

# SOLVE MOUNT

## INSTALLATION INSTRUCTIONS

### Table of Contents

Table of Contents.....	1
Product Overview .....	1
Limitations .....	2
Safety .....	2
Essential Tools.....	3
Prohibited Tools.....	3
Consumibles .....	3
Items Included in each pack.....	4
SolVe Mount - Slate .....	4
Concrete tile kit.....	4
Items to be purchased separately .....	4
Installation Instructions .....	4
Survey.....	5
Drilling the holes .....	5
Mounting Installation.....	6

### Product Overview

The Solve range of IPX8 rated roof mounts are the ultimate, fast and reliable solution for installing roof mounted solar panels on residential and commercial properties of any pitch angle. Tiles or slates need not be removed, thanks to our patented expanding seal method, as the roof covering is penetrated and perfectly sealed without relying on site applied sealants or imposing downward force to achieve the seal.

Designed, manufactured to MCS and Eurocode 5, tested according to European regulations and standards to achieve CE and UKCA marking status, the SolVe range of roof mounts have been tested to IPX8 rating, submerged 1 meter underwater for 1 hour. The following instructions apply to our full range of roof mounts, for a quick and easy installation regardless of the kit purchased. This fast and effective method provides a stable platform to install a range of roof mounted items but is primarily designed for solar panel arrays and solar thermal collectors.

# SOLVE MOUNT

## INSTALLATION INSTRUCTIONS

### Limitations

These instructions are for the physical installation and mounting of the SolVe Roof Mount onto a roof of any pitch and in no way guarantee suitability of any given roof. It is the responsibility of the installer to ensure that the given roof structure and covering is suitable for a solar installation, and of sound nature.

The SolVe cap should be 3mm clear of the roof covering when tightened. The cap should not touch the roof covering.

The SolVe roof mount must only be installed on roofs with the following characteristics.

Standard Batten height: 25mm (spacers can be provided to suit larger battens)

Sarking: where no battens are overlaid on top – continue to use the 28mm diamond hole saw until you reach the rafter – creating space for the seal.

Material:

Slate- using standard parts all included in the kit.

Concrete or plain tiles- Please check that you have been free-issued the 26mm washers from your supplier (1 for each bolt) and additional EPDM and plain washers. A work instruction will be provided by your supplier for this method.

Condition: Good condition slates or tiles with timbers proven to be sound and free from rot

If the condition or suitability of a roof is unclear, a structural engineer should be consulted to confirm.



**Must NOT be used with snow fences or variant there-of; snow must be free to completely slide off the solar panels. This includes roof features such as valleys where snow may gather. In such cases, in accordance to MCS\_012 3.0, a structural survey should be conducted to determine suitability.**



**IMPORTANT: Snow zones 4 and 5 must have a mount centers no further than 600mm apart. Refer to the SolVe Installation Planner to calculate number of mounts needed.**

### Safety

This product must only be used by a competent MCS qualified installer.

It is the responsibility of the installer to ensure a safe working environment for themselves, those working around them and any member of public who may be nearby. Appropriate access must be provided and appropriate measures in place to ensure risks are as low as reasonably practicable.

Steps must be taken to check the roof does not contain hazardous substances such as asbestos and if in doubt, this product must not be used under any circumstance.

A Risk assessment should be undertaken for each project to help identify and mitigate hazards associated with the installation.

# SOLVE MOUNT

## INSTALLATION INSTRUCTIONS

### Essential Tools

Be sure to use the correct tool for each part of the job to achieve a quick and reliable installation. The following tools will be required:

- 28mm Diamond hole saw
- 7mm **brad-tip** wood drill bit
- SolVe Drill Guide (one per box included)
- 7mm hex socket for drill driver
- Battery drill driver with high speed function and NO Hammer action
- Tape measure
- Rafter finder
- Chalk marker or similar
- SolVe 17mm hand socket
- 2 x 15mm spanners
- 1 x 17mm spanner

### Prohibited Tools

The following tools must not be used for the installation of the SolVe mounts. Doing so may lead to damage of the seal or tiles and will invalidate the warranty

- Non-diamond hole saw
- Blunt hole saw
- Over / under sized hole saw.
- Hammer action drill- never use hammer action when drilling the tile or timber
- Impact driver on M10 thread (OK when installing bolt into rafter)

### Consumibles

- Metal Free Anti-seize grease such as Molykote 1000 or Loctite LB 8009
- Nylon High Visibility builders' line

# SOLVE MOUNT

## INSTALLATION INSTRUCTIONS

### Items Included in each pack

#### Solve Mount- Slate

- 1 x 25mm x 70mm silicone seal
- 1 x M10 x 200mm A4-80 hanger bolt
- 1 x 16mm long Stainless steel 316 collar
- 1 x Stainless steel 316 cap
- 2 x M10 A4-70 Stainless steel flange nuts
- 1 x M10 A4-70 Nyloc nut

#### Concrete tile kit

- All materials as per slate kit
- 1 x M10 x 2mm x 26mm diameter washer (free issued by HDM on request)

#### Items to be purchased separately

- M10 A2 stainless washers (for concrete tiles / thick roof coverings)
- M10 A2 stainless EPDM backed washers (for concrete tiles / thick roof coverings)
- Supporting plate & T Bolt for connecting to rails
- L feet/bracket for connecting to side mounted rails.

