

VarioSole

On-roof mounting system for PV modules and laminates on pitched roofs



Universal and efficient mounting system with few components

System application

The VarioSole is a universal easy to mount system for assembling PV systems on pitched roofs. With the system variant VarioSole SE, all normal PV modules can be mounted with a frame height from 34-51 mm and 31 mm in vertical and horizontal format. The system variant VarioSole DS is for mounting PV laminates. The connection to the roof takes place using the appropriate fittings for the respective roof covering such as roof hooks or hanger bolts. These are bolted into the rafters (or the purlins if necessary) after which the mounting frames are fitted. The rail holds the other components for mounting the PV modules and laminates. The simple sliding in, clicking on and inserting of the components into the mounting rail profile enables a fast and safe mounting.

System characteristics

- Mounting system for pitched roofs with a roof inclination of 10-70°.
- Roof-compatible fastenings for nearly all kinds of roofing such as plain tiles and slate roofs or corrugated eternit and trapezoidal sheets.
- Compensation for any unevenness of the roof is possible.
- Mainly pre-assembled components and safe installation.
- Durable components made of high-grade aluminium and stainless steel.
- Renusol web configurator for optimal dimensioning and orders.
- 10-year product warranty.
- TÜV certified.

Features of the VarioSole SE

- PV modules can be mounted vertically or horizontally.
- Variable mounting system for module frame heights of 34–51 mm and 31 mm.
- Also available in black.

Features of the VarioSole DS

- Building on the VarioSole SE system.
- Preferably designed for PV laminates with the dimensions of 1,100 x 1,300 mm.

System advantages for trade and industry

- Wholesale-compatible packaging units.
- Low storage costs due to small, light and variable components.
- No removing of roofing required.
- Universal mounting system.
- Pre-assembled components.



The new fastenings:
see the summary
on page 10

System and colour variants at a glance

VarioSole SE, single-layer system

Vertical module configuration on horizontal mounting rails.

Colour: Aluminium blank and black



VarioSole SE, two-layer system

Horizontal module configuration thanks to additional mounting rails fitted vertically on the mounting rail basic grid.

