SIT-LOCK® Self Locking Elements

SIT-LOCK® self locking elements

Advantages of SIT-LOCK® on the shaft-hub connection compared with traditional systems

Easy assembly and disassembly
Both actions take place by locking and unlocking the clamping screws with common tools.
The use of a torque wrench is only necessary when a more precise torque is required.

Superior holding power
The action of the clamping cones creates shaft clamping torque superior to a normal keyed hub.

Overload protection
When the pre-set torque is exceeded SIT-LOCK® will slip, preventing the connected elements from being broken.
Note: SIT-LOCK® units are not friction couplings so, excessive slip will cause damage.

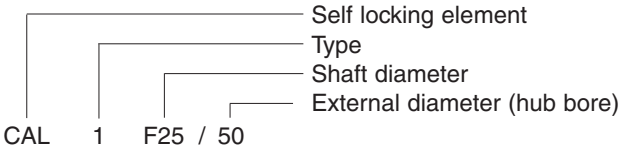
Easy adjustment
Combining the SIT-LOCK® design of smooth cone action with superior holding power, the hub can be clamped at any position along a shaft, eliminating the need for lock washers, spacers, stop rings, etc.

Precision location
With the SIT-LOCK® smooth cone action, the SIT-LOCK is ideal for clamping cams, timing devices, and indexing mechanisms accurately and precisely.

Unlimited use possibilities
SIT-LOCK® units are suitable to connect any type of hub (flywheels, chainwheels, gears, levers, pulleys, eccentrics, coupling, etc).

Various solutions in stock
Available in stock in 10 different types, SIT-LOCK® units can be utilized in a varied range of industrial applications

Order form



Performances

Given values of transmissible torque, axial force, and pressure between shaft and hub are valid for a lubricated installation (friction coefficient μ=0,12). Both hub and shaft, as well as locking unit's contact surfaces and screws, should be lubricated.

Locking unit and screws are supplied already oiled.

Always consider tolerances and roughness values per single locking unit.

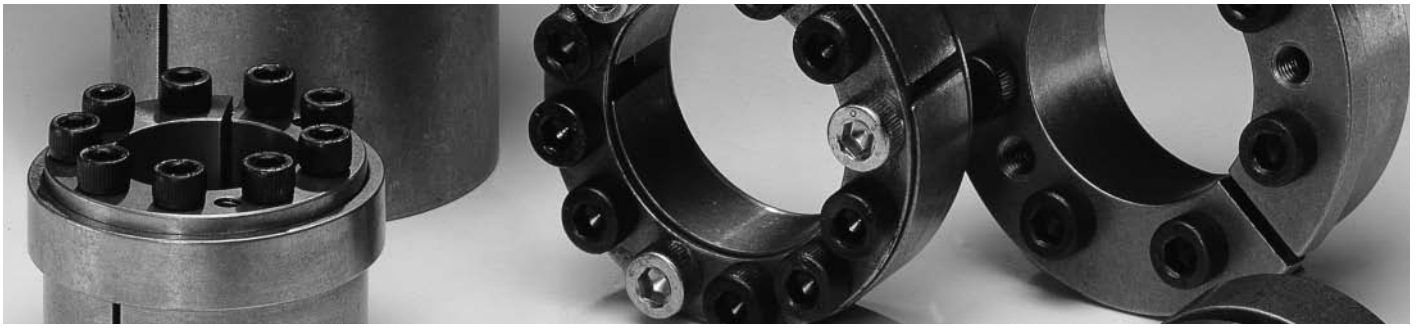
To avoid decrease of locking unit performances, do not use molybdenum disulfide lubricant or other substances that drastically reduce coefficient of friction.

Design procedure

For a correct functioning of SIT-LOCK®, the transmissible torque M_T (stated in this catalogue) must always exceed the maximum torque in operation. So, in selecting the SIT-LOCK® dimensions, you must consider the start up torque could be even 4 times larger than the nominal one.
The transmissible axial forces (Fax) given in the tables are valid for cases where there is no torque. If it is necessary to transmit both a torque and an axial force (ex. helical gear), the following formula must be used:

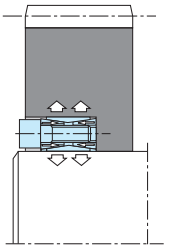
$$M_T \geq \sqrt{M_a^2 + \left(\frac{F_{ax} \cdot d}{2000}\right)^2} \quad [Nm]$$

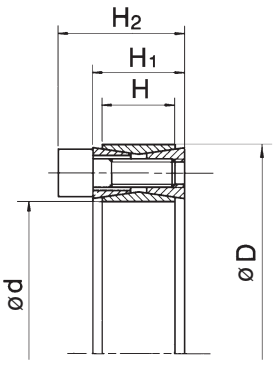
where:
Ma = maximum torque to be transmitted [Nm]
Fax = axial force in operation [N]
d = shaft diameter [mm]



SIT-LOCK® 1 - Not Self-Centering

SITLOCK® locking assembly unit consists of four pieces with two inside double-cone rings joined through a set of tightening screws. It is recommended for medium torques. Although it is not self centering, it can be easily assembled and disassembled.





Installation

Carefully clean contact surfaces of shaft and hub. Then, lightly oil both surfaces with standard mineral oil. Position the SIT-LOCK® on the shaft and into the hub machined bore. Align them as required by the application. Gradually and uniformly tighten the locking screws to the tightening torque (Ms).

You must tighten the screws in diametrically opposite sequence in stages:

- hand tighten the screws until the surfaces are in contact
- check the position of the hub on the shaft
- tighten the screws to half the value of the tightening torque (Ms) stated in the catalogue
- repeat the operation until the tightening torque is reached using the dynamometric screw-driver
- check every locking screw to insure it has been tightened to the specific tightening torque

Do not use lubricant like "Molykote" or molybdenum disulfide based oils.

Removal

SIT-LOCK® 1 are not self-locking. The inner rings are tapered so that they spring apart when all screws are released.
Gradually loosen opposite locking screws in stages until the SIT-LOCK® is released. DO NOT remove the screws completely. In case it should jam, it is necessary to lightly hammer the released screws, so the back cone ring is pushed backwards.

Note: To reuse the locking element, carefully oil the screws and the conical surfaces, then follow installation instructions.

Percentering hub selection

In order to perform an accurate centering, it is necessary to machine with accuracy a precentering hub section which should be longer than ≥ di 2 x H_2.

Axial displacement

During the Installation of the unit no axial displacement of the hubs on the shaft occurs.

Maximum allowable roughness
Rt 16 µm
Maximum recommended tolerance
shaft h 11 - hub H 11

Calculation of (M_T) with more SIT-LOCK® 1	
1 unit	$M_T = M_T$ table
2 units	$M_T = M_T$ table x 1,9
3 units	$M_T = M_T$ table x 2,7
4 units	$M_T = M_T$ table x 3,55

SIT-LOCK® 1

Dimensions [mm]				Performances		Pressure [N/mm²]		Clamping screws (DIN 912 - 12,9)		
d x D	H_1	H	H_2	M_T [Nm]	F_{ax} [kN]	p_w	p_n	N°	Type	M_S [Nm]
20 x 47	20	17	27,5	288	29	225	96	8	M 6	15
22 x 47	20	17	27,5	317	29	204	96	8	M 6	15
24 x 50	20	17	27,5	345	29	187	90	8	M 6	15
25 x 50	20	17	27,5	360	29	180	90	8	M 6	15
28 x 55	20	17	27,5	498	36	198	101	10	M 6	15
30 x 55	20	17	27,5	533	36	185	101	10	M 6	15
32 x 60	20	17	27,5	676	42	206	110	12	M 6	15
35 x 60	20	17	27,5	739	42	188	110	12	M 6	15
38 x 65	20	17	27,5	928	49	201	117	14	M 6	15
40 x 65	20	17	27,5	977	49	190	117	14	M 6	15
42 x 75	24	20	33,5	1.587	76	239	134	12	M 8	37
45 x 75	24	20	33,5	1.701	76	223	134	12	M 8	37
48 x 80	24	20	33,5	1.814	76	209	125	12	M 8	37
50 x 80	24	20	33,5	1.889	76	200	125	12	M 8	37
55 x 85	24	20	33,5	2.397	87	210	136	14	M 8	37
60 x 90	24	20	33,5	2.615	87	193	128	14	M 8	37
65 x 95	24	20	33,5	3.204	99	201	138	16	M 8	37
70 x 110	28	24	39,5	4.589	131	207	132	14	M10	70
75 x 115	28	24	39,5	4.917	131	193	126	14	M10	70
80 x 120	28	24	39,5	5.245	131	181	121	14	M10	70
85 x 125	28	24	39,5	6.290	148	192	131	16	M10	70
90 x 130	28	24	39,5	6.660	148	182	126	16	M10	70
95 x 135	28	24	39,5	7.819	165	192	135	18	M10	70
100 x 145	33	26	47	9.703	194	198	137	14	M12	127
110 x 155	33	26	47	10.673	194	180	128	14	M12	127
120 x 165	33	26	47	13.262	221	188	137	16	M12	127
130 x 180	38	34	52	17.850	275	165	119	20	M12	127
140 x 190	38	34	52	21.089	301	168	124	22	M12	127
150 x 200	38	34	52	24.586	328	171	128	24	M12	127
160 x 210	38	34	52	28.343	354	173	132	26	M12	127
170 x 225	44	38	60	33.541	395	162	122	22	M14	195
180 x 235	44	38	60	38.636	429	166	128	24	M14	195
190 x 250	52	46	68	47.337	498	151	115	28	M14	195
200 x 260	52	46	68	53.261	533	154	118	30	M14	195
220 x 285	56	50	74	68.790	625	151	116	26	M16	300
240 x 305	56	50	74	86.127	718	159	125	30	M16	300
260 x 325	56	50	74	105.229	809	165	132	34	M16	300
280 x 355	66	60	86,5	128.456	918	145	114	32	M18	410
300 x 375	66	60	86,5	154.066	1.027	151	121	36	M18	410
320 x 405	78	72	100,5	211.342	1.321	152	120	36	M20	590
340 x 425	78	72	100,5	224.551	1.321	143	115	36	M20	590
360 x 455	90	84	116	289.095	1.606	141	111	36	M22	790
380 x 475	90	84	116	305.156	1.606	133	107	36	M22	790
400 x 495	90	84	116	321.217	1.606	127	102	36	M22	790
420 x 515	90	84	116	372.740	1.775	133	109	40	M22	790
440 x 545	102	96	130	447.549	2.034	128	103	40	M24	1.000
460 x 565	102	96	130	467.892	2.034	122	99	40	M24	1.000
480 x 585	102	96	130	511.273	2.130	123	101	42	M24	1.000
500 x 605	102	96	130	556.488	2.226	123	102	44	M24	1.000
520 x 630	102	96	130	591.149	2.274	121	100	45	M24	1.000
540 x 650	102	96	130	613.885	2.274	116	97	45	M24	1.000
560 x 670	102	96	130	676.552	2.416	119	100	48	M24	1.000
580 x 690	102	96	130	728.173	2.511	120	101	50	M24	1.000
600 x 710	102	96	130	753.282	2.511	116	98	50	M24	1.000
620 x 730	102	96	130	807.649	2.605	116	99	52	M24	1.000
640 x 750	102	96	130	863.810	2.699	117	99	54	M24	1.000
660 x 770	102	96	130	921.758	2.793	117	100	56	M24	1.000
680 x 790	102	96	130	949.690	2.793	113	98	56	M24	1.000
700 x 810	102	96	130	1.042.991	2.980	118	102	60	M24	1.000
720 x 830	102	96	130	1.072.791	2.980	114	99	60	M24	1.000
740 x 850	102	96	130	1.136.994	3.073	115	100	62	M24	1.000
760 x 870	102	96	130	1.202.959	3.166	115	101	64	M24	1.000
780 x 890	102	96	130	1.252.660	3.212	114	100	65	M24	1.000
800 x 910	102	96	130	1.303.261	3.258	113	99	66	M24	1.000
820 x 930	102	96	130	1.373.654	3.350	113	100	68	M24	1.000
840 x 950	102	96	130	1.445.789	3.442	113	100	70	M24	1.000
860 x 970	102	96	130	1.519.663	3.534	114	101	72	M24	1.000
880 x 990	102	96	130	1.595.268	3.626	114	101	74	M24	1.000
900 x 1010	102	96	130	1.652.075	3.671	113	100	75	M24	1.000

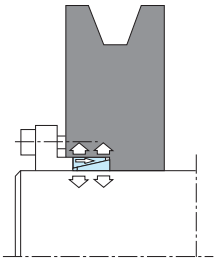
Note:
For assemblies requiring larger dimensions, contact our Technical Department.

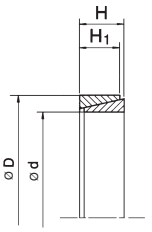
M_S	Screw tightening torque	Nm
M_T	Transmissible torque moment	Nm
F_{ax}	Transmissible axial load	N

p_w	Shaft pressure	N/mm^2
p_n	Hub pressure	N/mm^2

SIT-LOCK® 2 - Not Self-Centering

Locking elements consist of one internal and one external tapered rings. They are designed to work in combination with a clamp flange which can be bolted on a hub or shaft depending on application need. The number of locking screws depends on the torque to be transmitted. SIT-LOCK® 2 requires very small axial installation dimensions. Up to 4 units can be arranged behind each other, allowing high torques to be transmitted.





Note: SIT-LOCK® 2 in slotted execution is available upon request

$$M_T = \frac{(N°screws \cdot P_v) - P_o}{0,54} \cdot 0,12 \cdot \frac{d}{2000}$$

The values of Pv and Ms are stated in the DIN 912 table.

Note:
The values stated in this catalogue are valid for application 1 (see following page).
With applications 2, MT, Fax, pw, pn, are increased by 25%.

Installation

Carefully clean contact surfaces of shaft and hub. Then lightly oil both surfaces with standard mineral oil. Position the SIT-LOCK® on the shaft and into the hub machined bore. Align them as required by the application. Gradually and uniformly tighten the locking screws to the tightening torque (Ms).

You must tighten the screws in diametrically opposite sequence in stages:
- hand tighten the screws until the surfaces are in contact
- carefully check the position of the hub onto the shaft
- tighten the screws to half the value of the tightening torque (Ms) stated in the catalogue
- repeat the operation until the tightening torque is reached, using the dynamometric screw-driver
- check every locking screw to insure it has been tightened to the specific tightening torque

Make sure the clamping flange is not laying on the hub and the distance between flange and hub is equally spaced.

Do not use lubricant like "Molykote" or molybdenum disulfide based oils.

Removal

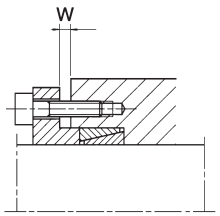
Gradually loosen opposite clamping screws in stages until the SIT-LOCK® is released. In case it should jam, it is necessary to lightly hammer the hub.

