

**Fastening solar arrays to industrial roofs:  
safe – flexible – speedy**

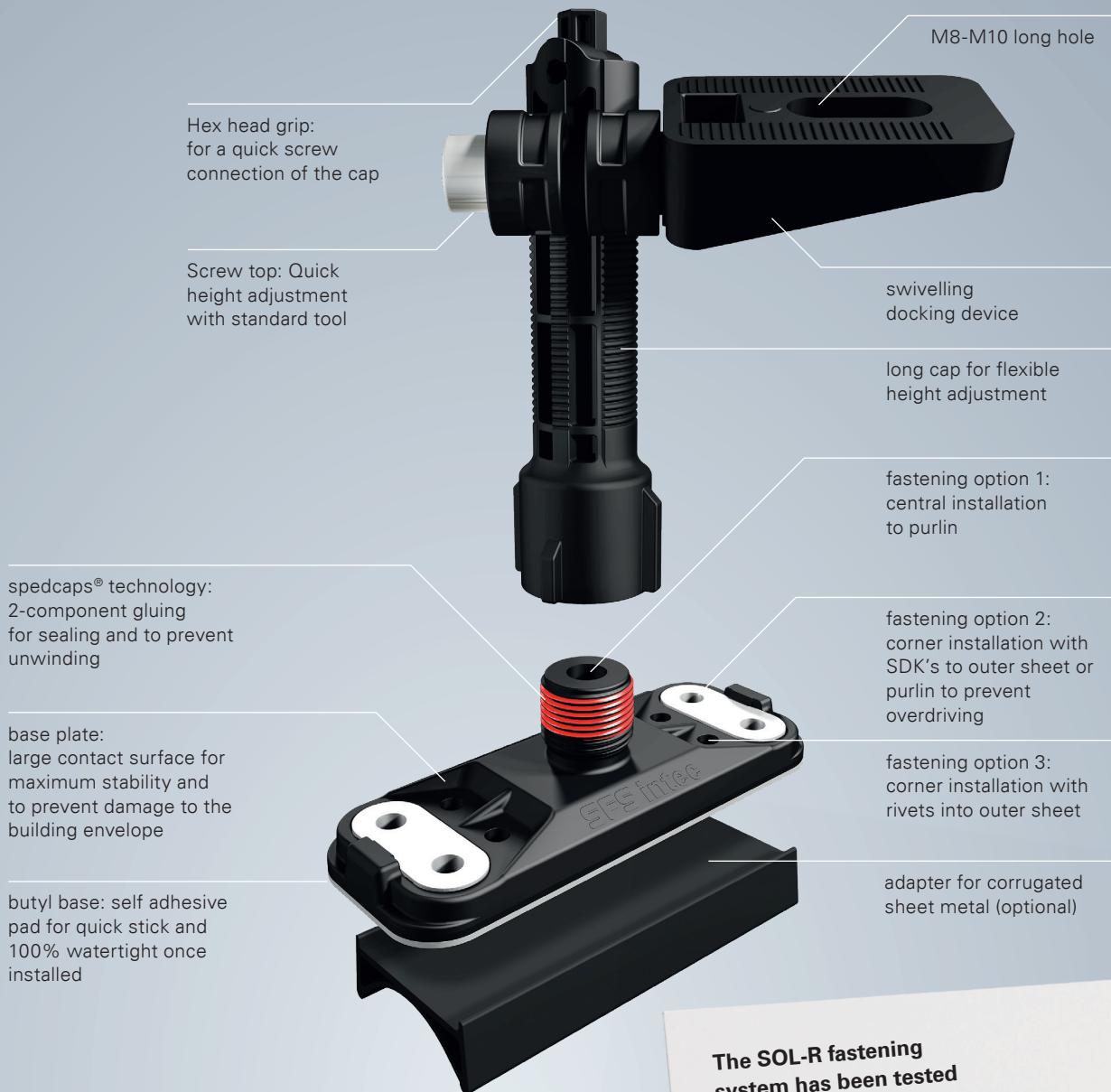


**DIBt  
Approval  
Z-14.4-616  
Technical  
statement  
KIT**

# SOL-R – the most flexible system for fastening solar arrays to industrial roofs

## From professionals for professionals

The world first SOL-R was developed specifically for the installation of solar arrays on industrial roofs. Result: A safe, flexible and quick to use fastening system for professionals