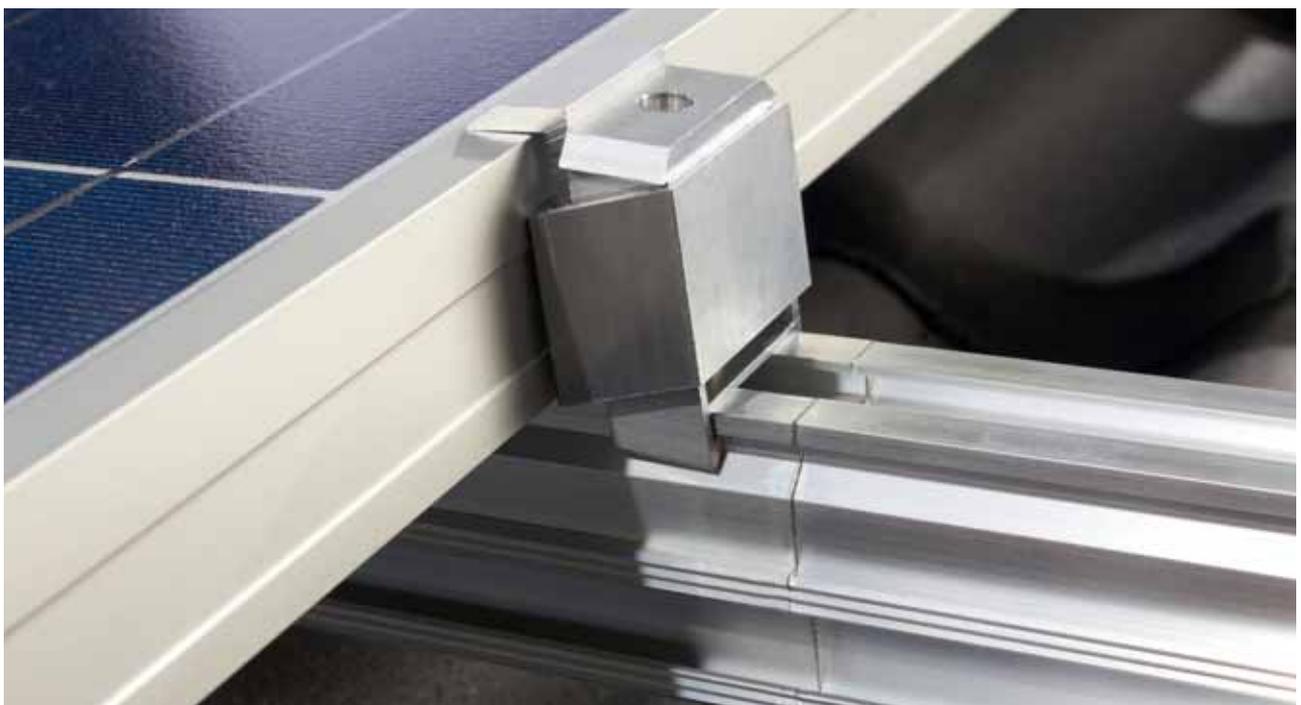
Colour: Aluminium blank and black



VarioSole DS, PV laminates

VSDS mounting rails fitted vertically on the mounting rail basic grid for assembling the laminates.

Colour: Aluminium blank.



VarioSole SE for mounting PV modules as a single-layer system

Strong roof hook

The stable fastening of the VarioSole mounting rails takes place quickly and easily via strong roof hooks of aluminium die cast directly onto the rafter. The slotted line on the hook is for the compensation of unevenness on roofing surfaces. The wood screws supplied for mounting are construction approved. Roof covering is not necessary. See page 10 for more fitting solutions for various types of covering.



Versatile mounting rail

The mounting rail can be screwed to the roof hook. The end and middle clamps for installing the PV modules are fitted to the mounting rail. The rail also holds the cross rail connectors when installing a module horizontally. The mounting rails for vertical and horizontal module configuration are identical.



Rail connector with rivet

The rail connector serves the linking up of several mounting rails. This is inserted into an already fastened mounting rail up to the rivet after which the other mounting rail is slid on. The rivet in the middle ensures that the connector is inserted equally far into both rails.



Height-adjustable end clamp

The end clamp is pushed onto the ends of the mounting rail on the section and holds the PV module. The height of the end clamp can be adjusted by 34-51 mm to the frame height of the PV module. End clamps for 31 mm module frames are available for this.



Height-adjustable middle clamp

The middle clamp can engage into any desired location on the assembly rail section and holds the PV module. The height of the end clamp can be adjusted by 31-51 mm to the frame height of the PV module.





Only mount with one additional system component as a two-layer system

Identical system components

All VarioSole SE components previously shown on the site for vertical mounting can also be used for horizontal mounting.

The cross rail connector complements the VarioSole SE System as the only additional component for mounting horizontally.

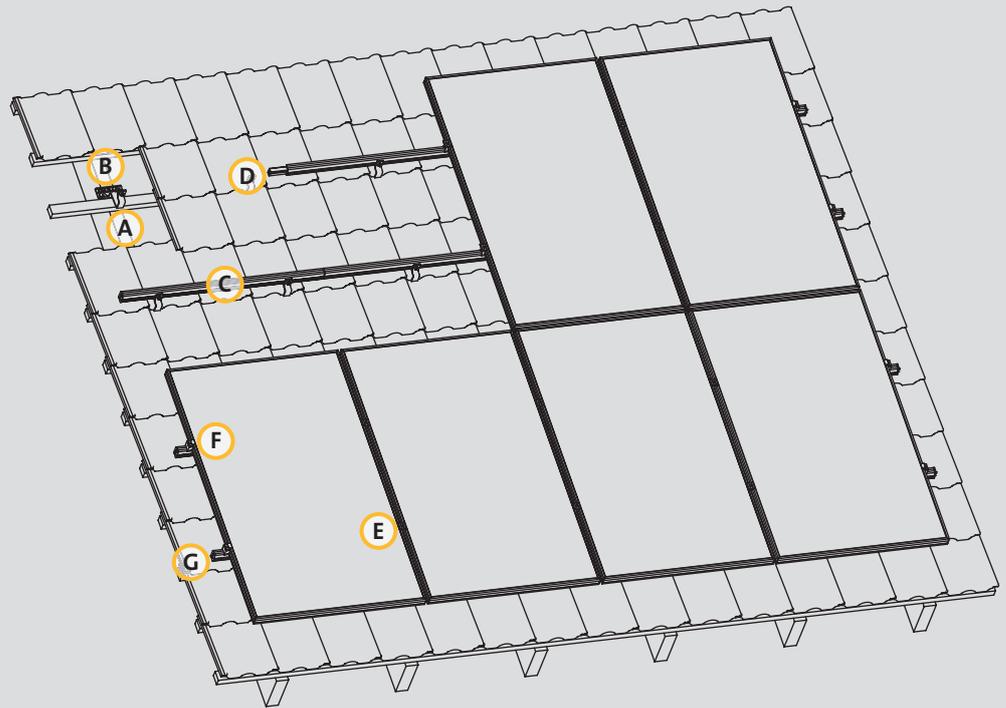
PV systems can be planned and realized in a very flexible and object-specific manner based on this versatility.



