
	600	4245	14151								
WK 650 - 12	620	4555	14695	2850	M36	1080	640	320	824	700	3074
	530	4732	15023								
	650	5097	15684								
WK 700 - 12	660	5360	16243	2850	M36	1140	680	340	890	760	3608
	680	5751	16916								
	700	6158	17593								
WK 750 - 12	710	6256	17623	2850	M36	1280	720	360	950	814	5016
	730	6679	18298								
	750	7116	18977								

Further sizes on request. Technical changes to be reserved without notice.
*Tightening bolts: standard DIN EN ISO 4014/4017 Grade 10.9, alternative DIN EN ISO 4762 Grade 10.9
M16 and upwards with washers: DIN EN ISO 7416 When ordering please state : e. g. WK 390 - 12 x 380 (Type x Ø d_w)

Shaft Coupling Type WKL

Series 12





Code: M_t maximum transmissible torque of a shrink disc with $P_{ax} = 0$
P_{ax} maximum transmissible axial load of a shrink disc with $M_t = 0$
M_a required tightening torque of the tightening bolts (see also "Mounting and Removal Instructions")

Type	d_w	M_t	P_{ax}	M_a	B*	D	L	h	A	d_1	kg
	mm	kNm	kN	Nm		mm	mm	mm	mm	mm	
WKL 10 - 12	9	0,04	8	12	M6	39	32	10	25	13	0,3
	10	0,04	9								
	11	0,05	10								
WKL 12 - 12	12	0,07	11	12	M6	44	38	13	28	16	0,4
	13	0,08	12								
	14	0,09	13								
WKL 15 - 12	15	0,16	21	29	M8	52	50	15	36	21	0,7
	17	0,20	24								
	19	0,26	27								
WKL 20 - 12	20	0,29	29	29	M8	60	54	17	42	25	1,0
	22	0,35	32								
	24	0,41	35								
WKL 25 - 12	25	0,49	40	29	M8	66	62	19	48	32	1,3
	27	0,58	43								
	29	0,66	46								
WKL 30 - 12	30	0,77	51	29	M8	76	70	21	56	38	1,9
	32	0,87	55								
	35	1,05	60								
WKL 40 - 12	36	1,3	70	58	M10	96	80	25	70	47	3,5
	40	1,8	92								
	43	2,3	109								
WKL 50 - 12	44	2,3	102	100	M12	112	90	30	84	58	5,5
	50	3,4	137								
	54	4,3	161								
WKL 60 - 12	55	4,1	150	100	M12	120	120	34	94	66	7,8
	60	5,5	183								
	62	6,1	197								
WKL 70 - 12	63	6,2	196	100	M12	148	140	40	112	79	13,6
	70	8,6	245								
	73	9,7	266								
WKL 80 - 12	74	10	282	160	M14	170	170	44	130	94	21,4
	80	13	326								
	85	15	364								
WKL 90 - 12	86	17	387	240	M16	185	200	50	144	104	29,3
	90	19	421								
	95	22	466								
WKL 100 - 12	96	23	487	240	M16	197	210	54	148	114	34,2
	100	26	523								
	106	31	579								
WKL 120 - 12	107	35	659	240	M16	230	230	65	174	134	50,1
	120	48	796								
	125	53	850								

*Tightening bolts: standard DIN EN ISO 4014/4017 Grade 10.9, alternative DIN EN ISO 4762 Grade 10.9
M16 and upwards with washers: DIN EN ISO 7416 When ordering please state : e. g. WKL 40 - 12 x 43 (Type x Ø d_w)

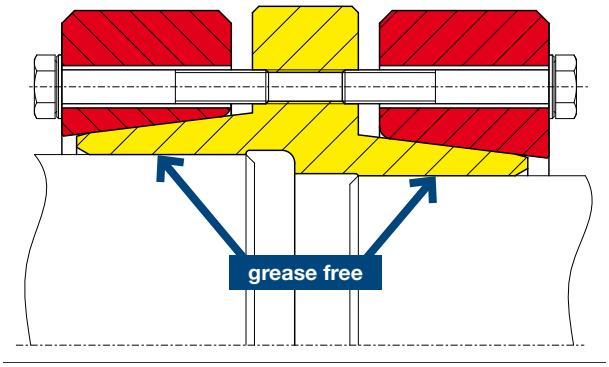
Type	d_w	M_t	P_{ax}	M_a	B*	D	L	h	A	d_1	kg
	mm	kNm	kN	Nm		mm	mm	mm	mm	mm	
WKL 140 - 12	126	56	895	470	M20	290	250	76	206	160	87,7
	140	74	1064								
	150	89	1188								
WKL 160 - 12	150	82	1096	470	M20	320	280	83	234	180	115
	160	97	1216								
	165	105	1277								
WKL 180 - 12	165	116	1404	470	M20	340	310	94	260	205	152
	180	145	1613								
	185	156	1684								
WKL 200 - 12	185	167	1805	470	M20	370	350	96	266	226	192
	200	203	2034								
	210	230	2190								
WKL 220 - 12	210	234	2224	820	M24	405	390	118	320	246	252
	220	262	2385								
	230	293	2548								
WKL 240 - 12	230	273	2377	820	M24	430	430	128	340	267	302
	240	304	2536								
	250	337	2696								
WKL 260 - 12	240	325	2712	1210	M27	460	450	138	366	288	376
	250	361	2888								
	260	398	3065								
WKL 280 - 12	260	431	3312	1210	M27	485	470	154	400	308	443
	270	473	3504								
	280	518	3698								
WKL 300 - 12	280	537	3834	1210	M27	520	470	162	420	328	502
	290	585	4035								
	300	636	4237								
WKL 320 - 12	300	667	4450	1640	M30	550	510	180	446	348	609
	310	723	4664								
	320	781	4881								
WKL 340 - 12	320	811	5066	1640	M30	590	510	184	466	368	694
	330	874	5294								
	340	939	5525								
WKL 360 - 12	340	973	5725	2210	M33	650	530	192	490	398	881
	350	1043	5961								
	360	1116	6199								
WKL 390 - 12	370	1199	6479	2210	M33	670	580	216	526	428	1004
	380	1278	6725								
	390	1360	6972								
WKL 420 - 12	400	1647	8234	2210	M33	740	600	226	550	448	1257
	410	1746	8517								
	420	1848	8801								
WKL 460 - 12	430	1841	8561	2210	M33	780	640	246	590	498	1483
	450	2050	9112								
	460	2160	9390								
WKL 500 - 12	470	2568	10929	2850	M36	860	690	276	648	540	1989
	480	2700	11249								
	500	2974	11895								
WKL 550 - 12	510	3014	11820	2850	M36	960	760	296	710	600	2739
	530	3301	12456								
	550	3602	13097								
WKL 600 - 12	560	3610	12893	2850	M36	1000	780	310	760	650	2957
	580	3921	13520								
	600	4245	14151								
WKL 650 - 12	620	4555	14695	2850	M36	1080	820	320	824	700	3501
	630	4732	15023								
	650	5097	15684								
WKL 700 - 12	660	5360	16243	2850	M36	1140	840	340	890	760	4056
	680	5751	16916								
	700	6158	17593								
WKL 750 - 12	710	6256	17623	2850	M36	1280	880	360	950	814	5511
	730	6679	18298								
	750	7116	18977								

Further sizes on request. Technical changes to be reserved without notice.
*Tightening bolts: standard DIN EN ISO 4014/4017 Grade 10.9, alternative DIN EN ISO 4762 Grade 10.9
M16 and upwards with washers: DIN EN ISO 7416 When ordering please state : e. g. WKL 240 - 12 x 230 (Type x Ø d_w)

Mounting and Removal Instructions for

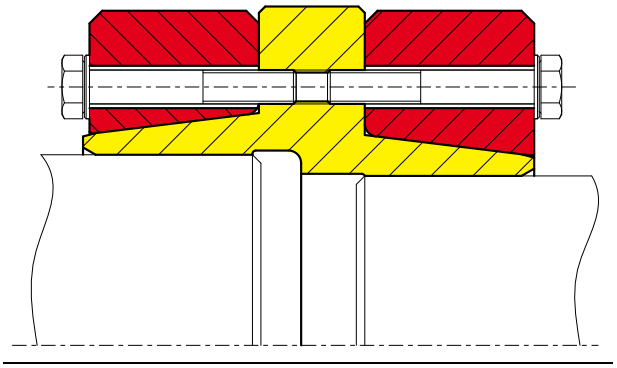
Shaft Coupling Type WK, WKL

Before mounting



Conical surfaces and bolts are lubricated

After mounting



Mounting

The STÜWE shaft couplings type WK resp. WKL are supplied ready to be mounted. Therefore they should not be dismantled prior to employing the unit for the first time.

1. Using a solvent, degrease the shaft and the bore. Safe torque transmission substantially depends on this procedure. Dirty solvent or cleaning clothes should not be used for degreasing.
2. Push shaft coupling onto the shaft ends and align shafts exactly. The coupling is not able to compensate any misalignment or angle divergence.
3. Tighten four bolts evenly distributed over the circumference by reduced torque (approx. 50 to 70 % of maximum tightening torque).
4. Afterwards tighten all tightening bolts uniformly, one by one, over several revolutions until the specified tightening torque is achieved in all bolts. The correct mounting of the assembly can be checked easily: the clamping rings (WK) respectively the clamping rings and the center section (WKL) must be in tight contact.
5. Check each tightening bolt twice for the required tightening torque.

If the shaft clearance is bigger than state in our catalogue, please contact us!

Dismounting

The greased tapers are not self-locking.

The dismounting process is similar to mounting. The shaft coupling is released by loosing the tightening bolts uniformly one by one, initially not more than a quarter turn per bolt, until it is observed that the outer rings have released from the inner ring.

Under no circumstances should the locking bolts be completely removed as this could be dangerous and result in injury.

Cleaning and lubrication

Dismounted shaft couplings do not have to be dismantled and re-lubricated before remounting.

The shaft coupling has to be cleaned and re-lubricated only if employed in dirty environment.

Use a solid containing lubricant with a high content of MoS_2 and a coefficient of friction of $\mu = 0{,}04$ to lubricate the conical surfaces.
Usually a combination of bonded coating and paste is chosen.

Examples:

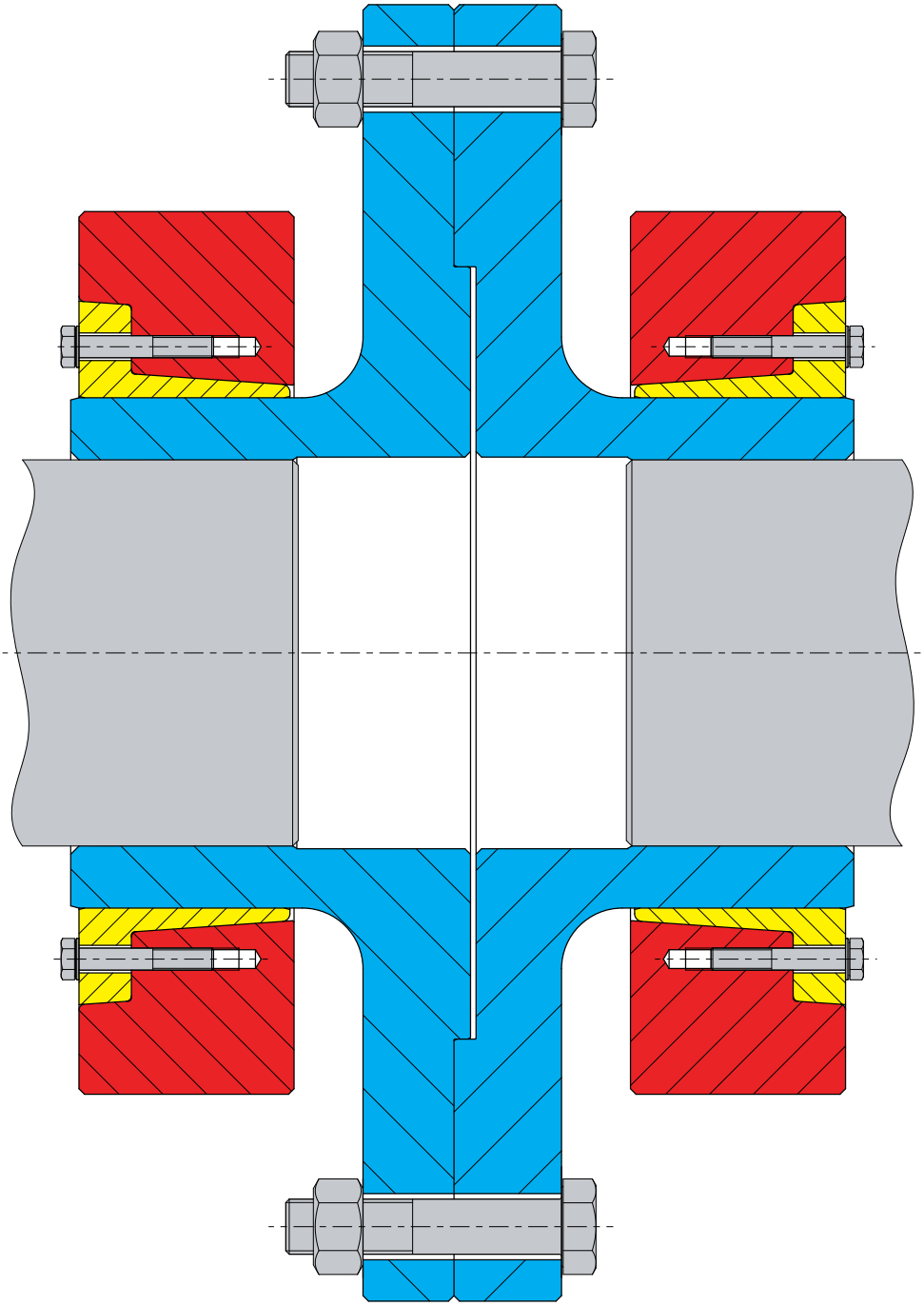
Lubricant	Source
Molykote D 321 R (bonded coating)	Dow Corning
Aema-Sol MO 84-K (bonded coating)	A.C. Matthes
Molykote G Rapid + (paste)	Dow Corning
Aema-Sol M 19 P (paste)	A.C. Matthes

The coupling bore (Ø d_w) has to stay grease free.