Maximum allowable roughness
Rt 6 µm
Maximum recommended tolerance
shaft h 6 - hub H7 per ∅ ≤ 40
shaft h 8 - hub H8 per ∅ ≥ 42

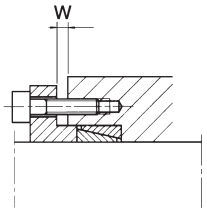
Calculation of (M_T) with more SIT-LOCK®2	
1 unit	$M_T = M_T$ table
2 units	$M_T = M_T$ table x 1,55
3 units	$M_T = M_T$ table x 1,85
4 units	$M_T = M_T$ table x 2,02

SIT-LOCK® 2

Application 1



Application 2



Dimensions [mm]			Axial force	Total axial force	Performances		"W" - Number of elements arranged in parallel [mm]				Pressure [N/mm^2]	
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	2,7	0,9	2,5	2,5	3	4	106	71
7 x 10	4,5	3,7	-	5	3,9	1,1	2,5	2,5	3	4	114	80
8 x 11	4,5	3,7	-	6	5,3	1,3	2,5	2,5	3	4	119	87
9 x 12	4,5	3,7	8	15	7,4	1,6	2,5	2,5	3	4	130	98
10 x 13	4,5	3,7	7	16	10,0	2,0	2,5	2,5	3	4	143	110
12 x 15	4,5	3,7	7	16	12,0	2,0	2,5	2,5	3	4	119	96
13 x 16	4,5	3,7	7	16	13,7	2,1	2,5	2,5	3	4	116	95
14 x 18	6,3	5,3	11	26	23,3	3,3	3,5	3,5	4,5	5,5	119	93
15 x 19	6,3	5,3	11	27	27,0	3,6	3,5	3,5	4,5	5,5	120	95
16 x 20	6,3	5,3	10	27	30,2	3,8	3,5	3,5	4,5	5,5	118	95
17 x 21	6,3	5,3	10	27	32,9	3,9	3,5	3,5	4,5	5,5	114	92
18 x 22	6,3	5,3	9	33	47,7	5,3	3,5	3,5	4,5	5,5	147	121
19 x 24	6,3	5,3	13	33	43,3	4,6	3,5	3,5	4,5	5,5	120	95
20 x 25	6,3	5,3	12	33	46,7	4,7	3,5	3,5	4,5	5,5	117	93
22 x 26	6,3	5,3	9	34	61,1	5,6	3,5	3,5	4,5	5,5	126	107
24 x 28	6,3	5,3	8	34	68,3	5,7	3,5	3,5	4,5	5,5	119	102
25 x 30	6,3	5,3	10	37	75,0	6,0	3,5	3,5	4,5	5,5	120	100
28 x 32	6,3	5,3	8	40	101,1	7,2	3,5	3,5	4,5	5,5	129	113
30 x 35	6,3	5,3	9	40	104,7	7,0	3,5	3,5	4,5	5,5	116	100
32 x 36	6,3	5,3	8	44	128,4	8,0	3,5	3,5	4,5	5,5	125	112
35 x 40	7	6	10	54	171,1	9,8	3,5	3,5	4,5	5,5	124	108
36 x 42	7	6	12	57	181,2	10,1	3,5	3,5	4,5	5,5	124	106
38 x 44	7	6	11	60	206,9	10,9	3,5	3,5	4,5	5,5	127	109
40 x 45	8	6,6	14	70	249,3	12,5	3,5	4,5	5,5	6,5	125	111
42 x 48	8	6,6	16	75	277,7	13,2	3,5	4,5	5,5	6,5	127	111
45 x 52	10	8,6	28	110	408,5	18,2	3,5	4,5	5,5	6,5	124	108
48 x 55	10	8,6	25	110	454,9	19,0	3,5	4,5	5,5	6,5	122	106
50 x 57	10	8,6	24	110	480,0	19,2	3,5	4,5	5,5	6,5	118	104
55 x 62	10	8,6	22	120	600,7	21,8	3,5	4,5	5,5	6,5	123	109
56 x 64	12	10,4	30	150	749,8	26,8	3,5	4,5	5,5	7	122	107
60 x 68	12	10,4	28	160	883,3	29,4	3,5	4,5	5,5	7	125	110
63 x 71	12	10,4	27	170	1.004,5	31,9	3,5	4,5	5,5	7	129	115
65 x 73	12	10,4	26	170	1.043,6	32,1	3,5	4,5	5,5	7	126	112
70 x 79	14	12,2	31	210	1.392,2	39,8	3,5	5	6,5	7,5	124	109
71 x 80	14	12,2	31	220	1.491,0	42,0	3,5	5	6,5	7,5	129	114
75 x 84	14	12,2	35	230	1.627,5	43,4	3,5	5	6,5	7,5	126	112
80 x 91	17	15	48	300	2.240,0	56,0	4	6	6,5	8	124	109
85 x 96	17	15	46	320	2.592,5	61,0	4	6	6,5	8	127	112
90 x 101	17	15	44	330	2.864,0	63,6	4	6	6,5	8	125	111
95 x 106	17	15	41	340	3.152,9	66,4	4	6	6,5	8	124	111
100 x 114	21	18,7	61	460	4.433,3	88,7	5	6	7	9	126	110
110 x 124	21	18,7	66	475	4.998,9	90,9	5	6	7	9	117	104
120 x 134	21	18,7	60	475	5.529,3	92,2	5	6	7	9	109	98
130 x 148	28	25,3	96	700	8.720,1	134,2	5	7	9	11	108	95
140 x 158	28	25,3	89	740	10.126,7	144,7	6	7	9	11	108	96
150 x 168	28	25,3	85	790	11.750,0	156,7	6	7	8	11	110	98
160 x 178	28	25,3	79	950	15.491,6	193,6	6	7	9	11	127	114
170 x 191	33	30	117	1.180	20.071,3	236,1	7	9	10	12	123	109
180 x 201	33	30	111	1.200	21.774,0	241,9	7	9	10	12	119	106
190 x 211	33	30	105	1.300	25.227,8	265,6	7	9	10	12	124	111
200 x 224	38	34,8	134	1.600	32.573,3	325,7	7	8	11	13	124	111
220 x 244	38	34,8	142	1.700	37.185,2	344,6	7	9	11	13	124	111
320 x 360	65	59	292	3.492	113.950	710,0	10	15	20	25	321	100

Note: For assemblies of larger dimensions, contact our Technical Department

Design of the screws center distance (I)

a) For applications with screws clamped on the hub:
   I = D + 12 + ∅ screw [mm]
b) For applications with screws clamped on the shaft:
   I = d – 12 – ∅ screw [mm]

Design of the flange thickness (S_f)

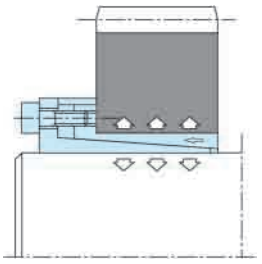
a) For applications with screws quality 12,9 (DIN 912):
   S_f = ∅ screw x 1,8 [mm]
b) For applications with screws quality 8,8 (DIN 912):
   S_f = ∅ screw x 1,3 [mm]

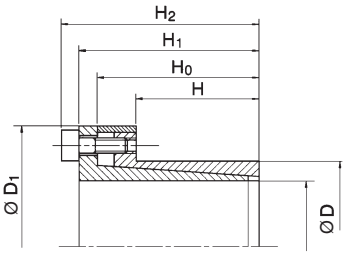
Note: flanges are available on request

M_S	Screw tightening torque	Nm
M_T	Transmissible torque moment	Nm
F_{ax}	Transmissible axial load	N
p_w	Shaft pressure	N/mm^2
p_n	Hub pressure	N/mm^2

SIT-LOCK® 3 - Self-Centering

Locking assembly with single taper design. Consists of two tapered rings and a spacer. It has minimum overall dimensions in virtue of the reduced thickness of the cones.
SIT-LOCK® 3 is suitable for the applications where small hubs are requested. It is recommended for mid-high torques and is self centering.
During the installation of the unit no axial displacement of the hubs on the shaft occurs.





Installation

Carefully clean contact surfaces of shaft and hub. Then, lightly oil both surfaces with standard mineral oil. Position the SIT-LOCK® on the shaft and into the hub machined bore. Align them as required by the application. Gradually and uniformly tighten the locking screws to the tightening torque (Ms).

You must tighten the screws in diametrically opposite sequence in stages:

- hand tighten the screws until the surfaces are in contact
- carefully check the position of the hub on the shaft
- tighten the screws to half the value of the tightening torque (Ms) stated in the catalogue
- repeat the operation until the tightening torque is reached using the dynamometric screw-driver
- check every locking screw to insure it has been tightened to the specific tightening torque

Do not use lubricant like "Molykote" or molybdenum disulfide based oils.

Removal

Gradually loosen all locking screws. Remove and transfer the screws into the releasing tapped holes and tighten them until the SIT-LOCK® is released.

Note: To reuse the locking element, carefully oil the screws and the conical surfaces, then follow installation instructions.

Concentricity

For self-centering locking assemblies the clamping element has a centering effect and the concentricity error can be considered 0.02-0.04 mm.

Maximum allowable roughness
Rt 16 µm
Maximum recommended tolerance
shaft h 8 - hub H 8

SIT-LOCK® 3

Dimensions [mm]						Performances		Pressure [N/mm²]		Clamping screws (DIN 912 - 12,9)		
d x D	H	H_0	H_1	H_2	D_1	M_T [Nm]	F_{ax} [kN]	p_w	p_n	N°	Type	M_S [Nm]
6 x 14	10	18,5	21	24	25	12	4	180	77	3	M 3	2
7 x 15	12	22	25	29	27	26	7	234	109	3	M 4	4,9
8 x 15	12	22	25	29	27	30	7	204	109	3	M 4	4,9
9 x 16	14	23	26	30	28	44	10	208	117	4	M 4	4,9
10 x 16	14	23	26	30	28	49	10	187	117	4	M 4	4,9
11 x 18	14	23	26	30	32	54	10	170	104	4	M 4	4,9
12 x 18	14	23	26	30	32	59	10	156	104	4	M 4	4,9
13 x 23	14	23	26	30	38	64	10	144	81	4	M 4	4,9
14 x 23	14	23	26	30	38	69	10	134	81	4	M 4	4,9
15 x 24	16	29	36	42	45	128	17	189	118	3	M 6	17
16 x 24	16	29	36	42	45	136	17	177	118	3	M 6	17
17 x 26	18	31	38	44	47	193	23	197	129	4	M 6	17
18 x 26	18	31	38	44	47	205	23	186	129	4	M 6	17
19 x 27	18	31	38	44	49	216	23	176	124	4	M 6	17
20 x 28	18	31	38	44	50	227	23	168	120	4	M 6	17
22 x 32	25	38	45	51	54	250	23	110	75	4	M 6	17
24 x 34	25	38	45	51	56	273	23	101	71	4	M 6	17
25 x 34	25	38	45	51	56	284	23	97	71	4	M 6	17
28 x 39	25	38	45	51	61	478	34	129	93	6	M 6	17
30 x 41	25	38	45	51	62	512	34	121	88	6	M 6	17
32 x 43	25	38	45	51	65	546	34	113	84	6	M 6	17
35 x 47	32	45	52	58	69	796	45	108	80	8	M 6	17
38 x 50	32	45	52	58	72	864	45	99	75	8	M 6	17
40 x 53	32	45	52	58	75	910	45	94	71	8	M 6	17
42 x 55	32	45	52	58	78	955	45	90	69	8	M 6	17
45 x 59	45	62	70	78	86	1.891	84	110	84	8	M 8	41
48 x 62	45	62	70	78	87	2.017	84	103	80	8	M 8	41
50 x 65	45	62	70	78	92	2.101	84	99	76	8	M 8	41
55 x 71	55	72	80	88	98	2.600	95	83	64	9	M 8	41
60 x 77	55	72	80	88	104	2.836	95	76	59	9	M 8	41
65 x 84	55	72	80	88	111	3.073	95	70	54	9	M 8	41
70 x 90	65	86	96	106	119	5.254	150	88	68	9	M10	83
75 x 95	65	86	96	106	126	5.630	150	82	64	9	M10	83
80 x 100	65	86	96	106	131	8.006	200	102	82	12	M10	83
85 x 106	65	86	96	106	137	8.507	200	96	77	12	M10	83
90 x 112	65	86	96	106	144	9.007	200	91	73	12	M10	83
95 x 120	65	86	96	106	149	11.092	234	100	79	14	M10	83
100 x 125	65	86	96	106	154	15.012	300	123	98	18	M10	83
110 x 140	90	114	128	140	180	16.029	291	78	61	12	M12	145
120 x 155	90	114	128	140	198	17.486	291	72	55	12	M12	145
130 x 165	90	114	128	140	208	25.257	389	88	69	16	M12	145

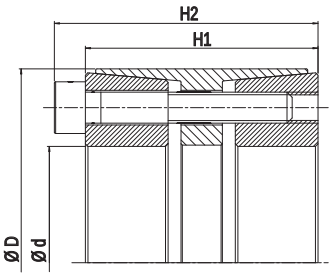
Note: For larger sizes, please contact our technical office.

It is possible to decrease the screws tightening torque Ms by up to 40% of the value stated in the table. Consequently, M_T, F_{ax}, P_w and P_n will decrease proportionally.

M_S	Screw tightening torque	Nm
M_T	Transmissible torque moment	Nm
F_{ax}	Transmissible axial load	N
p_w	Shaft pressure	N/mm^2
p_n	Hub pressure	N/mm^2

SIT-LOCK® 4 - Self-Centering

It is suitable for high torques and is self-centering.
Recommended for applications that requires high transmission values and excellent centering capabilities such as belt drums.



Installation

Carefully clean contact surfaces of shaft and hub. Then, lightly oil both surfaces with standard mineral oil. Position the SIT-LOCK® on the shaft and into the hub machined bore. Align them as required by the application. Gradually and uniformly tighten the locking screws to the tightening torque (Ms).

You must tighten the screws in diametrically opposite sequence in stages:

- hand tighten the screws until the surfaces are in contact
- carefully check the position of the hub on the shaft
- tighten the screws to half the value of the tightening torque (Ms) stated in the catalogue
- repeat the operation until the tightening torque is reached using the dynamometric screw-driver
- check every locking screw to insure it has been tightened to the specific tightening torque

Do not use lubricant like "Molykote" or molybdenum disulfide based oils.

Removal

Gradually loosen the clamping screws. Transfer the screws into the releasing tapped holes and tighten them until the front cone is released. Loosen the clamping screws again. Transfer the clamping screws into the releasing holes of the intermediate ring, and tighten them until the back cone is released.

Note: To reuse the locking element, carefully oil the screws and the conical surfaces, then follow installation instructions.

Concentricity

For self-centering locking assemblies, the clamping element has a centering effect and the concentricity error can be considered 0.02-0.04 mm.