Stable cross rail connectors

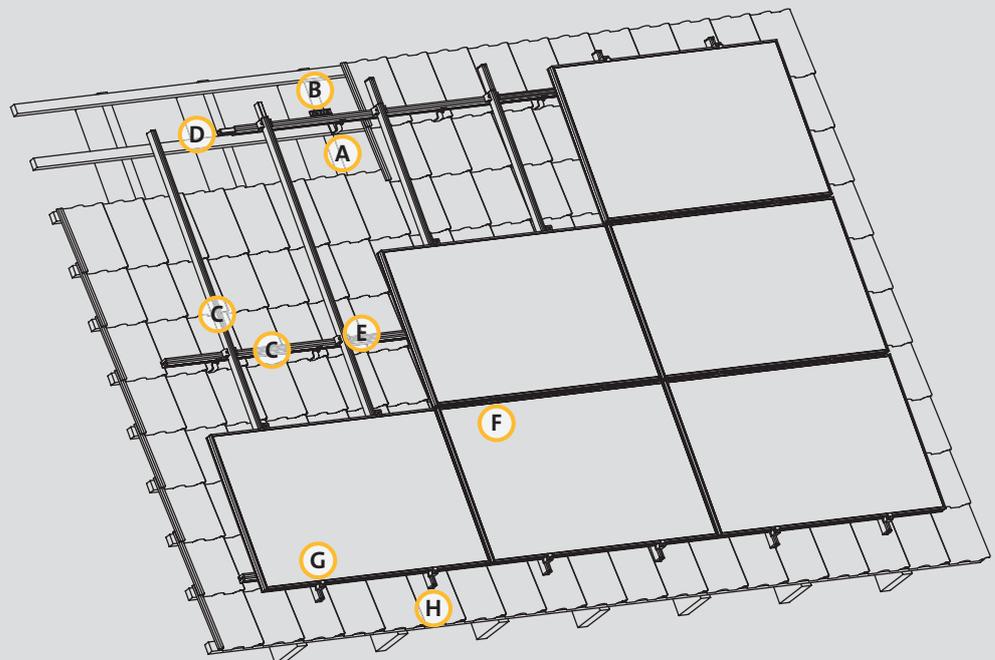
The cross rail connector is for vertical fastening of more rail mountings on the horizontal mounting rail grid. Two cross rail connectors, each snapped onto the horizontal mounting rail hold the vertical rails on the left and on the right on the cross points.





**VarioSole SE system overview,
one-layer system:**

- A Roof hook
- B Wood screw, mushroom head
- C Mounting rail
- D Connector with rivet
- E Middle clamp
- F End clamp
- G End cap



**VarioSole SE system overview,
two-layer system:**

- A Roof hook
- B Wood screw, mushroom head
- C Mounting rail (horizontal and vertical)
- D Connector with rivet
- E Cross connector
- F Middle clamp
- G End clamp
- H End cap

VarioSole DS for mounting PV laminates

VSDS bracket and VSDS mounting rail

The VSDS bracket connects the vertically fitted VarioSole DS mounting rails (VSDS) with the horizontal mounting rails. The pre-mounted rubber sections on the VSDS mounting rails to protect the sensitive glass laminates will at a later point be completely covered by the VSDS clamp profiles. There is no chance of Impairment of the material by UV radiation.



VSDS rail connector with rivet

The rail connector serves the linking up of several VSDS mounting rails. A connector will be inserted into the double profile of an already mounted VSDS mounting rail on the left and right up to the rivet after which the other VSDS mounting rails are slid on. The rivet in the middle ensures that the connectors are inserted equally far into both mounting rails.



