CRESTABOND®

Primerless MMA Structural Adhesives

20 year adhesive guarantee*

Solar PV installation guide

Bonding aluminium rails and brackets using Crestabond adhesive.

SCOTT BADER

Making a positive difference

SCOTT BADER

*Making a **positive** difference*

Scott Bader is a global adhesives expert with over 40 years experience in designing and manufacturing high quality structural adhesives.

***20 year adhesive guarantee**

Scott Bader warrants that the Crestabond, when used in accordance with Scott Bader's installation instructions and normal standards of good workmanship, will meet the properties as defined in the relevant technical datasheet, Certificate of Conformity and Certificate of Analysis provided with the Crestabond product(s) for not less than twenty years from the date of purchase. This is a guarantee between Scott Bader and the installer. It is a guarantee of materials only, not a guarantee of the installer's workmanship.

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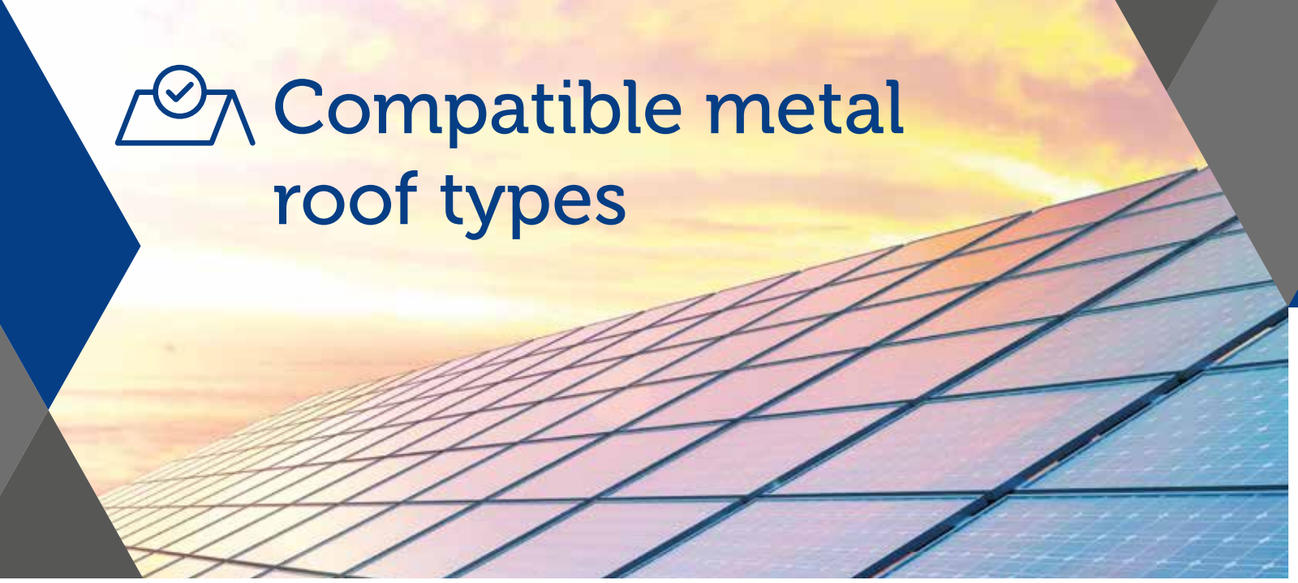
Compatible metal roof types



Crestabond is an impressive structural adhesive, specifically designed for demanding applications on commercial and residential metal roofs - trapezoidal or standing seam. It is the perfect solution for bonding aluminium rails and brackets when installing traditional glass faced solar PV panels.

Crestabond is compatible with the following metal roof types:

Roof coating	Compatible
Steel	✓
Aluminium	✓
Galvanised steel	✓
Copper	✓
Zinc	✓
Stainless steel	✓
Lead	✓
PVC Plastisol coated	✓
Polyester powder or spray coated	✓

Advice:

All information is given in good faith but without warranty and is intended for guidance only. It is recommended that tests are conducted by the customer to validate the suitability and performance of Crestabond adhesive for the intended application. We cannot accept responsibility or liability for any damage, loss or patent infringements resulting from the use of this information.

