



Rely on it.

RENOLIT ALKORSOLAR

A bright idea for your solar investment



EXCELLENCE
IN ROOFING





The RENOLIT ALKORSOLAR system

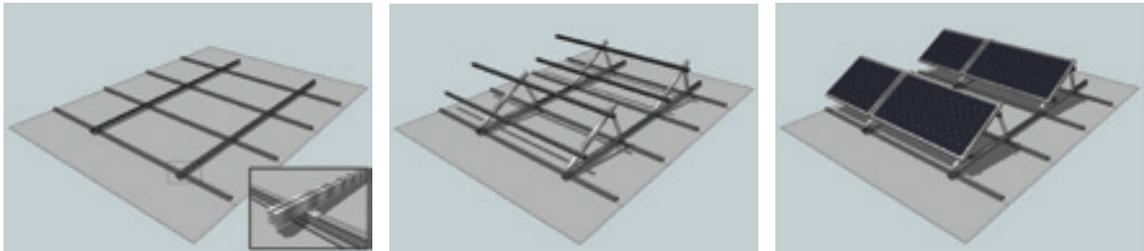
The ultra light RENOLIT ALKORSOLAR fixing system makes it possible to attach solar panels onto the roof without the need of extra ballast or perforation of the roofing membrane. The development of the system has taken into account the abilities of PVC roofing membranes to have

compatible elements welded directly to them. The method will allow a variety of different solar panels to be installed quickly and cost effectively.

RENOLIT ALKORSOLAR as a base for crystalline photovoltaic panels

The installation of photovoltaic elements onto a roof, will in 90% of cases be in the form of crystalline panels. These panels have the highest power output which makes them profitable even for smaller roof surfaces. The RENOLIT ALKORSOLAR system functions here as a base for the attachment of an aluminium sub-structure. The aluminium

framework provides the most efficient angle relative to the sun for the PV-panel. Apart from the weight of the aluminium construction and the solar panels, it is important to take into account as well the wind and snow load on the solar construction. A stability study must be performed.



RENOLIT ALKORSOLAR FOR FIXING CRYSTALLINE SOLAR PANELS

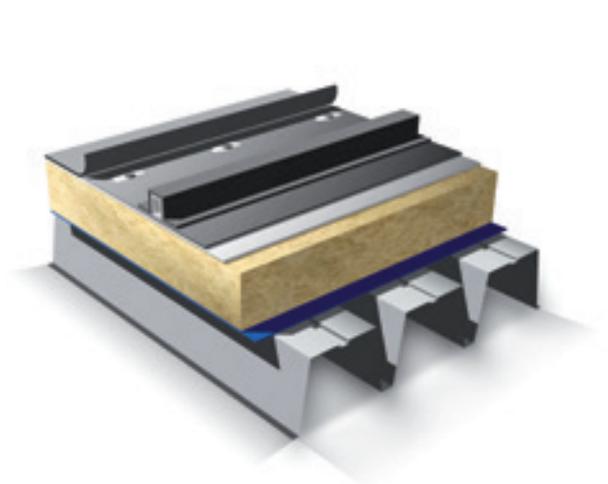
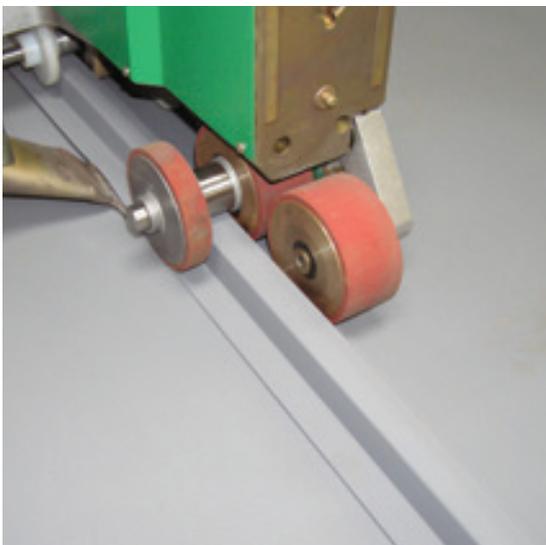
High rated power (Watt/sqm)