Anti-slip protection

The anti-slip protection pre-fitted onsite onto the VSDS mounting rails facilitate the laying of the laminates and prevent slipping.



Spacers

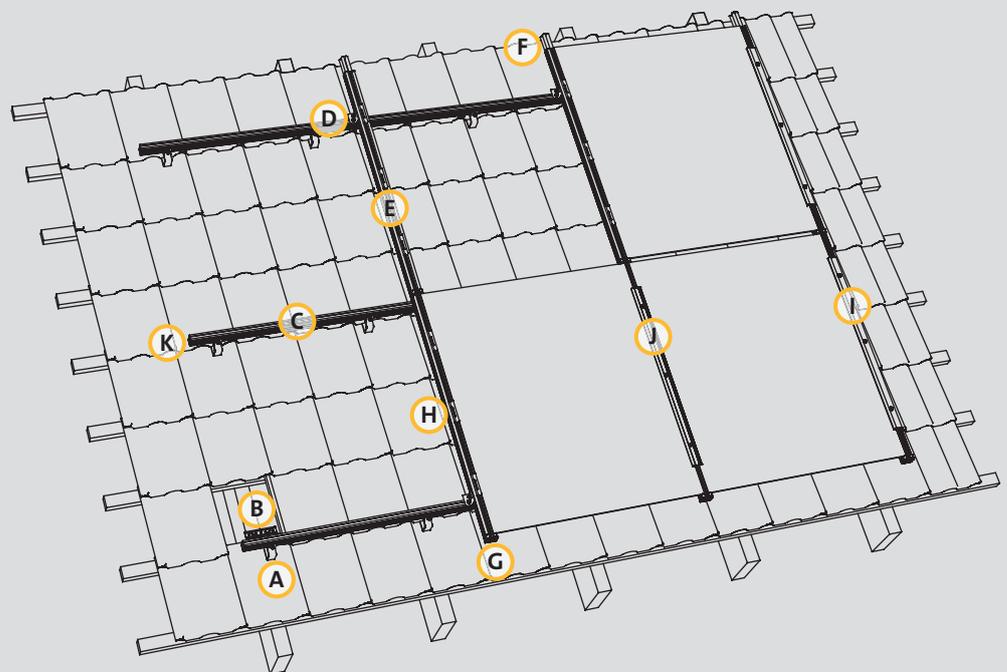
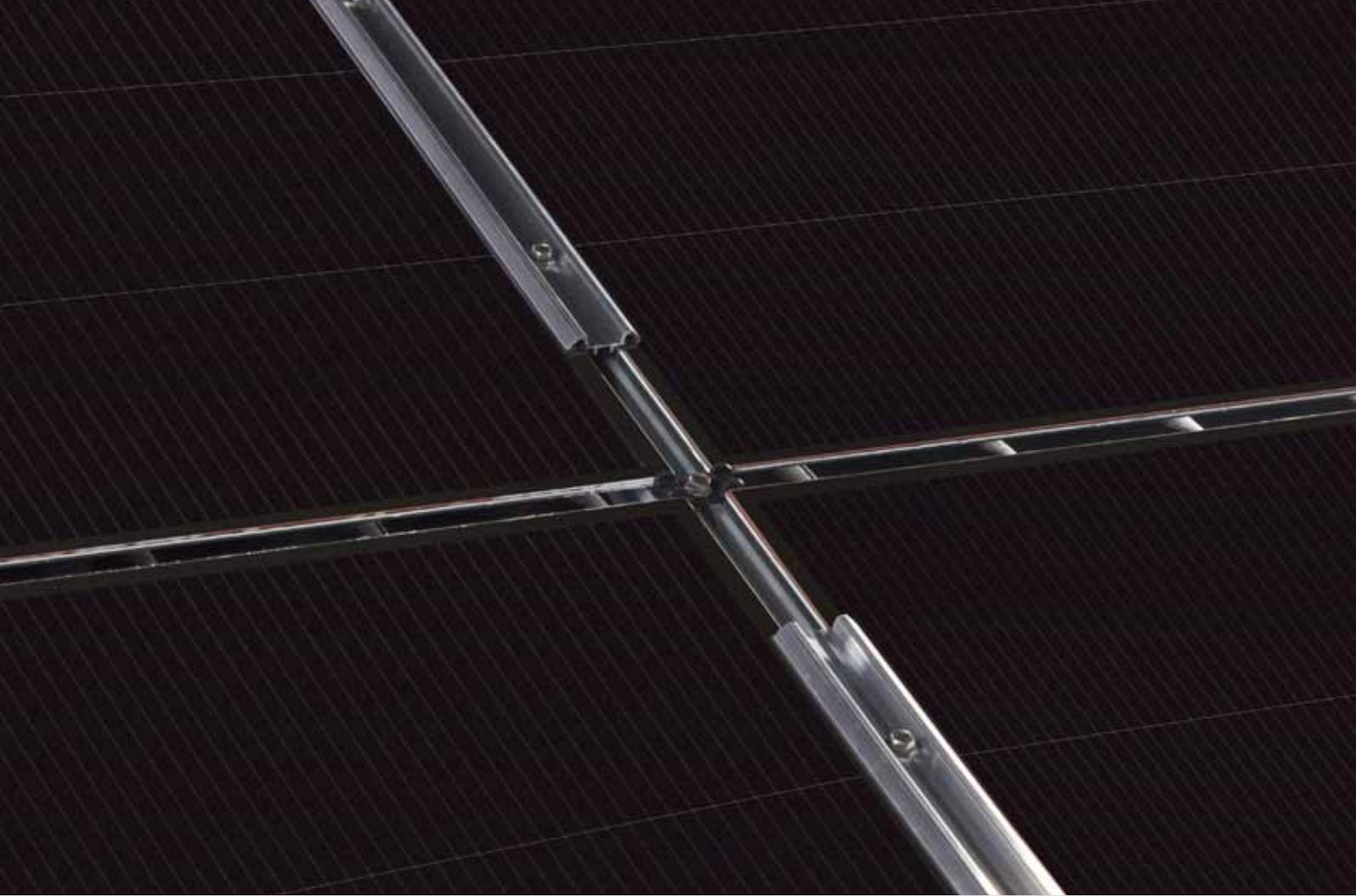
The spacers inserted into the VSDS mounting rails ensure a uniform assembly distance of the laminates, prevent them from colliding and allow floating bedding. The spacers also mark the seating of the VSDS clamp profiles.