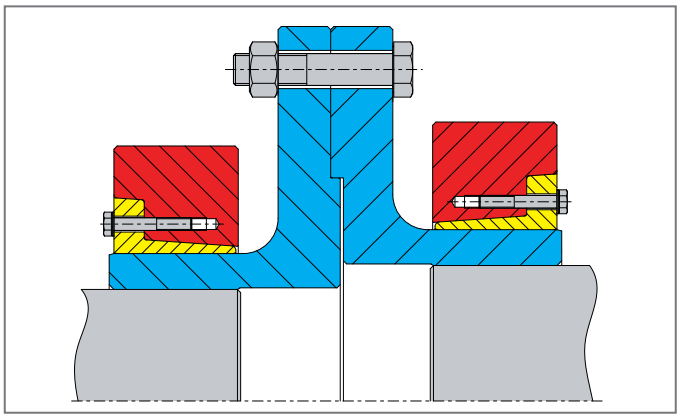
The bolts have to be renewed if possible.
The bolts are lubricated with commercially availabe bolt lubricants ($\mu = 0{,}1$).

Flange Coupling

Series FKH, FKHA and FKHYD



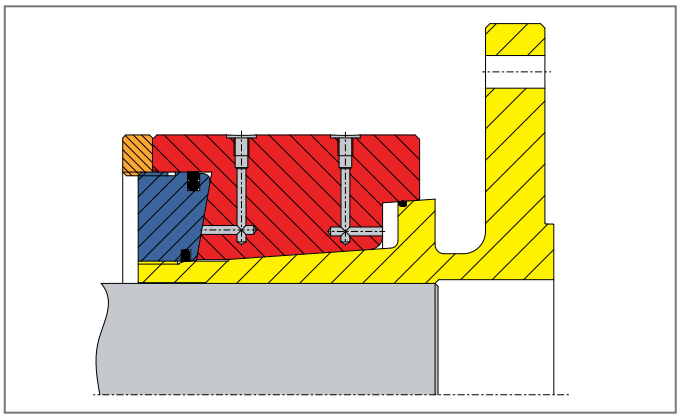
Flanges



Complete flange coupling comprising two halves for connecting shafts of similar or different shaft diameters.

Mechanical or hydraulic locking.

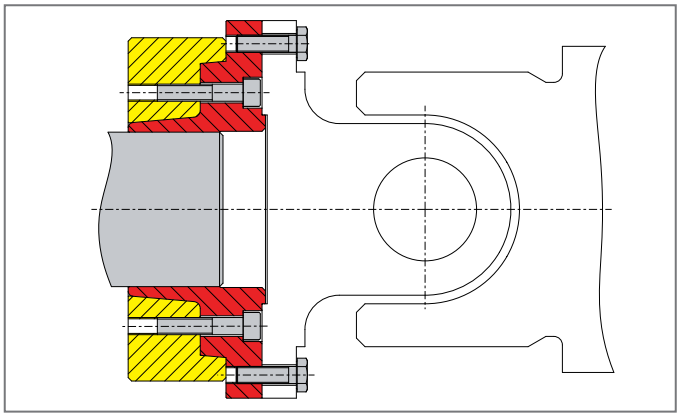
Also with marine classification inspection.



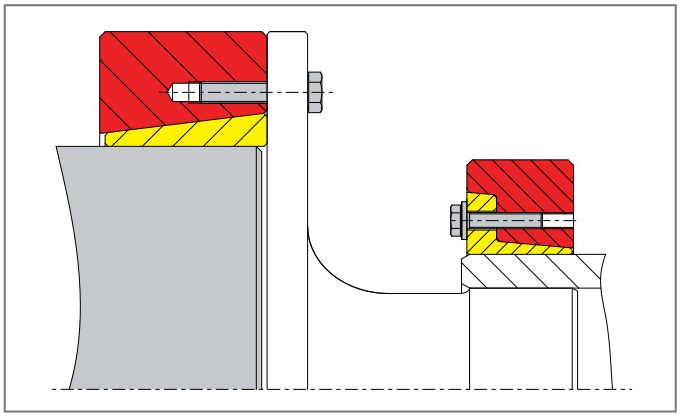
Flange coupling with internal or external spigot locations for connecting flange.

Mechanical or hydraulic locking.

Also with marine classification inspection.

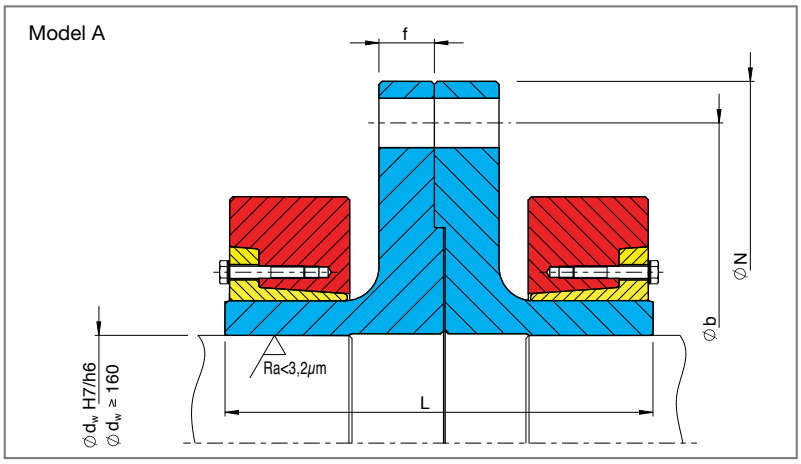


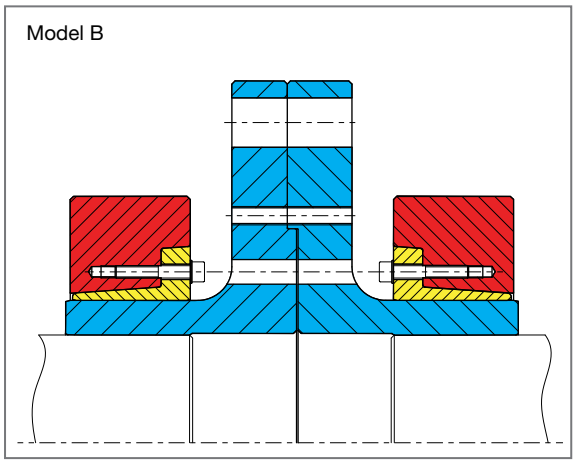
Universal joint connection
(cardan shaft coupling).



Special flanges for optimal solutions.

Flange Coupling FKH





Code: M_t maximum transmissible torque
M_a required tightening torque of the tightening bolts (see also “Mounting and Removal Instructions“)
M_a Fl required tightening torque of the flange bolts

Type	d_w	M_t	Shrink Disc	M_a	B**	N	b	L	f	Flange bolts*	M_a Fl	kg
	mm	kNm		Nm		mm	mm	mm	mm		Nm	
FKH 240 - 80	70	6	HSD 100 - 22	160	M14	240	206	140	18	6 x M16	210	27
	75	7										
	84	10										
FKH 300 - 90	85	12	HSD 125 - 22	160	M14	300	260	164	20	6 x M20	420	47
	95	16										
	100	19										
FKH 340 - 100	95	17	HSD 140 - 22	160	M14	340	280	196	24	5 x M24	720	61
	100	20										
	115	28										
FKH 370 - 110	115	30	HSD 155 - 22	160	M14	370	310	216	24	8 x M24	720	78
	120	33										
	125	36										
FKH 400 - 120	120	37	HSD 165 - 22	240	M16	400	350	234	28	8 x M24	720	110
	125	41										
	135	50										
FKH 400 - 130	130	45	HSD 175 - 22	240	M16	400	350	234	28	8 x M24	720	112
	135	49										
	145	58										
FKH 470 - 140	140	64	HSD 185 - 22	240	M16	470	416	284	36	10 x M30	1450	173
	145	70										
	150	76										
FKH 470 - 150	150	80	HSD 200 - 22	240	M16	470	416	278	36	10 x M30	1450	182
	155	87										
	160	93										
FKH 520 - 160	160	103	HSD 220 - 22	470	M20	520	456	308	36	12 x M30	1450	245
	165	110										
	170	119										
FKH 560 - 180	170	122	HSD 240 - 22	470	M20	560	496	322	36	16 x M30	1450	302
	180	140										
	190	159										

*Grade 10.9 **Tightening bolts for Model A: DIN EN ISO 4014/4017, Model B: DIN EN ISO 4762
When ordering please state: e. g. FKH 340 - 100 x 100 (Type x Ø d_w) Quantity & size of flange bolts

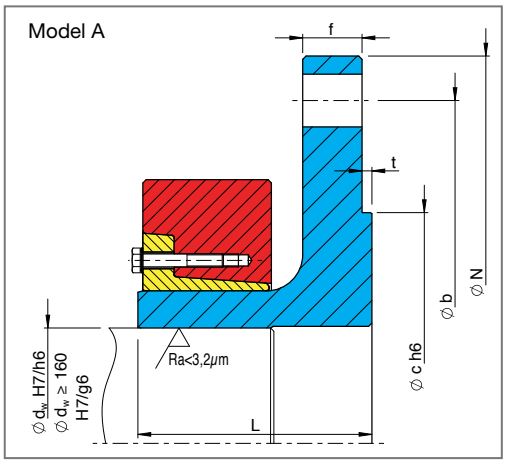
Type	d_w mm	M_t kNm	Shrink Disc	M_a Nm	B**	N mm	b mm	L mm	f mm	Flange bolts*	M_a Fl Nm	kg
FKH 560 - 200	190	163	HSD 260 - 22	470	M20	560	496	322	36	16 x M30	1450	334
	200	184										
	210	207										
FKH 590 - 220	210	215	HSD 280 - 22	470	M20	590	526	392	40	18 x M30	1450	420
	220	240										
	230	267										
FKH 630 - 240	220	271	HSD 300 - 22	820	M24	630	550	408	40	18 x M30	1450	494
	230	300										
	240	331										
FKH 630 - 250	240	301	HSD 320 - 22	820	M24	630	570	408	40	18 x M30	1450	534
	250	332										
	260	364										
FKH 710 - 260	250	390	HSD 340 - 22	820	M24	710	656	458	40	24 x M30	1450	717
	260	427										
	270	466										
FKH 710 - 280	270	496	HSD 360 - 22	820	M24	710	656	458	40	24 x M30	1450	754
	280	539										
	290	584										
FKH 800 - 300	290	640	HSD 390 - 22	1210	M27	800	736	500	50	28 x M30	1450	1006
	300	691										
	320	800										
FKH 800 - 330	320	742	HSD 420 - 22	1210	M27	800	736	540	50	28 x M30	1450	1158
	330	797										
	350	911										

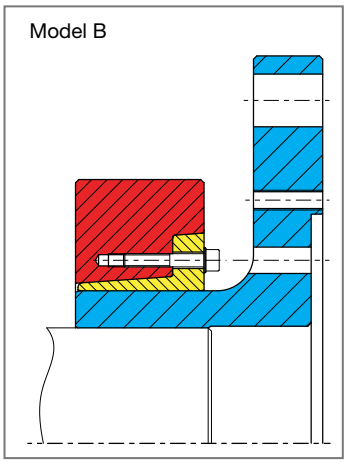
Further sizes on request.
Technical changes to be reserved without notice.