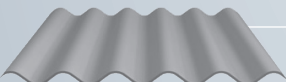
## Areas of application



Sandwich roofs



Trapezoidal sheet roofs



Corrugated sheet roofs

## The SOL-R fastening system has been tested successfully:

- ✓ Tightness test
- ✓ Approval DIBt Z-14.4-616 has been applied for
- ✓ Technical statement KIT
- ✓ Static tests
- ✓ Dynamic tests
- ✓ Durability tests
- ✓ TÜV certification is under way



## SOL-R – the most flexible system

### Your benefits at a glance

#### Safe

- ✓ 100% impermeable
- ✓ statically certified
- ✓ simplest assembly

#### Flexible

- ✓ fits on virtually any roof
- ✓ much fixing variants
- ✓ flexible height adjustment

#### Speedy

- ✓ eliminate time-consuming pilot drilling
- ✓ standard tools
- ✓ light material



#### Safe

SOL-R is designed for maximum safety:

- 100% impermeable system – due to a wide butyl sealing strip and *spedcaps*® technology, which provides an additional seal and prevents unscrewing
- trouble-free in terms of structural engineering, featuring UV-resistant, corrosion-free, high-tech plastic with approved fasteners
- secure installation due to very simple attachment and overdriving-proof SDK fasteners, specially developed for applications with sheet metal exteriors

Optional and ingenious: SOL-R facilitates burglar-proofing of the solar power installation.

#### Flexible

One for all – this system is uniquely flexible by virtue of its geometrical design and numerous attachment versions:

- irrespective of exterior shell geometry and substrate, whether new structure or renovation: SOL-R fits!
- the system offers flexible height adjustment to compensate for uneven roof surfaces for perfectly flat attachment of the solar power installation
- the swivelling docking plate also permits lateral attachment of the aluminium sections and thus clearly visible access for installing connections

To sum up: SOL-R is the most flexible system on the market!

#### Speedy

Simplicity of installation means you save lots of time with SOL-R:

- self-drilling fasteners eliminate time-consuming pilot drilling
- fewer operations: only a few standard tools are required for attachment and rapid height adjustment
- the high-tech plastic is pleasant to handle and easy to transport; this speeds up working processes on the building site

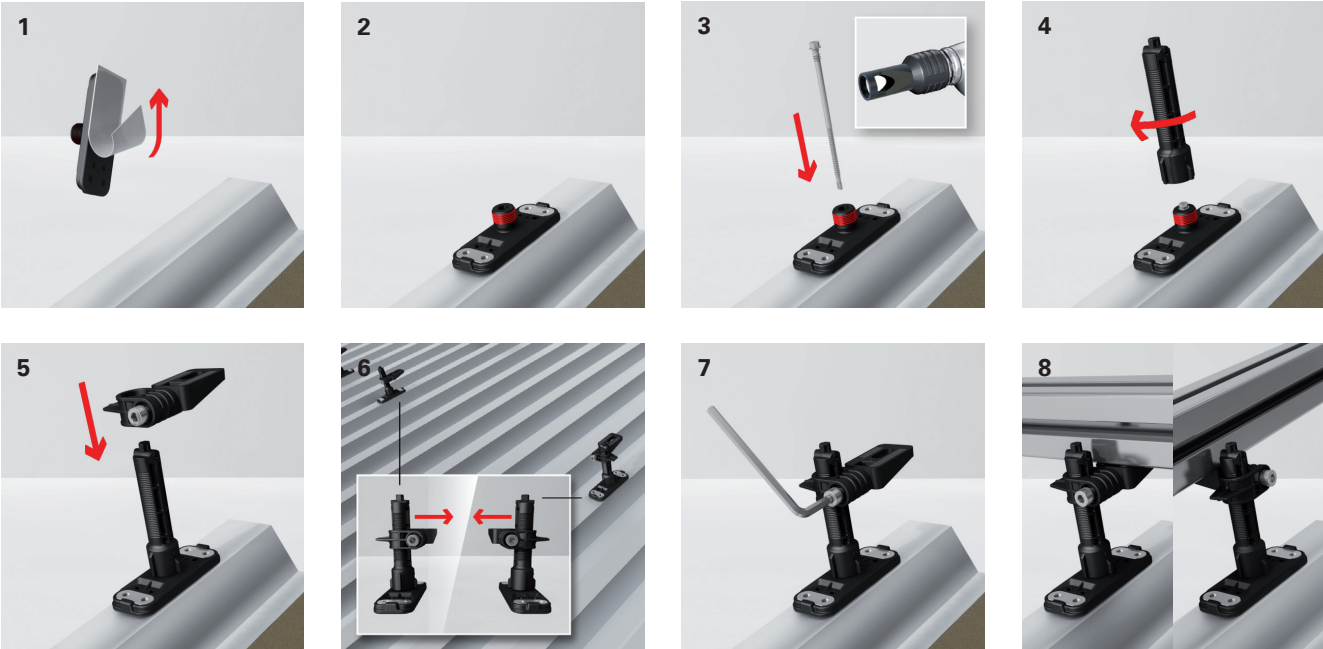
Time is money: SOL-R reduces your installation costs per kWp!

