

**fischer** 

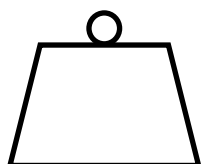
**RH AL hooks.**  
To every roof  
its own solution.



# RH AL.

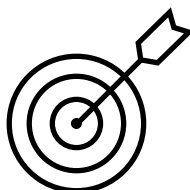
## Universal aluminium hooks for pitched roofs with tiles.

### High wheelbases



The great load-bearing capacity allows a **reduced number of fastenings** and the use of fewer hooks.

### Multiple adjustments



The range offer **from 2 to 4 adjustments**, a feature that guarantees maximum flexibility during installation.

### Controlled deformation



The hooks have a controlled deformation and are **designed not to bend or damage the tiles**.

### Pre-assembled



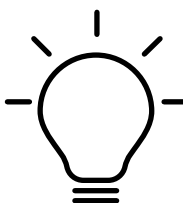
The hooks are pre-assembled and **ready to be mounted** without the need for additional accessories.

### Lightweight and resistant



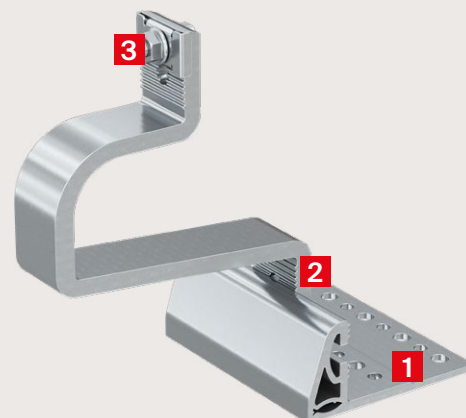
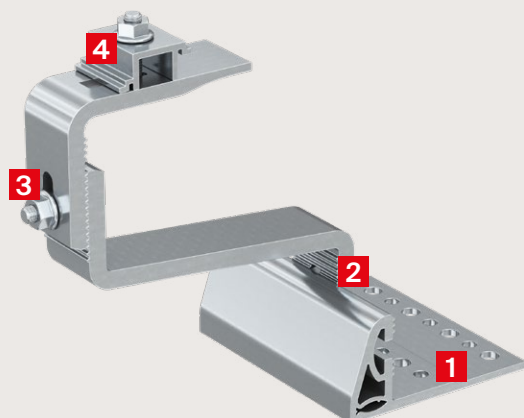
The **high-performance aluminum** makes them light to be carried on the roof and resistant to atmospheric agents.

### Customizable panels layout

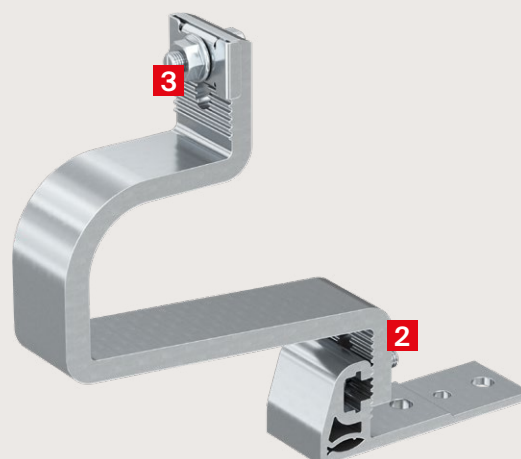
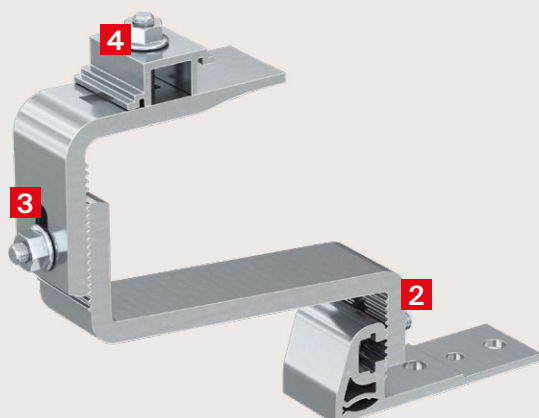


By adding an optional bracket it is possible to provide **landscape oriented installation**.

