FAQs

EJOT Solar i-clip Roof Fixing

1. Can I buy Solar i-clip parts individually?

YES: The Solar i-clip is sold either as a kit containing 10 arms, 10 plates and 20 spacers or as individual products that you can 'top up' should you need to. Boxes of arms plates, spacers and fixings can be ordered separately.

This is one of the main benefits of Solar i-clip: Any leftover products can be re used on the next installation, with the installer only needing to buy the products he really needs for that install.

2. What kind of roof is Solar i-clip designed for?

Solar i-clip is designed for any tiled type roof. The flexibility of the design allows it to be adapted to differing tile types and roof designs. Solar i-clip cannot be used on a commercial type corrugated roof of any construction. For these roof types please use the EJOT solar fastener.

3. How many Solar i-clips do I need per installation?

The array size, giving the square meter area of panels, dictates the quantity of Solar i-clips required for any installation. Other factors such as height of the building, height above sea level, whether it is exposed or in a costal location also determine quantity.

Wind loading calculations should be carried out on every design in accordance with BRE guidelines. According to MCS 3002, it is the responsibility of the installer to ensure that the structure of the building, its array frame and its mounting points will not fail during storm conditions. However, as a rule of thumb (including safety margin) 2 x Solar i-clips per square meter can be used on the majority of installations.

4. How do I know what length countersunk bolts I need?

The Solar i-clip fixing kit has a guide on the inside of the lid showing what length bolt should be used with a given number of spacers.

• 12mm = 0 spacers • 20mm = 1 spacer • 25mm = 2 spacers • 35mm = 3 spacers • 45mm = 4 spacers

It would be very unusual if more than 4 spacers were required, as a result it has not been tested in this condition. This does not mean that Solar i-clip would not work in this case as the principles are exactly the same, only that we cannot recommend it.

5. How do I know how many spacers I need?

The plate should be placed on the rafter and the arm placed in position over the tile below. The space between the plate and the underside of the arm can then been determined and the appropriate number of spacers offered up to fill the gap.

Once fixed in position, the underside of the arm should not be tight to the tile below. This would result in pressure being applied to the tile which may cause it to break.

Similarly, the arm should also not be raised too far above the tile as this will cause the upper tile once replaced to sit in a raised position. This will result in a gap between the upper and lower tiles on their overlap, increasing the risk of driving rain penetrating the roof covering.

6. Do I still have to put a noggin in-between the existing rafters?

NO: The design of the fastening hole spacing of the Solar i-clip plate, in combination with the specially designed EJOT Rafter-fix, results in the unique ability to mount the Solar i-clip directly onto rafters down to a width of 35mm whilst still complying with Euro codes. This eliminates the requirement to install a noggin between the rafters and thus saving time. It does not however eliminate the addition of further material due to structural requirements of the building.

7. Why do EJOT suggest using a self drilling fastener?

Wooden timbers should be pre drilled with a pilot hole prior to inserting any fastener to reduce the risk of the timber splitting. The EJOT self drilling fastener has a self drilling point to eliminate the need to pre drill, thus saving time.

8. The size of the fasteners you are suggesting to use with Solar i-clip are much narrower than we have been using before, how do I know they are strong enough?

EJOT have tested the pull out loads in combination with the Solar i-clip plate in laboratory conditions. The results showed that the combined pull out loads of two fasteners were far greater than the yield point of the Solar i-clip established during testing at the BRE. Therefore the weakest point of the Solar i-clip assembly is in-fact the arm, not the fastener. All calculations take into account the relevant safety factors associated with each component part.

9. What material is Solar i-clip made from?

The arm and plate is made from 306 stainless steel. The spacer is made from 6082T6 aluminium plate and all bolts and fasteners are made of A2 stainless steel.

10. How do you know Solar i-clip will be strong enough?

Extensive testing at the BRE in Watford provided the answer to this question; it's not a case of is it strong enough, but how many you will need for a given wind speed. Based on test results using the correct amount of Solar i-clips (see question 3), Solar i-clip suffered a permanent deflection of 5mm at a relative wind speed of 163mph, but still remained intact. To put this into perspective, 167mph is the highest wind speed every recorded in main land Europe during the great storm of 1987. Solar i-clip would in-fact resist much higher wind speeds, but would suffer from permanent deflection and require replacement.