# SOL-R – the most flexible system

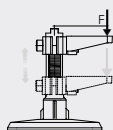
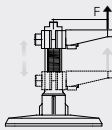
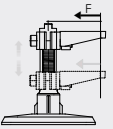
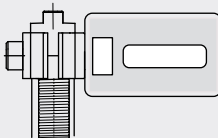


installing procedere see [www.youtube.com](http://www.youtube.com)

## Installing procedere



## Technical values - Centrale fastening of solar plant on industrial roofs.

<b>Compression strength Db (N)</b> Test results refer to the ultimate load required for the component to break when stressed in compression. The force F is applied on the contact surfaces of the component. • test result is valid for the whole range of the setting position.	 <table><tr><td><math>\bar{x}</math> = 3231</td></tr><tr><td>s = 654</td></tr><tr><td>x = 1621</td></tr></table>	$\bar{x}$ = 3231	s = 654	x = 1621	<b>Tensile strength Zb (N)</b> Test results refer to the ultimate load required for the component to break when stressed in tension. The force F is applied on the contact surfaces of the component. • test result is valid for the whole range of the setting position.	 <table><tr><td><math>\bar{x}</math> = 2248</td></tr><tr><td>s = 68</td></tr><tr><td>x = 2080</td></tr></table>	$\bar{x}$ = 2248	s = 68	x = 2080														
$\bar{x}$ = 3231																							
s = 654																							
x = 1621																							
$\bar{x}$ = 2248																							
s = 68																							
x = 2080																							
<b>Shear strength Qb (N)</b> Test results refer to the ultimate load required for the component to break when stressed in shear. The force F is applied on the contact surfaces of the component. • test result is valid for the whole range of the setting position.	 <table><tr><td><math>\bar{x}</math> = 1724 N</td></tr><tr><td>s = 104 N</td></tr></table>	$\bar{x}$ = 1724 N	s = 104 N	If you place the SOL-R Docking Device in a vertical position, please calculate with the following values:  <table><tr><td><b>Db (N)</b></td><td><math>\bar{x}</math> = 1621</td></tr><tr><td></td><td>s = 130</td></tr><tr><td></td><td>x = 1300</td></tr><tr><td><b>Zb (N)</b></td><td><math>\bar{x}</math> = 1543</td></tr><tr><td></td><td>s = 89</td></tr><tr><td></td><td>x = 1324</td></tr><tr><td><b>Qb (N)</b></td><td><math>\bar{x}</math> = 1724</td></tr><tr><td></td><td>s = 104</td></tr><tr><td></td><td>x = 1468</td></tr></table>		<b>Db (N)</b>	$\bar{x}$ = 1621		s = 130		x = 1300	<b>Zb (N)</b>	$\bar{x}$ = 1543		s = 89		x = 1324	<b>Qb (N)</b>	$\bar{x}$ = 1724		s = 104		x = 1468
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	s = 104																						
	x = 1468																						