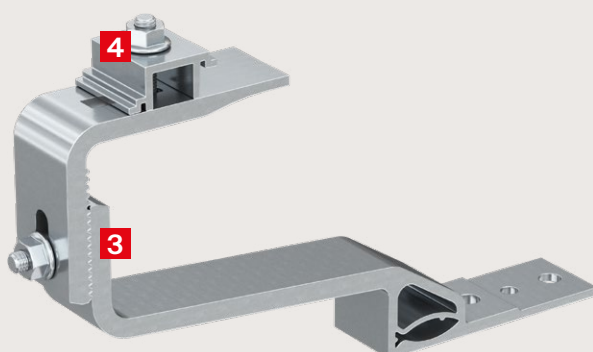
## RH AL hooks with large base.



## RH AL hooks with thin base.



## RH AL hooks with fixed base.



## Range adjustments

**1. Horizontal base adjustment**

It allows to offset the hook bracket from the base fastening point.

**2. Lower vertical adjustment**

It allows to adapt the hook to different thicknesses of tiles and ventilation layer.

**3. Upper vertical adjustment**

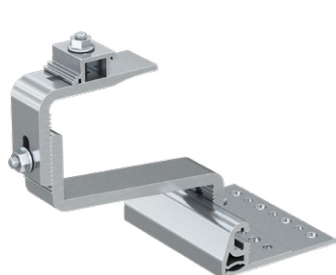
It allows to record the distance of the rail from the top of the tile.

**4. Higher adjustment**

It allows to horizontally align the rail.

# RH HB AL and RH VB AL.

Large base, for ventilated roofs with timber structure.



RH 40-52 HB AL



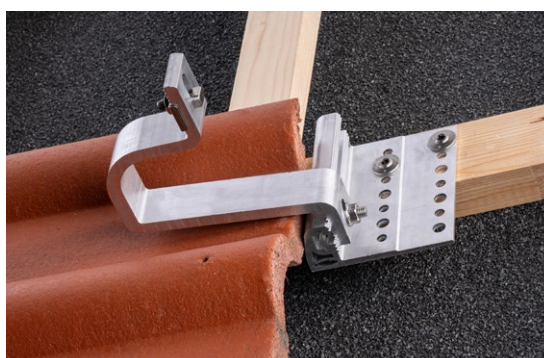
RH 52-67 HB AL



RH 40-52 VB AL



RH 52-67 VB AL





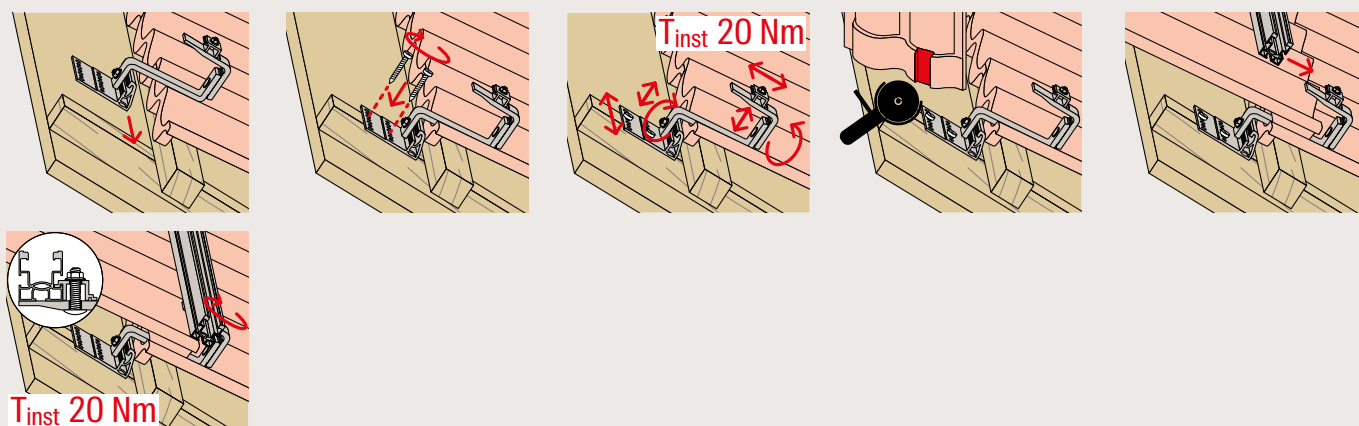
## Advantages

- RH HB AL and RH VB AL aluminium hooks are suitable for PV panels installation on pitched roofs with tiles and ventilation layers of variable thickness.
- The large base plate provides a wider fastening surface for an easier connection to the load-bearing structure.
- 3 or 4 adjustments available: the horizontal adjustment at the base of the hook allows to offset the hook bracket from the base fastening point. The lower vertical adjustment allows to adapt the hook to different tiles and ventilation layers thicknesses. The upper vertical adjustment allows to record the distance of the rail from the top of the tile. The higher adjustment (available for RH HB AL hooks versions) allows to horizontally align the rail.