VSDS clamp profiles

The VSDS clamp profiles are used for fastening the laminates. The VSDS clamp profiles MIDDLE and END have hoods on the lower side that fit in the groove on the spacers. The clamp profiles are bolted to the VSDS mounting rails via the wide feed hole in the spacers. This prevents the laminates from being damaged.

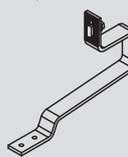
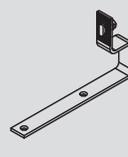
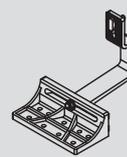
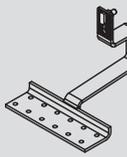
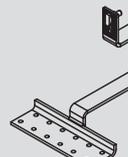
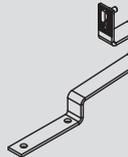
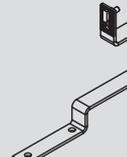
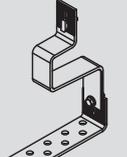
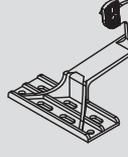
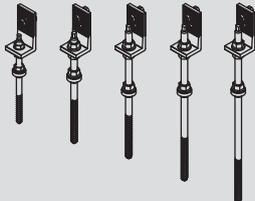




VarioSole DS system overview:

- A Roof hook, aluminium
- B Wood screw, mushroom head
- C Mounting rail
- D VSDS bracket
- E VSDS mounting rail
- F VSDS connector with rivet
- G Anti-slip protection
- H Spacer
- I VSDS clamp profile END
- J VSDS clamp profile MIDDLE
- K End cap