Equipment

Achieving the best results and working safely relies on using the right equipment. Here's what you'll need:

Adhesive dispense guns

Manual dispense gun

Pneumatic dispense gun

Battery powered dispense gun

Mix heads

Screw on mixer

Lock ring mixer

Elcometer 106 (Scale 3) coating tester

Infrared thermometer

Battery powered screwdriver

Getting ready

Roof inspection and surface preparation

Step 1 Clean the roof using warm soapy water. For areas with a lot of dirt contamination use a jet washer.

Step 2 Visually inspect the roof to assess the quality of the roof coating. If there are signs of the coating flaking, blistering, or delaminating grind off the coating, using a flapper disc or non-woven preparation wheel, in areas where the aluminium rails or brackets will be bonded (see Figure 1).

Testing the coating on metal roofs

If your roof is over a year old, we recommended testing the roof as detailed below, to check the adhesion of the coating to the steel roof. A quantitative measure of the quality of the roof coating can be obtained by using your Elcometer 106 Adhesion Tester, as follows:

Test procedure

Step 1 Clean application area where the aluminium dolly will be bonded, with a dry rag wipe or solvent wipe (IPA).

Step 2 Bond the aluminium dolly to the coated steel using Crestabond adhesive. Mix and apply according to the Scott Bader 400ml cartridge user guide.

Step 3 Allow the Crestabond adhesive to cure as per the table:

Roof temperature °C	Cure time (hours)
5°C to 15°C	2
15°C to 25°C	1.5
>25°C	1

Step 4 Conduct the test according to the Elcometer user guide. Dolly pull off value should be a minimum of 5MPa.

Step 5 Test in random places on the coated steel roof to assess the quality of the coating prior to bonding the rails or brackets.

Step 6 If the pull off values are greater than 5MPa proceed to the next section called Installation, titled 'Bonding the aluminium rails or brackets to the roof'.

Step 7 If the dolly pull off values are lower than 5MPa the coating should be removed back to the bare metal, using a grinder, in the areas where the brackets will be bonded to the roof (see Figure 1).

Tip

We recommend you perform the tests in areas where aluminium rails will be bonded to avoid the need to repair the roof after.

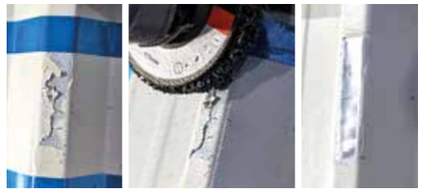


Figure 1
Grind/clean area for bonding.

Bonding rails to roof

Bonding the aluminium rails or brackets to the roof

Step 1 Place the rail or bracket on the metal roof and mark area where it needs to be bonded (see Figure 2). Please note the aluminium rails should be clean, free from contamination and not have an EPDM/rubber layer on the underside. Aluminium rail to be bonded directly to the roof.

Step 2 Depending on the dolly pull off test results either clean the bond area with an IPA wipe (high pull off result) or grind the application area (low pull off result) to remove the coating and then clean with an IPA wipe (see Figure 3).

Step 3 Remove any caps and plugs from the adhesive cartridge and insert into the dispensing gun.

Step 4 Dispense a small amount of material to level the plungers and remove any air from the cartridge (see Figure 4). This process of levelling plungers must be performed on each new cartridge used.

Step 5 Attach static mix tip to cartridge (see Figure 5).

Step 6 Dispense enough adhesive on scrap material to ensure proper mix ratio and removal of air. Consistent colour of the adhesive bead indicates correct mixing. Again, this procedure must be repeated whenever a new mix head is attached to a cartridge.

Figure 2
Mark application (bond line) area on the metal roof.

Figure 3
Grind/clean area for bonding.

Figure 4
Dispense material to level plungers.

Applying adhesive to roof

Step 1 Crestabond can be applied onto a roof with a surface temperature between 5°C and 30°C. Below this temperature range it is possible that there is condensation on the roof surface which will prevent good adhesion. Above this temperature range the adhesive may cure too quickly and not allow enough time for the parts to be joined together successfully. We strongly recommend that the surface temperature is measured at several points throughout the install day, using a handheld IR thermometer, to ensure that this condition is satisfied.

Tip

It is recommended to use Crestabond M7-05 in the winter months where the ambient roof temperature is 5°C to 20°C and Crestabond M7-15 when the temperature is approaching 20°C to 30°C. During these hotter months it may be advisable to bond earlier or later in the day when it's cooler.

Step 2 Apply Crestabond to one substrate, either the aluminium rail or bracket, or the marked bond area on the roof (see Figure 6).

