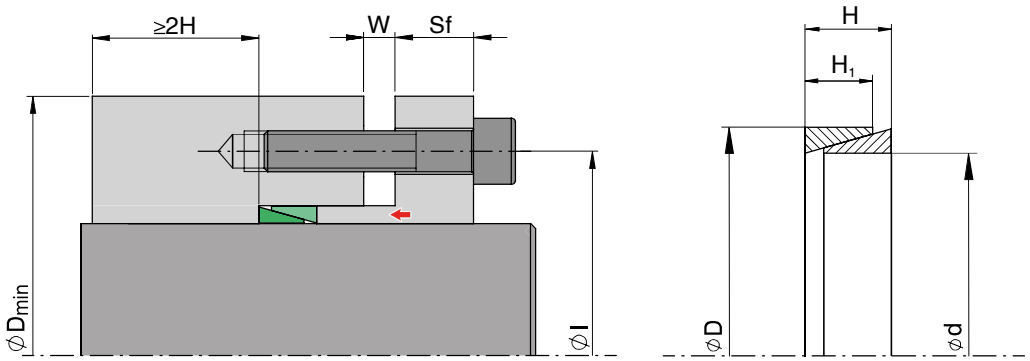
SIT-LOCK® 2 internal locking device - not self-centering



Features

Composed of two tapered rings, it is suitable for applications that require smaller dimensions. The table shows performance data for the following tolerances:

shaft d h6 - hub seat H7 for d ≤ 40 mm

shaft d h8 - hub seat H8 for d ≥ 42 mm

Do not use molybdenum disulphide-based oils or greases that reduce the coefficient of friction μ. The values in the table are calculated with μ 0.12.

Hub to shaft centering

The SIT-LOCK® 2 locking device is not self-centering so it requires a centering base between the shaft and hub.
A centering width of ≥ 2 · H is recommended.

Axial displacement

Application 1: When tightening the screws, there is no hub to shaft axial displacement. The values in the table are valid for application 1.
Application 2: When tightening the screws, there is hub to shaft axial displacement. The M_t, F_{ax}, P_w and P_n values increase by 28% compared to the values shown in the table.

Surface finish

The following values are recommended:

$R_t \leq 6\ \mu m$ - $R_a \leq 1\ \mu m$

Applications with more than one SIT-LOCK® 2 device

Where two or more SIT-LOCK® 2 locking devices are mounted in a row, the total transmissible torque M_t is:

1 device $M_t = M_t$ indicated in catalogue
2 devices $M_t = M_t$ indicated in catalogue · 1,55
3 devices $M_t = M_t$ indicated in catalogue · 1,86
4 devices $M_t = M_t$ indicated in catalogue · 2,03

SIT-LOCK® 2 split version

The SIT-LOCK® 2 is available in a split version on request. In this case, consider the table force P_0 equal to 0.

Considering that using the SIT-LOCK® 2 model requires tight tolerances, precise surface finishes, and additional accessory costs (flange, screw threads), we recommend using SIT-LOCK® 3. See dedicated page.

Calculating transmissible torque M_t

$$M_t = \frac{P_{tot} - P_0}{tg\,\alpha + 2\mu} \cdot \mu \cdot \frac{d}{2}$$

where:

P_{tot} = total force given by the screws P_v · N° of screws
P_0 = force required to deform rings without splits
$tg\,\alpha$ = tangent to the angle of the rings. $tg\,\alpha = 0.3$
μ = coefficient of friction. Value found to be 0.12
d = shaft diameter

Table for determining the P_V force depending on the M_S value

dg	Axial force P_V in N			Tightening torque M_S in Nm		
	8.8	10.9	12.9	8.8	10.9	12.9
M2,5	1.600	2.140	2.565	0,76	1,0	1,2
M3	2.210	3.110	3.730	1,3	1,9	2,2
M4	3.900	5.450	6.550	2,9	4,1	4,9
M5	6.350	8.950	10.700	6,0	8,5	10
M6	9.000	12.600	15.100	10	14	17
M8	16.500	23.200	27.900	25	35	41
M10	26.200	36.900	44.300	49	69	83
M12	38.300	54.000	64.500	86	120	145
M14	52.500	74.000	88.500	135	190	230
M16	73.000	102.000	123.000	210	295	355
M18	88.000	124.000	148.000	290	405	485
M20	114.000	160.000	192.000	410	580	690
M22	141.000	199.000	239.000	550	780	930
M24	164.000	230.000	276.000	710	1.000	1.200