*Grade 10.9 **Tightening bolts for Model A: DIN EN ISO 4014/4017
Model B: DIN EN ISO 4762
When ordering please state: e. g. FKH 710 - 260 x 270 (Type x Ø d_w)
Quantity & size of flange bolts

Further sizes on request. Technical changes to be reserved without notice.
*Grade 10.9 **Tightening bolts for Model A: DIN EN ISO 4014/4017, Model B: DIN EN ISO 4762
When ordering please state : e. g. FKHA 590 - 220 x 220 (Type x Ø d_w) Dimensions N,b,c,t Quantity & size of flange bolts

Flange Coupling FKHA





Code:

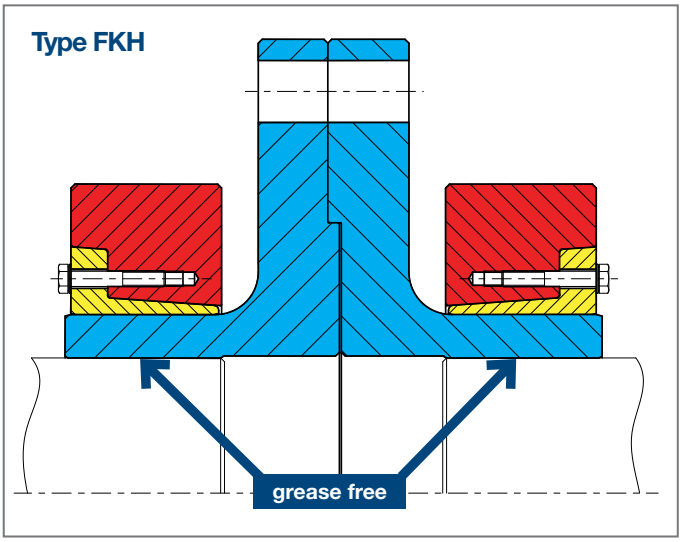
M_t maximum transmissible torque
M_a required tightening torque of the tightening bolts (see also “Mounting and Removal Instructions“)
M_a Fl required tightening torque of the flange bolts

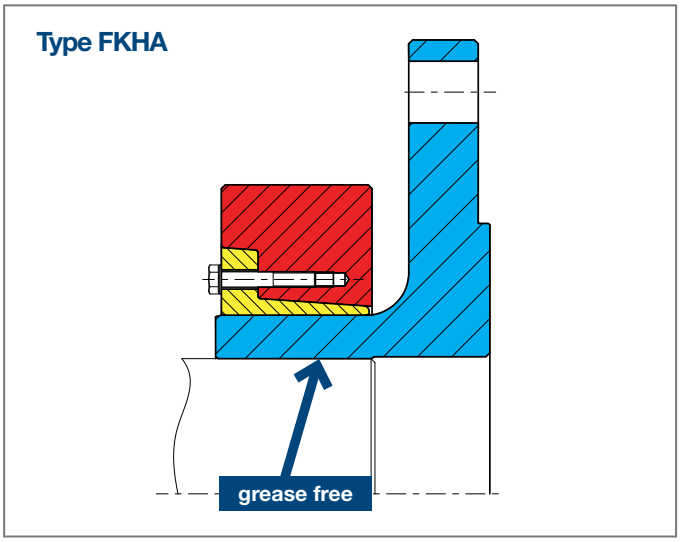
Dimensions N, b, c, t plus quantity and size of flange bolts depend on the counterflange and can be changed if necessary.
Flanges can also be supplied counterbored for internal spigot location.

Type	d_w	M_t	Shrink Disc	M_a	N	b	c	L	f	t	Flange bolts*	M_a Fl	kg
	mm	kNm		Nm	mm	mm	mm	mm	mm	mm		Nm	
FKHA 340 - 100	95	17	HSD 140 - 22	160	340	280	200	98	24	6	5 x M24	720	28
	100	19											
	110	24											
FKHA 370 - 120	115	30	HSD 155 - 22	160	370	310	220	114	30	6	8 x M24	720	40
	120	33											
	125	36											
FKHA 400 - 120	120	35	HSD 165 - 22	240	400	350	250	114	30	6	8 x M24	720	50
	125	38											
	130	42											
FKHA 400 - 130	130	42	HSD 175 - 22	240	400	350	250	114	30	6	8 x M24	720	51
	135	46											
	140	50											
FKHA 470 - 140	140	61	HSD 185 - 22	240	470	416	280	139	36	6	10 x M30	1450	80
	145	67											
	150	72											
FKHA 470 - 150	150	78	HSD 200 - 22	240	470	416	280	142	36	6	10 x M30	1450	84
	155	84											
	160	90											
FKHA 520 - 160	160	101	HSD 220 - 22	470	520	456	320	150	36	8	12 x M30	1450	112
	165	109											
	170	117											
FKHA 560 - 180	170	122	HSD 240 - 22	470	560	496	360	161	36	8	16 x M30	1450	137
	180	140											
	190	159											
FKHA 560 - 200	190	163	HSD 260 - 22	470	560	496	360	165	36	8	16 x M30	1450	152
	200	184											
	210	207											
FKHA 590 - 220	210	215	HSD 280 - 22	470	590	526	380	200	40	8	18 x M30	1450	184
	220	240											
	230	267											
FKHA 630 - 250	230	272	HSD 320 - 22	820	630	550	430	204	40	8	18 x M30	1450	239
	250	332											
	260	364											
FKHA 710 - 280	260	455	HSD 360 - 22	820	710	656	480	229	40	8	24 x M30	1450	338
	280	539											
	290	584											
FKHA 800 - 300	290	640	HSD 390 - 22	1210	800	736	520	250	50	8	28 x M30	1450	451
	300	691											
	320	800											
FKHA 800 - 330	320	742	HSD 420 - 22	1210	800	736		250	50		28 x M30	1450	513
	330	797											
	340	853											

Mounting- und Removal Instructions for

Flange Coupling FKH





Mounting

The STÜWE flange couplings type and FKHA are supplied ready to be mounted. Therefore they should not be dismantled prior to employing the unit for the first time.

1. Degrease the flange bore and shaft. Safe torque transmission substantially depends on this procedure. Dirty solvents or cleaning cloths are unsuitable for degreasing.
2. Push the flange onto the shaft.
3. Tighten four bolts evenly distributed over the circumference by reduced torque (approx. 50 to 70 % of maximum tightening torque) on each shrink disc.
4. Afterwards tighten all tightening bolts uniformly, one by one, over several revolutions. When tighten the bolts it will initially tilt with an in and out radial motion until the fit clearances are bridged.

   Thereafter a true seat between bore and shaft is achieved and any tilting eliminated.
5. All bolts are tightening until the outer ring and inner ring are flush. This indicates that the full transmissible torque is achieved.

   Check each tightening bolt twice for the required tightening torque.

Dismounting

This is similar to mounting.

1. Loosen all locking bolts uniformly one by one, initially not more than a quarter turn per bolt, until it is observed that the outer ring has released from the inner ring.

   Under no circumstances should the locking bolts be completely removed as this could be dangerous and result in injury.
2. Should the outer ring, when loosing the bolts, not slide automatically from the inner ring, this can be assisted by removing those locking bolts adjacent to the tapped holes provided for jacking purposes and screwing them into these tapped holes. The jacking procedure must continue until release of the outer ring is achieved.
3. Dismount shaft or draw off flange. Remove rust which may have formed on the shaft in front of the flange.

Cleaning and greasing

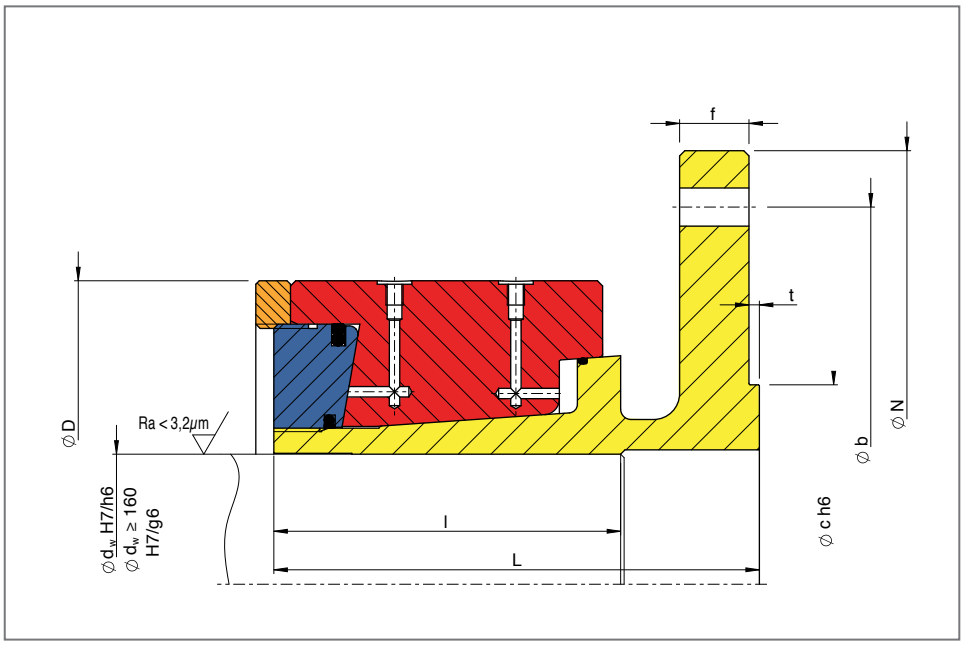
Dismantled shrink discs do not have to be dismantled and re-lubricated before remounting.
The shrink disc has to be cleaned and re-lubricated only if employed in dirty environment.
Use a solid containing lubricant with a high content of MoS_2 and a coefficient of friction of $\mu = 0{,}04$ for the conical surfaces. Usually a combination of bonded coating and paste is chosen.

Examples for Lubricant

Lubricant	Source
Molykote D 321 R (bonded coating)	Dow Corning
Aema-Sol MO 84-K (bonded coating)	A.C. Matthes
Molykote G Rapid + (paste)	Dow Corning
Aema-Sol M 19 P (paste)	A.C. Matthes

The bolts have to be renewed if possible. The bolts are lubricated with commercially availabe bolt lubricants ($\mu = 0{,}1$).

Flange Coupling FK HYD



Code:

M_t maximum transmissible torque

max. hyd. press
maximum hydraulic clamping pressure

Dimensions N, b, c, t plus quantity and size of flange bolts depend on the counterflange and can be changed if necessary.

Flanges can also be supplied counterbored for internal spigot location.

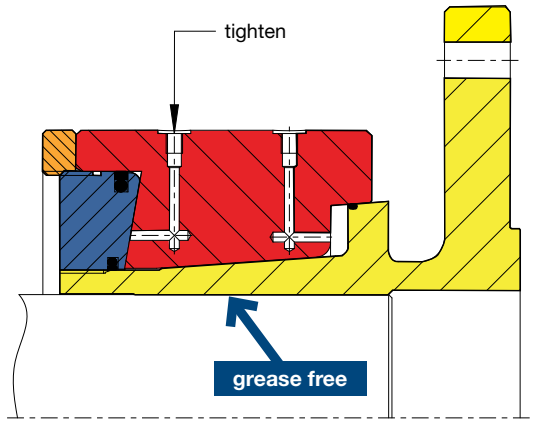
Type	d_w	M_t	max. hyd. press	N	D	L	l	f	kg
	mm	kNm	bar	mm	mm	mm	mm	mm	
FK HYD 400 - 120	120	40	450	400	300	150	90	30	69
	130	48							
	140	57							
FK HYD 470 - 160	150	87	450	470	340	185	117	36	111
	160	101							
	170	115							
FK HYD 520 - 180	170	115	450	520	370	185	117	36	131
	180	130							
	190	147							
FK HYD 560 - 200	190	167	450	560	430	210	140	36	189
	200	186							
	210	208							
FK HYD 590 - 220	220	248	450	590	460	240	160	40	234
	230	275							
	240	304							
FK HYD 630 - 240	240	360	450	630	520	260	180	40	319
	250	394							
	260	430							
FK HYD 710 - 260	260	435	450	710	570	310	220	40	455
	270	474							
	280	515							
FK HYD 800 - 300	290	765	450	800	640	320	220	50	611
	300	832							
	310	901							
FK HYD 900 - 340	330	850	450	900	720	360	255	50	857
	340	910							
	360	1030							
FK HYD 1000 - 380	360	1016	450	1000	760	368	260	50	996
	380	1147							
	400	1270							
FK HYD 1100 - 420	400	1915	450	1100	850	420	290	50	1342
	420	2100							
	440	2300							

Further sizes on request. Technical changes to be reserved without notice.
When ordering please state : e. g. FK HYD 520 - 180 x 180 (Type x Ø d_w) Dimensions N,b,c,t
Quantity & size of flange bolts

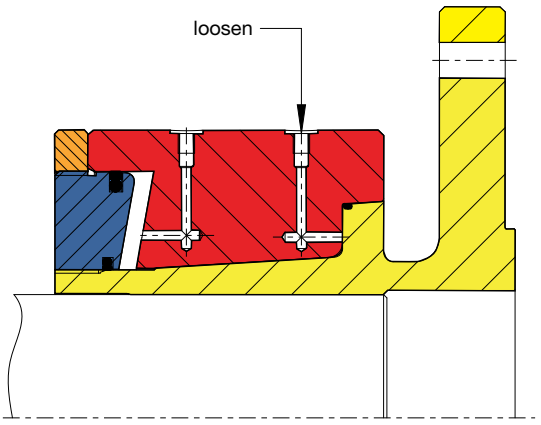
Mounting and Removal Instructions for

Flange Coupling FK HYD

Before mounting



After mounting



Mounting

The STÜWE flange couplings type FKHYD are supplied ready to be mounted and with hydraulic oil in the pressure chamber.

1. Shaft and hub must be absolutely free of grease in the fit area. Full torque transmission is absolutely dependant on this measure. Do not use contaminated cleaning solvents and unclean rags.
2. Push the flange on to the shaft.
3. Remove screw plugs from the ”Spannen” (Tighten) and ”Entspannen” (Loosen) connections. Collect any oil leakage.
4. Connect pressure line to connection marked ”Spannen” (Tighten).
5. Tighten the shrink disc by applying hydraulic pressure. The correct tightening force is reached as soon as the end faces of the outer and inner ring are aligned (visually observed to be flush). **Maximum allowable hydraulic pressure is 450 bar!**
6. When pressurising the flange it will initially tilt with an in and out radial motion until the fit clearances are bridged. Thereafter a true seat between bore and shaft is achieved and any tilting eliminated. The correct tightening force requirement is achieved as soon as the outer and inner rings are aligned (visually observed to be flush). The max. allowable hydraulic pressure is stamped on the Flange Coupling.
7. Tighten the counter nut by hand against the outer ring.
8. Release the hydraulic pressure. The safety nut will then be tightly compressed against the outer ring due to the stored energy.
9. Replace the screw plugs to retain the hydraulic oil in flange coupling.

