

**Fastening systems for solar installations on flat roofs:  
secure – flexible – speedy**

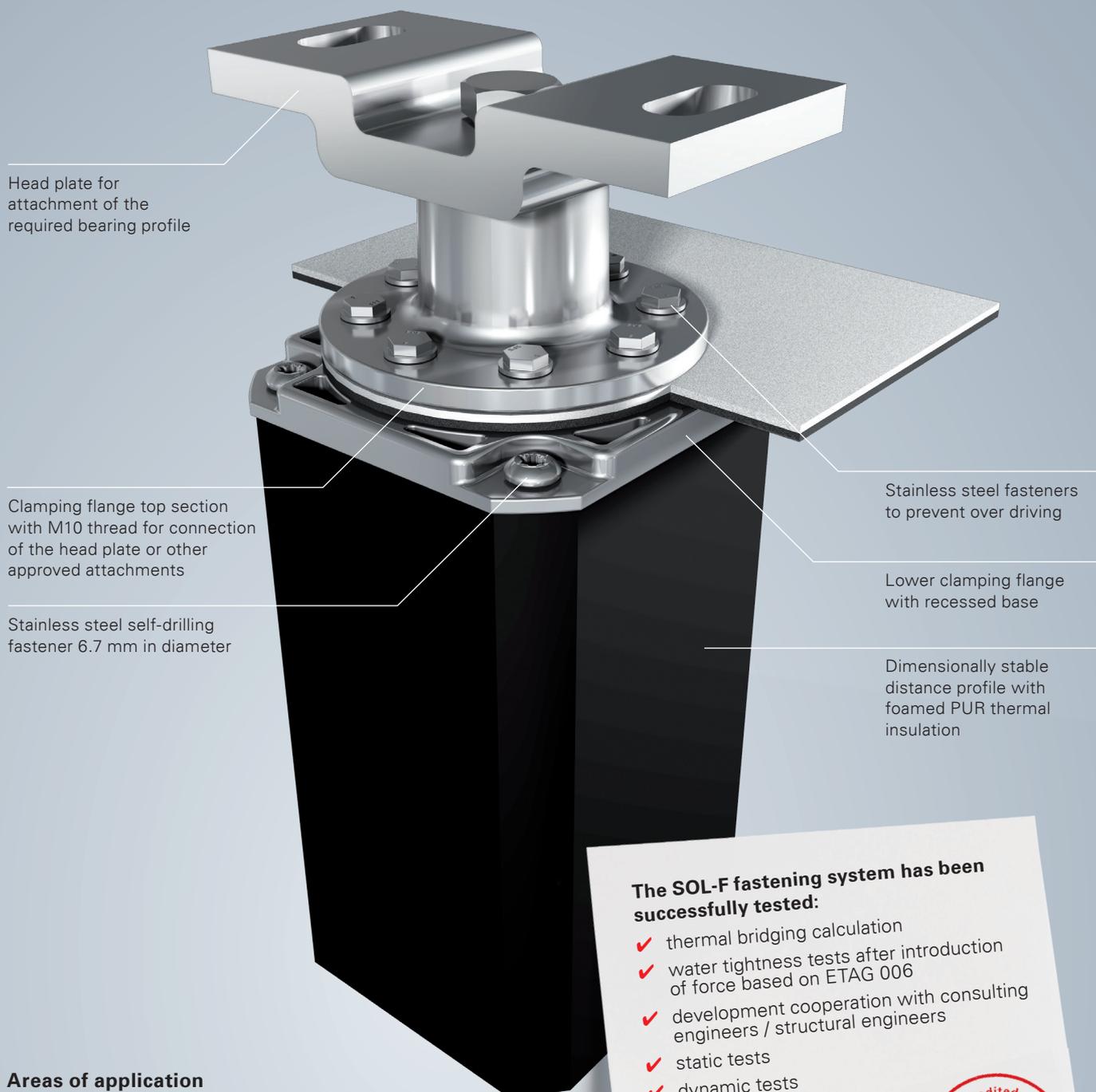


**World  
Innovation  
SOL-F**

# SOL-F – the system featuring superior safety for the attachment of solar installations on flat roofs

## Innovative all-inclusive system for flat roofs

The SFS intec SOL-F system is unique. It comprises of a fastening system, a dedicated coring tool and a calculation tool. This provides for secure, flexible and speedy installation of solar panels on flat roofs.