Maximum allowable roughness
Rt 16 µm
Maximum recommended tolerance
shaft h 8 - hub H 8

SIT-LOCK® 4

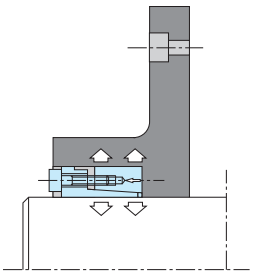
Dimensions [mm]			Performances		Pressure [N/mm²]		Clamping screws (DIN 912 - 12,9)		
d x D	H_1	H_2	M_T [Nm]	F_{ax} [kN]	p_w	p_n	N°	Type	M_S [Nm]
25 x 50	45	51	830	66	172	86	6	M 6	17
28 x 55	45	51	1072	76	180	111	8	M 6	17
30 x 55	45	51	1.328	89	191	104	8	M 6	17
35 x 60	45	51	1.550	89	164	95	8	M 6	17
38 x 65	45	51	1805	90	175	102	8	M 6	17
40 x 65	45	51	2.214	111	179	110	10	M 6	17
42 x 75	45	51	2950	141	188	105	8	M 8	41
45 x 75	45	51	1.992	89	127	76	8	M 6	17
48 x 80	62	70	3400	140	166	98	8	M 8	41
50 x 80	62	70	4.090	164	150	94	8	M 8	41
55 x 85	62	70	5.062	184	153	99	8	M 8	41
60 x 90	62	70	6.136	205	156	104	10	M 8	41
65 x 95	62	70	6.647	205	144	98	10	M 8	41
70 x 110	78	88	11.366	325	176	112	10	M10	83
75 x 115	78	88	12.178	325	164	107	10	M10	83
80 x 120	78	88	15.588	390	185	123	12	M10	83
85 x 125	78	88	16.562	390	174	118	12	M10	83
90 x 130	78	88	17.536	390	164	114	12	M10	83
95 x 135	78	88	18.510	390	155	109	12	M10	83
100 x 145	100	112	28.369	567	164	113	12	M12	145
110 x 155	100	112	31.206	567	149	106	12	M12	145
120 x 165	100	112	39.717	662	159	116	14	M12	145
130 x 180	114	128	50.602	778	147	106	12	M14	230
140 x 190	114	128	63.577	908	159	117	14	M14	230
150 x 200	114	128	77.850	1.038	170	127	16	M14	230
160 x 210	146	162	83.040	1.038	123	94	16	M14	230
170 x 225	146	162	107.296	1.262	141	106	14	M16	355
180 x 235	146	162	129.838	1.443	152	116	16	M16	355
190 x 250	146	162	137.051	1.443	144	109	16	M16	355
200 x 260	146	162	144.264	1.443	137	105	16	M16	355
220 x 285	146	162	198.363	1.803	155	120	20	M16	355
240 x 305	146	162	238.035	1.984	157	123	22	M16	355
260 x 325	146	164	261.025	1.984	148	117	22	M16	355
280 x 355	148	197	399.520	2.824	158	124	20	M20	690
300 x 375	177	197	471.258	3.085	162	128	22	M20	690
320 x 405	177	197	502.452	3.085	155	118	22	M20	690
340 x 425	177	197	582.850	3.385	158	121	24	M20	690
360 x 455	202	224	703.258	3.895	145	113	22	M22	930
380 x 475	202	224	879.985	4.545	160	127	26	M22	930
400 x 495	202	224	925.215	4.582	153	124	26	M22	930

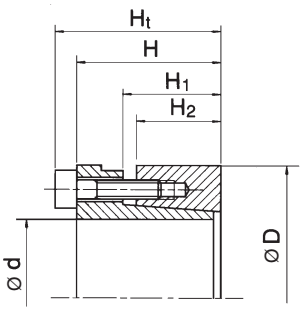
Note: For larger sizes, please contact our technical office.

M_S	Screw tightening torque	Nm
M_T	Transmissible torque moment	Nm
F_{ax}	Transmissible axial load	N
p_w	Shaft pressure	N/mm^2
p_n	Hub pressure	N/mm^2

SIT-LOCK® 5A - Self-Centering

Locking assembly with single taper design. It is suitable for high torques. Provide good concentricity and self centring. A small axial movement of the hub during the installation operation may occur. Applications in need of an accurate axial positioning are not recommended with this type of locking assembly.





Installation

Carefully clean contact surfaces of shaft and hub. Then, lightly oil both surfaces with standard mineral oil. Position the SIT-LOCK® on the shaft and into the hub machined bore. Align them as required by the application. Gradually and uniformly tighten the locking screws to the tightening torque (Ms).

You must tighten the screws in diametrically opposite sequence in stages:

- hand tighten the screws until the surfaces are in contact
- carefully check the position of the hub on the shaft
- tighten the screws to half the value of the tightening torque (Ms) stated in the catalogue
- repeat the operation until the tightening torque is reached using the dynamometric screw-driver
- check every locking screw to insure it has been tightened to the specific tightening torque

Do not use lubricant like "Molykote" or molybdenum disulfide based oils.

Removal

Gradually loosen all locking screws. Remove and transfer the screws into the releasing tapped holes and tighten them until the SIT-LOCK® is released.

Note: To reuse the locking element, carefully oil the screws and the conical surfaces, then follow installation instructions.

Concentricity

For self-centering locking assemblies the clamping element has a centering effect and the concentricity error can be considered 0.02-0.04 mm.

Maximum allowable roughness
Rt 16 µm
Maximum recommended tolerance
shaft h 8 - hub H 8

SIT-LOCK® 5A

Dimensions [mm]					Performances		Pressure [N/mm²]		Clamping screws (DIN 912 - 12,9)		
d x D	H_t	H	H_1	H_2	M_T [Nm]	F_{ax} [kN]	p_w	p_n	N°	Type	M_s [Nm]
20 x 47	48	42	29	26	547	55	279	119	6	M 6	17
22 x 47	48	42	29	26	602	55	254	119	6	M 6	17
24 x 50	48	42	29	26	657	55	233	112	6	M 6	17
25 x 50	48	42	29	26	684	55	223	112	6	M 6	17
28 x 55	48	42	29	26	776	55	199	101	6	M 6	17
30 x 55	48	42	29	26	821	55	186	101	6	M 6	17
32 x 60	48	42	29	26	1.313	82	262	140	9	M 6	17
35 x 60	48	42	29	26	1.436	82	239	140	9	M 6	17
38 x 65	48	42	29	26	1.559	82	220	129	9	M 6	17
40 x 65	48	42	29	26	1.641	82	209	129	9	M 6	17
42 x 75	59	51	34,4	30	2.123	101	213	119	6	M 8	41
45 x 75	59	51	34,4	30	2.275	101	199	119	6	M 8	41
48 x 80	59	51	34,4	30	2.426	101	186	112	6	M 8	41
50 x 80	59	51	34,4	30	2.527	101	179	112	6	M 8	41
55 x 85	59	51	34,4	30	4.170	152	244	158	9	M 8	41
60 x 90	59	51	34,4	30	4.549	152	223	149	9	M 8	41
65 x 95	59	51	34,4	30	4.928	152	206	141	9	M 8	41
70 x 110	66	56	45	40	6.555	187	177	113	7	M10	83
75 x 115	66	56	45	40	7.023	187	166	108	7	M10	83
80 x 120	66	56	45	40	7.491	187	155	103	7	M10	83
85 x 125	66	56	45	40	9.096	214	167	114	8	M10	83
90 x 130	66	56	45	40	9.631	214	158	109	8	M10	83
95 x 135	66	56	45	40	12.708	268	187	131	10	M10	83
100 x 145	77	65	52	46	13.634	273	157	108	7	M12	145
110 x 155	77	65	52	46	14.997	273	143	101	7	M12	145
120 x 165	77	65	52	46	18.697	312	150	109	8	M12	145
130 x 180	77	65	52	46	25.319	390	173	125	10	M12	145
140 x 190	87,5	73,5	58,5	51	41.154	588	218	161	11	M14	230
150 x 200	87,5	73,5	58,5	51	48.102	641	222	167	12	M14	230
160 x 210	87,5	73,5	58,5	51	55.585	695	226	172	13	M14	230
170 x 225	87,5	73,5	58,5	51	63.602	748	229	173	14	M14	230
180 x 235	87,5	73,5	58,5	51	67.343	748	216	166	14	M14	230

Note: For larger sizes, please contact our technical office.

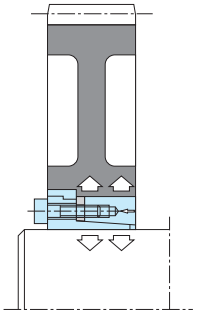
It is possible to decrease the screws tightening torque Ms by up to 40% of the value stated in the table. Consequently, M_T, F_{ax}, P_w and P_n will decrease proportionally.

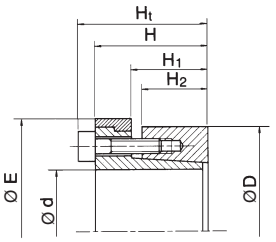
M_S	Screw tightening torque	Nm
M_T	Transmissible torque moment	Nm
F_{ax}	Transmissible axial load	N
p_w	Shaft pressure	N/mm^2
p_n	Hub pressure	N/mm^2

SIT-LOCK® 5B - Self-Centering

Locking assembly with single taper design. It is suitable for high torques. Provide good concentricity and self centring.

It is recommended for medium torques and is self-centering. The flange design prevent axial movement during installation.





Installation

Carefully clean contact surfaces of shaft and hub. Then, lightly oil both surfaces with standard mineral oil. Position the SIT-LOCK® on the shaft and into the hub machined bore. Align them as required by the application. Gradually and uniformly tighten the locking screws to the tightening torque (Ms).

You must tighten the screws in diametrically opposite sequence in stages:

- hand tighten the screws until the surfaces are in contact
- carefully check the position of the hub on the shaft
- tighten the screws to half the value of the tightening torque (Ms) stated in the catalogue
- repeat the operation until the tightening torque is reached using the dynamometric screw-driver
- check every locking screw to insure it has been tightened to the specific tightening torque

Do not use lubricant like "Molykote" or molybdenum disulfide based oils.

Removal

Gradually loosen all locking screws. Remove and transfer the screws into the releasing tapped holes and tighten them until the SIT-LOCK® is released.

Note: ITo reuse the locking element, carefully oil the screws and the conical surfaces, then follow installation instructions.

Concentricity

For self-centering locking assemblies, the clamping element has a centering effect and the concentricity error can be considered 0.02-0.04 mm.

Max allowable roughness
Rt 16 µm
Maximum recommended tolerance
shaft h 8 - hub H 8

SIT-LOCK® 5B

Dimensions [mm]						Performances		Pressure [N/mm²]		Clamping screws (DIN 912 - 12,9)		
d x D	H_t	H	H_1	H_2	E	M_T [Nm]	F_{ax} [kN]	p_w	p_n	N°	Type	M_s [Nm]
20 x 47	48	42	29	26	53	341	34	174	74	6	M 6	17
22 x 47	48	42	29	26	53	375	34	158	74	6	M 6	17
24 x 50	48	42	29	26	56	409	34	145	70	6	M 6	17
25 x 50	48	42	29	26	56	426	34	139	70	6	M 6	17
28 x 55	48	42	29	26	61	478	34	124	63	6	M 6	17
30 x 55	48	42	29	26	61	512	34	116	63	6	M 6	17
32 x 60	48	42	29	26	66	819	51	163	87	9	M 6	17
35 x 60	48	42	29	26	66	895	51	149	87	9	M 6	17
38 x 65	48	42	29	26	71	972	51	137	80	9	M 6	17
40 x 65	48	42	29	26	71	1.023	51	131	80	9	M 6	17
42 x 75	59	51	34,4	30	81	1.324	63	133	74	6	M 8	41
45 x 75	59	51	34,4	30	81	1.418	63	124	74	6	M 8	41
48 x 80	59	51	34,4	30	86	1.513	63	116	70	6	M 8	41
50 x 80	59	51	34,4	30	86	1.576	63	111	70	6	M 8	41
55 x 85	59	51	34,4	30	91	2.600	95	152	98	9	M 8	41
60 x 90	59	51	34,4	30	96	2.836	95	139	93	9	M 8	41
65 x 95	59	51	34,4	30	102	3.073	95	129	88	9	M 8	41
70 x 110	66	56	45	40	117	4.087	117	111	70	7	M10	83
75 x 115	66	56	45	40	122	4.379	117	103	67	7	M10	83
80 x 120	66	56	45	40	127	4.670	117	97	65	7	M10	83
85 x 125	66	56	45	40	132	5.671	133	104	71	8	M10	83
90 x 130	66	56	45	40	137	6.005	133	98	68	8	M10	83
95 x 135	66	56	45	40	142	7.923	67	116	82	10	M10	83
100 x 145	77	65	52	46	153	8.500	70	98	68	7	M12	145
110 x 155	77	65	52	46	163	9.350	70	89	63	7	M12	145
120 x 165	77	65	52	46	173	11.657	94	93	68	8	M12	145
130 x 180	77	65	52	46	188	15.786	243	108	78	10	M12	145
140 x 190	87,5	73,5	58,5	51	199	25.658	367	136	100	11	M14	230
150 x 200	87,5	73,5	58,5	51	209	29.990	400	139	104	12	M14	230
160 x 210	87,5	73,5	58,5	51	219	34.656	433	141	107	13	M14	230
170 x 225	87,5	73,5	58,5	51	234	39.654	467	143	108	14	M14	230
180 x 235	87,5	73,5	58,5	51	244	41.987	467	135	103	14	M14	230

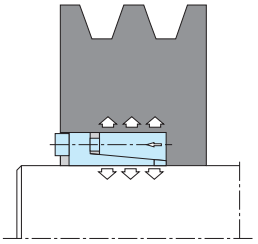
Note: For larger sizes, please contact our technical office.

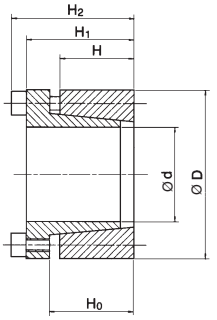
It is possible to decrease the screws tightening torque Ms by up to 40% of the value stated in the table. Consequently, M_T, F_{ax}, P_w and P_n will decrease proportionally.

M_S	Screw tightening torque	Nm
M_T	Transmissible torque moment	Nm
F_{ax}	Transmissible axial load	N
p_w	Shaft pressure	N/mm^2
p_n	Hub pressure	N/mm^2

SIT-LOCK® 6 - Self-Centering

Locking assembly with single taper design. Provides good concentricity and is self centering. A small axial movement of the hub during the installation operation may occurr. Applications requiring accurate axial positioning are not recommended with this type of locking assembly.
SITLOCK® 6 is suitable for applications with medium torques.





Installation

Carefully clean contact surfaces of shaft and hub. Then, lightly oil both surfaces with standard mineral oil. Position the SIT-LOCK® on the shaft and into the hub machined bore. Align them as required by the application. Gradually and uniformly tighten the locking screws to the tightening torque (Ms).

You must tighten the screws in diametrically opposite sequence in stages:

- hand tighten the screws until the surfaces are in contact
- carefully check the position of the hub on the shaft
- tighten the screws to half the value of the tightening torque (Ms) stated in the catalogue
- repeat the operation until the tightening torque is reached using the dynamometric screw-driver
- check every locking screw to insure it has been tightened to the specific tightening torque

Do not use lubricant like "Molykote" or molybdenum disulfide based oils.

Removal

Gradually loosen all locking screws. Remove and transfer the screws into the releasing tapped holes and tighten them until the SIT-LOCK® is released.

Note: To reuse the locking element, carefully oil the screws and the conical surfaces, then follow installation instructions.