Installation

- tighten all screws to 50% of the screw tightening torque value M_s indicated in the table in a 'criss-cross' sequence;
- repeat to 100% of the M_s tightening torque indicated in the table;
- in continuous sequence, check that the tightening torque M_s has been achieved.

Removal

Gradually loosen the clamping screws until the rings are fully removed.

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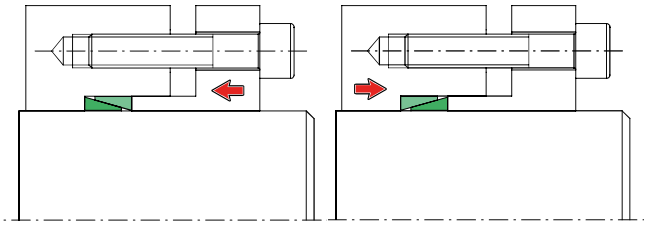

Application 1 Application 2

Calculating the screw spacing l

For applications with hub fixed screws:

l = D + 12 + dg

For applications with shaft fixed screws:

l = d - 12 - dg

dg = clamping screw diameter

Calculating flange thickness Sf

For applications with 8.8 screws

Sf ≥ dg · 1,3

For applications with 10.9/12.9 screws

Sf ≥ dg · 1,8

Dimensions [mm]			Pre-load force	Total force	Performance		Distance free of clamping screws (W) [mm]				Pressures [N/mm²]	
d x D	H	H_1	P_0 [kN]	P_{tot} [kN]	M_t [Nm]	F_{ax} [kN]	1	2	3	4	P_w	P_n
6 x 9	4,5	3,7	-	4	3	0,9	2,5	2,5	3,0	4,0	106	71
7 x 10	4,5	3,7	-	5	4	1,1	2,5	2,5	3,0	4,0	114	80
8 x 11	4,5	3,7	-	6	5	1,3	2,5	2,5	3,0	4,0	119	87
9 x 12	4,5	3,7	8	15	7	1,6	2,5	2,5	3,0	4,0	130	98
10 x 13	4,5	3,7	7	16	10	2,0	2,5	2,5	3,0	4,0	143	110
12 x 15	4,5	3,7	7	16	12	2,0	2,5	2,5	3,0	4,0	119	96
13 x 16	4,5	3,7	7	16	14	2,1	2,5	2,5	3,0	4,0	116	95
14 x 18	6,3	5,3	11	26	23	3,3	3,5	3,5	4,5	5,5	119	93
15 x 19	6,3	5,3	11	27	27	3,6	3,5	3,5	4,5	5,5	120	95
16 x 20	6,3	5,3	10	27	30	3,8	3,5	3,5	4,5	5,5	118	95
17 x 21	6,3	5,3	10	27	33	3,9	3,5	3,5	4,5	5,5	114	92
18 x 22	6,3	5,3	9	33	48	5,3	3,5	3,5	4,5	5,5	147	121
19 x 24	6,3	5,3	13	33	43	4,6	3,5	3,5	4,5	5,5	120	95
20 x 25	6,3	5,3	12	33	47	4,7	3,5	3,5	4,5	5,5	117	93
22 x 26	6,3	5,3	9	34	61	5,6	3,5	3,5	4,5	5,5	126	107
24 x 28	6,3	5,3	8	34	68	5,7	3,5	3,5	4,5	5,5	119	102
25 x 30	6,3	5,3	10	37	75	6,0	3,5	3,5	4,5	5,5	120	100
28 x 32	6,3	5,3	8	40	101	7,2	3,5	3,5	4,5	5,5	129	113
30 x 35	6,3	5,3	9	40	105	7,0	3,5	3,5	4,5	5,5	116	100
32 x 36	6,3	5,3	8	44	128	8,0	3,5	3,5	4,5	5,5	125	112
35 x 40	7,0	6,0	10	54	171	9,8	3,5	3,5	4,5	5,5	124	108
