

## FREQUENTLY ASKED QUESTIONS

**What is the output per Solar Slate?** 6.5Wp

**What are the optimum conditions for the laying of Solar Slates?**

For maximum generation we would recommend a south facing roof at an approximately 30° pitch. We provide quotations based on individual property orientation & inclination.

**At what pitch can Solar Slates can be laid?**

The lowest recommended pitch is 27.5°. The maximum pitch is 45° and above this, the cells start to become overlapped.

**What is the current delivery timeframe** – 8-12 weeks from receipt of signed order.

**Is Solar Slate available in other colours?**

No, Solar Slate is available in one colour and because of the constituent parts combined in its manufacture, will not be available in red, black or any other colour.

**What is the best colour match for Solar Slate?**

We provide samples for customers to colour match for their slate order.

**Penrhyn Heather Blue, Ffestiniog Blue Grey and Cwt-y-Bugail Dark Blue Grey** are all deemed to be good matches with Solar Slate but we recommend looking at a variety of blue-grey slates to ensure you (and your planning officer) is happy with the match. Some shades of **Delabole** slate are also a close match as in **Glendine**.

In some instances it can also be advisable to use reclaimed slates which have already weathered and we are currently testing additional slates types to ensure that we have even more flexibility to offer our customers.

**What size are the Solar Slates?**

The Traditional Solar Slate is 500mm x 254mm, weighs 1.8Kg. Also known as 'countess size'.  
The Traditional Solar Slate is 19.68inches x 10.00inches & weighs 3.97lbs

**What is the active area in each Solar Slate?**

The active area in each slate is approx 170mm x 250mm

**What are Solar Slates made from?**

Solar slates contain no slate whatsoever but are manufactured using aluminium back plates, high quality solar cells and shot blasted glass front plates (amongst other things).

**How are Solar Slates installed?**

The slates are fitted by a traditional roofing contractor and an MCS accredited electrician. The MCS accreditation is required in order to qualify for the Feed In Tariff (FIT). You can find one that works in your area via this link:

<http://www.microgenerationcertification.org/mcs-consumer/installer-search.php>

### **What does an installer need to provide to complete and installation?**

- AC isolaters
- Distribution Board and Individual MCB Circuit Breakers
- Generation Meter
- AC Isolator Disconnection Switch
- Consumer Distribution Board and Circuit Breakers
- Spare Cabling
- Scaffolding
- Labour

### **How many Slates do you need around the edge of the array?**

The slates require finishing to the edges, ridge and eaves with between 1.5 and 2 courses of natural slate. Each slate is a sealed, waterproof unit and therefore cannot be cut.

### **Can Solar Slates be used with different slate sizes?**

No, due to baton spacing differences.

### **What is the recommended batten pitch for installation?**

The batten pitch is 200mm – 205mm.

### **What do the slates weigh per m<sup>2</sup>?**

20 slates are fitted per m<sup>2</sup> equalling a weight of 36kg. This weight is similar to that of natural slate.

### **How do you replace a faulty slate?**

Slates are replaced in a similar fashion to a broken roof slate. They are however tested up to 25 years longevity so this should not be a major concern.

### **What maintenance do Solar Slate installations need?**

Solar Slates, like other solar panels, need to be kept clear of obstructions as leaves and other debris can lower output. A simple water clean (power hose or other) should remove any debris from the glass front plate. An annual inspection to prove whether cleaning is necessary would be advised.

### **Are Solar Slates MCS approved?**

We are approved for feed in tariff as an MCS recognised & accredited product number:**BABT8504**

### **How does one claim the Feed in Tarrif (FIT)**

Please see the link below for advice on claiming the FIT from your energy supplier.

<http://www.energysavingtrust.org.uk/Generate-your-own-energy/Solar-panels-PV>

### **4kWp system**

The closest I can get to a 4kWp output that scales into our inverters/marshalling boxes is 594 slates at 3,861Wp.

### **The average household energy consumption.**

The average annual consumption for a UK household is 3,300kWh (from Energy Saving Trust).