Concentricity

For self-centering locking assemblies, the clamping element has a centering effect and the concentricity error can be considered 0.02-0.04 mm.

Maximum allowable roughness
Rt 16 µm
Maximum recommended tolerance
shaft h 8 - hub H 8

SIT-LOCK® 6

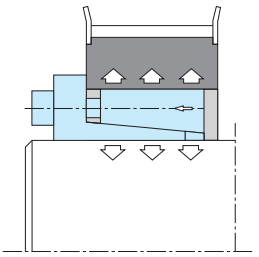
Dimensions [mm]					Performances		Pressure [N/mm²]		Clamping screws (DIN 912 - 12,9)		
d x D	H	H_0	H_1	H_2	M_T [Nm]	F_{ax} [kN]	p_w	p_n	N°	Type	M_S [Nm]
20 x 47	17	22	28	34	380	38	297	126	5	M 6	14
22 x 47	17	22	28	34	419	38	270	126	5	M 6	14
24 x 50	17	22	28	34	457	38	247	119	5	M 6	14
25 x 50	17	22	28	34	571	46	285	142	6	M 6	14
28 x 55	17	22	28	34	639	46	254	130	6	M 6	14
30 x 55	17	22	28	34	685	46	237	130	6	M 6	14
32 x 60	17	22	28	34	974	61	297	158	8	M 6	14
35 x 60	17	22	28	34	1.065	61	271	158	8	M 6	14
38 x 65	17	22	28	34	1.157	61	250	146	8	M 6	14
40 x 65	17	22	28	34	1.218	61	237	146	8	M 6	14
42 x 75	20	25	33	41	2.060	98	310	173	7	M 8	35
45 x 75	20	25	33	41	2.207	98	289	173	7	M 8	35
48 x 80	20	25	33	41	2.354	98	271	163	7	M 8	35
50 x 80	20	25	33	41	2.452	98	260	163	7	M 8	35
55 x 85	20	25	33	41	3.082	112	270	175	8	M 8	35
60 x 90	20	25	33	41	3.363	112	248	165	8	M 8	35
65 x 95	20	25	33	41	4.098	126	257	176	9	M 8	35
70 x 110	24	30	40	50	6.240	178	281	179	8	M10	70
75 x 115	24	30	40	50	6.685	178	263	171	8	M10	70
80 x 120	24	30	40	50	7.131	178	246	164	8	M10	70
85 x 125	24	30	40	50	8.524	201	261	177	9	M10	70
90 x 130	24	30	40	50	9.025	201	246	171	9	M10	70
95 x 135	24	30	40	50	10.585	223	259	182	10	M10	70
100 x 145	26	32	44	56	13.045	261	266	184	8	M12	125
110 x 155	26	32	44	56	14.349	261	242	172	8	M12	125
120 x 165	26	32	44	56	17.610	294	250	181	9	M12	125
130 x 180	34	40	54	64	25.437	391	235	170	12	M12	125
140 x 190	34	40	54	68	28.155	402	224	165	9	M14	190
150 x 200	34	40	54	68	33.518	447	232	174	10	M14	190
160 x 210	34	40	54	68	39.327	492	240	183	11	M14	190
170 x 225	44	50	64	78	45.584	536	190	144	12	M14	190
180 x 235	44	50	64	78	48.265	536	180	138	12	M14	190
190 x 250	44	50	64	78	63.683	670	213	162	15	M14	190
200 x 260	44	50	64	78	67.035	670	202	155	15	M14	190

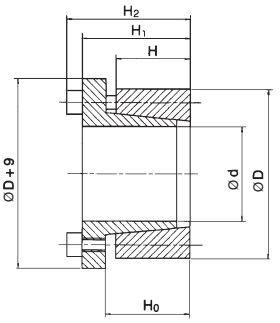
M_S	Screw tightening torque	Nm
M_T	Transmissible torque moment	Nm
F_{ax}	Transmissible axial load	N
p_w	Shaft pressure	N/mm^2
p_n	Hub pressure	N/mm^2

SIT-LOCK® 7 - Self-Centering

Locking assembly with single taper design. Provides good concentricity and self centering.
It is recommended for medium torques and is self-centring.

The flange design prevents axial movement during installation.
It is suitable for applications with medium torques, and need very precise axial positioning.





Installation

Carefully clean contact surfaces of shaft and hub. Then, lightly oil both surfaces with standard mineral oil. Position the SIT-LOCK® on the shaft and into the hub machined bore. Align them as required by the application. Gradually and uniformly tighten the locking screws to the tightening torque (Ms).

You must tighten the screws in diametrically opposite sequence in stages:

- hand tighten the screws until the surfaces are in contact
- carefully check the position of the hub on the shaft
- tighten the screws to half the value of the tightening torque (Ms) stated in the catalogue
- repeat the operation until the tightening torque is reached using the dynamometric screw-driver
- check every locking screw to insure it has been tightened to the specific tightening torque

Do not use lubricant like "Molykote" or molybdenum disulfide based oils.

Removal

Gradually loosen all locking screws. Remove and transfer the screws into the releasing tapped holes and tighten them until the SIT-LOCK® is released.

Note: To reuse the locking element, carefully oil the screws and the conical surfaces, then follow installation instructions.

Concentricity

For self-centering locking assemblies the clamping element has a centering effect and the concentricity error can be considered 0.02-0.04 mm.

Maximum allowable roughness
Rt 16 µm
Maximum recommended tolerance
shaft h 8 - hub H 8

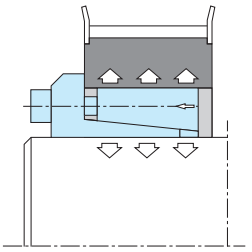
SIT-LOCK® 7

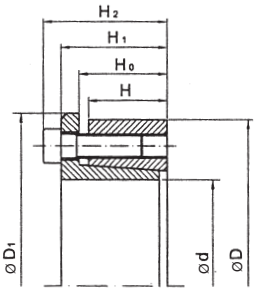
Dimensions [mm]					Performances		Pressure [N/mm²]		Clamping screws (DIN 912 - 12,9)		
d x D	H	H_0	H_1	H_2	M_T [Nm]	F_{ax} [kN]	p_w	p_n	N°	Tipo	M_S [Nm]
20 x 47	17	22	28	34	284	28	222	94	5	M 6	17
22 x 47	17	22	28	34	313	28	202	94	5	M 6	17
24 x 50	17	22	28	34	341	28	185	89	5	M 6	17
25 x 50	17	22	28	34	426	34	213	106	6	M 6	17
28 x 55	17	22	28	34	478	34	190	97	6	M 6	17
30 x 55	17	22	28	34	512	34	177	97	6	M 6	17
32 x 60	17	22	28	34	728	45	222	118	8	M 6	17
35 x 60	17	22	28	34	796	45	203	118	8	M 6	17
38 x 65	17	22	28	34	864	45	187	109	8	M 6	17
40 x 65	17	22	28	34	910	45	177	109	8	M 6	17
42 x 75	20	25	33	41	1.544	74	232	130	7	M 8	41
45 x 75	20	25	33	41	1.655	74	217	130	7	M 8	41
48 x 80	20	25	33	41	1.765	74	203	122	7	M 8	41
50 x 80	20	25	33	41	1.838	74	195	122	7	M 8	41
55 x 85	20	25	33	41	2.311	84	203	131	8	M 8	41
60 x 90	20	25	33	41	2.521	84	186	124	8	M 8	41
65 x 95	20	25	33	41	3.073	95	193	132	9	M 8	41
70 x 110	24	30	40	50	4.670	133	211	134	8	M10	83
75 x 115	24	30	40	50	5.004	133	197	128	8	M10	83
80 x 120	24	30	40	50	5.338	133	184	123	8	M10	83
85 x 125	24	30	40	50	6.380	150	195	133	9	M10	83
90 x 130	24	30	40	50	6.755	150	184	128	9	M10	83
95 x 135	24	30	40	50	7.923	167	194	137	10	M10	83
100 x 145	26	32	44	56	9.714	194	198	137	8	M12	145
110 x 155	26	32	44	56	10.686	194	180	128	8	M12	145
120 x 165	26	32	44	56	13.114	219	186	135	9	M12	145
130 x 180	34	40	54	64	18.943	291	175	126	12	M12	145
140 x 190	34	40	54	68	20.993	300	167	123	9	M14	230
150 x 200	34	40	54	68	24.992	333	173	130	10	M14	230
160 x 210	34	40	54	68	29.324	367	179	136	11	M14	230
170 x 225	44	50	64	78	33.989	400	142	107	12	M14	230
180 x 235	44	50	64	78	35.989	400	134	103	12	M14	230
190 x 250	44	50	64	78	47.485	500	159	121	15	M14	230
200 x 260	44	50	64	78	49.984	500	151	116	15	M14	230

M_S	Screw tightening torque	Nm
M_T	Transmissible torque moment	Nm
F_{ax}	Transmissible axial load	N
p_w	Shaft pressure	N/mm^2
p_n	Hub pressure	N/mm^2

SIT-LOCK® 8 - Self-centering

Locking assembly with single taper design. The flange design prevents axial movement during installation.
SIT-LOCK® 8 has a very small axial dimension, is self centering and has been designed to suit various shaft diameters although the overall dimensions are the same. SIT-LOCK® 8 is recommended for applications with medium torques which need a good axial positioning. The limited number of screws make the installation fast.





Installation

Carefully clean contact surfaces of shaft and hub. Then, lightly oil both surfaces with standard mineral oil. Position the SIT-LOCK® on the shaft and into the hub machined bore. Align them as required by the application. Gradually and uniformly tighten the locking screws to the tightening torque (Ms).

You must tighten the screws in diametrically opposite sequence in stages:

- hand tighten the screws until the surfaces are in contact
- carefully check the position of the hub on the shaft
- tighten the screws to half the value of the tightening torque (Ms) stated in the catalogue
- repeat the operation until the tightening torque is reached using the dynamometric screw-driver
- check every locking screw to insure it has been tightened to the specific tightening torque

Do not use lubricant like "Molykote" or molybdenum disulfide based oils.

Removal

Gradually loosen all locking screws. Remove and transfer the screws into the releasing tapped holes and tighten them until the SIT-LOCK® is released.

Note: To reuse the locking element, carefully oil the screws and the conical surfaces, then follow installation instructions.

Concentricity

For self-centering locking assemblies, the clamping element has a centering effect and the concentricity error can be considered 0.02-0.04 mm.

Maximum allowable roughness
Rt 16 µm
Maximum recommended tolerance
shaft h 8 - hub H 8

SIT-LOCK® 8

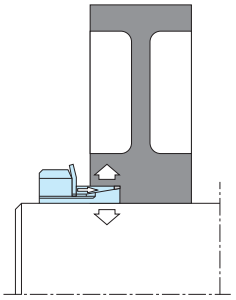
Dimensions [mm]						Performances		Pressure [N/mm²]		Clamping screws (DIN 912 - 12,9)		
d x D	H	H_0	H_1	H_2	D_1	M_T [Nm]	F_{ax} [kN]	p_w	p_n	N°	TYpe	M_S [Nm]
14 x 55	17	22	30	38	62	130	19	208	53	3	M 8	25
16 x 55	17	22	30	38	62	149	19	182	53	3	M 8	25
18 x 55	17	22	30	38	62	168	19	162	53	3	M 8	25
19 x 55	17	22	30	38	62	177	19	153	53	3	M 8	25
20 x 55	17	22	30	38	62	186	19	145	53	3	M 8	25
22 x 55	17	22	30	38	62	288	26	186	74	3	M 8	35
24 x 55	17	22	30	38	62	314	26	170	74	3	M 8	35
25 x 55	17	22	30	38	62	328	26	164	74	3	M 8	35
28 x 55	17	22	30	38	62	441	32	176	89	3	M 8	41
30 x 55	17	22	30	38	62	473	32	164	89	3	M 8	41
24 x 65	17	22	30	38	72	448	37	243	90	5	M 8	30
25 x 65	17	22	30	38	72	467	37	233	90	5	M 8	30
28 x 65	17	22	30	38	72	611	44	243	105	5	M 8	35
30 x 65	17	22	30	38	72	655	44	227	105	5	M 8	35
32 x 65	17	22	30	38	72	699	44	213	105	5	M 8	35
35 x 65	17	22	30	38	72	919	53	234	126	5	M 8	41
38 x 65	17	22	30	38	72	998	53	216	126	5	M 8	41
40 x 65	17	22	30	38	72	1.051	53	205	126	5	M 8	41
30 x 80	20	25	33	41	87	785	52	231	87	7	M 8	30
32 x 80	20	25	33	41	87	837	52	217	87	7	M 8	30
35 x 80	20	25	33	41	87	1.070	61	232	101	7	M 8	35
38 x 80	20	25	33	41	87	1.162	61	213	101	7	M 8	35
40 x 80	20	25	33	41	87	1.223	61	203	101	7	M 8	35
42 x 80	20	25	33	41	87	1.544	74	232	122	7	M 8	41
45 x 80	20	25	33	41	87	1.655	74	217	122	7	M 8	41
48 x 80	20	25	33	41	87	1.765	74	203	122	7	M 8	41
50 x 80	20	25	33	41	87	1.838	74	195	122	7	M 8	41

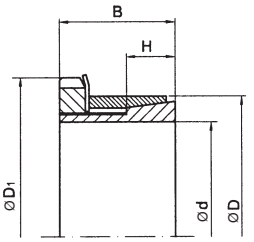
M_S	Screw tightening torque	Nm
M_T	Transmissible torque moment	Nm
F_{ax}	Transmissible axial load	N
p_w	Shaft pressure	N/mm^2
p_n	Hub pressure	N/mm^2

SIT-LOCK® 9 - Not Self-Centering

Consists of two tapered rings and a lock nut. In virtue of the simple design, very fast assembly/disassembly is allowed.

SIT-LOCK® 9 is suitable for applications with small-medium torques.





Installation

Carefully clean contact surfaces of shaft and hub. Then lightly oil both surfaces with standard mineral oil. Position the SIT-LOCK® in the machined bore of the hub. Insert the shaft. Gradually and uniformly tighten the locking nut to the tightening torque (Ms).

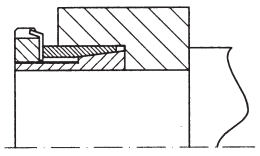
Note: once the tightening torque is reached, do no tighten the locking nut anymore.

Do not use lubricant like "Molykote" or molybdenum disulfide based oils.

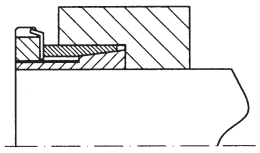
Removal

Loosen the lock nut until the SIT-LOCK® is completely released.

