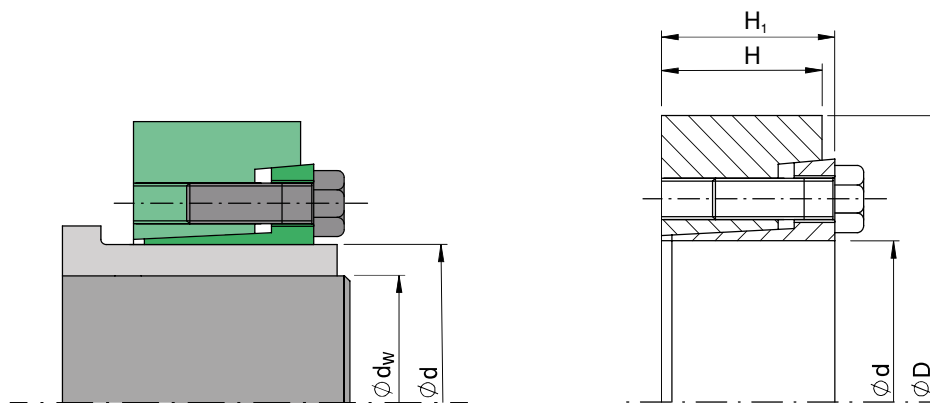


SIT-LOCK® 14 - Shrink disc



Features

Composed of an inner ring and an outer ring. Comes with DIN 931/933 10.9 or 12.9 screws depending on the model.

SIT-LOCK® 14 versions

SIT-LOCK® 1422-1481	standard series (recommended version)
SIT-LOCK® 1423-1483	heavyweight series for high torque
SIT-LOCK® 1421	lightweight series for low torque

Coupling tolerances

diameter d f7

diameter d_w tolerances

≤ 160 mm	H7 / h6
≥ 160 mm	H7 / g6

Do not use molybdenum disulphide-based oils or greases on diameter d_w surfaces. The values shown in the table are calculated for diameter surfaces d_w when dry only, not oiled. The diameter d surface can be oiled.

Surface finish

Normal surface finish is sufficient. The following values are recommended:

$$R_a \leq 3,2 \mu\text{m} - R_t \leq 16 \mu\text{m}$$

Applications with bending moment

For applications where there is a bending moment M_f while a torque M_t is also transmitted, check that the $M_{t \text{ tot}}$ value is less than the transmissible torque indicated in the table.

$$M_{t \text{ tot}} = \sqrt{M_t^2 r^2 + 2M_f^2}$$

Applying a bending moment 30% greater than the M_t value indicated in the table is not advised.

Recommended materials for shaft d_w and hub d

The pressure generated on diameter d generates a pressure P_w on the diameter d_w , which allows the torque transmission M_t indicated in the table. The pressure generated on the diameter d is distributed over the surface of the diameter d_w at an angle of approximately 16° - 20° . The pressure P_w can be determined using the following formula:

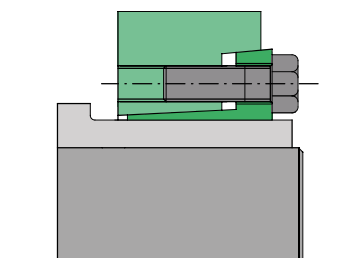
$$P_w = \frac{2 \cdot M_t}{\pi \cdot d_w^2 \cdot H \cdot \mu}$$

Shaft and hub materials with a $\sigma_{0,2} \geq 360$ N/mm² are recommended. For applications subject to bending moments, using tempered shafts is recommended, such as steel 42 CrMo4. For further information or confirmation, please contact our Technical Department.

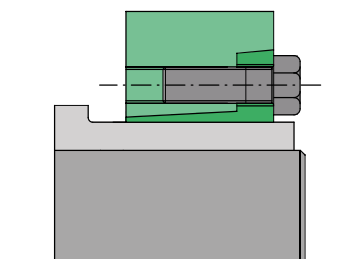
Advantages of SIT-LOCK® 14 compared to SIT-LOCK® 11

The SIT-LOCK® 14 locking device can be installed even without a torque wrench. It is important that the flat surface of the inner ring aligns with the flat surface of the outer ring when installation is complete.

See figure:



SIT-LOCK® 14 not assembled



SIT-LOCK® 14 assembled

When the two components' surfaces are aligned, installation is complete and the values indicated in the table will have been achieved.

Since the clamping screws are not typically tightened using a torque wrench, the values indicated in the table are often not reached. In these cases, slippage could occur resulting in economic damages.

The SIT-LOCK® 14 internal locking device should be considered the most effective development in the field of friction shaft-hub couplings as it can be assembled without using a torque wrench and, thanks to the alignment, still guarantees simple, functional installation.