Head plate for attachment of the required bearing profile

Clamping flange top section with M10 thread for connection of the head plate or other approved attachments

Stainless steel self-drilling fastener 6.7 mm in diameter

Stainless steel fasteners to prevent over driving

Lower clamping flange with recessed base

Dimensionally stable distance profile with foamed PUR thermal insulation

## Areas of application

- for new flat roofs
- for renovation projects
- for retrofitting of solar panel installations onto existing flat roofs

For further application or system specific information please contact your SFS intec representative.

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

- ✓ thermal bridging calculation
- ✓ water tightness tests after introduction of force based on ETAG 006
- ✓ development cooperation with consulting engineers / structural engineers
- ✓ static tests
- ✓ dynamic tests
- ✓ system test
- ✓ DIBt Z-14.4-617 approval applied for



# SOL-F – the secure system

## Your benefits at a glance

### Secure

- ✓ Structural security without additional load
- ✓ 100% watertight system
- ✓ Easy and user friendly calculation software
- ✓ No thermal bridging

### Flexible

- ✓ For various waterproof membranes
- ✓ For various insulation types and thicknesses
- ✓ For new flat roofs, including refurbishment and retrofitting projects

### Speedy

- ✓ Easy to install - non complicated fixing system
- ✓ Powerful coring tool
- ✓ No additional welding requirement



### Secure

SOL-F is a unique, all-inclusive system:

- Structural support and security without additional load; user friendly calculation software will determine the number of fastening points required.
- Fastener design by SFS intec prevents the possibility of overdriving during installation and thereby offers a high degree of installation security.
- Totally watertight due to the clamping flange design, even when subjected to dynamic high pressure testing.
- High durability due to the use of corrosion resistant, stainless steel materials.
- No thermal bridging due to the fact that the distance profile features foamed PUR insulation.

### Flexible

The SOL-F system adapts to your needs:

- The distance profile can be used for a wide range of insulation material thicknesses and for tapered insulation; the distance profile can be cut to size on-site.
- Suitable for most waterproof membrane, insulation and profiled metal deck combinations.
- Wide range of applications: for use on new or refurbishment flat roof constructions and for retrofitting of solar panel installations onto existing flat roofs.

SOL-F: a solution that fits everywhere!

### Speedy

Profit from rapid installation:

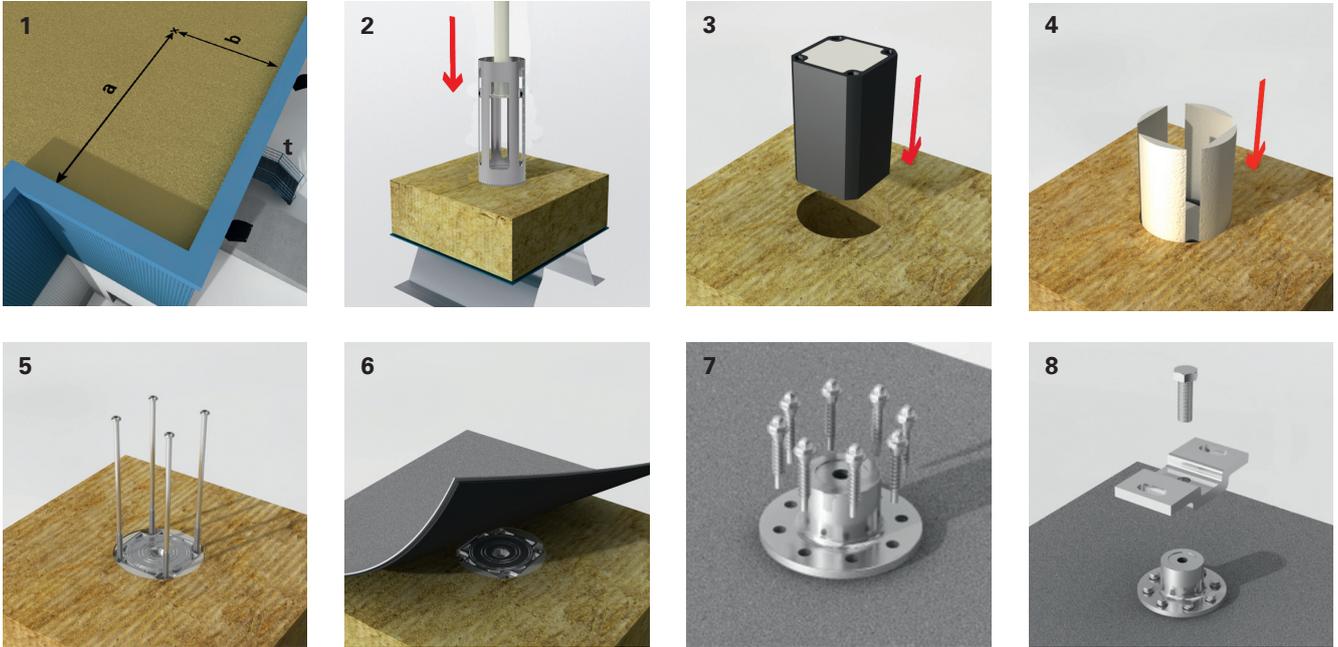
- Installation is performed without penetrating the profiled steel deck or the vapour control layer.
- Powerful coring tool ensures rapid cutting and removal of the insulation prior to installation.
- No additional welding of the waterproof membrane is necessary; installation time is reduced to a minimum.