Application 1



Application 2



Dimensions [mm]				Performances		Pressure [N/mm²]		Nut	Ms [Nm]
d x D	D1	H	B	MT [Nm]	Fax [kN]	pw	pn		
14 x 25	32	6,5	17	37	6	130	73	KM4	65
15 x 25	32	6,5	17	40	6	122	73	KM4	65
16 x 25	32	6,5	17	42	6	114	73	KM4	65
17 x 26	32	6,5	16,5	47	6	164	95	KM4*	95
17 x 30	38	6,5	18	55	6	197	112	KM5	160
18 x 26	32	6,5	16,5	49	6	155	107	KM4*	95
18 x 30	38	7	17,5	65	8	133	80	KM5	85
19 x 30	38	7	18	60	7	111	70	KM5	95
20 x 30	38	7	18	70	8	120	80	KM5	110
22 X 32	38	6,5	18	73	7	150	105	KM5	160
24 x 35	45	7	18	100	10	117	80	KM6	155
25 x 35	45	7	18	110	10	126	90	KM6	160
28 X 36	45	6,5	18	120	9	159	124	KM6	220
28 x 40	52	6,5	18	140	11	100	70	KM7	200
30 x 40	52	8	20	170	14	107	80	KM7	240
32 X 42	52	7	19,5	170	15	106	154	KM7	340
32 x 45	58	8	22	210	15	113	80	KM8	320
35 x 45	58	8	22	230	15	103	80	KM8	320
36 X 45	58	8	21,5	240	13	149	120	KM8	480
38 X 48	58	8	21,5	250	13	141	112	KM8	480
40 x 50	65	10	25	330	19	113	90	KM9	440
40 X 52	65	10	24,5	310	15	120	93	KM9	680
45 x 55	70	10	26	440	23	110	90	KM10	550
45 X 57	70	10	25,5	400	18	122	96	KM10	870
48 X 62	75	10	25,5	500	21	135	105	KM11	970
50 x 60	75	10	26	530	25	108	90	KM11	660
50 X 62	75	10	25,5	520	21	130	105	KM11	970
55 x 65	80	12	27	640	27	95	80	KM12	800
55 X 68	80	12	27,5	610	22	103	84	KM12	1100
56 X 68	80	12	27,5	620	22	101	82	KM12	1100
60 x 70	85	12	29	830	32	93	80	KM13	900
60 X 73	85	12	28,5	800	27	113	93	KM13	1300
63 X 79	92	14	30,5	980	31	107	86	KM14	1600
65 X 79	92	14	30,5	1010	31	104	86	KM14	1600
70 x 84	98	14	33	1.100	30	108	90	KM15	1.200

* Without washer

Note:
MT, Fax, Pw and Pn stated in this catalogue are valid for application 1. For application 2, they have to be increased by 25%.

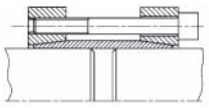
Maximum allowable roughness
Rt 16 µm
Maximum recommended tolerance
shaft h 8 - hub H 8

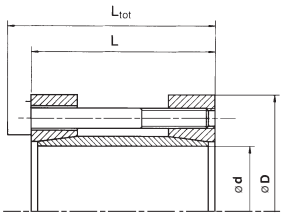
M_S	Screw tightening torque	Nm
M_T	Transmissible torque moment	Nm
F_{ax}	Transmissible axial load	N
p_w	Shaft pressure	N/mm^2
p_n	Hub pressure	N/mm^2

SIT-LOCK® 10 - External

SIT-LOCK® 10 are shrink disk couplings with double taper design. They offer easy angular timing and axial adjustment of shaft ends.

They transmit high torque and bending moment without keys and offer a low cost solution for shaft to shaft rigid connection.





Installation

Carefully clean contact surfaces of shaft and hub. Then, lightly oil both surfaces with standard mineral oil. Position the SIT-LOCK® on the shaft and into the hub machined bore. Align them as required by the application. Gradually and uniformly tighten the locking screws to the tightening torque (Ms).

You must tighten the screws in diametrically opposite sequence in stages:

- hand tighten the screws until the surfaces are in contact
- carefully check the position of the hub on the shaft
- tighten the screws to half the value of the tightening torque (Ms) stated in the catalogue
- repeat the operation until the tightening torque is reached using the dynamometric screw-driver
- check every locking screw to insure it has been tightened to the specific tightening torque

Note: once the tightening torque is reached, do not continue to tighten the screws. Do not use lubricant like "Molykote" or molybdenum disulfide based oils.

Removal

Loosen all the locking screws in a clockwise sequence until coupling can be moved on shafts. Do not remove screws completely.

Note: Toreuse the locking element, carefully oil the screws and the conical surfaces, then follow installation instructions.

Dimensions [mm]			Performances		Clamping screws (DIN 912 - 12,9)		
d x D	L_{tot}	L	M_T [Nm]	F_{ax} [kN]	N°	Type	M_S [Nm]
17 x 45	56	50	170	18	4	M 6	17
17 x 50	56	50	170	21	4	M 6	17
18 x 50	56	50	180	18	4	M 6	17
19 x 50	56	50	190	18	4	M 6	17
20 x 50	56	50	200	18	4	M 6	17
22 x 55	66	60	330	27	6	M 6	17
24 x 55	66	60	360	27	6	M 6	17
25 x 55	66	60	380	27	6	M 6	17
28 x 60	66	60	370	24	6	M 6	17
30 x 60	66	60	400	24	6	M 6	17
32 x 75	83	75	580	32	4	M 8	41
35 x 75	83	75	640	32	4	M 8	41
38 x 75	83	75	690	32	4	M 8	41
40 x 75	83	75	730	32	4	M 8	41
42 x 85	93	85	1.100	48	6	M 8	41
42 x 90	83	75	1.400	67	6	M 8	41
45 x 85	93	85	1.200	48	6	M 8	41
45 x 90	93	85	1.520	67	6	M 8	41
50 x 90	93	85	1.340	48	6	M 8	41
55 x 95	93	85	1.900	64	8	M 8	41
55 x 105	93	85	2470	90	8	M 8	41
60 x 105	93	85	2710	90	8	M 8	41
60 x 100	93	85	2.200	64	8	M 8	41
65 x 105	93	85	2.400	64	8	M 8	41
70 x 115	110	100	3.200	80	6	M10	83
75 x 120	110	100	3.300	80	6	M10	83
80 x 125	110	100	4.800	110	7	M10	83

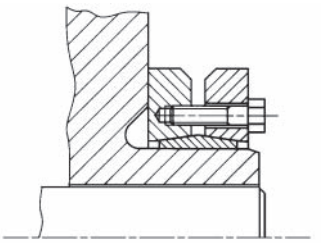
Maximum allowable roughness
Rt 16 µm
Maximum recommended tolerance
shaft h 8

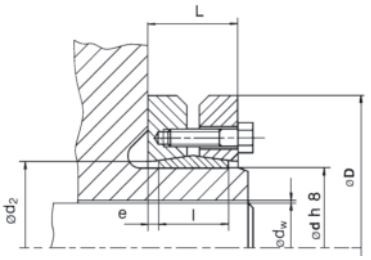
M_S	Screw tightening torque	Nm
M_T	Transmissible torque moment	Nm
F_{ax}	Transmissible axial load	N

SIT-LOCK® 11 - External

Shrink discs are external locking devices which are installed over hub projections. By locking the screws, radial pressures act on the hub allowing an effective and solid connection.

Recommended for medium and high torque. SIT-LOCK® 11S is also available in “SPLIT” and “HALF” for special applications.





Installation

Carefully remove, if present, protection spacers used during transport.
Check if the screws and the rings’ cone surfaces are well lubricated, otherwise, lightly oil them with molybdenum disulfide lubricants, like “Molykote” or similar. Clean, with care, contact surfaces of shaft and hub.

Position the components to connect. In uniform sequence, tighten the clamping screws to the tightening torque (Ms). Check optically that the gap between outer rings is the most uniform possible.
Note: once the tightening torque is reached, do not tighten the screws.

Removal

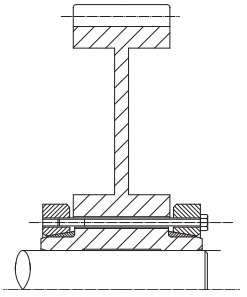
Loosen the screws uniformly and gradually to prevent rings from jamming. When all the screws are loose, remove the shaft or separate the hub and shaft itself.

Note: To reuse the locking element, carefully disassemble, clean and inspect all the components; oil the screws and the conical surfaces, then follow Installation instructions.

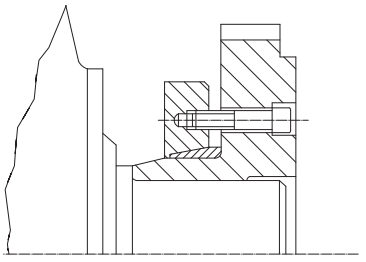
Maximum recommended tolerance

diameter shaft d; h 8
diameter shaft d_w;
j6 for ∅ ≤ 30
h6 for ∅ between 30 to 50
g6 for ∅ between 50 to 80
g6 for ∅ > 80

diameter bore d_w;
H6 for ∅ ≤ 30
H6 for ∅ between 30 to 50
H6 for ∅ between 50 to 80
H7 for ∅ > 80



“Split” version



“Half” version

Maximum allowable roughness
Rt 16 µm

SIT-LOCK® 11S - standard version

Dimensions [mm]							Performances		Clamping screws (DIN 913 - 10,9)		
d	**D**	d_w	l	L	d_2	e	M_T [Nm]	F_{ax} [kN]	Type	N°	M_S [Nm]
24	**50**	19 20 21	14	19,5	26	2,75	170 210 250	3 3 3	6	M 5	4
30	**60**	24 25 26	16	21,5	32	2,75	300 340 380	3 3 3	7	M 5	4
36	**72**	28 30 31	18	23,5	38	2,75	440 570 630	5 6 6	5	M 6	12
44	**80**	32 35 36	20	25,5	47	2,75	620 780 860	6 7 8	7	M 6	12
50	**90**	38 40 42	22	27,5	53	2,75	940 1.160 1.380	9 9 9	8	M 6	12
55	**100**	42 45 48	23	30,5	58	3,75	1.160 1.520 1.880	8 9 10	8	M 6	12
62	**110**	48 50 52	23	30,5	66	3,75	1.750 2.000 2.250	10 11 12	10	M 6	12
68	**115**	50 55 60	23	30,5	72	3,75	2.000 2.600 3.150	10 11 12	10	M 6	12
75	**138**	55 60 65	25	32,5	79	3,75	2.400 3.200 3.950	12 14 16	7	M 8	30
80	**145**	60 65 70	25	32,5	84	3,75	3.200 3.900 4.600	12 14 16	7	M 8	30
90	**155**	65 70 75	30	39	94	4,5	4.750 6.000 7.250	17 19 21	10	M 8	30
100	**170**	70 75 80	34	44	104	5,0	6.900 7.500 9.000	20 22 24	12	M 8	30
110	**185**	75 80 85	39	50	114	5,5	7.200 9.000 10.800	23 25 26	9	M10	59
125	**215**	85 90 95	42	54	134	6,0	11.000 13.000 15.000	30 32 35	12	M10	59
140	**230**	95 100 105	46	60,5	146	7,25	15.100 17.600 20.100	37 40 43	10	M12	100
155	**265**	105 110 115	50	64,5	165	7,25	22.000 25.000 28.000	45 48 51	12	M12	100
165	**290**	115 120 125	56	71	175	7,5	31.000 35.000 39.000	60 63 66	8	M16	250
175	**300**	125 130 135	56	71	185	7,5	36.000 41.000 45.000	61 64 68	8	M16	250
185	**330**	135 140 145	71	86	195	7,5	52.000 57.000 62.000	78 82 86	10	M16	250

M_S	Screw tightening torque	Nm
M_T	Transmissible torque moment	Nm
F_{ax}	Transmissible axial load	N

SIT-LOCK® 11S - standard series

Dimensions [mm]							Performances		Clamping screws (DIN 913 - 10,9)		
d	**D**	d_w	l	L	d_2	e	M_T [Nm]	F_{ax} [kN]	Type	N°	M_S [Nm]
195	**350**	140 150 155	71	86	210	7,5	65.000 76.000 81.500	93 103 107	12	M16	250
200	**350**	150 155 160	71	86	210	7,5	74.000 80.000 86.000	99 104 108	12	M16	250
220	**370**	160 165 170	88	104	230	8	95.000 102.000 110.000	119 124 129	15	M16	250
240	**405**	170 180 190	92	109	248	8,5	120.000 138.000 156.000	146 158 168	12	M20	490
260	**430**	190 200 210	103	120	268	8,5	164.000 184.000 205.000	176 188 201	14	M20	490
280	**460**	210 220 230	114	134	288	10	217.000 244.000 270.000	209 222 235	16	M20	490
300	**485**	230 240 245	122	142	308	10	275.000 295.000 315.000	247 257 264	18	M20	490
320	**520**	240 250 260	122	142	328	10	312.000 340.000 374.000	265 279 290	20	M20	490
340	**570**	250 260 270	134	156	348	11	390.000 422.500 460.000	312 325 340	24	M20	490
350	**580**	270 280 285	140	162	358	11	442.000 480.000 500.000	328 343 350	24	M20	490
360	**590**	280 290 295	140	162	368	11	463.000 502.000 522.000	331 346 354	24	M20	490
380	**645**	290 300 310	144	168	387	12	567.000 610.000 658.000	391 408 425	20	M24	840
390	**660**	300 310 320	144	168	397	12	624.000 671.000 718.000	416 433 448	21	M24	840
400	**680**	315 320 330	144	168	407	12	670.000 695.000 744.000	426 435 450	21	M24	840
420	**690**	330 340 350	164	188	427	12	780.000 840.000 900.000	485 504 522	24	M24	840
440	**750**	340 350 360	177	202	447	12,5	806.000 860.000 917.000	474 491 509	24	M24	840
460	**770**	360 370 380	177	202	468	12,5	1.000.000 1.070.000 1.140.000	567 586 605	28	M24	840
480	**800**	380 390 400	188	213	488	12,5	1.170.000 1.240.000 1.310.000	615 635 655	30	M24	840

Note: For larger sizes, please contact our technical office.