Installation

The SIT-LOCK® 14 locking device is supplied ready to assemble. Clean the d_w shaft contact surfaces thoroughly. The contact surface of diameter d_w must be dry, without any traces of oil. The transmissible torque M_t is calculated with a coefficient of friction μ equal to 0.15. Mount the locking device on the hub d and insert the shaft into the bore d_w .

Caution: Do not tighten the screws before placing the locking device on the hub.

Clean the diameter d contact surface and apply a light film of oil to facilitate the locking device's positioning.

Installation without torque wrench

- tighten 2 or 4 diametrically opposed screws until the diameter d_w contact surfaces are locked
- gradually tighten the screws clockwise until the lateral surfaces of the inner and outer ring are completely aligned
- Installation is complete once alignment has been achieved

Installation with torque wrench

- tighten 2 or 4 diametrically opposed screws until the diameter d_w contact surfaces are locked. This does not require a torque wrench;
- tighten the screws clockwise, in continuous sequence, to 50% of the M_s tightening torque indicated in the table;
- tighten the screws clockwise, in continuous sequence, to 100% of the M_s tightening torque indicated in the table;
- continue tightening the screws clockwise, in continuous sequence, to 100% of the M_s tightening torque indicated in the table until alignment is achieved.

Removal

Loosen the screws in a continuous sequence until the locking device is fully removed. If the locking device does not disassemble after all screws have been loosened, insert the clamping screws into the removal threads on the inner ring. Tighten the screws in a 'criss-cross' sequence until the locking device is released.

Reusing the locking device

When installing or removing the locking device, check all surfaces for signs of seizing or deformation. Reapply grease to the tapered surfaces of the inner ring and outer ring, the threads and the clamping screw underheads. Use grease with a coefficient of friction μ of 0.04. For further information, please contact our Technical Department.

High speed applications

For applications that require greater balance, SIT-LOCK® 14 is recommended rather than SIT-LOCK® 11, as incorrect parallelism may create issues at high rotation speeds.

SIT-LOCK® 1422 - 1481 Shrink disc

Dimensions [mm]					SIT-LOCK® 1422		SIT-LOCK® 1481		Clamping screws DIN 933/931 10.9 (1422) 12.9 (1481)
d	D	d _w	H	H ₁	M _t [Nm]	M _s [Nm]	M _t [Nm]	M _s [Nm]	
12	35	9	10	11	20	12	-	-	M6
		10			40		-		
14	38	11	10	11	30	12	-	-	M6
		12			50		-		
16	41	13	13,5	15	70	12	-	-	M6
		14			90		-		
18	44	15	13,5	15	80	12	-	-	M6
		16			110		-		
20	47	17	13,5	15	150	12	-	-	M6
		18			180		-		
24	50	19	16	18	160	12	-	-	M6
		20			210		-		
		22			280		-		
30	60	24	18	20	270	12	-	-	M6
		25			320		-		
		26			360		-		
36	72	27	20	22	440	30	-	-	M8
		30			610		-		
		33			820		-		
44	80	34	22	24	690	30	-	-	M8
		35			770		-		
		37			920		-		
50	90	38	23,5	26	1.110	30	1.500	35	M8
		40			1.290		1.700		
		42			1.510		1.900		
55	100	42	26	29	1.230	30	1.600	35	M8
		45			1.530		2.000		
		48			1.860		2.400		
62	110	48	26	29	1.670	30	2.200	35	M8
		50			1.890		2.400		
		52			2.120		2.700		
68	115	50	26	29	1.870	30	2.400	35	M8
		55			2.450		3.000		
		60			3.120		3.800		
75	138	55	27	31	2.330	59	3.700	70	M10
		60			3.020		4.700		
		65			3.810		5.800		
80	145	60	27	31	3.190	59	4.200	70	M10
		65			4.060		5.200		
		70			4.910		6.300		
90	155	65	34	38	5.400	59	5.900	70	M10
		70			6.500		7.100		
		75			7.800		8.500		
100	170	70	39	43	6.000	59	7.400	70	M10
		75			7.200		8.900		
		80			8.500		10.400		
110	185	80	43,5	49	10.000	100	12.600	121	M10
		85			11.700		14.600		
		90			13.600		16.900		
120	197	85	46,5	53	11.900	100	13.600	121	M12
		90			13.800		15.700		
		95			15.900		18.000		
125	215	90	46,5	53	14.400	100	16.400	121	M12
		95			16.500		18.800		
		100			18.700		21.300		
135	230	95	49,5	58	18.100	160	20.300	195	M14
		100			20.600		23.000		
		110			26.000		28.900		
140	230	100	49,5	58	19.600	160	23.000	195	M14
		105			22.100		25.800		
		115			27.600		32.100		
155	263	110	53,5	62	26.500	160	31.100	195	M14
		115			29.500		34.500		
		125			36.100		42.000		
165	290	120	58	68	37.300	250	44.000	300	M16
		125			41.200		48.500		
		135			49.600		58.100		
175	300	130	58	68	45.000	250	54.000	300	M16
		135			49.000		59.000		
		145			58.000		70.000		