Step 3 Place bracket on application area of roof (see Figure 7).

Step 4 Apply pressure to squeeze out excess adhesive.

Step 5 Handling strength of Crestabond adhesive develops within 15 to 20 minutes* at an ambient temperature of 18°C – 25°C. Solar panels can be installed after the fixture time of 20 minutes at an ambient temperature of 18°C – 25°C. Please refer to the Crestabond technical datasheet for the relevant working times and fixture times.

Tip

Typically, every 10°C increase in ambient roof temperature will halve the working time and fixture time based on the values stated in the relevant technical datasheet.

Figure 5
Attaching the mix head.

Figure 6
Apply adhesive to bond area.

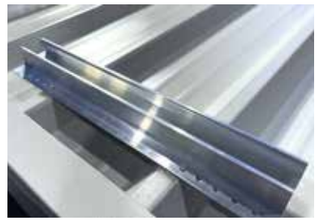


Figure 7
Place aluminium rail on roof.

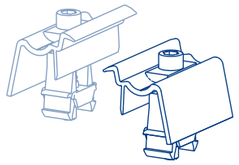
*Fixture time defined using an ISO 4587 lap shear sample, 0.26mm bond line thickness with 23°C (73°F) ambient temperature achieving >1.4MPa.

Installing solar PV panels

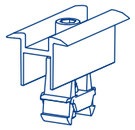
Equipment based on K2 MiniRail MK2 system

2004211
MiniRail MK2 Set

2002514/2002589
OneEnd
30 - 42 mm
silver/black



2003071/2003072
OneMid
30 - 42 mm
silver/black



Step 1 Using K2 Universal End clamp install the first solar PV panel (see Figure 1).

Step 2 Continue installation using the K2 Universal Mid Clamp One on the aluminium rails (see Figure 2).

Step 3 Install end clamp once final solar PV panel is in place (see Figure 3).

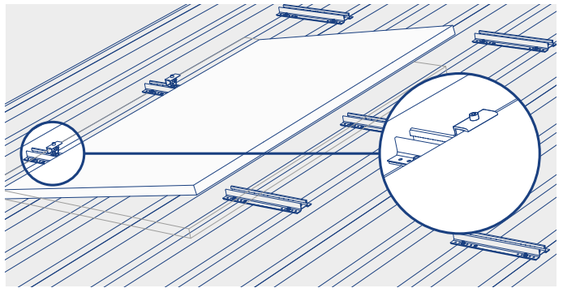


Figure 1
End clamp and installation of first solar PV panel.

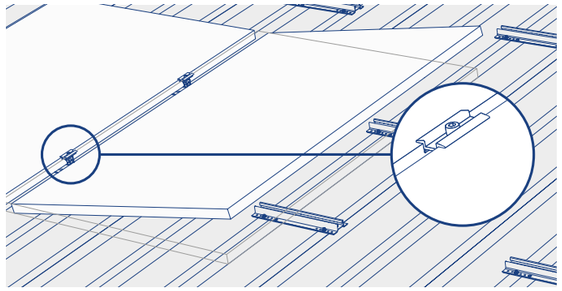


Figure 2
Mid clamp to continue panel installation.

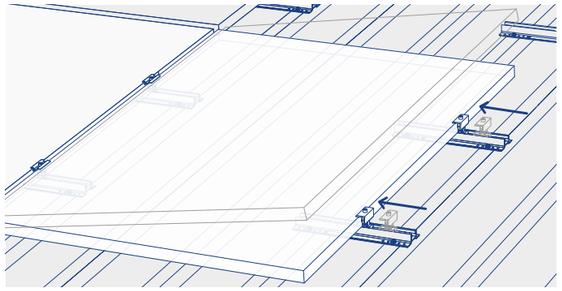


Figure 3
End clamp installation after final solar PV panel is in place.

Figure 4
Installing the Mid clamp.

Figure 5
Installed glass faced solar PV panels showing end clamp installation.

Crestabond storage

Crestabond adhesives should be stored and transported below 23°C where possible, prolonged storage above these temperatures could lead to a loss of reactivity and eventual pre-gelling of the material in the cartridge. Storing short term for a few days at 30°C is acceptable, to allow material to be transported to the installation site, however, it should be avoided as much as possible.

Tip

Storing the Crestabond cartridges in a fridge at 5°C will maximise the shelf life of the adhesive.

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We invest in people Gold

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