M_S	Screw tightening torque	Nm
M_T	Transmissible torque moment	Nm
F_{ax}	Transmissible axial load	N

SIT-LOCK® 11H - heavy series

Dimensions [mm]							Performances		Clamping screws (DIN 913 - 10,9)		
d	**D**	d_w	l	L	d_2	e	M_T [Nm]	F_{ax} [kN]	Type	N°	M_S [Nm]
125	**215**	85 90 95	55	65	129	5	15.000 17.500 20.000	36 39 42	10	M12	100
140	**230**	95 100 105	60	74	144	7	20.600 23.500 26.500	43 47 50	12	M12	100
155	**265**	105 110 115	66	80	164	7	28.600 32.500 36.400	55 59 63	15	M12	100
165	**290**	115 120 125	72	88	174	8	41.000 46.000 50.700	74 79 82	10	M16	250
175	**300**	125 130 135	72	88	184	8	47.000 52.000 57.000	75 80 84	10	M16	250
185	**330**	135 140 145	92	112	194	10	72.000 78.000 86.000	110 115 120	14	M16	250
195	**350**	140 150 155	92	112	199	10	75.000 88.000 96.000	108 118 124	14	M16	250
200	**350**	145 150 155	92	112	204	10	85.000 92.500 100.000	117 123 129	15	M16	250
220	**370**	160 165 170	114	134	2224	10	127.000 136.000 146.500	159 165 172	20	M16	250
240	**405**	170 180 190	120	144	244	12	155.000 176.000 198.000	182 196 208	15	M20	490
260	**430**	190 200 210	136	160	265	12	213.000 240.000 268.000	226 242 258	18	M20	490
280	**460**	210 220 230	148	172	285	12	285.000 320.000 355.000	274 291 309	21	M20	490
300	**485**	230 240 245	152	176	305	12	341.000 376.000 394.000	296 313 322	22	M20	490
320	**520**	240 250 260	160	184	325	12	378.500 415.000 451.000	315 333 347	24	M20	490
340	**570**	250 260 270	176	200	345	12	489.500 530.000 578.000	391 408 428	21	M24	840
350	**580**	270 280 285	176	200	355	12	556.000 604.000 629.000	412 432 442	21	M24	840
360	**590**	280 290 295	180	204	365	12	612.000 663.000 689.000	437 457 467	22	M24	840
380	**645**	290 300 310	180	204	387	12	618.000 668.000 719.000	427 446 465	22	M24	840
390	**660**	300 310 320	188	212	397	12	708.000 762.000 814.500	472 491 509	24	M24	840
400	**680**	315 320 330	188	212	407	12	765.000 788.000 845.000	486 493 513	24	M24	840
420	**690**	330 340 350	214	238	427	12	999.000 1.068.000 1.140.000	606 629 652	30	M24	840
440	**750**	340 350 360	224	252	448	14	1.058.000 1.130.000 1.204.000	623 646 669	24	M27	1.250
460	**770**	360 370 380	224	252	468	14	1.320.000 1.420.000 1.500.000	744 770 795	28	M27	1.250

Note: For larger sizes, please contact our technical office.

M_S	Screw tightening torque	Nm
M_T	Transmissible torque moment	Nm
F_{ax}	Transmissible axial load	N

SIT-LOCK®

SIT-LOCK® 11L - light series

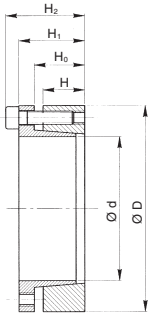
Dimensions [mm]							Performances		Clamping screws (DIN 913 - 10,9)		
d	**D**	d_w	l	L	d_2	e	M_T [Nm]	F_{ax} [kN]	Tipo	N°	M_S [Nm]
125	**185**	95 100 105	39	51	129	6	10.550 12.100 13.800	22 24 26	10	M10	59
140	**220**	110 120 125	39	51	144	6	14.800 18.640 20.500	27 31 33	12	M10	59
155	**245**	130 135 140	39	51	159	6	24.000 26.400 29.000	37 39 41	15	M10	59
165	**260**	135 140 145	46	62	169	8	32.000 35.200 38.500	48 50 53	10	M12	100
175	**275**	145 150 155	46	62	179	8	39.000 42.400 46.000	54 56 59	10	M12	100
185	**295**	155 160 165	46	62	189	8	46.600 50.300 54.000	60 63 65	14	M12	100
195	**315**	165 170 175	56	72	199	8	63.000 67.700 72.500	76 80 83	14	M12	100
200	**330**	175 180 185	56	72	204	8	74.000 79.500 84.500	85 89 92	15	M12	100
220	**345**	180 190 200	66	84	224	9	82.800 93.500 105.000	92 98 106	20	M16	250
240	**370**	200 210 215	66	84	244	9	113.000 127.500 134.500	114 121 125	15	M16	250
260	**395**	220 230 235	72	92	265	10	149.000 165.000 173.000	135 144 148	18	M16	250
280	**425**	230 240 250	84	104	285	10	171.000 189.000 208.000	149 157 166	21	M16	250
300	**460**	250 260 270	84	104	305	10	215.000 234.000 255.000	172 180 189	22	M16	250
320	**495**	270 280 290	84	106	325	11	260.000 284.000 306.000	194 203 212	24	M16	250
340	**535**	290 300 305	84	106	345	11	300.000 324.400 337.000	207 216 221	21	M16	250
350	**545**	300 305 310	100	122	355	11	372.000 385.000 400.000	248 254 259	21	M20	490
360	**555**	300 310 320	100	122	365	11	360.000 388.000 415.000	240 250 259	22	M20	490
380	**585**	320 325 330	112	136	387	12	435.000 451.000 467.000	272 278 284	22	M20	490
390	**595**	330 340 350	112	136	397	12	505.000 540.000 577.000	306 318 330	24	M20	490
400	**615**	340 350 360	112	136	407	12	550.000 587.000 626.000	323 336 348	24	M20	490
420	**630**	350 360 370	120	144	427	12	578.000 617.000 655.000	330 343 355	30	M20	490
440	**660**	370 380 390	120	144	447	12	677.000 719.000 762.000	366 379 391	24	M20	490
460	**685**	390 400 410	132	158	468	13	840.000 890.000 935.000	432 446 458	28	M20	490

M_S	Screw tightening torque	Nm
M_T	Transmissible torque moment	Nm
F_{ax}	Transmissible axial load	N

Note: For larger sizes, please contact our technical office.

SIT-LOCK® 12 - Self-Centering

SIT-LOCK® 12 is self-centering unit and convenient series. It is suggested for large quantities in applications with medium torques.



Installation

Carefully clean contact surfaces of shaft and hub. Then, lightly oil both surfaces with standard mineral oil. Position the SIT-LOCK® on the shaft and into the hub machined bore. Align them as required by the application. Gradually and uniformly tighten the locking screws to the tightening torque (Ms).

You must tighten the screws in diametrically opposite sequence in stages:

- hand tighten the screws until the surfaces are in contact
- carefully check the position of the hub on the shaft
- tighten the screws to half the value of the tightening torque (Ms) stated in the catalogue
- repeat the operation until the tightening torque is reached using the dynamometric screw-driver
- check every locking screw to insure it has been tightened to the specific tightening torque

Do not use lubricant like "Molykote" or molybdenum disulfide based oils.

Removal

Gradually loosen all locking screws. Remove and transfer the screws into the releasing tapped holes and tighten them until the SIT-LOCK® is released.

Note: To reuse the locking element, carefully oil the screws and the conical surfaces, then follow installation instructions.

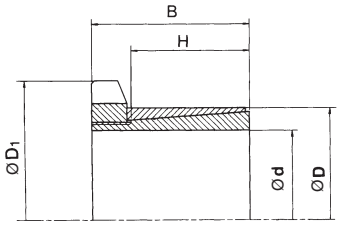
Maximum allowable roughness
Rt 16 µm
Maximum recommended tolerance
shaft h 8 - hub H 8

Dimensions [mm]					Performances		Pressure [N/mm²]		Clamping screws (DIN 912 - 12,9)		
d x D	H	H_0	H_1	H_2	M_T [Nm]	F_{ax} [kN]	p_w	p_n	N°	Type	M_S [Nm]
18 x 40	12	15	20	24	210	24	235	130	6	M4	5
19 x 41	12	15	20	24	220	24	220	128	6	M4	5
20 x 42	12	15	20	24	270	28	245	145	7	M4	5
22 x 44	12	15	20	24	300	28	225	140	7	M4	5
24 x 46	12	15	20	24	330	28	205	135	7	M4	5
25 x 47	12	15	20	24	340	28	195	130	7	M4	5
28 x 50	12	15	20	24	500	36	225	155	9	M4	5
30 x 52	12	15	20	24	530	36	210	151	9	M4	5
32 x 54	12	15	20	24	570	36	197	146	9	M4	5
35 x 57	16	19	24	28	690	40	158	115	10	M4	5
36 x 58	16	19	24	28	710	40	155	113	10	M4	5
38 x 60	16	19	24	28	830	44	160	120	11	M4	5
40 x 62	16	19	24	28	870	44	150	116	11	M4	5
42 x 70	19	23	30	36	1.530	73	200	146	8	M6	17
45 x 73	19	23	30	36	1.640	73	185	140	8	M6	17
48 x 76	19	23	30	36	1.750	73	175	134	8	M6	17
50 x 78	19	23	30	36	1.820	73	165	131	8	M6	17
55 x 83	19	23	30	36	2.000	73	150	123	8	M6	17
56 x 84	19	23	30	36	2.040	73	150	120	8	M6	17
60 x 88	19	23	30	36	2.460	82	158	130	9	M6	17
63 x 91	19	23	30	36	2.580	82	150	125	9	M6	17
65 x 93	19	23	30	36	2.660	82	140	120	9	M6	17
70 x 105	23	28	37	45	4.720	135	18,0	148	8	M8	41
75 x 110	23	28	37	45	5.050	135	170	140	8	M8	41
80 x 115	23	28	37	45	5.390	135	160	135	8	M8	41
85 x 120	23	28	37	45	5.730	135	150	130	8	M8	41
90 x 125	23	28	37	45	7.580	169	170	156	10	M8	41

M_S	Screw tightening torque	Nm
M_T	Transmissible torque moment	Nm
F_{ax}	Transmissible axial load	N

SIT-LOCK® 13 - Self-Centering

SIT-LOCK®13 is very close to the standard type SIT-LOCK® 9, but it is manufactured in a longer execution. It is made of two tapered rings and a locking nut.



Installation

Carefully clean contact surfaces of shaft and hub. Then lightly oil both surfaces with standard mineral oil. Position the SIT-LOCK® in the machined bore of the hub. Insert the shaft. Gradually and uniformly tighten the locking nut to the tightening torque (Ms).

Note: once the tightening torque is reached, do no tighten the locking nut anymore.

Do not use lubricant like "Molykote" or molybdenum disulfide based oils.

Removal

Loosen the lock nut until the SIT-LOCK® is completely released.

Note: Disassembling the SIT-LOCK® 13 may be difficult due to its particular taper angle. Therefore, if torque is sufficient, it is recommended to use SIT-LOCK® 9, which is easier to be disassembled.

Dimensions [mm]				Performances		Pressure [N/mm²]		Nut	Ms [Nm]
d x D	D_1	H	B	M_T [Nm]	F_{ax} [kN]	p_w	p_n		
14 x 25	32	17	29	90	15	143	80	KM4	90
15 x 25	32	17	29	100	15	133	80	KM4	90
16 x 25	32	17	29	80	12	94	60	KM4	70
17 x 25	32	18	31	113	12	103	70	KM5	90
18 x 30	38	18	31	200	25	183	110	KM5	190
19 x 30	38	18	31	170	20	142	90	KM5	150
20 x 30	38	18	31	130	15	90	60	KM5	110
22 x 35	45	22	35	180	18	95	60	KM6	130
24 x 35	45	22	35	270	26	117	80	KM6	230
25 x 35	45	22	35	200	20	84	60	KM6	170
28 x 40	52	22	35	460	40	157	110	KM7	390
30 x 40	52	22	35	300	24	93	70	KM7	240
32 x 45	58	28	42	420	31	98	70	KM8	320
35 x 45	58	28	42	460	31	77	60	KM8	320
40 x 50	65	28	44	640	37	88	70	KM9	440
45 x 55	70	28	45	760	40	73	60	KM10	550
50 x 60	75	28	46	930	44	72	60	KM11	660
55 x 65	80	28	46	1.130	47	71	60	KM12	800
60 x 70	85	28	52	1.500	59	82	70	KM13	1050

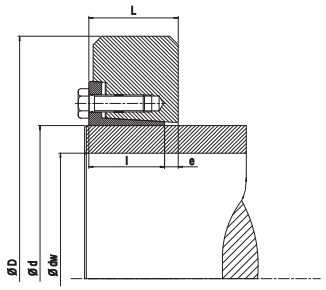
Maximum allowable roughness
Rt 16 µm
Maximum recommended tolerance
shaft h 8 - hub H 8

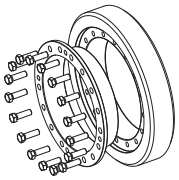
M_S	Screw tightening torque	Nm
M_T	Transmissible torque moment	Nm
F_{ax}	Transmissible axial load	N
p_w	Shaft pressure	N/mm^2
p_n	Hub pressure	N/mm^2

SIT-LOCK® 14 - External

SIT-LOCK® 14 are shrink discs for external, series “14”, are characterised by a single tapered ring instead of opposite tapers of the 3 pieces shrink discs SIT-LOCK® series “11”. The SIT-LOCK® 14 Shrink discs offer a better concentricity and centering and very good balancing. These features make the series highly suitable for mid-high speed applications.
SIT-LOCK® 14 are manufactured in five different types:

- 14-21 for mid torque transmission
- 14-22 for high torque transmission
- 14-81 for very high torque transmission
- 14-23 equivalent in size to the type 14-22 but able to transmit an extra 20-30% of torque
- 14-83 equivalent in size to the type 14-81 but able to transmit an extra 20-30% of torque





Installation

SIT-LOCK® 14 is ready to be mounted. Avoid dismounting before use.

- Carefully clean the hub-shaft contact area.
- Verify the threads, head of the locking screw, and the tapers of the inner rings. If necessary, lubricate them with molybdenum disulfide grease.
- Insert the shrink disc on the hollow shaft.
  Warning: do not tighten the screws before the shaft is fixed to the shaft.
- Slide the shaft on the hub or mount the hub on the shaft.
- Using a torque wrench, tighten the screws gradually and in sequence all the way around (not in a diametrical opposite sequence).
- Verify the screws are completely tightened. Make one final pass. If no bolts move, installation is completed.

Removal

- Gradually loose the locking screws all the way around. Begin by releasing each bolt about one-quarter of a turn.
- Back all screws out until there is a gap between the head of the bolt and the SIT-LOCK® face.
- Completely remove a few screws and thread them into the adjacent removal threads. Use these fasteners to push the inner ring away from the outer collar until the SIT-LOCK® is loose.

Note: After removal of an existing component, disassemble the SIT-LOCK®. Clean and inspect all parts. Reinstall the assembly following installation procedure.

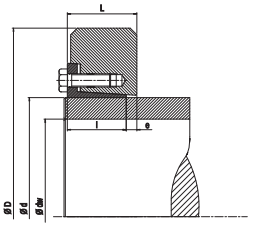
Tolerance

Transmissible torque values are valid when hub shaft tolerance tolerances, and roughness tolerance, are respected.