Extra weight < 15kg/sqm

Free choice of solar panels

High output when sunny and south orientation

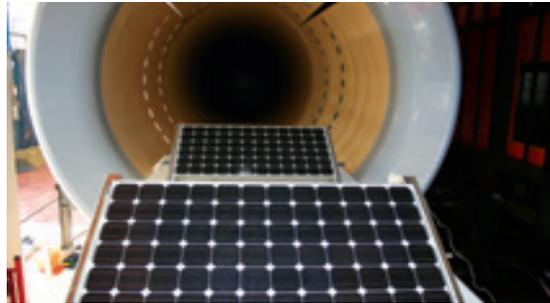
Maintenance, preparation and replacement of solar cells is easy, and the roof remains waterproof and unaffected



The RENOLIT ALKORSOLAR system

RENOLIT ALKORSOLAR tested up to 200 KM/HR

The development of the RENOLIT ALKORSOLAR fixing system was tested in a variety of conditions including wind tunnels. To fully understand the conditions that would be experienced on any given roof, a series of laminar windtunnel tests with wind speeds up to 200 KM/HR were carried out. The RENOLIT ALKORSOLAR system passed the laboratory tests without failure. Test reports are available upon request.



Picture 1: Wind-tunnel test VKI

The advantages of the RENOLIT ALKORSOLAR system

- Lightweight: depending on the choice of the solar panels and the aluminium construction, minimal extra weight.
- No penetration of the roofing membrane
- Fast, simple and safe installation.
- Maintenance and repair of solar panels made simple.
- Crystalline solar panels can be fastened directly onto the RENOLIT ALKORSOLAR system.
- The RENOLIT ALKORSOLAR system can be used on existing or new PVC-P roofing membranes. (Please check with the technical department of RENOLIT to confirm if the existing roof satisfies the criteria for installing the RENOLIT ALKORSOLAR system)

THE PARTS OF THE RENOLIT ALKORSOLAR SYSTEM

RENOLIT ALKORSOLAR profile:
RENOLIT ALKORPLAN₈₁₆₀₀

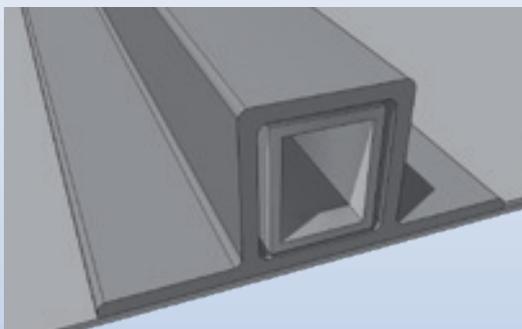
Length: 3 meter
Base of the profile: 80 mm
Thickness of the PVC: 3 mm
Height: 33 mm
Width: 30 mm

Aluminum insert
RENOLIT ALKORPLUS₈₁₆₀₁

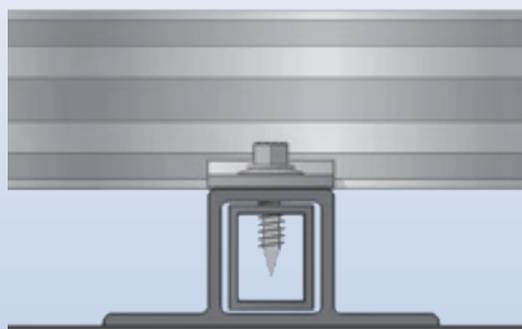
Length: 3 meter
Thickness: 2 mm
Height: 25 mm
Width: 20 mm
Aluminum quality: EN6060 T6-
AlMgSi 0,5 F22

Self tapping stainless steel/innox
screw with a seal ring
RENOLIT ALKORPLUS₈₁₆₀₂

Diameter: 6 mm
Length: 25 mm
Stainless steel: A2
SW8



To guarantee the soundness of the system only components bought at RENOLIT can be used in the RENOLIT ALKORSOLAR system.



When using the RENOLIT ALKORSOLAR system for attaching crystalline solar panels, the use of the RENOLIT ALKORBRIGHT membrane will improve the efficiency and power output of the solar panels due to the RENOLIT ALKORBRIGHT's greater reflection of sunlight resulting in lower roof surface temperatures.