36 x 42	7,0	6,0	12	57	181	10,1	3,5	3,5	4,5	5,5	124	106
38 x 44	7,0	6,0	11	60	207	10,9	3,5	3,5	4,5	5,5	127	109
40 x 45	8,0	6,6	14	70	249	12,5	3,5	4,5	5,5	6,5	125	111
42 x 48	8,0	6,6	16	75	278	13,2	3,5	4,5	5,5	6,5	127	111
45 x 52	10,0	8,6	28	110	409	18,2	3,5	4,5	5,5	6,5	124	108
48 x 55	10,0	8,6	25	110	455	19,0	3,5	4,5	5,5	6,5	122	106
50 x 57	10,0	8,6	24	110	480	19,2	3,5	4,5	5,5	6,5	118	104
55 x 62	10,0	8,6	22	120	601	21,8	3,5	4,5	5,5	6,5	123	109
56 x 64	12,0	10,4	30	150	750	26,8	3,5	4,5	5,5	7,0	122	107
60 x 68	12,0	10,4	28	160	883	29,4	3,5	4,5	5,5	7,0	125	110
63 x 71	12,0	10,4	27	170	1.005	31,9	3,5	4,5	5,5	7,0	129	115
65 x 73	12,0	10,4	26	170	1.044	32,1	3,5	4,5	5,5	7,0	126	112
70 x 79	14,0	12,2	31	210	1.392	39,8	3,5	5,0	6,5	7,5	124	109
71 x 80	14,0	12,2	31	220	1.491	42,0	3,5	5,0	6,5	7,5	129	114
75 x 84	14,0	12,2	35	230	1.628	43,4	3,5	5,0	6,5	7,5	126	112
80 x 91	17,0	15,0	48	300	2.240	56,0	4,0	6,0	6,5	8,0	124	109
85 x 96	17,0	15,0	46	320	2.593	61,0	4,0	6,0	6,5	8,0	127	112
90 x 101	17,0	15,0	44	330	2.864	63,6	4,0	6,0	6,5	8,0	125	111
95 x 106	17,0	15,0	41	340	3.153	66,4	4,0	6,0	6,5	8,0	124	111
100 x 114	21,0	18,7	61	460	4.433	88,7	5,0	6,0	7,0	9,0	126	110
110 x 124	21,0	18,7	66	475	4.999	90,9	5,0	6,0	7,0	9,0	117	104
120 x 134	21,0	18,7	60	475	5.529	92,2	5,0	6,0	7,0	9,0	109	98
130 x 148	28,0	25,3	96	700	8.720	134	5,0	7,0	9,0	11,0	108	95
140 x 158	28,0	25,3	89	740	10.127	145	6,0	7,0	9,0	11,0	108	96
150 x 168	28,0	25,3	85	790	11.750	157	6,0	7,0	8,0	11,0	110	98
160 x 178	28,0	25,3	79	950	15.492	194	6,0	7,0	9,0	11,0	127	114
170 x 191	33,0	30,0	117	1.180	20.071	236	7,0	9,0	10,0	12,0	123	109
180 x 201	33,0	30,0	111	1.200	21.774	242	7,0	9,0	10,0	12,0	119	106
190 x 211	33,0	30,0	105	1.300	25.228	266	7,0	9,0	10,0	12,0	124	111
200 x 224	38,0	34,8	134	1.600	32.573	326	7,0	8,0	11,0	13,0	124	111
220 x 244	38,0	34,8	142	1.700	37.185	345	7,0	9,0	11,0	13,0	124	111
240 x 267	43,0	39,5	157	2.250	51.000	425	7,0	10,0	12,0	14,0	120	108

For dimensions not included in the table, please contact our Technical Department.
Available with slit rings on request. Using SIT-LOCK® 2 with slit rings allows increased transmissible torque.