Continued...

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11. How long will it last?

The warranty period for Solar i-clip is 25 years.

12. Where is Solar i-clip made?

It is made here in the UK, helping to support British manufacturing and reducing its carbon foot print as much as possible.

13. If it's a new product, how do you know it works outside of a test environment?

Solar i-clip was actually conceived as an idea about 3 years ago by a long standing UK solar PV Company who understood the problems associated with installing solar PV on the Great British roof. Over the past 3 years, Solar i-clip has been developed and refined over many installations and roof types including a 10th century grade 1 listed church. 1000's of Solar i-clips have been installed to date, proving that Solar i-clip really works in the field. EJOT has helped combine Solar i-clip with its own Rafter-fixing, making Solar i-clip an even stronger marketable product. AppliTEC worked alongside the OEM to arrive at a tried and tested modification that had 'worst case scenario' engineered into the product.

14. What is the maximum load each Solar i-clip can take?

It has been test at the BRE. The results were that each Solar i-clip withstand a load of 903N before permanent deformation occurs.

15. Can I use it near the coast where salt in the air can corrode metal

YES: All Solar i-clip products are made from high quality stainless steel and aluminium and all the bolts and fasteners are A2 grade. This is a minimum requirement in coastal locations set out in MCS 3002.

16. How do I calculate wind loading?

Calculating wind loading is a complex set of equations based on standardised factors. BRE digest 485 outlines how wind loads should be calculated for all solar PV systems in the UK.

17. Can I use someone else's mounting system with Solar i-clip and if so, does it affect the warranty?

YES: Solar i-clip is designed to be a very flexible mounting bracket and can be used with almost any other mounting system. Whichever rail system is used in combination with Solar i-clip, it is ultimately the installer's responsibility to ensure the correct installation method is followed and the correct materials are selected for each installation. All MCS registered companies have to provide an insurance backed warranty to the end user for their design and installation in any case.

18. I have heard of MCS012, but what is it?

MCS 012 is a new set of regulations soon to be introduced. It will require all mounting systems to be tested and become accredited through the MCS, just like all solar modules must be at present. Without the use of an accredited system, the customer will not be able to claim a FIT. Solar i-clip has already been tested as part of this new standard.

19. Can I use it with any tile?

YES: Solar i-clip can be used with almost any tile type. It has been tested on many profiled concrete tiles, plus slate (both natural and manufactured) and many clay tile types.

Due to the vast range and design of tiles on the market today, Solar i-clip has not been tested with every single tile design and there may be the rare possibility that with a few designs, Solar i-clip is not suitable. If this is the case, the tile design needs to be identified and further work would need to be carried out to establish if a solution exists.

20. Solar i-clip looks a little over-engineered, is that necessary?

The product has been developed to the very highest of standards whilst meeting the challenge of narrower gauge roof structures found here in the UK compared to those found in main land Europe. In addition the UK's weather is mainly driven by the oceans surrounding us which can result in the possibility of higher storm force winds compared to main land Europe. Solar i-clip is not really over engineered, but is strong enough to withstand the predicted loads likely to occur within its life time.

The question should really be: Are many brackets on the market under-engineered?

21. What is the Euro code and what does it mean?

Eurocodes are a set of harmonized technical rules developed by the European Committee for Standardisation for the structural design of construction works in the European Union.

The purposes of the Eurocodes are

- **a means to prove compliance with the requirements for mechanical strength and stability and safety in case of fire established by European Union law**
- **a basis for construction and engineering contract specifications.**
- **a framework for creating harmonized technical specifications for building products (CE mark).**

By March 2010 the Eurocodes are mandatory for European public works and the de-facto standard for the private sector. The Eurocodes therefore replace the existing national building codes published by national standard bodies (e.g. BS 5950), although many countries had a period of co-existence. Additionally, each country is expected to issue a National Annex to the Eurocodes which will need referencing for a particular country (e.g. The UK National Annex).

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