Installing a RENOLIT ALKORSOLAR roof

Supporting structure of the solar roof

The advantage of the RENOLIT ALKORSOLAR system is the light weight. However, before a decision to install solar elements onto a roof is taken, it is advisable to check the supporting structure of the roof. Not every roof construction is designed to accept additional superimposed loads. The extra construction causes different wind and snow loads. A stability study is necessary to check whether this roof construction can withstand this load.

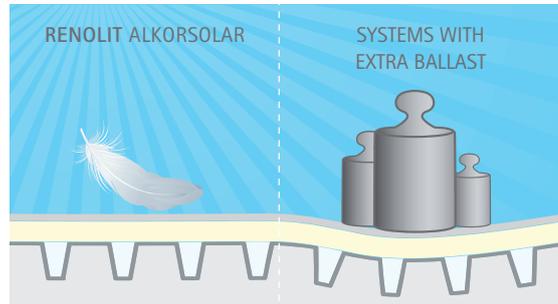


Figure 1: The use of the RENOLIT ALKORSOLAR system means a minimum extra weight.

Installing solar panels

By means of a wind load calculation the central area, the perimeter and the corner areas are determined and the fastening system can be adapted for each area. Apart from the location and the height of the building, also the roof and facade construction are determining. Please contact the technical department for more information regarding your specific solar project. Depending on the orientation of the roof it will be necessary to take into account the shade created by air handling-installations, roof light kerbs and surrounding buildings.

In case amorphous solar cells on a backing are used no shade is present and the complete center area on the roof can be used.

To allow access for maintenance, a free area around air conditioning installations etc. should be maintained.

To have the optimal power output, the crystalline panels should be placed in a southerly facing direction with an optimal angle. Depending on the orientation, slope and size of the panels, a minimum distance between the panels must be maintained (distance between the solar panels = 3 times the height of the panel).

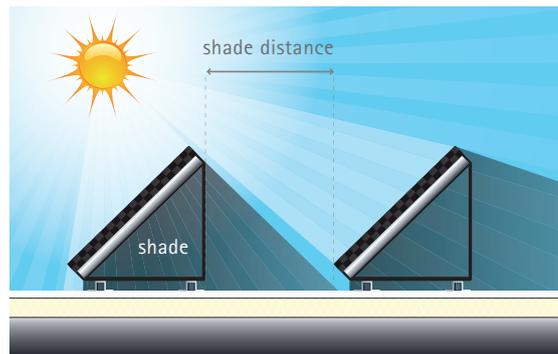


Figure 2: A minimum distance between the solar panels has to be respected.

The installed power production capacity of a solar roof installation.

To give an indication as to the calculation for solar roofs please refer to the example from figure 3. On this roof 120 panels are placed with a rated power of 150 Watts.

The installed power is calculated as:

120 panels x 150 Watts = 18 KiloWatts (18,000 Watts)
 The Solar generation industry refers to this as: 18 Peak KiloWatts. (Peak means tested under international test conditions*)

*(STC, 'Standard Test Conditions'): (1000 Watts/sqm, light spectre AM 1.5 and 25° cell temperature)

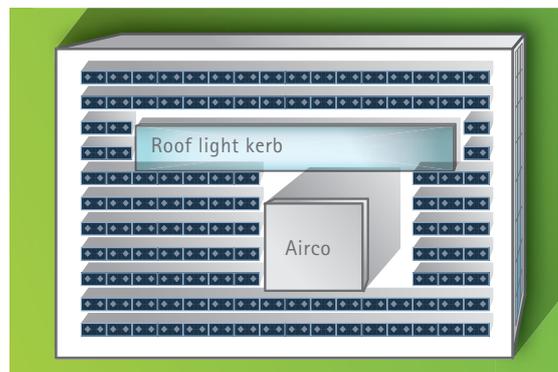


Figure 3: Example of a solar roof taking into account shades.

Installing a RENOLIT ALKORSOLAR roof

Anticipated power output on an annual basis

The installed panels will only produce energy when there is direct or diffused sunlight. There will be varying amounts of sunlight depending on the region and country.

For the UK and Ireland the average is 825 kWh (kilowatt hour). Over the last 10 years an average of 825 hours at a radiation level of 1000 Watt/sqm was recorded.