SOL-F: easy and fast installation!

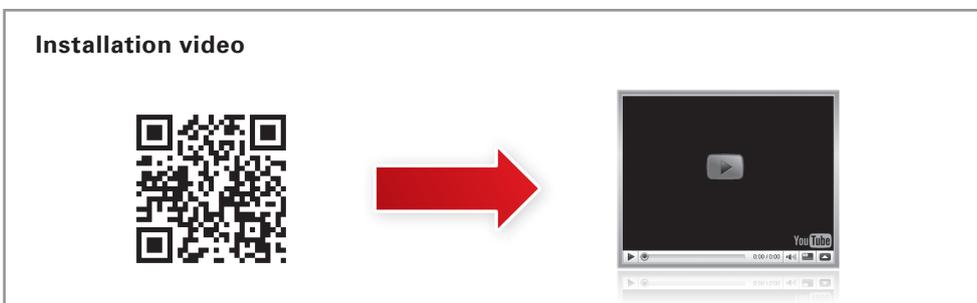
SOL-F: offers superior security!

# SOL-F – Installation process and calculation

## Installation process



For the detailed installation process please see installation instructions.



## Calculation



SFS intec offers a static calculation service for individual project applications of SOL-F. The system specific software has been developed in conjunction with a structural engineering consultancy to determine the required spacing between the SOL-F fastening elements.

The calculations are based upon the information supplied to SFS intec including details of the PV frame system, location of the project, building data etc.

For a static calculation, simply request and complete a questionnaire detailing the appropriate data requirements and send it to SFS intec who will then undertake the calculation. This calculation will be provided to the customer on its completion.

## SOL-F – Overview of the system components



### Distance profile SOL-F-PxL

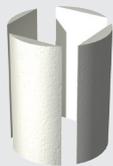
- Dimensionally stable plastic profile with foamed thermal PUR insulation. (Lambda value  $\lambda = 0,027 \text{ W/mK}$ )
- Available pre-cut to specified lengths or in 1200 mm length to be cut on site with a circular saw (dry cut)

### Fastener for distance profile SOL-F-S-6,7xL



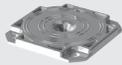
- Self-drilling fastener with  $\varnothing 6,7 \text{ mm}$  for the steel deck substrate
- Available in various lengths
- Manufactured from austenitic stainless steel grade A4, European Standard 1.4401
- Drill capacity: steel thickness 0,75 mm - 2 x 1,25 mm

### PUR insulation segment SOL-F-PURx220



- Insulation segment manufactured from PUR insulation. (Lambda value  $\lambda = 0,023 \text{ W/mK}$ )
- To fill the space between the distance profile and the insulation
- Length 220 mm, to be cut on site with a knife

### Lower clamping flange SOL-F-CL



- Zinc coated die-casting element with recessed base and fins for water tightness
- Designed to provide for 100% water tightness
- Packaged as part of the clamping flange set\*

\* including lower clamping flange + upper clamping flange + fasteners for clamping flange



### Upper clamping flange SOL-F-CU

- Zinc coated die-casting element with centering pin and fins for water tightness
- Designed to provide for 100% water tightness
- Packaged as part of the clamping flange set\*

### Fastener for clamping flange SOL-F-S-6,0x30



- Self-drilling fastener to prevent over driving.
- Manufactured from austenitic, stainless steel grade A2, European Standard 1.4567
- For 100% water tightness
- Packaged as part of the clamping flange set\*

### Set head plate with M10 screw SOL-F-HP-A/M10



- Zinc coated die-casting element for the connection of SOL-F with different bearing profiles
- Head plate with two long holes for M10 screws
- M10 screw for the connection of the head plate with the clamping flange top section, manufactured from austenitic, stainless steel grade A2, European Standard 1.4301

### Membrane pad



- For the retrofitting of PV systems on to existing flat roofs
- Membrane pad of diameter approx. 22cm
- Supplied by the installer (not included in the SFS intec product range)
- Same manufacturer and type as existing waterproofing membrane