Dismounting

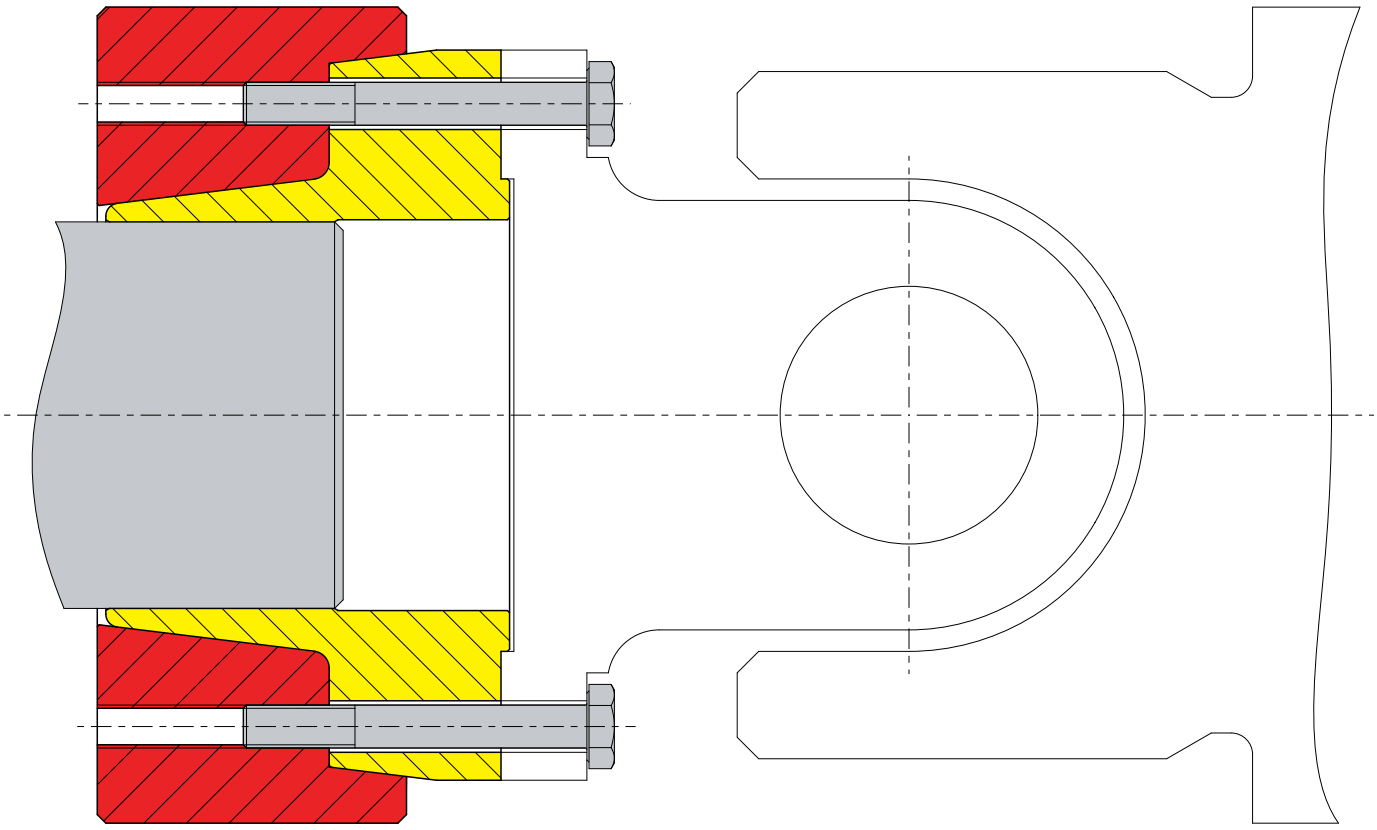
1. Remove screw plugs from the ”Spannen” (Tighten) and ”Entspannen” (Loosen) connections. Collect any oil leakage.
2. Connect the pressure line to the connection marked ”Spannen” (Tighten).
3. Increase the hydraulic pressure until the safety nut can be loosened by hand (max.450 bar!). Continue loosening the safety nut.

Make sure that a minimum of two turns remain connected when loosening the ring nut. Otherwise the nut might fall off! This could be dangerous and result in injury.

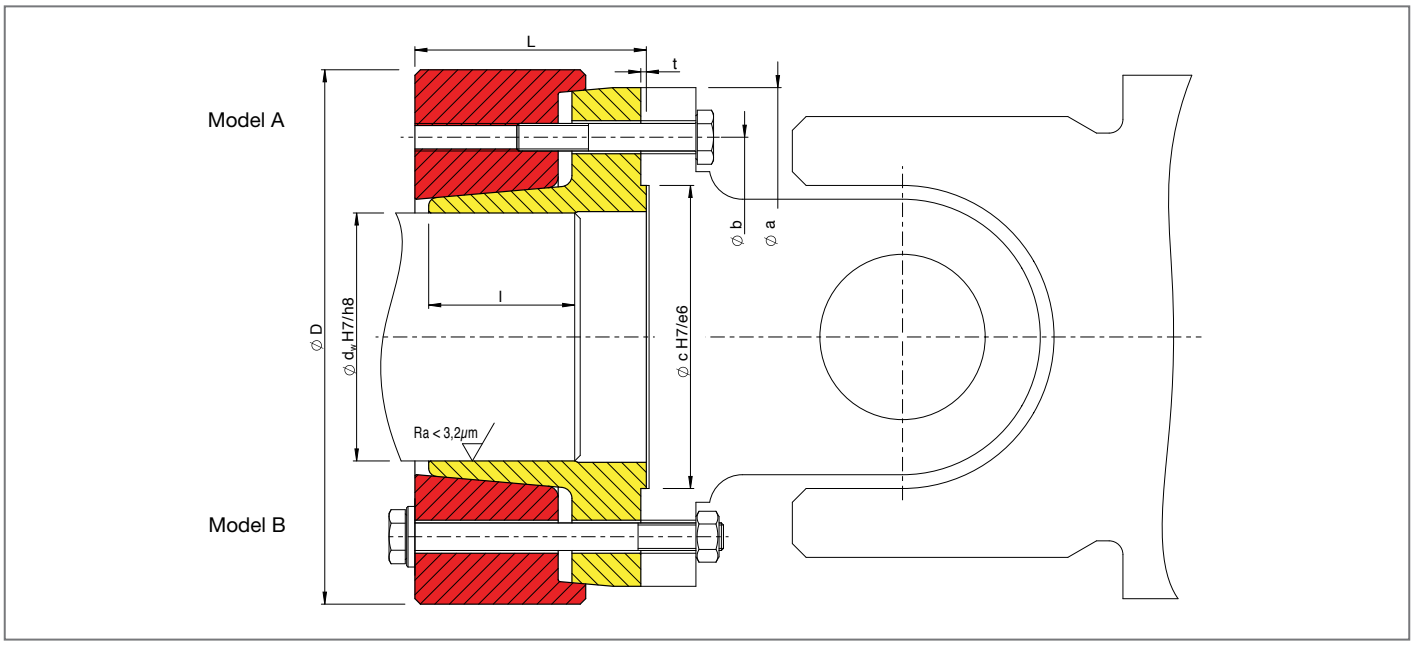
4. Release the hydraulic pressure and connect the pump to the ”Entspannen” (Loosen) connection.
5. Increasing the oil pressure (max. 450 bar!) will initiate the release of the connection. **As soon as the outer ring starts sliding towards the ring nut reduce the oil pressure immediately to max. 150 bar.** When the outer ring reaches the support ring the oil pressure will automatically increase. **At this point fully release the oil pressure. Make sure the oil pressure does not exceed 180 bar.**
6. The connection is loose now. Collect oil leakage coming out of the ”Spannen” (Tighten) connection.
7. Leave all hydraulic oil within the shrink disc and replace the ”Spannen” (Tighten) and ”Entspannen” (Loosen) screw plugs so that the flange coupling is oil tight.
8. Remove the flange from the shaft. Prior to removal clean off any rust from the shaft in the immediate vicinity of the flange.

Cardan Shaft Coupling

Series 21, 22 and 23



Cardan Shaft Coupling GF Series 21



Dimension L apply to untightened units.

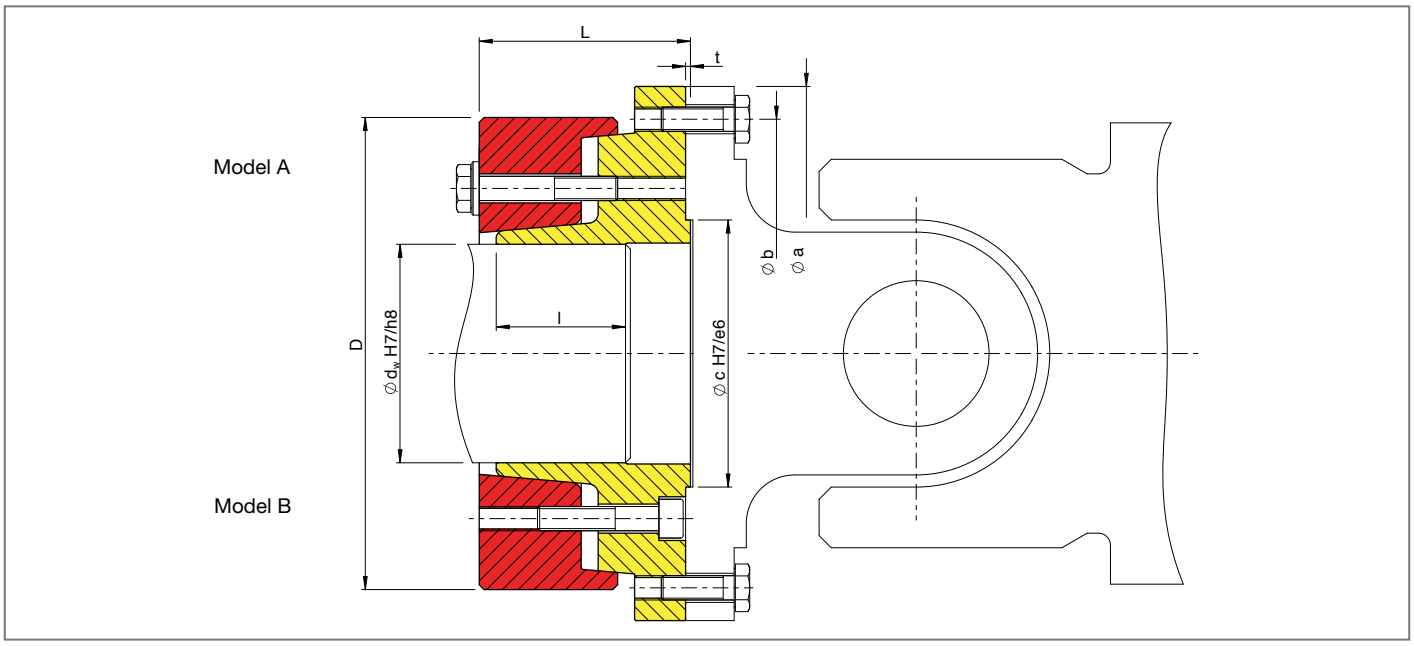
Type	d_w*	M_t	D	l	L	a	b	c	t	Flange	M_a	Number of	kg
	mm	kNm	mm	mm	mm	mm	mm	mm	mm	bolts**	Nm	bolts**	
GF 58 - 21	20	0,12	60	18	22	58	47	30	1,3	M5 x 16	9	4	0,5
	24	0,17											
	28	0,24											
GF 65 - 21	20	0,16	72	20	24	65	52	35	1,5	M6 x 20	15	4	0,9
	24	0,22											
	30	0,33											
GF 75 - 21	25	0,29	80	22	27	75	62	42	1,8	M6 x 20	15	6	1,2
	30	0,41											
	40	0,66											
GF 90 - 21	30	0,38	100	26	31	90	74,5	47	2	M8 x 25	35	4	2,2
	40	0,59											
	45	0,80											
GF 100 - 21	40	0,80	115	26	32	100	84	57	2	M8 x 25	35	6	2,8
	50	1,17											
	55	1,54											
GF 120 - 21	40	1,73	138	28	35	120	101,5	75	2	M10 x 30	70	8	4,6
	60	3,03											
	70	4,24											
GF 150 - 21	50	4,00	170	39	47	150	130	90	2,5	M12 x 40	120	8	9,4
	70	6,53											
	85	9,52											

Further sizes on request. Technical changes to be reserved without notice.