Maximum allowable roughness
Rt 16 µm
Maximum recommended tolerance
shaft h 6 - hub H 7 for d_w < 160 mm
shaft g 6 - hub H 7 for $d_w \geq$ 160 mm
d = f 7 o better

SIT-LOCK® 1421

Dimensions						Performances		Clamping screws (DIN 933 - 10,9)	
d [mm]	**D** [mm]	d_w [mm]	l [mm]	L [mm]	e [mm]	M_T [Nm]	Fax [kN]	N°	Ms [Nm]
140	**215**	110	38	46	8	16.000	298	M12	100
		120				20.000	341		
		130				25.000	385		
155 **160**	**245**	130	38	46	8	26.000	398	M12	100
		135				28.000	420		
		140				31.000	443		
165 **170**	**263**	135	43	53	10	29.000	432	M14	160
		140				32.000	456		
		145				35.000	480		
175 **180**	**275**	145	43	53	10	36.000	497	M14	160
		150				39.000	522		
		155				42.000	547		
185 **190**	**290**	155	51	62	11	50.000	645	M14	160
		160				54.000	675		
		165				58.000	704		
195 **200**	**320**	165	51	62	11	68.000	822	M14	160
		170				73.000	855		
		180				83.000	922		
220	**340**	180	55	70	15	80.000	892	M16	240
		190				91.000	962		
		200				103.000	1.032		
240	**370**	200	55	70	15	103.000	1.026	M16	240
		210				115.000	1.095		
		220				128.000	1.165		
260	**405**	220	55	70	15	132.000	1.197	M16	240
		230				146.000	1.271		
		240				161.000	1.344		
280	**430**	230	65	80	15	160.000	1.392	M20	470
		240				177.000	1.473		
		250				194.000	1.555		
300	**460**	250	65	80	15	191.000	1.529	M20	470
		260				209.000	1.610		
		270				228.000	1.691		
320	**485**	270	77	92	15	243.000	1.804	M20	470
		280				265.000	1.894		
		290				288.000	1.986		
340	**520**	280	77	92	15	274.000	1.958	M20	470
		290				297.000	2.050		
		300				322.000	2.143		
360	**570**	300	89	105	16	356.000	2.373	M20	470
		310				384.000	2.476		
		330				443.000	2.686		
390	**590**	330	89	105	16	438.000	2.654	M20	470
		340				469.000	2.759		
		350				501.000	2.865		
420	**630**	350	120	140	20	624.000	3.564	M24	820
		360				665.000	3.697		
		370				709.000	3.831		
440	**660**	370	132	152	20	778.000	4.203	M24	820
		380				826.000	4.350		
		390				877.000	4.497		
460	**690**	390	132	152	20	852.000	4.370	M24	820
		400				903.000	4.514		
		410				955.000	4.658		
480	**720**	410	152	174	22	1.086.000	5.298	M24	820
		420				1.147.000	5.461		
		430				1.210.000	5.626		
500	**745**	420	152	174	22	1.137.000	5.415	M24	820
		430				1.200.000	5.581		
		450				1.331.000	5.914		
530	**790**	450	162	186	24	1.376.000	6.114	M27	1.210
		460				1.446.000	6.287		
		480				1.592.000	6.635		
560	**830**	480	162	187	25	1.578.000	6.576	M27	1.210
		490				1.653.000	6.748		
		510				1.809.000	7.093		



M_S	Screw tightening torque	Nm
M_T	Transmissible torque moment	Nm
F_{ax}	Transmissible axial load	N

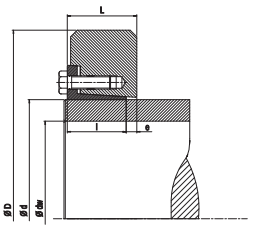
SIT-LOCK® 1421

Dimensions						Performances		Clamping screws (DIN 933 - 10,9)	
d [mm]	**D** [mm]	d_w [mm]	l [mm]	L [mm]	e [mm]	M_T [Nm]	Fax [kN]	N°	Ms [Nm]
590	**880**	510	172	197	25	1.873.000	7.344	M27	1.210
		520				1.957.000	7.526		
		540				2.131.000	7.891		
620	**930**	540	172	198	26	2.097.000	7.768	M27	1.210
		550				2.186.000	7.948		
		570				2.368.000	8.309		
660	**990**	570	182	209	27	2.426.000	8.511	M30	1.640
		580				2.522.000	8.696		
		610				2.823.000	9.255		
700	**1040**	610	182	210	28	2.772.000	9.088	M30	1.640
		620				2.874.000	9.271		
		640				3.084.000	9.638		
750	**1100**	640	192	222	30	3.104.000	9.700	M30	1.640
		650				3.214.000	9.888		
		680				3.555.000	10.456		
800	**1150**	680	192	224	32	3.443.000	10.128	M30	1.640
		700				3.673.000	10.495		
		730				4.033.000	11.049		

M_S	Screw tightening torque	Nm
M_T	Transmissible torque moment	Nm
F_{ax}	Transmissible axial load	N

SIT-LOCK® 1422-1481

Dimensions						CAL 1422			CAL 1481			Clamping screws DIN 931
d [mm]	D [mm]	dw [mm]	l [mm]	L [mm]	e [mm]	MT [Nm]	Fax [kN]	Ms [Nm]	MT [Nm]	Fax [kN]	Ms [Nm]	
12	35	9	10	11	1	20	5	12	-	-	-	M6
		10				40	8		-	-		
14	38	11	10	11	1	30	6	12	-	-	-	M6
		12				50	9		-	-		
16	41	13	13,5	15	1,5	70	10	12	-	-	-	M6
		14				90	13		-	-		
18	44	15	13,5	15	1,5	80	11	12	-	-	-	M6
		16				110	14		-	-		
20	47	17	13,5	15	1,5	150	18	12	-	-	-	M6
		18				180	20		-	-		
24	50	19	16	18	2	160	17	12	-	-	-	M6
		20				210	20		-	-		
		22				280	25		-	-		
30	60	24	18	20	2	270	23	12	-	-	-	M6
		25				320	25		-	-		
		26				360	28		-	-		
36	72	27	20	22	2	440	32	30	-	-	-	M8
		30				610	40		-	-		
		33				820	50		-	-		
44	80	34	22	24	2	690	40	30	-	-	-	M8
		35				770	44		-	-		
		37				920	50		-	-		
50	90	38	23,5	26	2,5	1.110	58	30	1.500	78	35	M8
		40				1.290	65		1.700	85		
		42				1.510	71		1.900	93		
55	100	42	26	29	3	1.230	59	30	1.600	78	35	M8
		45				1.530	68		2.000	88		
		48				1.860	78		2.400	99		
62	110	48	26	29	3	1.670	70	30	2.200	91	35	M8
		50				1.890	76		2.400	98		
		52				2.120	81		2.700	104		
68	115	50	26	29	3	1.870	75	30	2.400	94	35	M8
		55				2.450	89		3.000	111		
		60				3.120	104		3.800	127		
75	138	55	27	31	4	2.330	85	59	3.700	136	70	M10
		60				3.020	101		4.700	157		
		65				3.810	117		5.800	178		
80	141	60	27	31	4	3.190	106	59	4.200	142	70	M10
		65				4.060	123		5.200	161		
		70				4.910	140		6.300	181		
90	155	65	34	38	4	5.400	166	59	5.900	181	70	M10
		70				6.500	187		7.100	203		
		75				7.800	208		8.500	226		
100	170	70	39	43	4	6.000	171	59	7.400	213	70	M10
		75				7.200	192		8.900	237		
		80				8.500	213		10.400	261		
110	185	80	43,5	49	5,5	10.000	249	100	12.600	314	121	M10
		85				11.700	275		14.600	344		
		90				13.600	302		16.900	375		
120	197	85	46,5	53	6,5	11.900	280	100	13.600	320	121	M12
		90				13.800	307		15.700	349		
		95				15.900	334		18.000	378		
125	215	90	46,5	53	6,5	14.400	319	100	16.400	365	121	M12
		95				16.500	347		18.800	395		
		100				18.700	375		21.300	426		
135	230	95	49,5	58	8,5	18.100	382	160	20.300	427	195	M14
		100				20.600	412		23.000	459		
		110				26.000	473		28.900	525		
140	230	100	49,5	58	8,5	19.600	392	160	23.000	459	195	M14
		105				22.100	421		25.800	492		
		115				27.600	481		32.100	558		
155	263	110	53,5	62	8,5	26.500	482	160	31.100	565	195	M14
		115				29.500	514		34.500	601		
		125				36.100	578		42.000	672		
165	290	120	58	68	10	37.300	622	250	44.000	734	300	M16
		125				41.200	659		48.500	776		
		135				49.600	734		58.100	860		
175	300	130	58	68	10	45.000	692	250	54.000	834	300	M16
		135				49.000	730		59.000	876		
		145				58.000	805		70.000	962		



M_S	Screw tightening torque	Nm
M_T	Transmissible torque moment	Nm
F_{ax}	Transmissible axial load	N

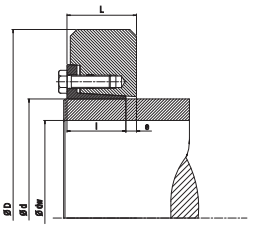
SIT-LOCK® 1422-1481

Dimensions						CAL 1422			CAL 1481			Clamping screws DIN 931
d [mm]	D [mm]	dw [mm]	l [mm]	L [mm]	e [mm]	MT [Nm]	Fax [kN]	Ms [Nm]	MT [Nm]	Fax [kN]	Ms [Nm]	
185	320	140	75	85	10	64.000	916	250	81.000	1.157	300	M16
		145				70.000	961		88.000	1.210		
		155				82.000	1.053		102.000	1.319		
200	340	150	75	85	10	81.000	1.073	250	96.000	1.279	300	M16
		155				87.000	1.120		103.000	1.333		
		165				100.000	1.216		119.000	1.442		
220	370	160	91	103	12	103.000	1.283	490	129.000	1.615	570	M20
		170				119.000	1.395		149.000	1.749		
		180				136.000	1.509		169.000	1.883		
240	405	170	94	107	13	122.000	1.439	490	151.000	1.773	570	M20
		180				140.000	1.555		172.000	1.909		
		200				179.000	1.790		218.000	2.183		
260	430	190	105	119	14	163.000	1.715	490	212.000	2.231	570	M20
		200				184.000	1.842		238.000	2.385		
		220				231.000	2.099		297.000	2.696		
280	460	210	116	132	16	215.000	2.051	490	279.000	2.661	570	M20
		220				240.000	2.186		311.000	2.825		
		240				295.000	2.458		379.000	3.156		
300	485	220	124	140	16	270.000	2.456	840	332.000	3.018	980	M24
		230				300.000	2.605		367.000	3.193		
		250				363.000	2.906		443.000	3.545		
320	520	240	124	140	16	301.000	2.511	840	404.000	3.370	980	M24
		250				332.000	2.655		444.000	3.549		
		270				398.000	2.945		528.000	3.911		
340	570	250	137	155	18	390.000	3.118	840	488.000	3.905	980	M24
		260				427.000	3.283		533.000	4.101		
		280				506.000	3.617		630.000	4.498		
350	580	270	142	162	20	493.000	3.649	840	616.000	4.563	980	M24
		280				535.000	3.825		669.000	4.778		
		290				580.000	4.001		725.000	5.000		
360	590	270	142	162	20	496.000	3.676	840	625.000	4.628	980	M24
		280				539.000	3.852		677.000	4.839		
		300				631.000	4.206		790.000	5.264		
380	640	290	146	166	20	585.000	4.034	1.250	725.000	5.000	1.450	M27
		300				632.000	4.215		783.000	5.220		
		310				681.000	4.397		844.000	5.445		
390	650	290	146	166	20	640.000	4.411	1.250	781.000	5.384	1.450	M27
		300				691.000	4.605		842.000	5.611		
		320				799.000	4.996		971.000	6.069		
420	670	320	166	186	20	742.000	4.640	1.250	969.000	6.057	1.450	M27
		330				797.000	4.829		1.038.000	6.290		
		350				912.000	5.209		1.183.000	6.758		
440	720	340	174	194	20	945.000	5.557	1.250	1.212.000	7.128	1.450	M27
		350				1.009.000	5.764		1.292.000	7.382		
		370				1.143.000	6.181		1.460.000	7.891		
460	770	360	174	194	20	1.104.000	6.133	1.250	1.393.000	7.739	1.450	M27
		370				1.174.000	6.345		1.479.000	7.995		
		390				1.320.000	6.771		1.660.000	8.511		
480	800	380	191	213	22	1.300.000	6.843	1.640	1.657.000	8.721	1.970	M30
		390				1.378.000	7.066		1.754.000	8.993		
		410				1.541.000	7.516		1.956.000	9.542		
500	850	400	191	213	22	1.496.000	7.478	1.640	1.887.000	9.435	1.970	M30
		410				1.581.000	7.711		1.992.000	9.717		
		430				1.759.000	8.180		2.211.000	10.283		
530	910	430	216	238	22	1.930.000	8.976	1.640	2.397.000	11.150	1.970	M30
		440				2.031.000	9.234		2.521.000	11.459		
		460				2.243.000	9.752		2.778.000	12.078		
560	940	450	216	238	22	2.097.000	9.318	1.640	2.545.000	11.313	1.970	M30
		460				2.201.000	9.572		2.671.000	11.611		
		480				2.420.000	10.081		2.930.000	12.210		
590	960	470	235	260	25	2.593.000	11.032	1.640	2.969.000	12.636	1.970	M30
		480				2.715.000	11.314		3.108.000	12.952		
		500				2.970.000	11.881		3.397.000	13.587		
620	1.020	500	261	286	25	2.940.000	11.616	1.640	3.602.000	13.608	1.970	M30
		520				3.169.000			3.708.000	14.261		
		540				3.447.000			4.028.000	14.918		

M_S	Screw tightening torque	Nm
M_T	Transmissible torque moment	Nm
F_{ax}	Transmissible axial load	N

SIT-LOCK® 1423-1483

Dimensions						CAL 1423			CAL 1483			Clamping screws DIN 931
d [mm]	D [mm]	dw [mm]	l [mm]	L [mm]	e [mm]	MT [Nm]	Fax [kN]	Ms [Nm]	MT [Nm]	Fax [kN]	Ms [Nm]	
140	230	100	64	74	10	26.000	523	250	30.000	607	300	M16
		105				30.000	562		34.000	650		
		115				37.000	641		42.000	737		
155	263	110	70	80	10	36.000	646	250	45.000	810	300	M16
		115				40.000	687		49.000	860		
		125				48.000	772		60.000	959		
165	290	120	77	88	11	50.000	828	250	63.000	1.047	300	M16
		125				55.000	877		69.000	1.105		
		135				66.000	977		83.000	1.223		
175	300	130	77	88	11	61.000	943	250	73.000	1.121	300	M16
		135				67.000	993		80.000	1.178		
		145				79.000	1.094		94.000	1.292		
185	320	140	100	112	12	89.000	1.269	490	106.000	1.512	570	M20
		145				96.000	1.330		115.000	1.582		
		155				113.000	1.455		134.000	1.723		
200	340	150	100	112	12	104.000	1.391	490	126.000	1.685	570	M20
		155				113.000	1.453		136.000	1.757		
		165				130.000	1.577		157.000	1.900		
220	370	160	121	134	13	127.000	1.591	490	162.000	2.027	570	M20
		165				137.000	1.661		174.000	2.112		
		180				169.000	1.876		213.000	2.366		
240	405	170	130	144	14	157.000	1.847	490	206.000	2.424	570	M20
		180				180.000	1.996		235.000	2.607		
		200				230.000	2.300		298.000	2.978		
260	430	190	144	160	16	230.000	2.424	490	285.000	3.000	570	M20
		200				260.000	2.600		321.000	3.207		
		220				325.000	2.957		399.000	3.623		
280	460	210	156	172	16	306.000	2.918	840	361.000	3.435	980	M24
		220				342.000	3.105		401.000	3.646		
		240				418.000	3.485		489.000	4.074		
300	485	230	158	176	18	360.000	3.132	840	461.000	4.013	980	M24
		240				398.000	3.314		508.000	4.230		
		250				437.000	3.498		556.000	4.452		
320	520	240	166	184	18	430.000	3.580	840	512.000	4.269	980	M24
		250				473.000	3.781		562.000	4.498		
		270				565.000	4.186		670.000	4.960		
340	570	250	186	206	20	551.000	4.407	1250	661.000	5.288	1.450	M27
		260				603.000	4.637		722.000	5.552		
		280				714.000	5.100		852.000	6.086		
360	590	270	188	210	22	671.000	4.969	1250	763.000	5.654	1.450	M27
		280				729.000	5.204		828.000	5.914		
		300				852.000	5.679		966.000	6.438		
390	650	290	196	220	24	850.000	5.860	1250	978.000	6.743	1.450	M27
		300				917.000	6.116		1.054.000	7.029		
		320				1.061.000	6.633		1.217.000	7.606		
420	690	320	221	246	25	1.007.000	6.294	1250	1.297.000	8.106	1.450	M27
		330				1.080.000	6.547		1.389.000	8.416		
		350				1.235.000	7.058		1.582.000	9.040		
440	750	340	233	258	25	1.218.000	7.166	1640	1.583.000	9.312	1.970	M30
		350				1.301.000	7.433		1.687.000	9.642		
		370				1.475.000	7.972		1.907.000	10.306		
460	770	360	233	258	25	1.402.000	7.791	1640	1.734.000	9.632	1.970	M30
		370				1.491.000	8.062		1.841.000	9.953		
		390				1.678.000	8.606		2.067.000	10.599		
480	800	380	270	298	28	1.707.000	8.984	1640	2.076.000	10.926	1.970	M30
		390				1.809.000	9.277		2.198.000	11.270		
		410				2.023.000	9.867		2.452.000	11.961		
500	850	400	270	300	30	1.993.000	9.963	1640	2.529.000	12.645	1.970	M30
		410				2.106.000	10.273		2.669.000	13.021		
		430				2.342.000	10.895		2.962.000	13.777		
530	890	430	306	338	32	2.549.000	11.857	2210	3.093.000	14.385	2.650	M33
		440				2.683.000	12.196		3.252.000	14.782		
		460				2.962.000	12.878		3.584.000	15.581		
560	940	450	306	338	32	2.837.000	12.609	2210	3.439.000	15.284	2.650	M33
		460				2.978.000	12.950		3.607.000	15.683		
		480				3.272.000	13.634		3.956.000	16.485		