## Tools and accessories



### Coring tool SOL-F-CT22-P-230V-COMPL

- Powerful coring tool for an easy preparation prior to the SOL-F installation
- With adjustable depth locator and variable drill speed
- For mineral wool, expanded polystyrene, extruded polystyrene and PIR/PUR insulations



### Core pullout tool SOL-F-CP

- For removing the insulation core



### Cutting tool for membrane pad SOL-F-CM

- For pre-cutting of membrane pads with  $\varnothing \text{ max. } 40 \text{ cm}$  (membrane pad necessary for the retrofitting of photovoltaic systems on to existing flat roofs)
- For pre-cutting the existing flat roof membrane
- Including adjustable knife
- With scale of 0 - 20 cm



### Backup knife for cutting tool SOL-F-CM-K

- For the easy fitting into the cutting tool
- Knife can be re-sharpened



### Bit T25-25-HEX1/4"

- Bit for application of the SOL-F-S-6,7xL fasteners
- With hexagonal shaft, length 25 mm



### Setting tool DS-K185

- Setting tool for the application of SOL-F-S-6,0x30 fasteners
- Complete with a collecting receiver for the used square drive pegs
- With hexagonal shaft, length 185 mm

For fast and secure fixing of the aluminium profile to the SOL-F head plate we recommend the use of a 17mm AF ratchet head combination spanner for this application. (Supplied by others. This is not included in the SFS intec product range).

# SOL-F - Ordering

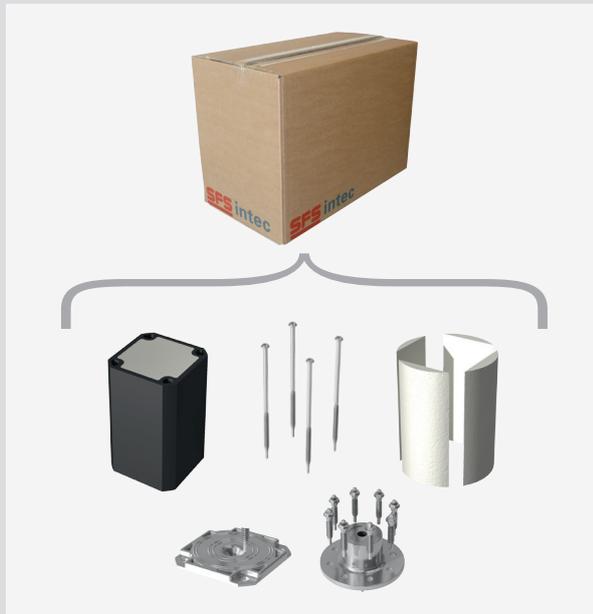
There are two ordering options for the SOL-F fastening elements:

## Option 1: Order by sets

You may order a set which contains all of the necessary components (head plate not included). Each set corresponds with a specific insulation thickness.

- ✓ Benefit: Each set contains all of the necessary components.

### Set



#### Set contents

- Distance profile SOL-F-PxL
- Fasteners for distance profile SOL-F-S-6,7xL
- PUR insulation segments SOL-F-PURx220
- Clamping flange set SOL-F-CL/CU/6,0x30 (including lower clamping flange, upper clamping flange and fasteners for clamping flange)

#### Not included in the set:

(To be ordered separately)

- Set head plate with M10 screw SOL-F-HP-A /M10

Sets are available for various insulation thicknesses. Please see «Ordering information Sets».

## Option 2: Order by individual components

The distance profile is ordered in the length 1200mm and is cut on site. All other elements are ordered separately.

- ✓ Benefit : Flexible adaptation to various insulation thicknesses (e.g. with tapered insulation)

### Individual components



#### Separately order

- Distance profile SOL-F-Px1200
- Fasteners for the distance profile SOL-F-S-6,7xL
- PUR insulation segments SOL-F-PURx220
- Clamping flange set SOL-F-CL/CU/6,0x30 (including lower clamping flange, upper clamping flange and fasteners for clamping flange)
- Set head plate with M10 screw SOL-F-HP-A /M10

For an overview of the available system components please see «Ordering information Individual components».