* Dia d_w can be chosen within given limitations.
** Flange holes, bolt size and bolt quantity may be variant (dependent on the seller of the cardan shaft).
Flange bolts: Grade 12.9

Model B: M16 and upwards with washers: DIN EN ISO 7416
When ordering please state : e. g. GF 120 - 21 x 60 x A (Type x Ø d_w x model)
additional: flange holes, bolt size and bolt quantity if variant from catalogue

Cardan Shaft Coupling GF Series 22



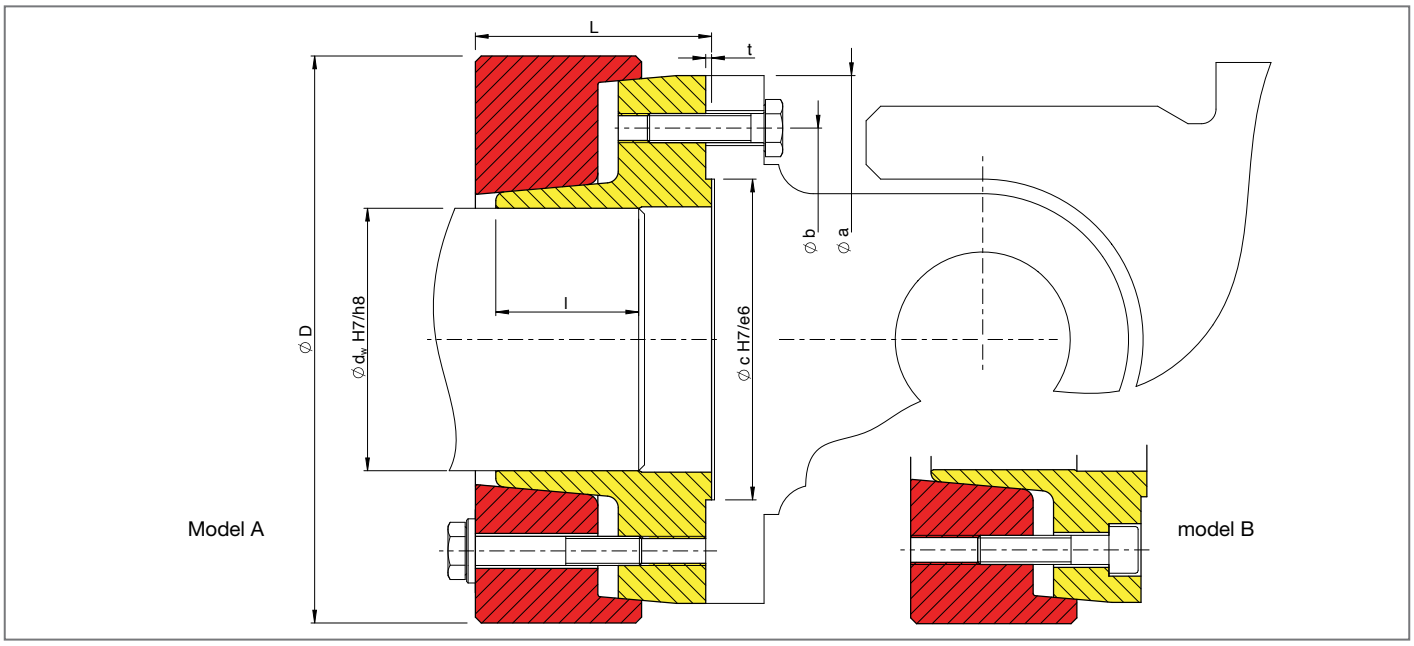
Dimension L apply to untightened units.

Type	d_w*	M_t	Tightening	M_a	D	l	L	a	b	c	t	Flange	M_a	Quantity	kg
	mm	kNm	bolts**	Nm	mm	mm	mm	mm	mm	mm	mm	bolts**	Nm	of bolts**	
GF 180 - 22	65	7	M14	160	170	43	70	180	155,5	110	2	M14 x 40	160	8	12,9
	75	10													
	85	15													
GF 225 - 22	80	12	M16	240	197	51	86	225	196	140	4	M16 x 40	240	8	21,4
	90	17													
	100	24													
GF 250 - 22	90	18	M16	240	215	54	92	250	218	140	4	M18 x 40	340	8	26,4
	100	25													
	110	33													
GF 285 - 22	90	20	M20	470	230	62	100	285	245	175	5	M20 x 40	470	8	34,6
	110	34													
	120	43													
GF 315 - 22	110	37	M24	820	290	73	121	315	280	175	5	M22 x 50	640	8	63,0
	130	58													
	140	71													
GF 350 - 22	130	52	M24	820	340	83	137	350	310	220	7	M22 x 55	640	10	103,5
	160	91													
	180	124													
GF 390 - 22	160	95	M24	820	370	104	152	390	345	250	7	M24 x 60	820	10	130,0
	180	131													
	200	172													
GF 435 - 22	180	136	M27	1210	405	115	176	435	385	280	8	M27 x 70	1210	10	175,3
	200	179													
	220	229													

Further sizes on request. Technical changes to be reserved without notice.

*Dia d_w can be chosen within given limitations.
**Grade 10.9; Flange holes, bolt size and bolt quantity may be variant (dependent on the seller of the cardan shaft).
For Model A tightening bolts M16 and upwards are used with washers (DIN EN ISO 7416).
When ordering please state: e. g. GF 225 - 22 x 90 x A (Type x Ø d_w x model)
additional: flange holes, bolt size and bolt quantity if variant from catalogue

Cardan Shaft Coupling GF Series 23



Dimension L apply to untightened units.

Type	d_w*	M_t	Tightening	M_a	D	l	L	a	b	c	t	Flange-	M_a	Quantity	kg
	mm	kNm	bolts**	Nm	mm	mm	mm	mm	mm	mm	mm	bolts**	Nm	of bolts**	
GF 180 - 23	90	13	M14	160	215	42	76	180	155,5	110	2,5	M14 x 30	160	8	21,0
	110	23													
	120	29													
GF 225 - 23	110	26	M16	240	263	50	87	225	196	140	4	M16 x 40	240	8	38,2
	130	41													
	150	60													
GF 250 - 23	120	35	M16	240	300	61	97	250	218	140	5	M18 x 40	340	8	56,5
	150	65													
	170	90													
GF 285 - 23	130	56	M20	470	320	74	115	285	245	175	5	M20 x 40	470	8	74,9
	160	94													
	180	127													
GF 315 - 23	150	81	M24	820	370	88	136	315	280	175	5	M22 x 50	640	8	117,9
	180	131													
	200	171													
GF 350 - 23	190	147	M24	820	430	103	155	350	310	220	7	M22 x 55	640	10	175,3
	220	213													
	240	265													
GF 390 - 23	210	213	M24	820	460	123	175	390	345	250	7	M24 x 60	820	10	226,1
	240	298													
	260	363													
GF 435 - 23	230	262	M27	1210	520	128	192	435	385	280	7	M27 x 70	1210	10	321,1
	260	356													
	300	507													

Further sizes on request. Technical changes to be reserved without notice.

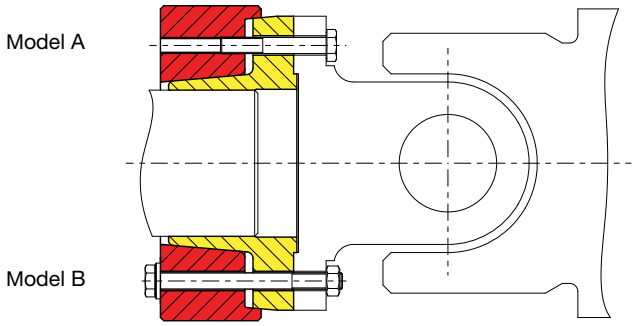
*Dia d_w can be chosen within given limitations.
**Grade 10.9; Flange holes, bolt size and bolt quantity may be variant (dependent on the seller of the cardan shaft).
For Model A tightening bolts M16 and upwards are used with washers (DIN EN ISO 7416).

When ordering please state: e.g. GF 250 - 23 x 150 x A (Type x Ø d_w x model)
additional: flange holes, bolt size and bolt quantity if variant from catalogue

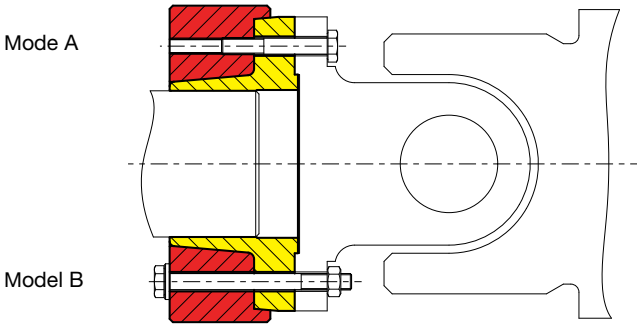
Mounting and Removal Instructions for

Cardan Shaft Coupling

Before mounting **Type GF 21**



After mounting **Type GF 21**



Mounting

The STÜWE cardan shaft couplings GF are supplied ready to be mounted.

Series 21 with tightening bolts

Series 22 and 23 with tightening bolts, without flange connecting bolts.

Therefore they should not be dismantled prior to employing the unit for the first time.

1. Degrease flange bore, shaft, and front of locking unit and cardan shaft.

Do not tighten the tightening bolts before the shaft is mounted.

2. Push flange onto the shaft.
3. Tighten the tightening bolts. It should consider the following:
   - With series 21 the locking unit and the cardan shaft will be connected in a single pass.
   - With series 22 and 23 all tightening screws have to be tightened in the first pass. In the second pass the cardan shaft has to be mounted with flange connecting bolts.

   Approach:

   3.1 Tighten four bolts evenly distributed over the circumference by reduced torque (approx. 50 to 70 % of maximum tightening torque).

   3.2 Afterwards tighten all tightening bolts uniformly, one by one, over several revolutions with the maximum torque until the outer ring hits the inner ring and until the bolts can not be tightened with the max. torque anymore.

   3.3 Check each tightening bolt twice for the required tightening torque.

Dismounting

This is similar to mounting.

1. With series 22 and 23 first remove all flange connecting bolts and the cardan shaft.
2. Loosen all tightening bolts uniformly and one by one, initially not more than a quarter turn per bolt.

Under no circumstances should the locking bolts be completely removed as this could be dangerous and result in injury.

3. Should the outer ring, when loosing the bolts, not slide automatically from the inner ring, this can be assisted by removing those locking bolts adjacent to the tapped holes provided for jacking purposes and screwing them into these tapped holes (only series 22 and 23).
4. Dismount shaft or pull off flange. Remove rust which may have formed on the shaft in front of the locking unit.

Cleaning and greasing

Dismounted cardan shaft connecting flanges do not have to be taken apart and re-lubricated before remounting. The conical surfaces have to be cleaned and regreased only if employed in dirty environment. Use a solid lubricant with a high content of MoS_2 and a coefficient of friction of $\mu = 0{,}04$ to lubricate the **conical surfaces.**

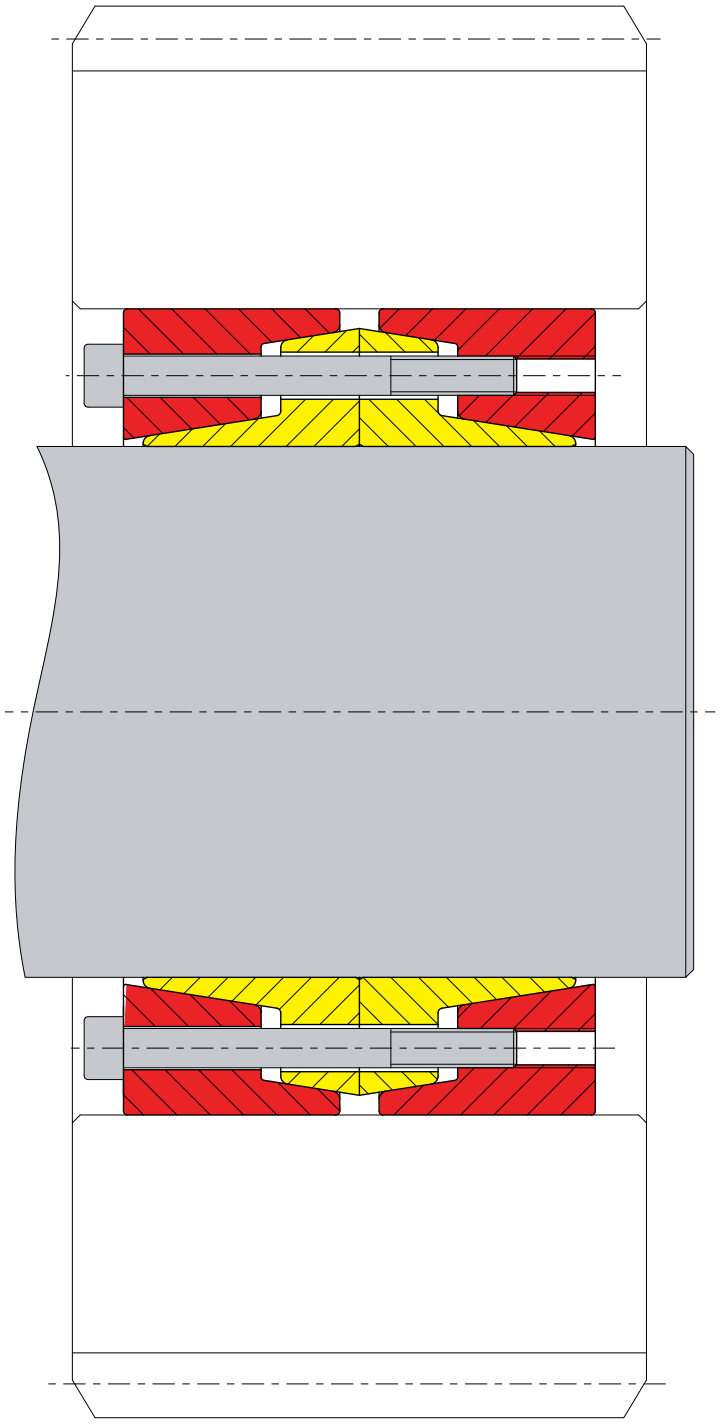
Examples:

Lubricant	Source
Molykote D 321 R (bonded coating)	Dow Corning
Aema-Sol MO 84-K (bonded coating)	A.C. Matthes
Molykote G Rapid + (paste)	Dow Corning
Aema-Sol M 19 P (paste)	A.C. Matthes

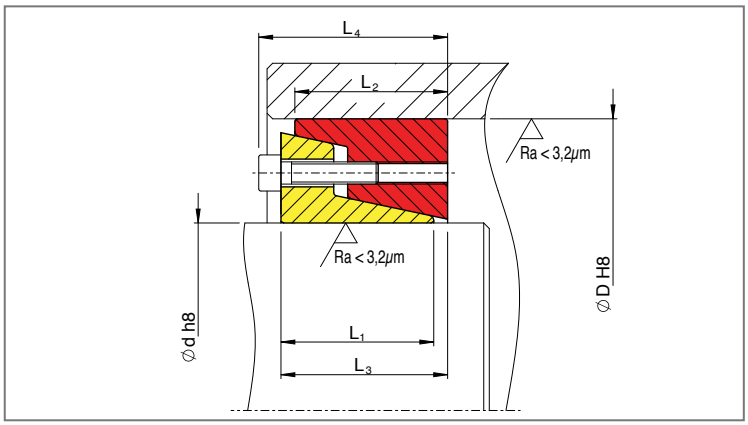
The bolts are lubricated with commercially availabe bolt lubricants.