$\bar{x}$  = arithmetical mean value  
s = standard deviation  
x = convidence level \*\*





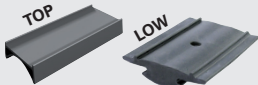
\*\*  $x = \bar{x} - s \cdot k_{f(n)}$   $k_{f(n)} = 2,463$

**Note!** All calculations, measurements, fasteners and design methods have to be verified by a responsible designer or an engineer, regarding the corresponding structure and loads. Please consult the national norms and approvals.

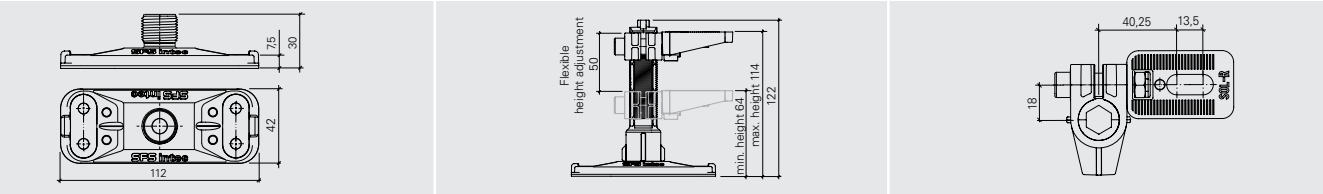
All necessary calculations must be completed and checked by the responsible planner prior to installation. The user is responsible for confirming the suitability of the system for the intended application and for adherence to any regulations appertaining.

# SOL-R – the most flexible system

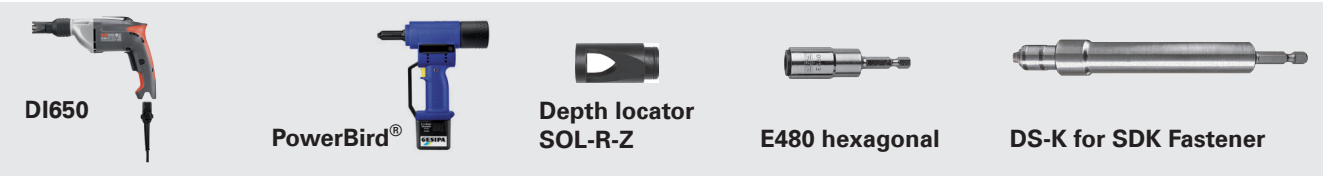
## Product Range

				
<b>Base plate</b> (SOL-R-B)	<b>Cap</b> (SOL-R-C)	<b>Docking Device</b> (SOL-R-D)	<b>Fastener</b>	<b>Adapter (optional)</b>
SFS code	Description			Remarks
SOL-R	Fastening system for solar arrays (consists of base plate, cap and docking plate)			Range = 30 - 45 mm Range = min. 24 mm
SOL-R-A-TOP	Adapter TOP, radius = 35 mm			
SOL-R-A-LOW	Adapter LOW, radius = 32 mm			
SOL-R-Z	Depth locator			

## Dimensions/Measurements in mm



## Setting Tools and Accessories


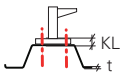




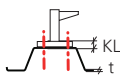




## Summary of Fasteners

Fastening to exterior profile ...	... to substrate (central fixing)			... to substrate (central fixing)	
Metal profiles	Metal profiles			Sandwich elements	
SDK-2-S	SOL-R-ASO-D-64150	SX5/ SX14	SXW	TI	SXC5/SXC14
Steel	Steel	Wood	Concrete	Steel	Wood

X = Fixing point

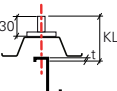
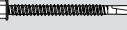