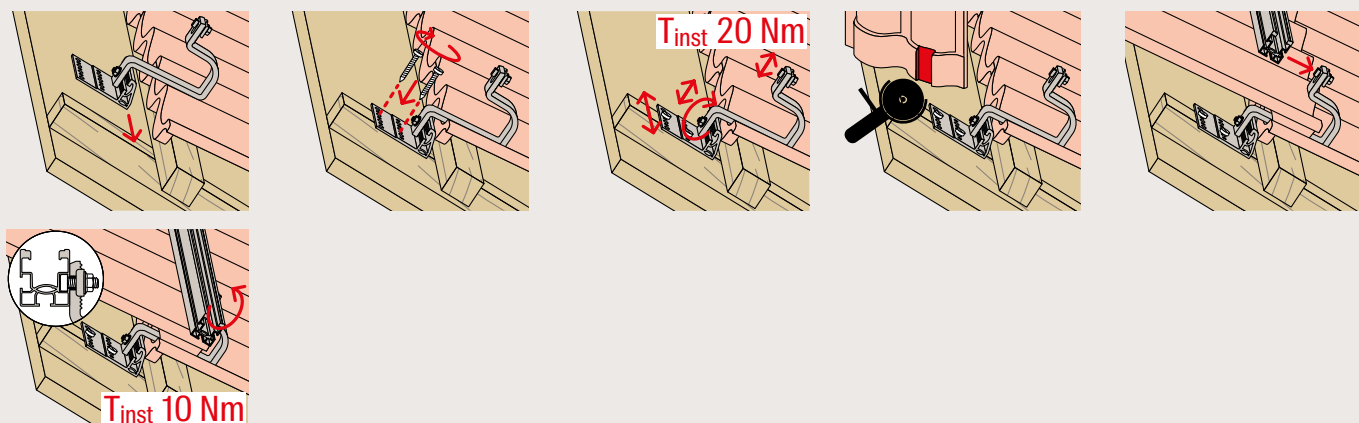
## Functioning

- Determine the centre distance of the hooks according to the snow and wind loads in the installation area (use SOLARPANEL-FIX software to design the system) and according to the load-bearing structure and system layout.
- Lift the tile and secure the base of the hook using the appropriate anchor determined according to the type and layers of the load-bearing support.
- Make the height and width adjustments required by the type of roofing and tighten the screws of the adjustments applying a 20Nm torque to lock the hook in position.
- Grind the upper tile to fit the hook shape and put it back in position.
- In case of RH HB AL hooks versions, insert the upper joint on the side of the selected rail and adjust the rail position (the joint can be rotated by 180° to adapt to SolarLight or SolarFish rails). Fasten the nut applying a 20 Nm torque.
- In case of RH VB AL hooks versions, connect the Solar rail to the upper part of the hook by inserting the RHS 8X20 A2 hammer head screw on the side of the rail; turn the nut clockwise until the hammer head screw is locked in position; adjust the distance of the rail from the tiles according to the configuration needs. Fasten the nut applying a 10 Nm torque.
- To allow landscape oriented PV panels layout when using RH VB AL hooks versions, the additional LAB bracket is required.

### RH HB AL



### RH VB AL

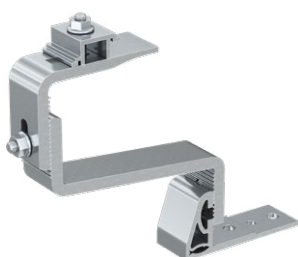


# RH H AL and RH V AL.

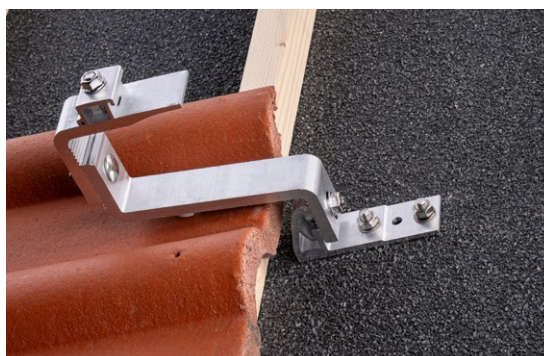
Thin base, for ventilated roofs with continuous load-bearing structure.