Follow SIT-LOCK® 1422 - 1481 Shrink disc

Dimensions [mm]						SIT-LOCK® 1422			SIT-LOCK® 1481			Clamping screws DIN 933/931 10.9 (1422) 12.9 (1481)
d	D	d _w	H	H ₁	e	M _t [Nm]	F _{ax} [kN]	M _s [Nm]	M _t [Nm]	F _{ax} [kN]	M _s [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	980	500	261	286	25	2.940.000	11.760	1.640	3.602.000	13.608	1.970	M30
		520				3.169.000	12.188		3.708.000	14.261		
		540				3.447.000	12.766		4.028.000	14.918		
660	1020	530	270	292	20	3.329.500	12.564	2.210	4.035.000	15.225	2.400	M33
		550				3.615.000	13.145		4.374.000	15.905		
		570				3.912.000	13.726		4.727.000	16.585		

SIT-LOCK® 1423 - 1483 Shrink disc

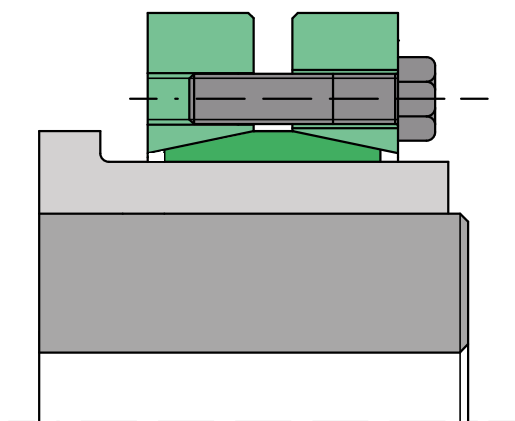
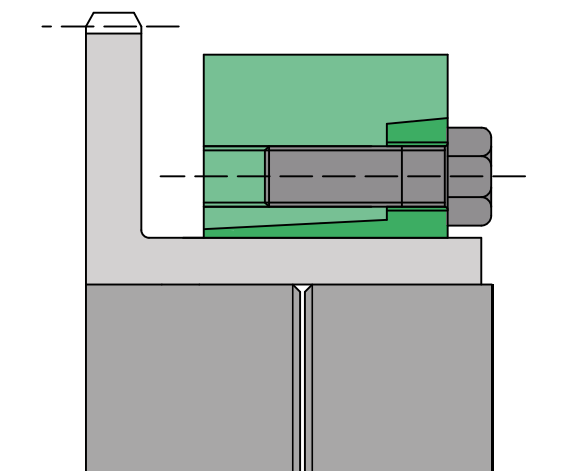
Dimensions [mm]					SIT-LOCK® 1423		SIT-LOCK® 1483		Clamping screws DIN 931 1423 12.9 - 1483 12.9
d	D	d _w	H	H ₁	M _t [Nm]	M _s [Nm]	M _t [Nm]	M _s [Nm]	
140	230	100	64	74	26.000	250	30.000	300	M16
		105			30.000		34.000		
		115			37.000		42.000		
155	263	110	70	80	36.000	250	45.000	300	M16
		115			40.000		49.000		
		125			48.000		60.000		
165	290	120	77	88	50.000	250	63.000	300	M16
		125			55.000		69.000		
		135			66.000		83.000		
175	300	130	77	88	61.000	250	73.000	300	M16
		135			67.000		80.000		
		145			79.000		94.000		
185	320	140	100	112	89.000	490	106.000	570	M20
		145			96.000		115.000		
		155			113.000		134.000		
200	340	150	100	112	104.000	490	126.000	570	M20
		155			113.000		136.000		
		165			130.000		157.000		
220	370	160	121	134	127.000	490	162.000	570	M20
		165			137.000		174.000		
		180			169.000		213.000		
240	405	170	130	144	157.000	490	206.000	570	M20
		180			180.000		235.000		
		200			230.000		298.000		
260	430	190	144	160	230.000	490	285.000	570	M20
		200			260.000		321.000		
		220			325.000		399.000		
280	460	210	156	172	306.000	840	361.000	980	M24
		220			342.000		401.000		
		240			418.000		489.000		
300	485	230	158	176	360.000	840	461.000	980	M24
		240			398.000		508.000		
		250			437.000		556.000		
320	520	240	166	184	430.000	840	512.000	980	M24
		250			473.000		562.000		
		270			565.000		670.000		
340	570	250	186	206	551.000	1250	661.000	1.450	M27
		260			603.000		722.000		
		280			714.000		852.000		
360	590	270	188	210	671.000	1250	763.000	1.450	M27
		280			729.000		828.000		
		300			852.000		966.000		
390	650	290	196	220	850.000	1250	978.000	1.450	M27
		300			917.000		1.054.000		
		320			1.061.000		1.217.000		
420	690	320	221	246	1.007.000	1250	1.297.000	1.450	M27
		330			1.080.000		1.389.000		
		350			1.235.000		1.582.000		
440	750	340	233	258	1.218.000	1640	1.583.000	1.970	M30
		350			1.301.000		1.687.000		
		370			1.475.000		1.907.000		
460	770	360	233	258	1.402.000	1640	1.734.000	1.970	M30
		370			1.491.000		1.841.000		
		390			1.678.000		2.067.000		
480	800	380	270	298	1.707.000	1640	2.076.000	1.970	M30
		390			1.809.000		2.198.000		
		410			2.023.000		2.452.000		
500	850	400	270	300	1.993.000	1640	2.529.000	1.970	M30
		410			2.106.000		2.669.000		
		430			2.342.000		2.962.000		
530	890	430	306	338	2.549.000	2210	3.093.000	2.650	M33
		440			2.683.000		3.252.000		
		460			2.962.000		3.584.000		
560	940	450	306	338	2.837.000	2210	3.439.000	2.650	M33
		460			2.978.000		3.607.000		
		480			3.272.000		3.956.000		