## Ordering information - Sets



SFS code	Description	Substrate	Pieces / packaging	Packaging
SOL-F-80-SET-SD	Set for insulation thickness 80 mm	Steel deck	10 SOL-F fastening elements	Cardboard
SOL-F-100-SET-SD	Set for insulation thickness 100 mm	Steel deck	10 SOL-F fastening elements	Cardboard
SOL-F-120-SET-SD	Set for insulation thickness 120 mm	Steel deck	10 SOL-F fastening elements	Cardboard
SOL-F-140-SET-SD	Set for insulation thickness 140 mm	Steel deck	10 SOL-F fastening elements	Cardboard
SOL-F-160-SET-SD	Set for insulation thickness 160 mm	Steel deck	10 SOL-F fastening elements	Cardboard
SOL-F-180-SET-SD	Set for insulation thickness 180 mm	Steel deck	10 SOL-F fastening elements	Cardboard
SOL-F-200-SET-SD	Set for insulation thickness 200 mm	Steel deck	10 SOL-F fastening elements	Cardboard
SOL-F-220-SET-SD	Set for insulation thickness 220 mm	Steel deck	10 SOL-F fastening elements	Cardboard
SOL-F-S-6,0x30	Spare fasteners for clamping flange	-	80 pcs.	Cardboard

## Ordering information - Individual components



SFS code	Description	Description detail	Pieces / packaging	Packaging
SOL-F-Px1200	Distance profile	Length 1200mm, to be cut on site with a circular saw (dry cut)	1 pc.	-
SOL-F-S-6,7x115	Fasteners for distance profile	Length 115 mm *	40 pcs.	Cardboard
SOL-F-S-6,7x155	Fasteners for distance profile	Length 155 mm *	40 pcs.	Cardboard
SOL-F-S-6,7x195	Fasteners for distance profile	Length 195 mm *	40 pcs.	Cardboard
SOL-F-S-6,7x235	Fasteners for distance profile	Length 235 mm *	40 pcs.	Cardboard
SOL-F-PURx220	PUR insulation segment	Length 220 mm, to be cut on site with a knife	10 pcs.	Plastic bag
SOL-F-CL/CU/6,0x30	Clamping flange set	Lower clamping flange + upper clamping flange + fasteners for clamping flange	10 lower parts + 10 upper parts + 80 fasteners	Cardboard
SOL-F-HP-A/M10	Set head plate with M10 screw	Head plate + M10 screw	10 head plates + 10 M10 screws	Cardboard
SOL-F-S-6,0x30	Spare fasteners for clamping flange	Spare fasteners	80 pcs.	Cardboard

\* Selection of the correct fastener length of SOL-F-S-6,7xL

Thickness insulation	Fastener for distance profile
60 mm - 100 mm	SOL-F-S-6,7x115
100 mm - 140 mm	SOL-F-S-6,7x155
140 mm - 180 mm	SOL-F-S-6,7x195
180 mm - 220 mm	SOL-F-S-6,7x235

## Ordering information - Tools and accessories



SFS Code	Description	Details	Piece / pack.	Packaging
SOL-F-CT22-P-230V-COMPL	Coring tool complete	For insulation thicknesses of 60 - 220 mm	1 pc.	Wooden case
SOL-F-CT22-P-BASIC	Coring attachment for coring tool	For insulation thicknesses of 60 - 220 mm	1 pc.	-
SOL-F-RW-230V-LIB	Electrical engine for coring tool	230 V, 1350 W	1 pc.	Cardboard
SOL-F-CP	Core pullout tool	For removing the insulation core out of the drill hole or out of the coring tool	1 pc.	-
SOL-F-CM	Cutting tool for membrane pad	For pre-cutting the membrane pads and/or the existing flat roof membrane	1 pc.	Cardboard and plastic foil
SOL-F-CM-K	Backup knife for cutting tool	For the easy fitting into the cutting tool	1 pc.	Plastic bag
T25-25-HEX1/4"	Bit for distance profile fasteners	T25 bit with hexagonal shaft	10/100 pc.	Plastic bag/ Cardboard
DS-K185	DS-K185 setting tool for clamping flange fasteners	Setting tool with hexagonal shaft	1 pc.	-

## More SFS intec fastening solutions for solar power installations



**SOL-R for the fastening of solar power installations to metal profile and composite panel roofs.**



**VAMA special fastener for theft prevention of solar modules.**



### **Individual, expert advice!**

SFS intec employs exclusively experienced, solution-orientated internal and external sales personnel fully conversant with the specific regional demands placed on fastening solutions. We offer comprehensive, first-rate support from planning through to on-site installation.

### **Your guarantee of innovation and quality!**

SFS intec has its own in-house development and manufacture, and a powerful, international sales and marketing network. Thanks to years of experience in fastening technology for the attachment of exterior building cladding systems, we are in a position to successfully implement individual customer solutions and special applications. With worldwide manufacturing sites and marketing organisations in over twenty-five countries, you too can profit from the comprehensive package offered by SFS intec.

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