RH 40-52 H AL



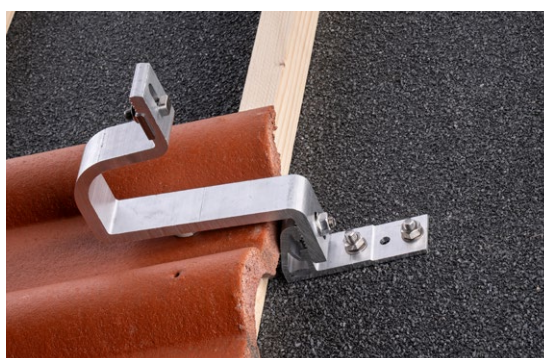
RH 52-67 H AL



RH 40-52 V AL



RH 52-67 V AL



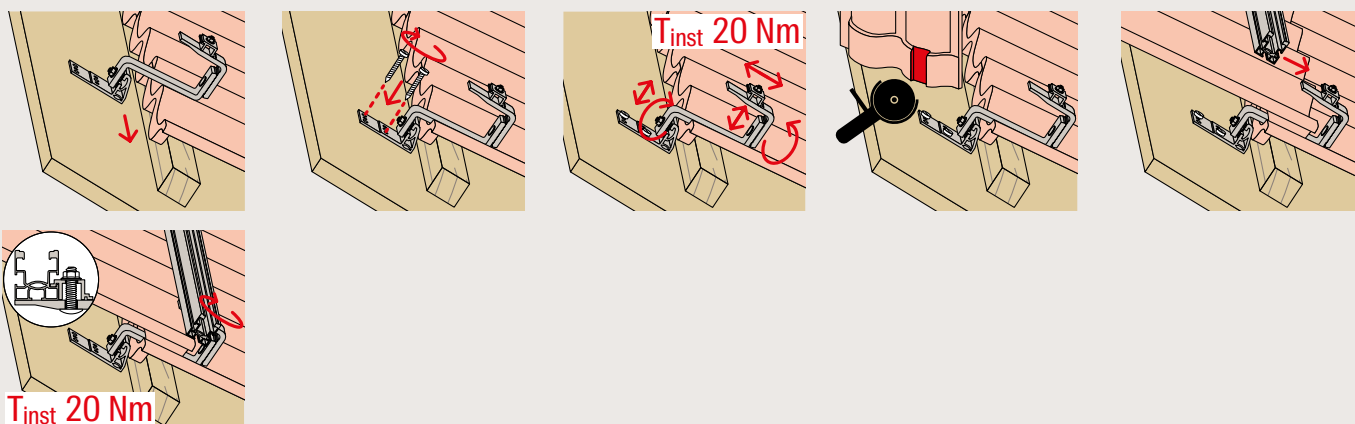
## Advantages

- RH H AL and RH V AL aluminium hooks are suitable for PV panels installation on pitched roofs with tiles and ventilation strips of variable thicknesses.
- 2 or 3 adjustments available: the lower vertical adjustment position allows to adapt the hook to different tile and ventilation strip thicknesses. The upper vertical adjustment position allows to adjust the distance of the rail from the top of the tile. The higher adjustment (available for RH H AL hooks versions) allows to horizontally align the rail.