## Fastening to exterior profile – 4 fasteners per Base plate

	SFS Code		VD. max. mm Drilling capacity Steel    Aluminium	KL mm Clamping length	t min. / max. Steel in mm	t min. / max. Aluminium mm	Pack/Parts	
 	 SDK2-S-377-6,0x35 SDK2-S-377-6,0x45	 	1,25 1,25	2,5 2,5	6-18 6-28	0,63 / 1,25 0,63 / 1,25	0,9 0,9	250 250
	   HSS-6,7xL	SOL-R-ASO-D-64150**  Pilot Hole diameter 6,7mm			8-9	0,5 / 1	0,63 / 1	250  10
 Stainless Steel A2/AISI 304      ** Alu-Edelstahl A2/AISI 304/Delta Seal Beschichtung (DS)								

## Fastening to Substrate – 1 fastener per Base plate

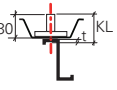
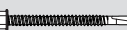


High  
corrugation  
profile



	SFS Code		VD. max. mm Drilling capacity (Fastener)	KL mm Clamping length	t min./max. Steel mm t min. depth in timber (mm)	t min. Alu mm	Pack/Parts
	 SX5/55-5,5x78 SX5/70-5,5x93 SX5/85-5,5x108	● ● ●	5 5 5	55 70 85	1,5 / 4 1,5 / 4 1,5 / 4	3 3 3	1000 250 250
	 SX14/58-5,5x87 SX14/75-5,5x103	● ●	14* 14*	58 75	4 / 12 4 / 12	5 5	500 250
	 SXW-6,5x99	●	2 x 1	58	41 mm min. Setting depth		250

Low corrugation  
profile

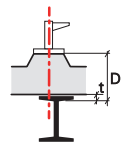
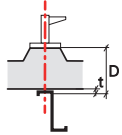



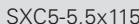
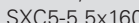
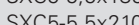
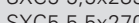
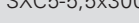
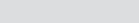
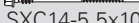
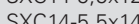
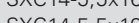
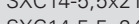
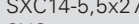
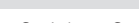




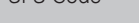
	 SX5/38-5,5x61	●	5	38	1,5 / 4	3	250
	 SX14/38-5,5x66	●	14*	38	4 / 12	5	250
	 SXW-6,5x75	●	2 x 1	34	41 mm min. Setting depth		250

● Stainless Steel A2/AISI 304    \* For substrates with a depth t > 13mm contact SFS technical advice.

## Fastening to Steel Substrate – 1 fastener per Base plate

Sandwich  
Panels



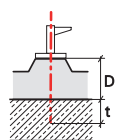
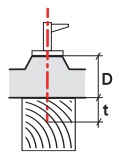
SFS Code		VD. max. mm Drilling capacity (fastener)	D* mm Panel thickness * eff. sandwich thickness	t min. / max. Steel mm	Pack/Parts
	SXC5-5,5x 95	● 5,0	9-37	1,5 / 4,0	1000
	SXC5-5,5x115	● 5,0	29-57	1,5 / 4,0	500
	SXC5-5,5x135	● 5,0	49-77	1,5 / 4,0	500
	SXC5-5,5x160	● 5,0	64-102	1,5 / 4,0	100
	SXC5-5,5x185	● 5,0	89-127	1,5 / 4,0	100
	SXC5-5,5x210	● 5,0	114-152	1,5 / 4,0	100
	SXC5-5,5x235	● 5,0	139-177	1,5 / 4,0	100
	SXC5-5,5x270	● 5,0	169-207	1,5 / 4,0	100
	SXC5-5,5x300	● 5,0	199-237	1,5 / 4,0	100
	SXC14-5,5x100	● 14,0*	9-37	4,0 / 13,0	500
	SXC14-5,5x120	● 14,0*	29-57	4,0 / 13,0	500
	SXC14-5,5x140	● 14,0*	49-77	4,0 / 13,0	500
	SXC14-5,5x165	● 14,0*	64-102	4,0 / 13,0	250
	SXC14-5,5x190	● 14,0*	89-127	4,0 / 13,0	100
	SXC14-5,5x215	● 14,0*	114-152	4,0 / 13,0	100
	SXC14-5,5x240	● 14,0*	139-177	4,0 / 13,0	100
	SXC14-5,5x275	● 14,0*	169-207	4,0 / 13,0	100
	SXC14-5,5x305	● 14,0*	199-237	4,0 / 13,0	100