### Installation Instructions



**TOO COMPRESSED** – Bulging outside the cap



**JUST RIGHT** – The bulge is within the cap

# SOLVE MOUNT

## INSTALLATION INSTRUCTIONS

### Survey

A pre-installation survey should be undertaken by a trained professional to ensure the roof is of sound nature and suitable for the installation method:

- Timbers free from rot or wood boring insects
- Tiles and nails in good condition
- Tiles are of correct type for the mounting method
- Tile surfaces are clean and free from excessive dirt and organic growth such as moss and tree sap
- Timbers regularly spaced to provide sufficient number of roof mounts to accept the load of the given solar panels and rails
- Timbers are suitably sized to accept the load from the SolVe Mounts

### Drilling the holes



#### IMPORTANT:

Ensure the tiles or slates are not broken before installing a SolVe Mount.

Do not install the seal through the joint of concrete interlocking tile.

Before drilling any holes, check for unexpected items behind the roof covering such as electrical wires.

1. Calculate the required number of mounting points based on standard installation practices. The online SolVe Installation Planner can be used for this.
2. Using a rafter finder or alternative method, identify the rafter centres which require a SolVe Mount. Mounting zones are 0-70mm from the overlapping slate/tile above. This will ensure you avoid any battens. Watch our installation video for instructions.

Installation Tip: The thicker the roof covering the closer you should install to the tile above so that you have more bolt length above the tile for adjustment if needed.

The closer you install to the tile above – the lower the solar panels will be to the roof's surface.

3. The bolt position on the rafter has a maximum tolerance of 10 mm between the bolt centre and the edge of the rafter. Try to be as central as possible.
4. Using the 28mm hole saw, set the drill to the highest speed possible and do not use any kind of lubricant or coolant. Start cutting at a slight angle until an adequate groove has been cut into the tile and slowly bring the hole saw perpendicular to the surface. This minimises the risk of the hole saw running away over the tile. Do not push down on the hole saw and let it

# SOLVE MOUNT

## INSTALLATION INSTRUCTIONS

do the work, gently 'wobbling' slightly as you go. Be careful not to contact the roof membrane / felt as the hole saw passes through the underside of the tile or slate.

5. Clean away all dust and debris with a damp cloth.
6. Insert the SolVe drill guide into the 28mm hole and ensure it is firmly held concentrically and perpendicular to the rafter. Drill a 7mm Brad tip wood drill bit through the drill guide, remove the drill guide and re-drill to full depth, being careful to keep the drill perpendicular to the rafter.

## Mounting Installation

7. Before taking the mountings onto the roof, assemble the Solve Mounts on the ground.
  - a. Slide each seal fully onto the hanger bolt, stopping 50mm from the end of the coarse thread.
  - b. Slide a collar over the end of the seal from the coarse thread side, ensuring the seal is flush with the bottom edge of the collar.
  - c. Put the cap on top loosely with a nut. Ready to tighten the nut once in position. If using the All in One method: Tighten two flange nut against each other to lock them in place so that the seal and cap compresses against these nuts as the bolt is drilled into the rafter.
  - d. The seal must protrude 35mm above the roof covering so add the required number of washers below the seal to achieve this.
8. Using the 7mm hex socket and drill driver, install the M10 rafter stud into the rafter with the SolVe Mount preassembled ensuring it is concentric with the 28mm hole and perpendicular to the tile or slate surface. The rafter stud should be driven until the coarse thread is fully into the rafter, where a slight increase in resistance can be felt from the driver.
9. Push and twist the seal to ensure it is fully seated on the rafter.
10. Ensure the seal protrudes approximately **30-35 mm** above the roof covering. For thicker coverings (e.g., concrete tiles) or battens over 25 mm, you may stack washers under the hanger bolt to raise the seal to the correct height.



Always place an **EPDM washer** on the membrane, stack the m10 washers and finish with the supplied **M10 × 26 mm washer** on top to prevent the collar from slipping down.

11. Slide the seal cap over the m10 hanger bolt if not already done so.
12. Apply a small amount of metal free anti-seize grease to the hanger bolt thread
13. While holding the cap down, wind the M10 nut onto the top of the cap compressing the seal.
  - a. If using adjustable L-Brackets or if the roof is flat enough that adjustment is not required, an upturned flange nut can be used.

# SOLVE MOUNT

## INSTALLATION INSTRUCTIONS

- b. If adjustment is required on the hanger bolt thread, a Nyloc nut must be used before installing the upturned flange nut.
14. Tighten the nut until the seal expansion fills the cap.
- a. If you have too much seal above the roof covering, remove washers until the seal expansion is correct.
  - b. If you do not have enough seal to fill the cap – add a washer or twist to raise the height of the seal.

**IMPORTANT:** Remember the SolVe mount seals by expansion rather than compression so the seal does not need to be compressed onto the roof covering to form a seal. The seal **MUST NOT** expand any further than the cap.



**TOO COMPRESSED** – Bulging outside the cap



**JUST RIGHT** – The bulge is within the cap

15. The mount is now complete and a rail can be installed according to manufacturer's instructions.