Assuming that the solar panels are installed with the optimal orientation and angle, the expected power output can be calculated as:

Installed panels x number of hours of sun at 1000 w/sqm

For example:

18 kWp X 825 = 14850 kWp for standard test conditions. With this amount of energy it would be possible to illuminate 297 lamps of 50 Watts for 1000 hours.

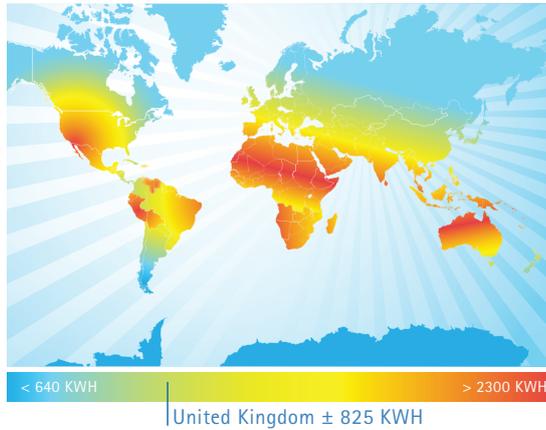
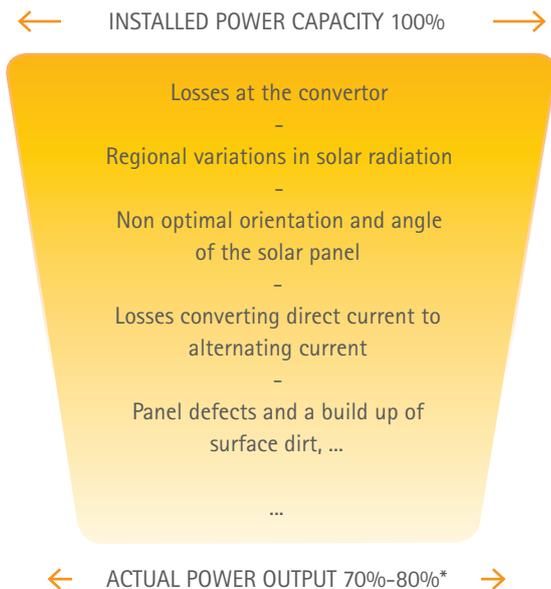


Figure 4

Installed power capacity ≠ actual power output

The installed power capacity can differ considerably from the actual power output. For a variety of reasons the output will be reduced.



* This is only a reference value to show the important possible losses depending on the chosen system.

We recommend that the RENOLIT ALKORBRIGHT roofing membrane is installed under a crystalline solar roof, the resulting reduced air temperature around the crystalline solar panel along with the reflection from the RENOLIT ALKORBRIGHT will increase the output of the panel.