Locking Unit Type IS

Series IS 1, ISN 1 and IS 4



Locking Unit Type IS



Code:

M_t maximum transmissible torque of a shrink disc with $P_{ax} = 0$

P_{ax} maximum transmissible axial load of a shrink disc with $M_t = 0$

M_a required tightening torque of the tightening bolts (see also “Mounting and Removal Instructions“)

P_w surface pressure on shaft

P_n surface pressure on hub

Dimensions L_3 and L_4 apply to untightened units.

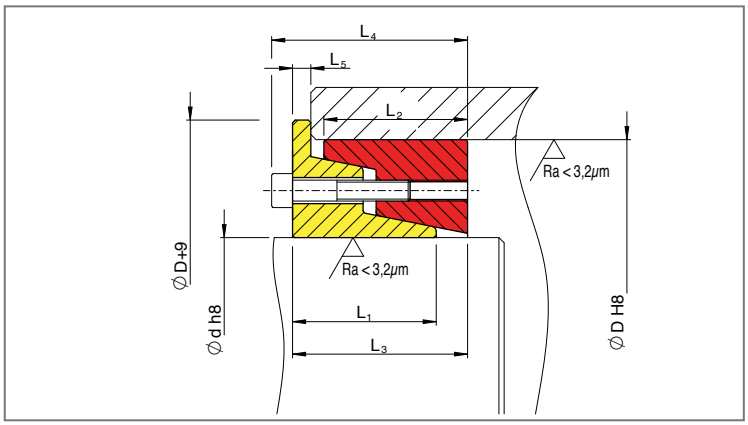
Type	d	x	D	M_t	P_{ax}	L_1	L_2	L_3	L_4	B*	M_a	P_w	P_n	kg
				kNm	kN	mm	mm	mm	mm		Nm	N/mm²		
IS 1	20	x	47	0,3	34	20	17	23	29	5 x M6	17	242	121	0,2
IS 1	22	x	47	0,4	34	20	17	23	29	5 x M6	17	220	121	0,2
IS 1	24	x	50	0,4	34	20	17	23	29	5 x M6	17	202	114	0,2
IS 1	25	x	50	0,4	34	20	17	23	29	5 x M6	17	194	114	0,2
IS 1	28	x	55	0,6	43	20	17	23	29	6 x M6	17	208	124	0,3
IS 1	30	x	55	0,6	43	20	17	23	29	6 x M6	17	194	124	0,3
IS 1	35	x	60	0,9	51	20	17	23	29	7 x M6	17	194	133	0,3
IS 1	40	x	65	1,0	51	20	17	23	29	8 x M6	17	194	140	0,3
IS 1	45	x	75	1,8	80	24	20	28	36	6 x M8	41	198	142	0,5
IS 1	50	x	80	2,3	92	24	20	28	36	7 x M8	41	208	156	0,6
IS 1	55	x	85	2,9	105	24	20	28	36	8 x M8	41	216	167	0,6
IS 1	60	x	90	3,2	107	24	20	28	36	8 x M8	41	198	158	0,7
IS 1	65	x	95	3,8	117	24	20	28	36	9 x M8	41	205	169	0,7
IS 1	70	x	110	6,0	171	29	24	35	45	8 x M10	83	223	172	1,3
IS 1	75	x	115	6,4	171	29	24	35	45	8 x M10	83	208	164	1,4
IS 1	80	x	120	6,8	170	29	24	35	45	8 x M10	83	195	157	1,4
IS 1	85	x	125	8,1	191	29	24	35	45	9 x M10	83	207	170	1,5
IS 1	90	x	130	9,6	213	29	24	35	45	10 x M10	83	217	181	1,6
IS 1	95	x	135	10,1	213	29	24	35	45	10 x M10	83	206	175	1,6
IS 1	100	x	145	11,2	224	33	28	38	50	8 x M12	145	200	163	2,2
IS 1	110	x	155	13,9	252	33	28	39	51	9 x M12	145	205	171	2,4
IS 1	120	x	165	16,8	280	33	28	39	51	10 x M12	145	209	179	2,6
IS 1	130	x	180	23,1	355	38	33	43	55	12 x M12	145	201	167	3,6
IS 1	140	x	190	23,5	336	38	33	43	55	12 x M12	145	186	158	3,9
IS 1	150	x	200	30,4	406	38	33	43	55	14 x M12	145	203	175	4,1
IS 1	160	x	210	34,8	435	38	33	43	55	15 x M12	145	204	179	4,3
IS 1	170	x	225	41,5	488	43	38	49	63	12 x M14	230	186	159	5,7
IS 1	180	x	235	51,2	569	43	38	50	64	14 x M14	230	205	178	6,0
IS 1	190	x	250	61,1	643	51	46	58	72	16 x M14	230	187	158	8,3
IS 1	200	x	260	71,6	716	51	46	57	71	18 x M14	230	200	171	8,6
IS 1	220	x	285	99,5	905	55	50	62	78	16 x M16	355	207	175	11
IS 1	240	x	305	108,0	900	55	50	62	78	16 x M16	355	189	164	12
IS 1	260	x	325	129,5	996	55	50	62	78	18 x M16	355	197	173	13
IS 1	280	x	355	169,7	1212	65	60	73	91	18 x M18	485	188	161	19
IS 1	300	x	375	199,8	1332	65	60	73	91	20 x M18	485	195	169	20
IS 1	320	x	405	274,5	1716	77	72	86	106	18 x M20	690	198	167	29
IS 1	340	x	425	289,8	1705	77	72	88	108	20 x M20	690	187	160	31
IS 1	360	x	455	384,7	2137	89	84	100	122	20 x M22	930	190	159	42
IS 1	380	x	475	430,0	2263	89	84	99	121	21 x M22	930	189	160	44
IS 1	400	x	495	449,7	2249	89	84	99	121	21 x M22	930	180	154	46
IS 1	420	x	515	545,5	2597	89	84	100	122	24 x M22	930	196	169	49
IS 1	440	x	545	659,9	3000	101	96	114	138	24 x M24	1200	190	161	64
IS 1	460	x	565	689,9	3000	101	96	113	137	24 x M24	1200	182	156	67
IS 1	480	x	585	719,9	3000	101	96	114	138	24 x M24	1200	174	150	69
IS 1	500	x	605	880,4	3522	101	96	113	137	28 x M24	1200	195	170	72

Further sizes on request. Technical changes to be reserved without notice.

*Tightening bolts DIN EN ISO 4762: Grade 12.9 When ordering please state: e. g. IS 1 x 200 x 260 (Type x Ø d x Ø D)

Locking Unit Type IS

Series ISN 1



Code:

M_t maximum transmissible torque of a shrink disc with $P_{ax} = 0$

P_{ax} maximum transmissible axial load of a shrink disc with $M_t = 0$

M_a required tightening torque of the tightening bolts (see also “Mounting and Removal vInstructions“)

P_w surface pressure on shaft

P_n surface pressure on hub

Dimensions L_3 and L_4 apply to untightened units.

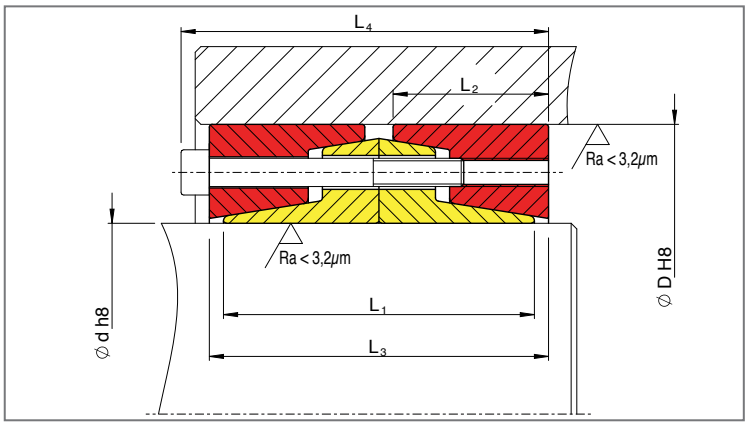
Type	d	x	D	M_t	P_{ax}	L_1	L_2	L_3	L_4	L_5	B*	M_a	P_w	P_n	kg
				kNm	kN	mm	mm	mm	mm	mm		Nm	N/mm²		
ISN 1	20	x	47	0,3	28	20	17	23	29	3	6 x M6	17	185	93	0,2
ISN 1	22	x	47	0,3	28	20	17	23	29	3	6 x M6	17	168	93	0,2
ISN 1	24	x	50	0,3	28	20	17	23	29	3	6 x M6	17	154	87	0,2
ISN 1	25	x	50	0,3	28	20	17	23	29	3	6 x M6	17	148	87	0,2
ISN 1	28	x	55	0,5	37	20	17	23	29	3	8 x M6	17	176	105	0,3
ISN 1	30	x	55	0,6	37	20	17	23	29	3	8 x M6	17	164	105	0,3
ISN 1	35	x	60	0,7	42	20	17	23	29	3	9 x M6	17	158	109	0,3
ISN 1	40	x	65	0,9	46	20	17	23	29	3	10 x M6	17	154	112	0,3
ISN 1	45	x	75	1,6	69	24	20	28	36	4	8 x M8	41	168	121	0,5
ISN 1	50	x	80	2,0	80	24	20	28	36	4	9 x M8	41	170	127	0,6
ISN 1	55	x	85	2,4	87	24	20	28	36	4	10 x M8	41	171	133	0,6
ISN 1	60	x	90	2,6	87	24	20	28	36	4	10 x M8	41	157	126	0,7
ISN 1	65	x	95	3,4	105	24	20	28	36	4	12 x M8	41	174	143	0,7
ISN 1	70	x	110	4,8	137	29	24	34	44	5	10 x M10	83	177	136	1,3
ISN 1	75	x	115	5,1	137	29	24	35	45	5	10 x M10	83	166	130	1,4
ISN 1	80	x	120	6,1	151	29	24	34	44	5	10 x M10	83	171	138	1,4
ISN 1	85	x	125	7,0	165	29	24	35	45	5	12 x M10	83	175	144	1,5
ISN 1	90	x	130	7,4	165	29	24	34	44	5	12 x M10	83	166	138	1,6
ISN 1	95	x	135	8,0	163	29	24	35	45	5	12 x M10	83	157	133	1,6
ISN 1	100	x	145	10	196	33	28	39	51	5	11 x M12	145	175	142	2,2
ISN 1	110	x	155	11	196	33	28	39	51	5	11 x M12	145	159	133	2,4
ISN 1	120	x	165	16	264	33	28	39	51	5	12 x M12	145	186	159	2,6
ISN 1	130	x	180	20	301	38	33	43	55	5	16 x M12	145	170	142	3,6
ISN 1	140	x	190	21	301	38	33	43	55	5	16 x M12	145	158	134	3,9
ISN 1	150	x	200	25	332	38	33	43	55	5	18 x M12	145	166	143	4,1
ISN 1	160	x	210	27	339	38	33	43	55	5	18 x M12	145	156	137	4,3
ISN 1	170	x	225	35	414	44	38	50	64	6	16 x M14	230	158	135	5,7
ISN 1	180	x	235	42	465	44	38	50	64	6	18 x M14	230	168	145	6,0
ISN 1	190	x	250	51	537	52	46	58	72	6	21 x M14	230	156	132	8,3
ISN 1	200	x	260	62	620	52	46	58	72	6	24 x M14	230	170	145	8,6
ISN 1	220	x	285	79	719	57	50	64	80	7	21 x M16	355	164	139	11
ISN 1	240	x	305	92	763	57	50	64	80	7	21 x M16	355	158	137	12
ISN 1	260	x	325	112	863	57	50	64	80	7	24 x M16	355	167	147	13
ISN 1	280	x	355	145	1039	65	60	73	91	10	24 x M18	485	159	136	19
ISN 1	300	x	375	175	1168	72	60	80	98	12	24 x M18	485	167	145	20
ISN 1	320	x	405	242	1510	87	72	95	115	15	24 x M20	690	170	144	29
ISN 1	340	x	425	257	1510	87	72	96	116	15	24 x M20	690	160	137	31
ISN 1	360	x	455	338	1879	99	84	110	132	15	24 x M22	930	156	130	42
ISN 1	380	x	475	357	1879	99	84	110	132	15	27 x M22	930	147	125	44
ISN 1	400	x	495	438	2192	99	84	110	132	15	28 x M22	930	163	140	46
ISN 1	420	x	515	493	2349	99	84	110	132	15	30 x M22	930	167	144	49
ISN 1	440	x	545	566	2573	101	96	113	137	15	30 x M24	1200	161	137	64
ISN 1	460	x	565	592	2573	101	96	113	137	15	33 x M24	1200	154	132	67
ISN 1	480	x	585	617	2571	101	96	113	137	15	33 x M24	1200	148	128	69
ISN 1	500	x	605	723	2892	101	96	113	137	15	36 x M24	1200	160	139	72

Further sizes on request. Technical changes to be reserved without notice.