VarioSole fastening

<p>Roof tile/saddle stones with wood sub-structure</p>	<p>Roof hook Aluminium</p>  <p>Construction approval DiBt Z-14.4-515</p>	<p>Roof hook for plain tiles</p> 	<p>Roof hook for slate tiles</p> 	<p>Roof hook Aluminium adjustable</p> 
	<p>Roof hook Stainless steel TM</p> 	<p>Roof hook Stainless steel TR</p> 	<p>Roof hook Stainless steel TP</p> 	
<p>Roof tile/saddle stones with concrete sub-structure</p>	<p>Roof hook Stainless steel Concrete Basic</p> 	<p>Roof hook Stainless steel TM</p> 	<p>Roof hook Stainless steel TR</p> 	<p>Roof hook Stainless steel TP</p> 
	<p>Roof hook Stainless steel Concrete DC</p> 	<p>Roof hook Aluminium Concrete 90°</p> 		
<p>Trapezoidal and corrugated sheet roofs</p>	<p>Hanger bolts for wood substructure 10 x 200, 12 x 250, 12 x 300, 12 x 350, 12 x 400</p> 		<p>Solar fastener for metal substructure with calotte or mushroom sealing 8 x 125/50, 8 x 150/50, 8 x 160/50, 8 x 200/50</p> 	
<p>Types of roofing tiles: TM = Tegola Marsigliese, TR = Tegola Romana, TP = Tegola Portoghese, DC = Doppio Coppo</p>				

Comprehensive training and planning support for perfect mounting results

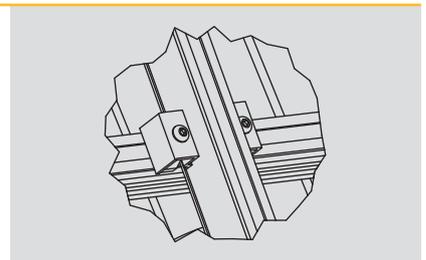
Specialist training

Renusol offers specialist VarioSole training. Theoretical and practical specialist and product knowledge are also taught in the seminars. Upon request, Renusol also offers regional training courses on a wholesaler's premises. Please send inquiries regarding the exact dates and the individual courses via e-mail: info@renusol.com or by telephone number: +49 221 788707-0.



Detailed installation instructions

The VarioSole SE and DS Installation instructions explain each individual step of the installation in objective and understandable terms. The relevant mounting details are shown step by step. Printed installation instructions are included with the delivery of every VarioSole product. In addition, the latest version of the installation instructions are available for download at www.renusol.com.



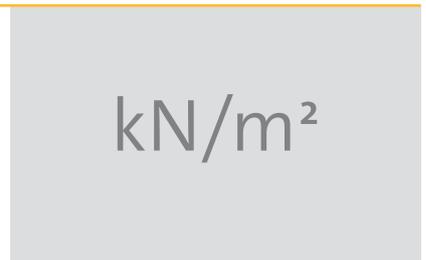
Comfortable project planning

With the Renusol web configurator available online around the clock, it will also be possible in the future to configure the VarioSole mounting system for PV installations with just a few mouse clicks. The user-friendly web configurator provides maximum comfort for individual planning and for generating an offer. Moreover, all projects are clearly managed in a password-protected area.



Exact project calculations

Customers who plan and order their solar system with the Renusol web configurator receive two project-specific documents with the delivery of the mounting system: The "Technical project summary" contains all the information on the proposed installation and the "Static calculation" contains the corresponding data.



Renusol – From visions to solutions

Mounting specialist

Based on the continuous dialogue with dealers and installers, our own development and design department, long years of market experience and durable system components, Renusol delivers well-thought-out mounting solutions for almost all areas of application. Solutions that are easier to plan and mount and that offer the security of perfected products.

Mounting systems

IntraSole SR and CL

Fully integrated mounting system for PV modules and laminates in pitched roofs

InterSole SE and XL*

Integrated mounting system for PV modules in pitched and industrial roofs

VarioSole SE and DS

On-roof mounting system for PV modules and laminates in pitched roofs

ConSole and DS

Flat-roof mounting system for PV modules and laminates

MetaSole

On-roof mounting system for PV modules on trapezoidal sheet roofs

TerraSole and DS

Free-standing mounting system for PV modules and laminates

* The InterSole SE and XL are considered semi-integrated mounting systems in France and integrated mounting systems in all other European countries.

Service

Information: www.renusol.com

Current participation in trade shows, the latest installation instructions and web configurator

Contact: Tel. +49 221 788707-0 and e-mail info@renusol.com

Upcoming dates for professional training as well as inquiries on individual regional professional training and sales visits