SIT-LOCK® 1421 Shrink disc

Dimensions [mm]					Transmissible torque moment	Clamping screws (DIN 933 - 10,9)	
d	D	d _w	H	H ₁	M _t [Nm]	Tipo	M _s [Nm]
140	215	110	38	46	16.000	M12	100
		120			20.000		
		130			25.000		
155 160	245	130	38	46	26.000	M12	100
		135			28.000		
		140			31.000		
165 170	263	135	43	53	29.000	M14	160
		140			32.000		
		145			35.000		
175 180	275	145	43	53	36.000	M14	160
		150			39.000		
		155			42.000		
185 190	290	155	51	62	50.000	M14	160
		160			54.000		
		165			58.000		
195 200	320	165	51	62	68.000	M14	160
		170			73.000		
		180			83.000		
220	340	180	55	70	80.000	M16	240
		190			91.000		
		200			103.000		
240	370	200	55	70	103.000	M16	240
		210			115.000		
		220			128.000		
260	405	220	55	70	132.000	M16	240
		230			146.000		
		240			161.000		
280	430	230	65	80	160.000	M20	470
		240			177.000		
		250			194.000		
300	460	250	65	80	191.000	M20	470
		260			209.000		
		270			228.000		
320	485	270	77	92	243.000	M20	470
		280			265.000		
		290			288.000		
340	520	280	77	92	274.000	M20	470
		290			297.000		
		300			322.000		
360	570	300	89	105	356.000	M20	470
		310			384.000		
		330			443.000		
390	590	330	89	105	438.000	M20	470
		340			469.000		
		350			501.000		
420	630	350	120	140	624.000	M24	820
		360			665.000		
		370			709.000		
440	660	370	132	152	778.000	M24	820
		380			826.000		
		390			877.000		
460	690	390	132	152	852.000	M24	820
		400			903.000		
		410			955.000		
480	720	410	152	174	1.086.000	M24	820
		420			1.147.000		
		430			1.210.000		
500	745	420	152	174	1.137.000	M24	820
		430			1.200.000		
		450			1.331.000		
530	790	450	162	186	1.376.000	M27	1.210
		460			1.446.000		
		480			1.592.000		
560	830	480	162	187	1.578.000	M27	1.210
		490			1.653.000		
		510			1.809.000		
590	880	510	172	197	1.873.000	M27	1.210
		520			1.957.000		
		540			2.131.000		
620	930	540	172	198	2.097.000	M27	1.210
		550			2.186.000		
		570			2.368.000		
660	990	570	182	209	2.426.000	M30	1.640
		580			2.522.000		
		610			2.823.000		
700	1040	610	182	210	2.772.000	M30	1.640
		620			2.874.000		
		640			3.084.000		
750	1100	640	192	222	3.104.000	M30	1.640
		650			3.214.000		
		680			3.555.000		
800	1150	680	192	224	3.443.000	M30	1.640
		700			3.673.000		
		730			4.033.000		

Application examples

Simultaneously locking one gear and two shafts using SIT-LOCK® 14.



Locking a hub with its shaft using SIT-LOCK® 11. There is a bore in the shaft. For applications with shaft bore d_w , please contact our Technical Department.

Coupling two shafts and a hub using SIT-LOCK® 14.