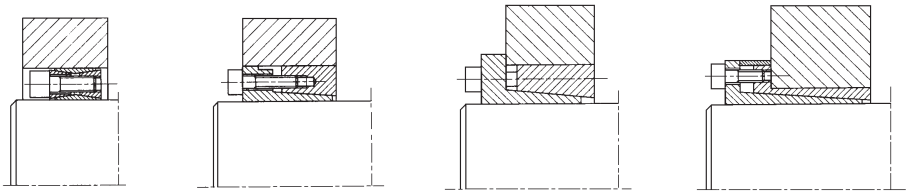


M_S	Screw tightening torque	Nm
M_T	Trasmissible torque moment	Nm
F_{ax}	Transmissible axial load	N

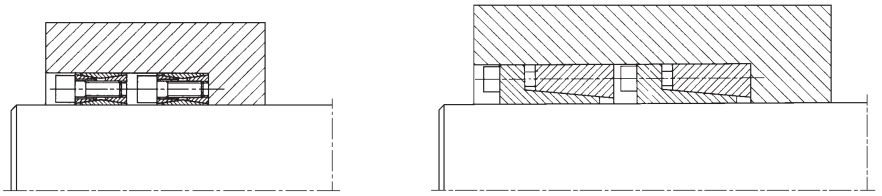
Design of hub outside minimum diameter

When using the locking units, the shaft-hub connection is characterized by a pressure on the hub surface, which is exerted by the locking unit outer ring when the clamping screws are tightened to the stated value. It is important to design correctly the hub outside diameter. The following table summarizes the procedure as a simple calculation. To determine the hub outside minimum diameter, simply multiply the factor K by the SIT-LOCK® outside diameter to obtain the hub outside minimum diameter. The factor K varies depending on the yield limit of hub material, the hub surface pressure (Pn) and the factor (x), variable according to the application type (A, B, C).

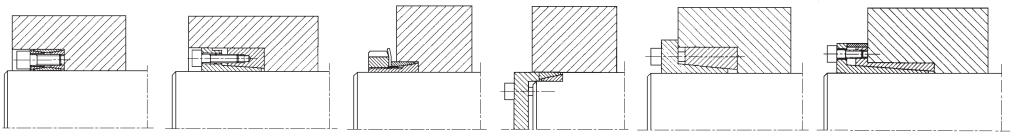
Installation type A
X = 1



Installation type B
X = 0,8



Installation type C
X = 0,6



Hub min diameter D x K
for: K = factor stated in the table
D = SIT-LOCK® outside diameter

SIT-LOCK®

Hollow shaft

For application with locking-assemblies on hollow shaft, it is important to scale both hub minimum diameter and hollow shaft diameter. Contact our Technical Department for design.

Coefficient K

Hub surface pressure		Yield limit of hub material σ_{02} [N/mm²]										
		150	180	200	220	250	270	300	350	400	450	600
		Hub material										
p_n [N/mm²]	Application	GG 20	GG 25 GS 38	GG 30 GTS 35	GS 45 ST 37-2	GG 40 GS 52	ST 50-2 C 35	GG 50 GS 60 ST 60-2	GG 60 GS 62 ST 70-2	GG 70 GS 70 C 60	Heat treatment steel	
60	C	1,29	1,26	1,21	1,19	1,16	1,15	1,13	1,11	1,10	1,09	1,07
	B	1,40	1,31	1,25	1,24	1,23	1,21	1,19	1,16	1,13	1,12	1,09
	A	1,53	1,43	1,37	1,33	1,29	1,26	1,23	1,19	1,17	1,15	1,11
65	C	1,31	1,26	1,23	1,21	1,19	1,16	1,14	1,12	1,11	1,10	1,08
	B	1,45	1,36	1,31	1,29	1,25	1,23	1,21	1,17	1,15	1,13	1,10
	A	1,61	1,46	1,41	1,36	1,31	1,29	1,25	1,21	1,19	1,17	1,13
70	C	1,35	1,27	1,25	1,23	1,19	1,17	1,16	1,13	1,12	1,11	1,08
	B	1,49	1,39	1,35	1,31	1,26	1,24	1,21	1,19	1,16	1,14	1,11
	A	1,66	1,51	1,46	1,41	1,35	1,31	1,26	1,23	1,21	1,18	1,14
75	C	1,31	1,29	1,26	1,24	1,21	1,19	1,16	1,15	1,13	1,12	1,09
	B	1,53	1,43	1,37	1,33	1,29	1,26	1,23	1,19	1,17	1,15	1,12
	A	1,75	1,56	1,49	1,43	1,37	1,34	1,31	1,26	1,21	1,19	1,14
80	C	1,40	1,32	1,29	1,26	1,22	1,21	1,19	1,16	1,14	1,12	1,09
	B	1,59	1,46	1,40	1,36	1,31	1,28	1,25	1,21	1,19	1,16	1,12
	A	1,82	1,62	1,54	1,47	1,40	1,37	1,32	1,27	1,23	1,21	1,15
85	C	1,43	1,35	1,31	1,28	1,24	1,22	1,20	1,17	1,15	1,13	1,10
	B	1,64	1,50	1,43	1,39	1,33	1,30	1,27	1,23	1,20	1,17	1,13
	A	1,91	1,68	1,58	1,51	1,43	1,40	1,35	1,29	1,25	1,22	1,16
90	C	1,47	1,37	1,33	1,29	1,26	1,23	1,21	1,18	1,16	1,14	1,10
	B	1,70	1,54	1,47	1,41	1,35	1,32	1,29	1,24	1,21	1,19	1,14
	A	2,01	1,74	1,63	1,55	1,47	1,42	1,37	1,31	1,27	1,23	1,17
95	C	1,50	1,40	1,35	1,31	1,27	1,25	1,22	1,19	1,16	1,15	1,11
	B	1,76	1,58	1,50	1,44	1,38	1,35	1,31	1,26	1,22	1,20	1,15
	A	2,12	1,81	1,69	1,60	1,50	1,45	1,40	1,33	1,28	1,25	1,18
100	C	1,54	1,42	1,37	1,33	1,29	1,26	1,23	1,20	1,17	1,15	1,12
	B	1,82	1,62	1,54	1,47	1,40	1,37	1,32	1,27	1,23	1,21	1,15
	A	2,25	1,88	1,74	1,64	1,54	1,49	1,42	1,35	1,30	1,26	1,19
105	C	1,57	1,45	1,40	1,35	1,30	1,28	1,25	1,21	1,18	1,16	1,12
	B	1,89	1,67	1,57	1,51	1,43	1,39	1,34	1,29	1,25	1,22	1,16
	A	2,39	1,96	1,80	1,69	1,57	1,52	1,45	1,37	1,32	1,28	1,20
110	C	1,61	1,48	1,42	1,37	1,32	1,29	1,26	1,22	1,19	1,17	1,13
	B	1,97	1,72	1,61	1,54	1,45	1,41	1,36	1,30	1,26	1,23	1,17
	A	2,56	2,05	1,87	1,74	1,61	1,55	1,48	1,39	1,34	1,29	1,21
115	C	1,65	1,51	1,44	1,37	1,34	1,31	1,27	1,23	1,20	1,18	1,13
	B	2,05	1,77	1,65	1,57	1,48	1,44	1,38	1,32	1,27	1,24	1,18
	A	2,76	2,14	1,94	1,80	1,65	1,59	1,51	1,42	1,35	1,31	1,22
120	C	1,70	1,54	1,47	1,40	1,35	1,32	1,29	1,24	1,21	1,19	1,14
	B	2,14	1,82	1,70	1,61	1,51	1,46	1,40	1,34	1,29	1,25	1,19
	A	3,01	2,25	2,01	1,85	1,70	1,62	1,54	1,44	1,37	1,32	1,23
125	C	1,74	1,57	1,49	1,44	1,37	1,34	1,30	1,25	1,22	1,19	1,14
	B	2,25	1,88	1,74	1,64	1,54	1,49	1,42	1,35	1,30	1,26	1,19
	A	3,33	2,36	2,09	1,92	1,74	1,66	1,57	1,46	1,39	1,34	1,25
130	C	1,79	1,60	1,52	1,46	1,39	1,36	1,31	1,26	1,23	1,20	1,15
	B	2,36	1,94	1,79	1,68	1,57	1,51	1,45	1,37	1,31	1,28	1,20
	A	3,75	2,50	2,18	1,98	1,79	1,70	1,60	1,49	1,41	1,36	1,26
135	C	1,84	1,62	1,55	1,48	1,41	1,37	1,33	1,28	1,24	1,21	1,16
	B	2,49	2,01	1,84	1,72	1,60	1,54	1,47	1,39	1,33	1,29	1,21
	A	4,37	2,66	2,28	2,05	1,84	1,74	1,63	1,51	1,43	1,37	1,27
140	C	1,89	1,67	1,57	1,51	1,43	1,39	1,34	1,29	1,25	1,22	1,16
	B	2,64	2,08	1,89	1,76	1,63	1,55	1,49	1,40	1,34	1,30	1,22
	A	5,40	2,84	2,39	2,13	1,89	1,79	1,67	1,54	1,45	1,39	1,28
145	C	1,95	1,70	1,60	1,53	1,45	1,41	1,36	1,30	1,26	1,23	1,17
	B	2,81	2,16	1,95	1,81	1,66	1,59	1,51	1,42	1,36	1,31	1,23
	A	7,67	3,06	2,51	2,22	1,95	1,83	1,70	1,56	1,47	1,41	1,29
150	C	2,01	1,74	1,63	1,55	1,47	1,42	1,37	1,31	1,27	1,24	1,17
	B	3,01	2,25	2,01	1,85	1,70	1,62	1,54	1,44	1,37	1,32	1,24
	A	—	3,33	2,66	2,31	2,01	1,88	1,74	1,59	1,49	1,42	1,30
155	C	2,07	1,78	1,66	1,58	1,49	1,44	1,39	1,32	1,28	1,25	1,18
	B	3,26	2,34	2,07	1,90	1,73	1,66	1,56	1,46	1,39	1,34	1,24
	A	—	3,67	2,81	2,41	2,07	1,93	1,78	1,62	1,52	1,44	1,31
160	C	2,14	1,82	1,70	1,61	1,51	1,46	1,40	1,34	1,29	1,25	1,19
	B	3,56	2,44	2,14	1,95	1,77	1,68	1,59	1,48	1,40	1,35	1,25
	A	—	4,13	3,01	2,53	2,14	1,99	1,82	1,65	1,54	1,48	1,32
165	C	2,22	1,87	1,73	1,63	1,53	1,48	1,42	1,35	1,30	1,26	1,19
	B	3,97	2,56	2,22	2,01	1,81	1,72	1,61	1,50	1,42	1,36	1,26
	A	—	4,81	3,24	2,66	2,22	2,05	1,87	1,68	1,56	1,48	1,34

Note: p_n is stated in the dimensional table of each of the locking assemblies. Installation type (A, B, C) are stated in the previous page.

Example of calculation procedure

Design data
- Power transmission element to be connected: V-pulley
- Shaft diameter: 50 mm
- Maximum Torque in operation (Ma): 1.500 Nm
- V-pulley material: cast iron GG20
- Yield limit of V-pulley material: 150 N/mm²

Calculation
- SIT-LOCK® type: for this kind of applcation SIT-LOCK® 1 is suggested
- Size selection: 50 x 80 mm (see table SIT-LOCK® 1)
- Performance control: verify $M_T \geq Ma$

  From the table obtain M_T = 1.889 Nm, so the above condition is verified
- Tolerance: h11 for the shaft - H11 for the SIT-LOCK® bore
- Roughness: $R_t \leq 16$
- Screws tightening torque: M_s = 37 Nm (see table SIT-LOCK® 1)
- Hub surface pressure: from the table you can find the value P_n = 125 N/mm²
- Application type: in this case it is preferable to adopt the application “C” with the centering guide between shaft and hub
- Coefficient K : obtained through the table “Coefficient K” by considering the following information:
  - yield limit of hub material = 150 N/mm²
  - hub surface pressure = 125 N/mm²
  - installation C

Then, K = 1,74

- Hub outside minimum diameter:

  Hub $D_{min} \geq D \cdot K$

  for

  - D = SIT-LOCK® outside diameter [mm]
  - K = 1,74

Then, hub D_{min} = (80 • 1,74) = **140 [mm]**

DIN 912

Screw diameter	P_V [N]			M_s [Nm]		
	8,8	**10,9**	**12,9**	**8,8**	**10,9**	**12,9**
M 4	3900	5450	6.550	2,9	4,1	4,9
M 5	6350	8950	10.700	6	8,5	10
M 6	9000	12.600	15.100	10	14	17
M 7	13.200	18.500	22.200	16	23	28
M 8	16.500	23.200	27.900	25	35	41
M 9	22.000	30.900	37.100	36	51	61
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
M27	215.000	302.000	363.000	1.050	1.500	1.800
M30	262.000	368.000	442.000	1.450	2.000	2.400