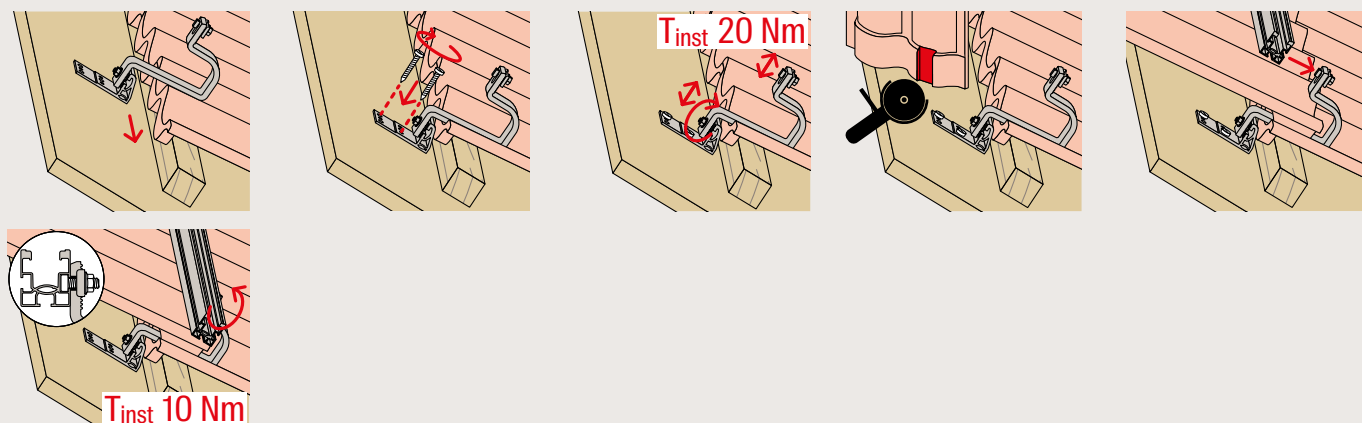
## Functioning

- Determine the centre distance of the hooks according to the snow and wind loads in the installation area (use SOLARPANEL-FIX software to design the system) and according to the load-bearing structure and system layout.
- Lift the tile and secure the base of the hook using the appropriate anchor determined according to the type and layers of the load-bearing support.
- Make the height and width adjustments required by the type of roofing and tighten the screws of the adjustments applying a 20Nm torque to lock the hook in position.
- Grind the upper tile to fit the hook shape and put it back in position.
- In case of RH H AL hooks versions, insert the upper joint on the side of the selected rail and adjust the rail position (the joint can be rotated by 180° to adapt to SolarLight or SolarFish rails). Fasten the nut applying a 20Nm torque.
- In case of RH V AL hooks versions, connect the Solar rail to the upper part of the hook by inserting the RHS 8X20 A2 hammer head screw on the side of the rail; turn the nut clockwise until the hammer head screw is locked in position; adjust the distance of the rail from the tiles according to the configuration needs. Fasten the nut applying a 10Nm torque.
- To allow landscape oriented PV panels layout when using RH V AL hooks versions, the additional LAB bracket is required.

### RH H AL

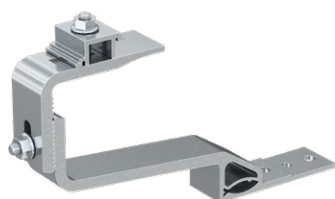


### RH V AL



# RH 30 H AL.

Fixed base, for continuous load-bearing structured roofs without ventilation.



RH 30 H AL



## Advantages

- RH H AL with fixed base is the aluminium hook for PV panels installation on pitched tile roofs without ventilation layer.
- 2 adjustments available: the vertical adjustment allows to record the distance of the rail from the top of the tile; the higher adjustment allows to horizontally align the rail.

## Functioning

- Determine the centre distance of the hooks according to the snow and wind loads in the installation area (use SOLARPANEL-FIX software to design the system) and according to the load-bearing structure and system layout.
- Lift the tile and secure the base of the hook using the appropriate anchor determined according to the type and layers of the load-bearing support.
- Make the height adjustment required by the type of roofing and tighten the screws of the adjustment applying a 20Nm torque to lock the hook in position.
- Grind the upper tile to fit the hook shape and put it back in position.
- Insert the upper joint on the side of the selected rail and adjust the rail position (the joint can be rotated by 180° to adapt to SolarLight or SolarFish rails).
- Fasten the connection joint nut applying a 20Nm torque.



# LAB AL.

## Bracket for landscape oriented PV panels.



LAB AL



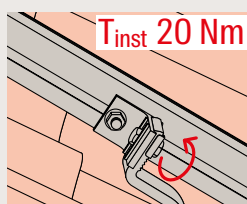
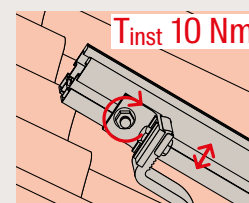
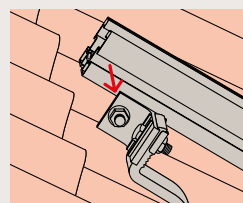
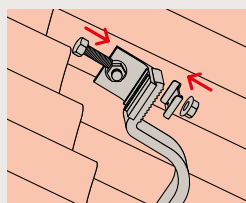
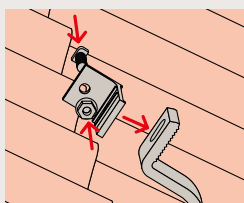
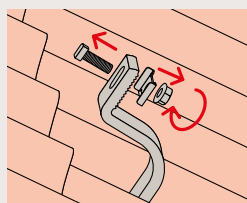
### Advantages

- Connection screw and nut are included in the package.
- The bracket design perfectly fits the hook shape and helps keeping the screw in position while fastening the nut.
- The landscape angle bracket LAB allows to customize the PV panels layout. By adding the bracket to the hook, it is possible to provide landscape orientated installation. Suitable for RH hooks with vertical connection to the rails (RH 40-52 V AL, RH 52-67 V AL, RH 40-52 VB AL, RH 52-67 VB AL).