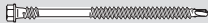
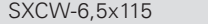

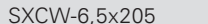

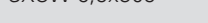
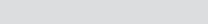

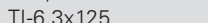
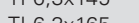

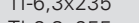
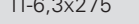
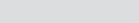

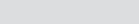
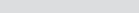



● Stainless Steel A2/AISI 304

\*For substrates with a depth t > 13mm contact SFS technical advice

## Fastening to Timber or Concrete Substrate – 1 fastener per Base plate

Sandwich  
Panels

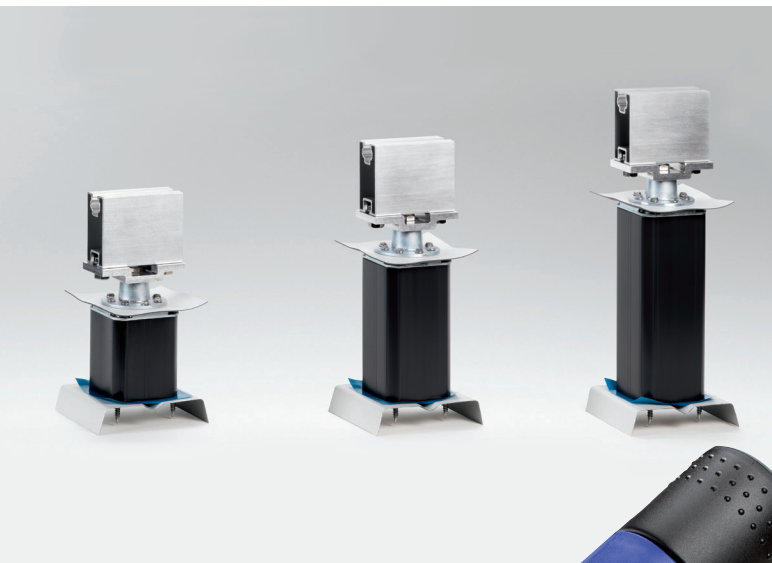


SFS Code		VD max. mm Drilling capacity (Fastener)	D* mm Panel thickness * eff. sandwich thickness	t min. depth in timber/concrete	Pack/Parts
	SXCW-6,5x105	● 2	12-25	41 mm min. depth	500
	SXCW-6,5x115	● 2	22-35	41 mm min. depth	500
	SXCW-6,5x135	● 2	42-55	41 mm min. depth	500
	SXCW-6,5x155	● 2	52-75	41 mm min. depth	500
	SXCW-6,5x185	● 2	82-105	41 mm min. depth	250
	SXCW-6,5x205	● 2	102-125	41 mm min. depth	100
	SXCW-6,5x235	● 2	132-155	41 mm min. depth	100
	SXCW-6,5x275	● 2	172-195	41 mm min. depth	100
	SXCW-6,5x305	● 2	102-225	41 mm min. depth	100
	TI-6,3x 85	■	35	20 mm min. depth	250
	TI-6,3x105	■	55	20 mm min. depth	100
	TI-6,3x125	■	75	20 mm min. depth	100
	TI-6,3x145	■	95	20 mm min. depth	100
	TI-6,3x165	■	115	20 mm min. depth	250
	TI-6,3x185	■	135	20 mm min. depth	100
	TI-6,3x205	■	155	20 mm min. depth	100
	TI-6,3x235	■	185	20 mm min. depth	100
	TI-6,3x255	■	205	20 mm min. depth	100
	TI-6,3x275	■	225	20 mm min. depth	100
	SDS-5xL-4PLUS				1

● Stainless Steel A2/AISI 304

■ Carbon steel

## Further professional fastening solutions for solar arrays



**SOL-F for the fastening  
of solar arrays to flat roofs.**



**The mounting system ALW for the fastening  
of solar modules to facades.**



**Special version for Solar applications.  
PowerBird®-Solar, ideal for recessed poorly  
accessible rivet locations.**



**VAMA security fastener for the protection of  
solar modules from theft.**