*Tightening bolts DIN EN ISO 4762: Grade 12.9 When ordering please state: e. g. ISN 1 x 460 x 565 (Type x Ø d x Ø D)

Locking Unit Type IS

Series IS 4



Code:

M_t maximum transmissible torque of a shrink disc with $P_{ax} = 0$

P_{ax} maximum transmissible axial load of a shrink disc with $M_t = 0$

M_a required tightening torque of the tightening bolts (see also “Mounting and Removal Instructions“)

P_w surface pressure on shaft

P_n surface pressure on hub

Dimensions L_3 and L_4 apply to untightened units.

Type	d	x	D	M_t	P_{ax}	L_1	L_2	L_3	L_4	B*	M_a	P_w	P_n	kg
				kNm	kN	mm	mm	mm	mm		Nm	N/mm²		
IS 4	30	x	55	0,9	60	40	17	46	52	6 x M6	17	132	85	0,5
IS 4	35	x	60	1,2	71	40	17	46	52	7 x M6	17	135	93	0,6
IS 4	40	x	65	1,5	75	40	17	46	52	8 x M6	17	125	90	0,6
IS 4	45	x	75	2,5	111	48	20	56	64	6 x M8	41	136	98	1,1
IS 4	50	x	80	3,0	120	48	20	56	64	7 x M8	41	133	100	1,1
IS 4	55	x	85	3,8	138	48	20	56	64	8 x M8	41	139	108	1,2
IS 4	60	x	90	4,3	143	48	20	56	64	8 x M8	41	132	106	1,3
IS 4	65	x	95	5,3	163	48	20	56	64	9 x M8	41	139	114	1,4
IS 4	70	x	110	7,6	217	58	24	68	78	8 x M10	83	142	109	2,6
IS 4	75	x	115	8,2	219	58	24	70	80	8 x M10	83	133	105	2,7
IS 4	80	x	120	8,7	217	58	24	68	78	8 x M10	83	124	100	2,8
IS 4	85	x	125	10,4	245	58	24	68	78	9 x M10	83	132	108	3,0
IS 4	90	x	130	12	272	58	24	68	78	10 x M10	83	138	116	3,1
IS 4	95	x	135	13	271	58	24	68	78	10 x M10	83	131	111	3,3
IS 4	100	x	145	16	317	66	28	76	88	8 x M12	145	127	104	4,5
IS 4	110	x	155	19	340	66	28	76	88	9 x M12	145	124	104	4,8
IS 4	120	x	165	23	377	66	28	76	88	10 x M12	145	126	108	5,2
IS 4	130	x	180	29	453	76	33	86	98	12 x M12	145	122	101	7,2
IS 4	140	x	190	32	453	76	33	86	98	12 x M12	145	113	96	7,7
IS 4	150	x	200	40	528	76	33	86	98	14 x M12	145	123	106	8,2
IS 4	160	x	210	45	566	76	33	86	98	15 x M12	145	123	108	8,6
IS 4	170	x	225	53	622	86	38	98	112	12 x M14	230	113	96	11
IS 4	180	x	235	65	726	86	38	98	112	14 x M14	230	124	108	12
IS 4	190	x	250	79	829	102	46	114	128	16 x M14	230	114	96	17
IS 4	200	x	260	93	933	102	46	114	128	17 x M14	230	121	103	17
IS 4	220	x	285	126	1141	110	50	122	138	16 x M16	355	125	106	22
IS 4	240	x	305	137	1141	110	50	122	138	16 x M16	355	115	99	24
IS 4	260	x	325	167	1284	110	50	122	138	18 x M16	355	119	106	26
IS 4	280	x	355	219	1562	130	60	146	164	18 x M18	485	114	97	38
IS 4	300	x	375	260	1735	130	60	146	164	18 x M18	485	118	102	40
IS 4	320	x	405	357	2230	154	72	172	192	18 x M20	690	120	101	58
IS 4	340	x	425	379	2230	154	72	176	196	20 x M20	690	113	97	62
IS 4	360	x	455	501	2784	178	84	200	222	18 x M22	930	115	97	85
IS 4	380	x	475	555	2923	178	84	198	220	20 x M22	930	115	97	89
IS 4	400	x	495	585	2923	178	84	198	220	20 x M22	930	109	93	93
IS 4	420	x	515	658	3132	178	84	200	222	22 x M22	930	111	96	97
IS 4	440	x	545	796	3616	202	96	220	244	22 x M24	1200	108	92	128
IS 4	460	x	565	832	3616	202	96	226	250	22 x M24	1200	103	88	134
IS 4	480	x	585	868	3616	202	96	228	252	24 x M24	1200	99	85	139
IS 4	500	x	605	984	3938	202	96	226	250	26 x M24	1200	103	90	144
IS 4	520	x	630	1024	3938	202	96	226	250	25 x M24	1200	99	86	157
IS 4	540	x	650	1063	3938	202	96	226	250	26 x M24	1200	96	84	162
IS 4	560	x	670	1181	4219	202	96	226	250	27 x M24	1200	99	87	168
IS 4	580	x	690	1224	4219	202	96	226	250	27 x M24	1200	96	84	173
IS 4	600	x	710	1266	4219	202	96	226	250	27 x M24	1200	92	82	179

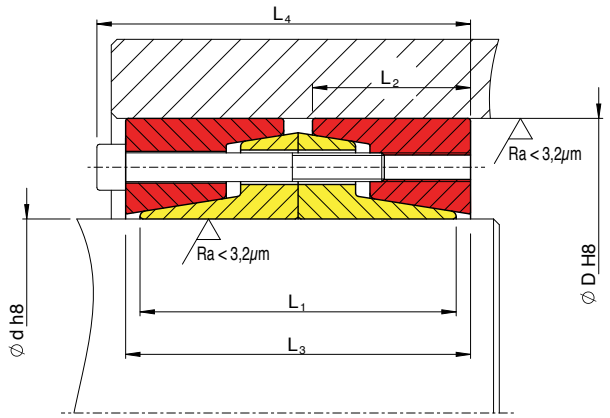
Further sizes on request. Technical changes to be reserved without notice.

*Tightening bolts DIN EN ISO 4762: Grade 12.9 When ordering please state: e. g. IS 4 x 100 x 145 (Type x Ø d x Ø D)

Locking Unit Type IS

Series IS 4.1

reduced contact pressure



Code:

M_t maximum transmissible torque of a shrink disc with $P_{ax} = 0$

P_{ax} maximum transmissible axial load of a shrink disc with $M_t = 0$

M_a required tightening torque of the tightening bolts (see also “Mounting and Removal Instructions“)

P_w surface pressure on shaft

P_n surface pressure on hub

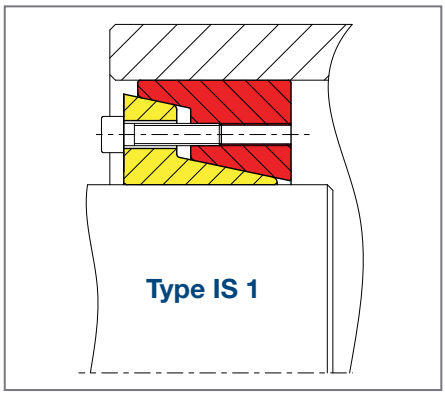
Dimensions L_3 and L_4 apply to untightened units.

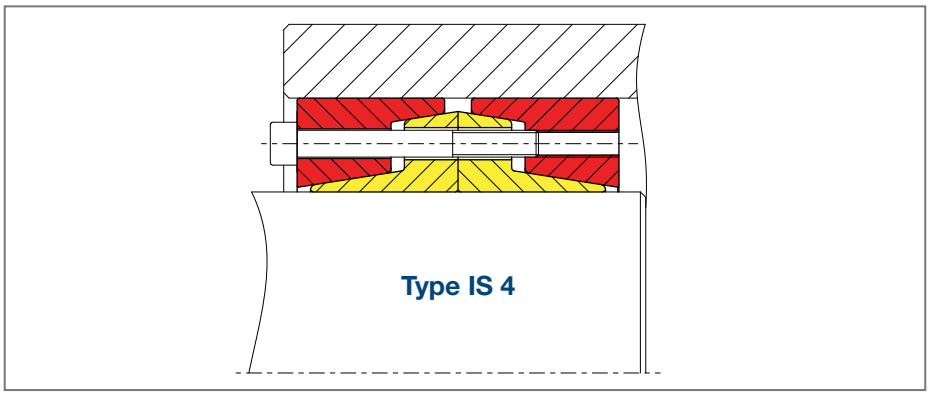
Type	d	x	D	M_t	P_{ax}	L_1	L_2	L_3	L_4	B*	M_a	P_w	P_n	kg
				kNm	kN	mm	mm	mm	mm	Güte 12.9	Nm	N/mm²		
IS 4.1	100	x	145	11	224	66	28	76	86	8 x M10	83	90	73	4
IS 4.1	110	x	155	13	240	66	28	78	88	9 x M10	83	88	73	5
IS 4.1	120	x	165	16	267	66	28	78	88	10 x M10	83	89	77	5
IS 4.1	130	x	180	20	312	76	33	84	94	12 x M10	83	84	70	7
IS 4.1	140	x	190	22	320	76	33	86	96	12 x M10	83	80	68	8
IS 4.1	150	x	200	27	364	76	33	90	100	14 x M10	83	85	73	8
IS 4.1	160	x	210	31	390	76	33	86	96	15 x M10	83	85	75	9
IS 4.1	170	x	225	38	449	86	38	98	110	12 x M12	145	82	70	11
IS 4.1	180	x	235	47	524	86	38	98	110	14 x M12	145	90	78	12
IS 4.1	190	x	250	57	599	102	46	114	126	16 x M12	145	82	69	17
IS 4.1	200	x	260	67	674	102	46	114	126	18 x M12	145	88	75	17
IS 4.1	220	x	285	91	828	110	50	124	138	16 x M14	230	91	77	22
IS 4.1	240	x	305	99	822	110	50	124	138	16 x M14	230	83	72	24
IS 4.1	260	x	325	122	937	110	50	124	138	18 x M14	230	87	76	26
IS 4.1	280	x	355	181	1294	130	60	146	162	18 x M16	355	94	81	38
IS 4.1	300	x	375	215	1431	130	60	146	162	20 x M16	355	97	84	40
IS 4.1	320	x	405	276	1725	154	72	170	188	18 x M18	485	93	78	58
IS 4.1	340	x	425	294	1732	154	72	170	188	20 x M18	485	88	75	62
IS 4.1	360	x	455	372	2065	178	84	198	216	22 x M18	485	85	72	85
IS 4.1	380	x	475	393	2068	178	84	198	216	22 x M18	485	81	69	89
IS 4.1	400	x	495	414	2068	178	84	198	216	24 x M18	485	77	66	93
IS 4.1	420	x	515	507	2412	178	84	200	218	26 x M18	485	86	74	97
IS 4.1	440	x	545	530	2409	202	96	228	248	24 x M20	690	72	61	128
IS 4.1	460	x	565	554	2409	202	96	226	246	22 x M20	690	69	59	134
IS 4.1	480	x	585	578	2409	202	96	228	248	24 x M20	690	66	57	139
IS 4.1	500	x	605	703	2811	202	96	226	246	26 x M20	690	74	64	144
IS 4.1	520	x	630	731	2811	202	96	226	246	26 x M20	690	71	62	157
IS 4.1	540	x	650	759	2811	202	96	226	246	26 x M20	690	68	60	162
IS 4.1	560	x	670	843	3012	202	96	226	246	30 x M20	690	71	62	168
IS 4.1	580	x	690	873	3012	202	96	226	246	30 x M20	690	68	60	173
IS 4.1	600	x	710	903	3012	202	96	226	246	30 x M20	690	66	59	179

Further sizes on request. Technical changes to be reserved without notice.

*Tightening bolts DIN EN ISO 4762: Grade 12.9 When ordering please state: e. g. IS 4.1 x 170 x 225 (Type x Ød x ØD)

Technical Specification





Locking assemblies of type IS are used for transmitting torque and axial load from the shaft to the hub. They are installed between shaft and hub. The clamping force for transmitting the torque is produced by tightening the bolts spreading the slotted locking unit.

Concentricity

The locking units of type IS are self-centering with an excellent concentricity thanks to the flat taper.

Tolerance

Commercially available shafts with a fit in accordance with h8 and h9 can be used; hub bore tolerance as per H8.

Surface quality

The peak-to-valley height should not exceed 16 µm (better results can certainly be achieved by turning).

Tightening bolts

The bolts for the unit of type IS are of quality 12.9 (DIN EN ISO 4762) to be mounted with a thin oil coat.