### Functioning

- Remove the RHS 8X20 A2 hammer head screw, the hexagonal MU F nut and the anti-slip plate pre-mounted on the hook.
- Position the LAB bracket to the flat upper part of the hook and adjust the height according to the configuration needs.
- Fit the screw head between the LAB ribs, place the anti-slip plate and the MU F nut on the knurled side of the hook and tighten the nut.
- Connect the Solar rail to the hook through the RHS 8X20 A2 hammer head screw.
- Fasten the MU F nut applying a 10Nm torque.

### LAB AL



# Roof hooks nomenclature and assortment.

RH 40-52 HB AL

RH = fischer Roof Hook

RH 40-52 HB AL

B = large base

RH 40-52 HB AL

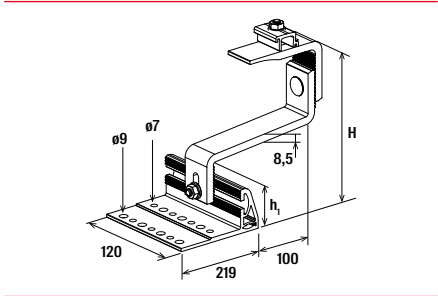
40-52 = available height ranges (h<sub>1</sub>)

RH 40-52 HB AL

AL = material (aluminium)

RH 40-52 HB AL

H = horizontal adjustment  
V = vertical adjustment



## Technical data RH HB AL

Aluminium hooks RH AL



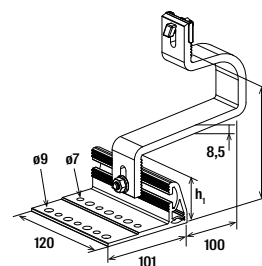
RH 40-52 HB AL



RH 52-67 HB AL

Item	Item no.	Weight	Thickness	Base plate width	Height under bracket	Total height	Depth	Width across nut	Installation torque	Sales unit
		[Kg]	[mm]	[mm]	h <sub>1</sub> [mm]	H <sup>1)</sup> [mm]	[mm]	SW [mm]	T <sub>inst</sub> [Nm]	[pcs]
RH 40-52 HB AL	571745	0.61	8.5	120	40 - 52	119.5 - 149.5	100	13	20	10
RH 52-67 HB AL	571747	0.62	8.5	120	52 - 67	131 - 164	100	13	20	10

1) Distance between roof and rail.



## Technical data RH VB AL

### Aluminium hooks RH AL



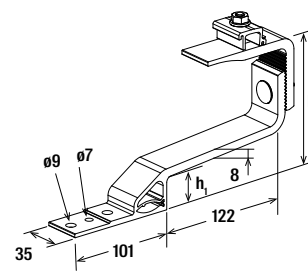
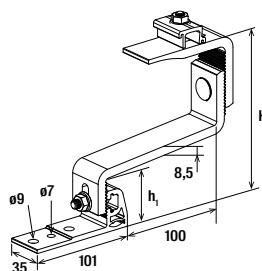
RH 40-52 VB AL



RH 52-67 VB AL

Item	Item no.	Weight [Kg]	Thickness [mm]	Base plate width [mm]	Height under bracket h <sub>1</sub> [mm]	Total height H <sup>1)</sup> [mm]	Depth [mm]	Width across nut SW [mm]	Installation torque T <sub>inst</sub> [Nm]	Sales unit [pcs]
RH 40-52 VB AL	571746	0.58	8.5	120	40 - 52	120 - 147	100	13	20	10
RH 52-67 VB AL	571748	0.60	8.5	120	52 - 67	132 - 162	100	13	20	10

1) Distance between roof and profile.



## Technical data RH H AL

### Aluminium hooks RH AL



RH 40-52 H AL



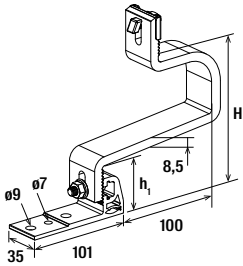
RH 52-67 H AL



RH 30 H AL

Item	Item no.	Weight [Kg]	Thickness [mm]	Base plate width [mm]	Height under bracket h <sub>1</sub> [mm]	Total height H <sup>1)</sup> [mm]	Depth [mm]	Width across nut SW [mm]	Installation torque T <sub>inst</sub> [Nm]	Sales unit [pcs]
RH 40-52 H AL	571742	0.42	8.5	35	40 - 52	119.5 - 149.5	100	13	20	10
RH 52-67 H AL	571744	0.43	8.5	35	52 - 67	131 - 164	100	13	20	10
RH 30 H AL	571749	0.33	8.0	35	30	106 - 124	122	13	20	10

1) Distance between roof and profile.