### **What BRE & TUV Product accreditation does Solar Slate have:**

Design Qualification and Type Approval Testing to TUV CEI EN 61215 (2006) equivalent to IEC61215 (2005)

Flammability combined testing and classification to BS476-3:2004 and ENV1187:2002-Test 4, including EN13501-5-Test 4 Classification - **Passed level EXT.S.AA**

Weather Resistance Test MCS012 (prEN15601 Test method)

Resistance to Wind Uplift Test MCS012 ( EN14437 Test method)

### **Where are Solar Slates accredited?**

We are accredited in the UK but have passed TUV accreditation which is a comprehensive European product test. You will need to check your local national accreditation requirements.

### **What performance data do we use**

The performance quoted on our data sheet is based upon the Government's standard assessment procedure for energy rating of buildings (SAP) and is given as guidance only. It should not be considered as a guarantee of performance.

### **What generation data have you used?**

Figures have been quoted based on an optimum south facing roof at a 30° pitch, using SAP calculation methods.

### **PV cells & efficiency**

Our PV cells are mono-crystalline, back connected. The cell efficiency is 22.4%.

### **What is module efficiency?**

Module efficiency is 15%.

### **Do Solar Slate have overheating issues?**

Each Solar Slate is aluminium backed which means that there are not the same overheating issues. This is because each the aluminium helps conduct the heat away from the front of the cells where overheating would become an issue. The hotter the system gets, the greater the resistance in the circuit and the lower the efficiency of the panel. 'Normal' in-roof PV systems use plastic Tedlar backsheets on their panels and these do not allow the heat to dissipate as well as the aluminium.

In addition Solar Slate has more direct airflow behind the Solar Slates which also helps in keeping the system cool.

### **Invertors & Marshalling boxes**

The marshalling boxes are sourced from QRS and are MC4 connector marshalling boxes.

We use Dormmuller inverters, model number: DMI 450/35 or 250/35. We are accredited for multiple strings of up to 50V.

Dorfmüllers start 'working' at 35V and are the only inverters on the market to do so. Please note, this is only a maximum stringing voltage accreditation and does not affect the output of the array in any way but does increase the amount of strings & inverters.

### **Size of invertors & marshalling boxes**

Here are the dimensions of each unit:

DMI 450/35 inverter (90 slates): 160(w)x380(h)x75(d) DMI 250/35 inverter(54 slates): 160(w)x320(h)x66(d)

10 way marshalling box(90 slates): 350(w)x250(h)x150(d)

6 way marshalling box(54 slates): 280(w)x214(h)x130(d)

The max input power for the 2 inverter sizes are:

250 inverter - 320 watts

450 inverter - 500 watts

These are the specified maximums and although we put more current through, it has been cleared with the manufacturers of the Dorfmueller.

### **What happens in an electrical storm?**

Solar Slates are less likely to be struck by lightning than shiny PV panels because they are in-roof and feature no visible shiny metals to attract a strike. In the event that your property is struck by lightning, damage could be done to the Solar Slate array but it will not affect your mains. You can fit anti-surge into your system from £60 per marshalling box in the system. This is not yet legislation in the UK but it is in several other geographical areas (Germany for example) and our system is already designed with this addition in mind.

### **Who supplies the additional kit?**

Additional kit for the installation including 4mm cabling, MC4 connectors and isolators can be purchased from RS Components or Schuco

### **Why is there a price difference between panels and Solar Slates?**

The difference is in the 'quality' of the finished, installed product.

Firstly, Solar Slate is a bespoke, tailor made solution which delivers a seamless and secret Solar Panel roof. We have designed the Solar Slate to fit into the roof face of heritage buildings, conservation properties and projects where aesthetics are as every bit as important as output.

They use many more materials in their production including the most efficient solar cells on the market, giving a higher output than most solar panels (particularly within the budget you mention) on the market. In addition, they are engineered to also function as a roof slate – often £4-5 each on a heritage property.

Shiny panels do not fulfil the strict aesthetic requirements of the above property types and are cheaply mass produced in the far east giving where prices are exceptionally competitive.