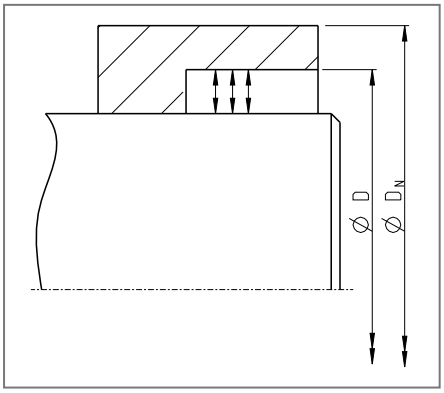
Hub thickness

The outside diameter of the hub D_N has to be dimensioned amply because the hub is expanded due to the clamping force of the locking unit (elastic deformation). The following equation derived from the equation for thick-walled pipes under internal pressure can be used to calculate the outside diameter with sufficient accuracy:

$$D_N \geq D \cdot \sqrt{\frac{\sigma_{0,2N} + P_N \cdot C}{\sigma_{0,2N} - P_N \cdot C}}$$

$\sigma_{0,2N}$	Yield stenghts of the hub material
P_N	hub bore pressure
C	factor based on the width of the hub over the locking unit
C = 1	for hubs which are as wide as the locking unit
C = 0,6	for hubs which are twice as wide as the locking unit

Regardless of the hub width the yield strength of the hub material should always be higher than the applied pressure P_N.



Application of locking units with hollow shafts

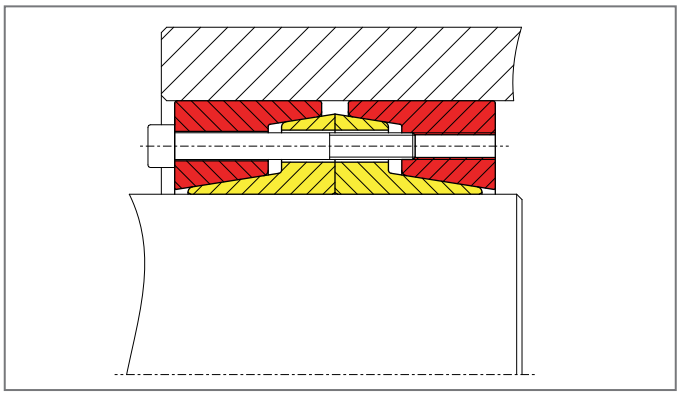
use the following equation to determine the bore diameter increased by the equation for thick-walled pipes, if locking units are to be mounted on hollow shafts:

$$d_i \leq d \cdot \sqrt{\frac{\sigma_{0,2S} - 2P_S \cdot C}{\sigma_{0,2S}}}$$

The bore diameter di can be increased by shrinking in a supporting sleeve.

Mounting and Removal Instructions for

Locking Unit IS



Mounting

The STÜWE locking units IS are supplied ready to be mounted. Therefore they should not be dismantled prior to employing the unit for the first time. Do not use additional Lubricant!

1. Degrease shaft and hub bore.
2. Slightly oil hub bore hole and shaft with hydraulic oil (e.g. HLP 46 or HLP 68).
3. Loosen the tightening bolts, but do not remove them completely. Screw a minimum of three bolts into the additional tap-holes. By doing this a good fit will be achieved and canting of the locking unit will be avoided.

   • When using Type IS 4 or IS 4.1 three bolts each have to be fitted into the jacking tap-holes of the external and the internal pressure ring.
4. Mount the locking unit and align the complete arrangement.
5. Relocate the tightening bolts to the tightening tap-holes.

   Do not tighten the tightening bolts before the shaft is mounted.
6. Tighten all tightening bolts uniformly, **crosswise** one by one, over several revolutions. All bolts have to be tightened until the correct full tightening torque is achieved.
   Check the correct full tightening torque of **all bolts** one after the other by means of a torque wrench.
   All bolts must be tightened correctly.

Dismounting

1. Loosen all tightening bolts in repeated steps, initially not more than a quarter turn per bolt, crosswise one after the other. Do not completely loosen the bolts.

   Under no circumstances should the locking bolts be completely removed as this could be dangerous and result in injury.
2. Dismount as many bolts as jacking tap-holes are present and screw the bolts into them.
3. Fasten the jacking bolts, crosswise one after the other, until the connection is loose.
4. Jacking bolts on both sides of a slot have to be fastened consecutively.

Re-mounting

1. Control the complete locking until for wear and tear before re-using it.
2. When using Type IS 4 make sure to assemble the locking unit in correct order.
3. When disassembled completely clean and de-grease all parts properly, then slightly oil them with hydraulic oil (e.g. HLP 46 or HLP 68).
4. Reassemble the locking unit.
5. Continue as described under “Mounting”.

STÜWE®

Stüwe GmbH & Co. KG
Zum Ludwigstal 35
45527 Hattingen/Germany

Tel.: +49 2324 394-0
Fax: +49 2324 394-30
info@stuewe.de

www.stuewe.de

REPRESENTATIVES GERMANY

Antriebstechnik
R. Müller GmbH
Eifelstraße 4
D-66333 Völklingen
Tel.: 06898 8705 18
Fax: 06898 8705 43
E-Mail: info@antriebstechnik-mueller.de

Erich Rottmann Technik GmbH
Theodorstraße 41u
D-22761 Hamburg
Tel.: 040 4017660
Fax: 040 401766 25
E-Mail: vertrieb@rottmann-technik.de
www.rottmann-technik.de

Bühring - Adam GmbH
Lindenallee 13
D-39179 Barleben
Tel.: 039203 751 0
Fax: 039203 7111 4
E-Mail: k.buehrig@buehrig-adam.de
www.buehrig-adam.de

Antriebs- und Wärmetechnik Haist GmbH
Jägerstraße 16a
D-82041 Oberhaching
Tel.: 089 6666799 0
Fax: 089 6666799 9
E-Mail: info@awt-haist.de

Ing. Büro Antriebstechnik Lautenschläger
Boselweg 28b
D-01665 Meißen
Tel.: 03521 4057 69
Mobil: 0176 057878554
E-Mail: iblautenschlaeger@arcor.de

Flohr Industrietechnik GmbH
Im Unteren Tal 1
D-79761 Waldshut-Tiengen
Tel.: 07751 87310
Fax: 07751 873150
E-Mail: info@flohr-industrietechnik.de
www.flohr-industrietechnik.de

REPRESENTATIVES WORLDWIDE

Australia
Voith Turbo Pty Ltd
42 Triumph Ave, Wangara WA 6065
Tel.: +61 8 9303 0000
Fax: +61 8 9303 4120
E-Mail: vtauperth@voith.com
www.australia.voithturbo.com

Voith Turbo Pty. Ltd.
503 Victoria Street
Wetherill Park, NSW 2164, Australia
Tel.: +61 2 9609 9400
Fax: +61 2 9756 4677
E-Mail: florian.stehboeck@voith.com
www.australia.voithturbo.com

Austria
Graessner GmbH
Antriebstechnik
Perfektastraße 61
Objekt 6/2
A-1230 Wien
Tel.: +43 1 6992430 0
Fax: +43 1 6992430 20
E-Mail: graessner@graessner.at
www.graessner.at

Siemens AG Österreich I DT MD
Siemensstraße 90
A-1210 Wien
Tel.: +43 5 1707 34252
Fax: +43 5 1707 55020
E-Mail: norbert.zagler@siemens.com
www.siemens.at

Belgium
Intertech b.v.
Gildenveld 19
NL-3892 DC Zeewolde
Tel.: +31 36 522 58 85
Fax: +31 36 522 58 06
E-Mail: sales@intertech.nl
www.intertech.nl

Brazil
Vulkan do Brasil Ltda.
Rod. Eng. Cont. Cintra, km 91
CEP 13252-200-Itatiba-SP
Tel.: +55 11 4894 7300 (pabx)
Fax: +55 11 4894 7329
E-Mail: marketing@vulkan.com.br
www.vulkan.com.br

Canada
Siemens Canada Ltd
300 Applewood Crescent
Concord, Ontario, L4K 5C7, Canada
Tel.: +1 800 263 7444
Fax: +1 905 305 1023
E-Mail: inquiry.flender.ca@siemens.com
www.siemens.ca

China
Tsubaco (Hong Kong) Co., Ltd.
Flat 2202, 22/F., Paul Y. Centre
51 Hung To Road
Kwun Tong, Kowloon, Hong Kong
Tel.: +852 2793 9220
Fax: +852 2793 9917
E-Mail: tsubaco@netvigator.com
www.tsubaki.co.jp

China, Industrial Applications
Shanghai Tsubaco Co., Ltd
Room 2005-6, Aetna Tower 107,
ZunYi Road, Chang Ning District,
Shanghai, China 200051
Tel.: +86 21 6237 5577
Fax: +86 21 6237 5688
E-Mail: hiroyuki.hasesaka@tsubaki.co.jp
www.tsubaki.co.jp

China, Wind Applications
STIEBEL Transmission Technology (Shanghai) Co., Ltd.
No. 40, Lane 369, Ye Road,
Jushuo Industrial Zone,
Kangqiao, Shanghai 201319
Tel.: +86 21 51693930 118
Fax: +86 21 68187075
Mobile: +86 13918204470
E-Mail: sam.deng@stiebel.sh.cn
www.stiebel.sh.cn

Czech Republic / Slovak Republic / Slovenia
Graessner GmbH, Antriebstechnik
Perfektastraße 61, Objekt 6/2
A-1230 Wien
Tel.: +43 (0)1 699 24 30 0
Fax: +43 (0)1 699 24 30 20
E-Mail: graessner@graessner.at
www.graessner.at

Denmark
Harald V. Lassen A/S
Dr. Neergaards Vej 5 C
DK-2970 Hoersholm
Tel.: +45 44 3401 00
Fax: +45 44 3401 15
E-Mail: hvl@hvl.dk
www.hvl.dk

Finland
Nestepaine OY
Mäkituvantie 11
FIN-01510 Vantaa
Tel.: +358 207 65 165
Fax: +358 207 65 7666
E-Mail: nestepaine@nestepaine.fi

France
Michaud & Chailly
7 rue du souvenir
F-69009 Lyon
Tel.: +33 825 002 555
Fax: +33 825 340 785
E-Mail: michaud@michaud-chailly.fr
www.michaud-chailly.fr

Great Britain
Clarke Engineering Co. LTD.
P.O. Box 13, Bodmin
GB-Bodmin PL30 5YN
Tel.: +44 1637 881112
Fax: +44 1637 881112
E-Mail: mike@clarkeengineering.co.uk

Japan
Tsubakimoto Kogyo Co., LTD.
27th Fl.-Meiji Yasuda-Life
Osaka Umeda Bldg.
3-3-20, Umeda Kita-Ku,
Osaka, 530-0001 Japan
Tel.: +81 6 4795 8835
Fax: +81 6 4795 8843
E-Mail: hironobu.okamoto@tsubaki.co.jp
www.tsubaki.co.jp

Korea
Tsubaco Korea Co., Ltd.
#705 Wooree Venture Town
82-29, 3-Ga, Mullae-Dong,
Yeongdeungpo-Gu, Seoul 150-836 Korea
Tel.: +82 2 2672 8731
Fax: +82 2 2672 8733
E-Mail: master@tsubakimoto.co.kr
www.tsubaki.co.jp

Netherlands
Intertech b.v.
Gildenveld 19
NL-3892 DC Zeewolde
Tel.: +31 36 522 58 85
Fax: +31 36 522 58 06
E-Mail: sales@intertech.nl
www.intertech.nl

Norway
Transtech A.S
Laagaveien 5
N-3262 Larvik
Tel.: +47 33 14 06 00
Fax: +47 33 14 06 01
E-Mail: transtech@transtech.no
www.transtech.no

Poland
Altha
Industrieprodukte Vertriebs GmbH
Lagerlechfeldstr. 38
D-86836 Untermeitingen
Tel.: +49 8232 9691 0
Fax: +49 8232 9691 55
E-Mail: altha-gmbh@t-online.de
www.altha-gmbh.de

Singapore
Tsubaco Singapore Pte. Ltd.
10 Toh Guan Road
#02-02 TT International Tradepark
Singapore 608838
Tel.: +65 6862 6800
Fax: +65 6862 6820
E-Mail: sales@tsubaco.co.sg
www.tsubakisosin.com

Sweden
Drivkraft Norden AB
Box 8034, Sörgårdsvägen 13
SE-163 52 SPÅNGA, Schweden
Tel.: +46 8761 0430
Fax: +46 8761 0475
E-Mail: info@drivkraft.se
www.drivkraft.se

Spain
Aguirrezabal Hermanos, S.A.
Iruna 3
ES-48014 Bilbao
Tel.: +34 944 473 358
Fax: +34 944 476 320
E-Mail: aguirrezabal@aguirrezabal.com
www.aguirrezabal.com

Switzerland
Flohr Industrietechnik GmbH
Zilistude 164
CH-5465 Mellikon
Tel.: +41 56 2670810
Fax: +41 56 2670825
E-Mail: info@flohr-industrietechnik.ch
www.flohr.ch

Thailand
Tsubaco KTE Co., Ltd.
952 Ramaland Bldg., 17th Floor
Rama IV Road
Suriyawong
Bangrak, Bangkok 10500 Thailand
Tel.: +66 2 632 94669
Fax: +66 2 632 9070
E-Mail: ueda@tsubaco.com.th
www.tsubaki.co.jp

Turkey
CEFIP - Makina & Endüstriyel Ürünler San.ve DisTic. Ltd. Sti.
Perpa Ticaret Merkezi A Blok K.2 No:9-0033
TR-34384 Okmeydani - Istanbul
Tel.: +90 212 2101890 (pbx)
Fax: +90 212 2101597
E-Mail: cefip@cefip.com.tr