Technical data RH V AL

Aluminium hooks RH AL



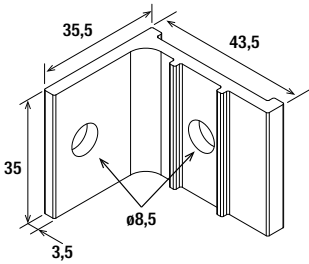
RH 40-52 V AL



RH 52-67 V AL

		Weight	Thickness	Base plate width	Height under bracket	Total height	Depth	Width across nut	Installation torque	Sales unit
	Item no.	[Kg]	[mm]	[mm]	h <sub>1</sub> [mm]	H <sup>1)</sup> [mm]	[mm]	SW [mm]	T <sub>inst</sub> [Nm]	[pcs]
Item										
RH 40-52 V AL	571741	0.40	8.5	35	40 - 52	120 - 147	100	13	20	10
RH 52-67 V AL	571743	0.40	8.5	35	52 - 67	132 - 162	100	13	20	10

1) Distance between roof and profile.



Technical data LAB AL

Bracket for landscape oriented PV panels LAB AL



LAB AL

		Weight	Width across nut	Installation torque	Sales unit
	Item no.	[Kg]	SW [mm]	T <sub>inst</sub> [Nm]	[pcs]
Item					
LAB AL	571788	0,026	13	10	20



# Complete your application for pitched roof with tiles.

## Rails

High-performance universal aluminium rails for photovoltaic installations.



### SolarLight

33 mm high aluminium rail for mounting systems for PV panels, particularly suitable for building structures on pitched roofs with supporting points close to each other.



### SolarFish

Aluminium rail for building structures for PV systems. The 44 mm high cross-section makes it particularly versatile for systems to be built on both flat and pitched roofs.



### CPN AL

Compatible with SolarLight, SolarFish and SolarMid rails, this joint allows to connect two rails making them work together.

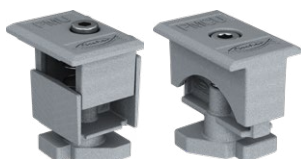


### PXC

Aluminium bracket that allows to connect two overlapping Solar rails with an angle of 90° to create a crossed subframe.

## Clamps

Universal and pre-assembled clamps in aluminium for PV modules of various thicknesses.



### PM U - PMC U

The universal clamps for PV panels from 30 to 50 mm thickness. PM U can be used both as central or end clamp. PMC U version is optimized for central use only.



### PM

Preassembled clamps for PV panels. Available for end (PM F) or central (PM C) positioning and in different variants depending on the thickness of the PV panel.



### M

Non assembled clamps available for end (M F) or central (M C) positioning and in different variants depending on the thickness of the PV panel.



### MG

Non assembled clamps for frameless glass PV panels (for end or central positioning). Available in different lengths and in two thickness variants.

Discover the whole Solar Systems range:  
[www.fischer-international.com/en/products/solar-systems](http://www.fischer-international.com/en/products/solar-systems)

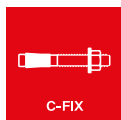




# FiXperience. Safe and reliable.

The fischer design Software FiXperience gives you safe and reliable support in dimensioning your projects whether you are a planner, structural engineer or craftsman. FiXperience is set up modularly

and useable for a variety of applications. The program includes an engineering software with special application modules:



## C-FIX

The anchor design program for steel and bonded anchor in concrete, as well as injection systems for masonry. Now with the new FEM design tool for the realistic design of anchorages.



## MORTAR-FIX

To determine the injection resin volume for bonded anchors in concrete and masonry.



## WOOD-FIX

For the calculation of on-rafter insulation systems and joints in structural timber engineering.



## RAIL-FIX

For the design of fixings for railings on reinforced concrete slabs and staircases.



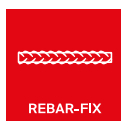
## INSTALL-FIX

For the design and dimensioning of MEP installation systems.



## FACADE-FIX

For the design of façade fixings with timber sub-structure.



## REBAR-FIX

For the design of post-installed rebars in reinforced concrete.



## CHANNEL-FIX

For the design of cast-in channels and inserts.