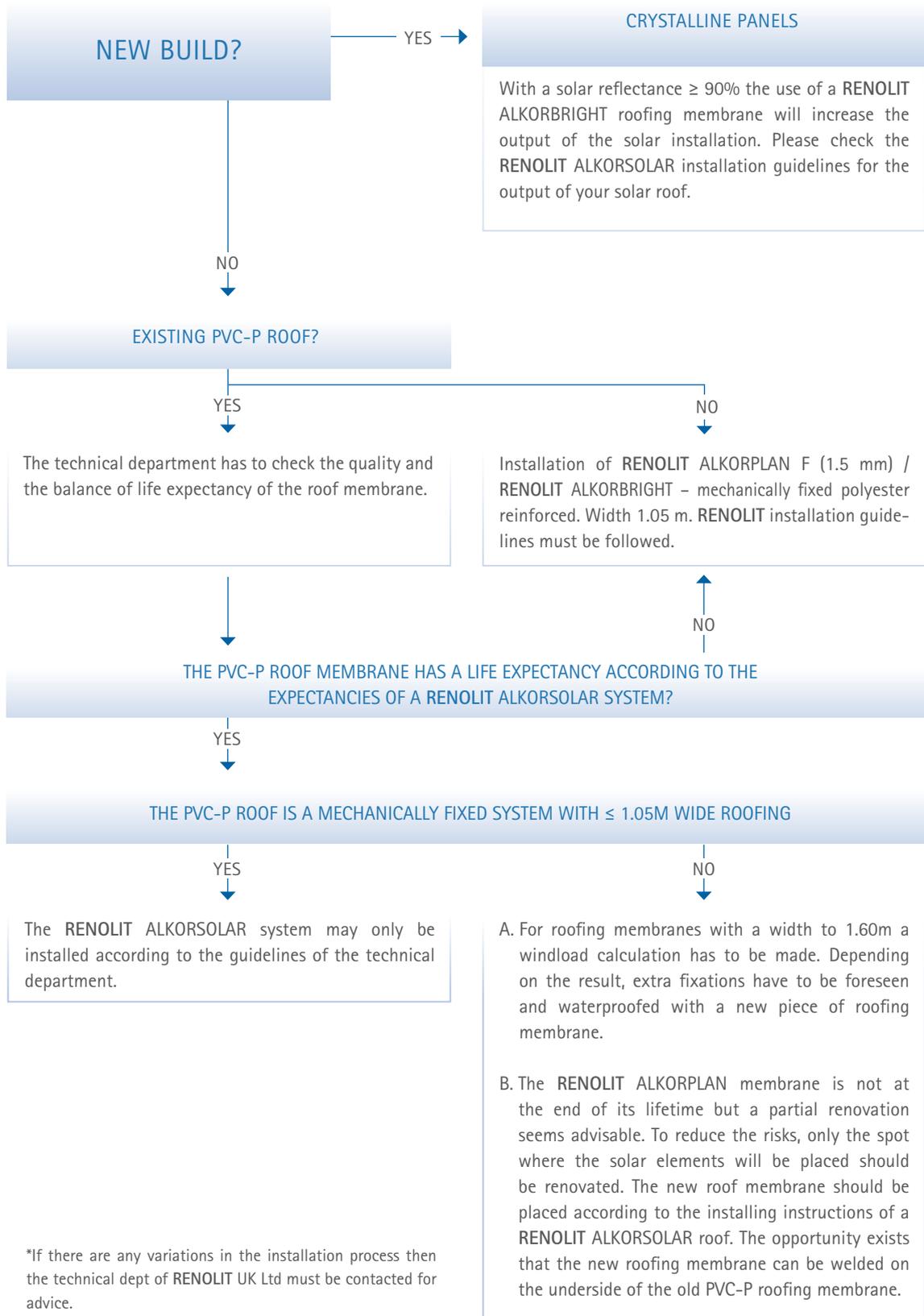


Figure 5



Picture 2: RENOLIT ALKORSOLAR as a base for crystalline photovoltaic panels

How to proceed when installing a RENOLIT ALKORSOLAR system?





The information contained in the present commercial literature has been given in good faith and with the intention of providing information. It is based on current knowledge at the time of issue, and may be subject to change without notice. Nothing contained herein may induce the application of our products without observing existing patents, certificates, legal regulations, national or local rules, technical approvals or technical specifications or the rules and practices of good workmanship for this profession. The purchaser should verify whether import, advertising, packaging, labelling, composition, possession, ownership and the use of our products or the commercialisation of them are subject to specific territorial rules. He is also the sole person responsible for informing and advising the final end user. When faced with specific cases or application details not dealt with in the present guidelines, it is important to contact our technical services, who will give advice, based on the information at hand and within the limitations of their field of expertise. Our technical services cannot be held responsible for the conception of, nor the execution of the works. In the case of negligence of rules, regulations and duties on the part of the purchaser we will disclaim all responsibility. The colours respect the UV resistance required by EOTA, but are still subject to the natural change over time. Are excluded from the guarantee: aesthetic considerations in case of partial repair of deficient membrane covered by the guarantee. The product availability differs from country to country, please refer to the RENOLIT technical department for further advice.

WWW.RENOLIT.COM/ROOFING



The British Board of Agrément have assessed the life expectancy of RENOLIT ALKORPLAN F used in the United Kingdom to be in excess of 35 years.



RENOLIT ALKORPLAN roofing products and system have a standard guarantee of 10 years, and are installed by approved contractors and installers who are trained and assessed by RENOLIT.



All RENOLIT waterproofing membranes for roofing are part of the ROOFCOLLECT® collection and recycling programme.



The only system for fixing solar panels on flat roofs that has been approved by DIBT (German Institute for Building Technology).



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