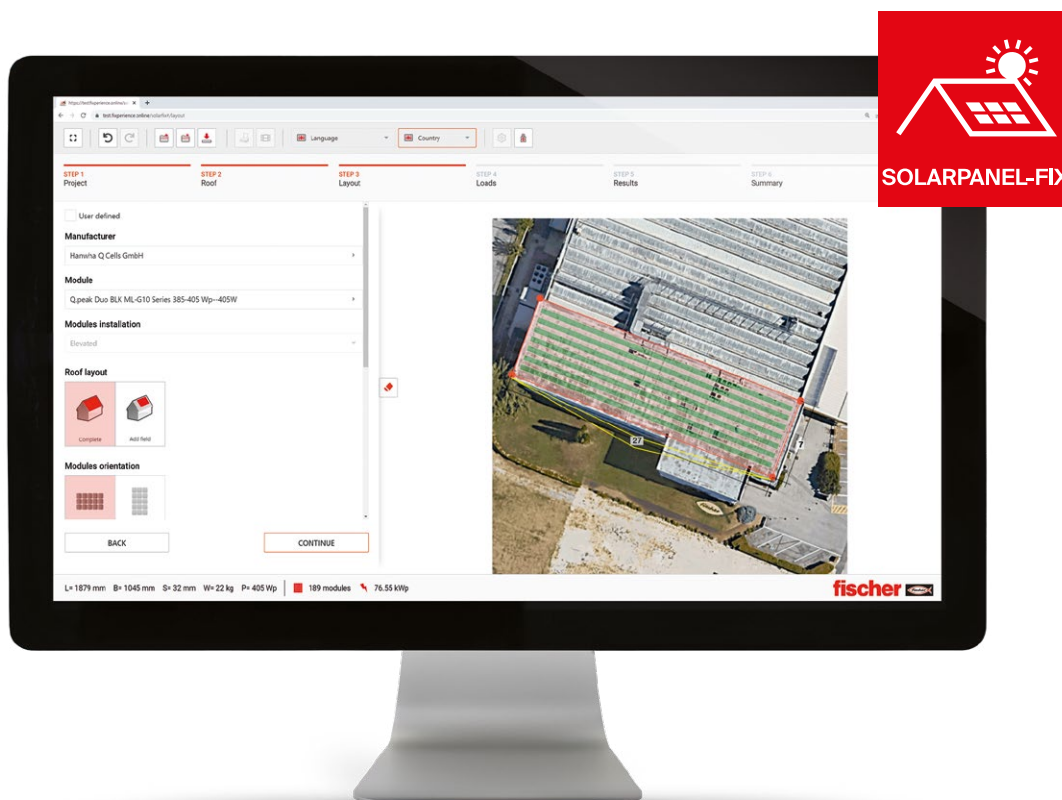


## SOLARPANEL-FIX

For the design and dimensioning of mounting systems for photovoltaic panels.

Register on the **myfischer portal** to use **FiXperience online** or **download FiXperience** for free.

# Design your solar system with fischer SOLARPANEL-FIX.



SOLARPANEL-FIX is the Online module of the FiXperience Suite for the design of photovoltaic panels installation systems: a tool with a simple and intuitive interface, designed to support designers, installers and dealers in the design of the photovoltaic support structure.

Planning with SOLARPANEL-FIX is simple and logical: after choosing the desired system and the roof covering, only 5 steps are

## Calculation of snow and wind action

Calculating the wind load and snow pressure on PV panels is crucial to ensure the safety and durability of the entire system.

SOLARPANEL-FIX allows you to calculate the action of snow and wind automatically through the geolocation of the construction site, according to the requirements of the European Standard EN 1991 (Eurocode 1).

required to determine the configuration of the modules on pitched or flat roofs.

SOLARPANEL-FIX allows you to calculate the action of snow and wind and to download the complete project documentation (bill of materials, installation plan and technical report).

## Technical documentation available

SOLARPANEL-FIX allows to download the complete technical documentation for your project:

- bill of materials to create the support structure in Excel format;
- installation plan of the photovoltaic system in PDF format;
- technical report in PDF format showing the structural calculation of the elements, according to the European Standards EN 1993 (Eurocode 3), EN 1999 (Eurocode 9) and fischer specifications.

Find out more information at  
<https://www.fischer-international.com>



Dealer:

[www.fischer-international.com](http://www.fischer-international.com)



**fischer stands for**

Fixing Systems  
Automotive  
fischertechnik  
Consulting  
Electronic Solutions

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