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Solar Panel Guide

Specification Data Sheet

Learn more at energypal.com/best-solar-panels-for-homes

EVALON® Solar cSi

The world's one and only
solar waterproofing membrane.

EVALON® Solar cSi

The power-generating waterproofing membrane.



alwitra. Innovations for long-term reliable flat roofs.

For 55 years, we have been passionate about flat roofs. Drawing also on 20 years of know-how in solar technology, we provide our clients with unique integrated solutions from a single source, ranging from high-quality roof waterproofing using our proven flat roof systems to complete solar roofscapes.

We are the only manufacturer to supply all waterproofing components by way of an integrated system solution – a perfect technical and technological match with a record of worldwide practical application. Innovative products, decades of experience and individual consultation is our toolbox for any flat roof issue – most certainly also for yours.

Already 20 years ago, we recognised that flat roof areas are perfect for solar energy generation – you just need to know the essentials.

Take advantage of the expertise of alwitra as the inventor of solar waterproofing membranes with a global record of more than 2,000 successfully completed solar projects.

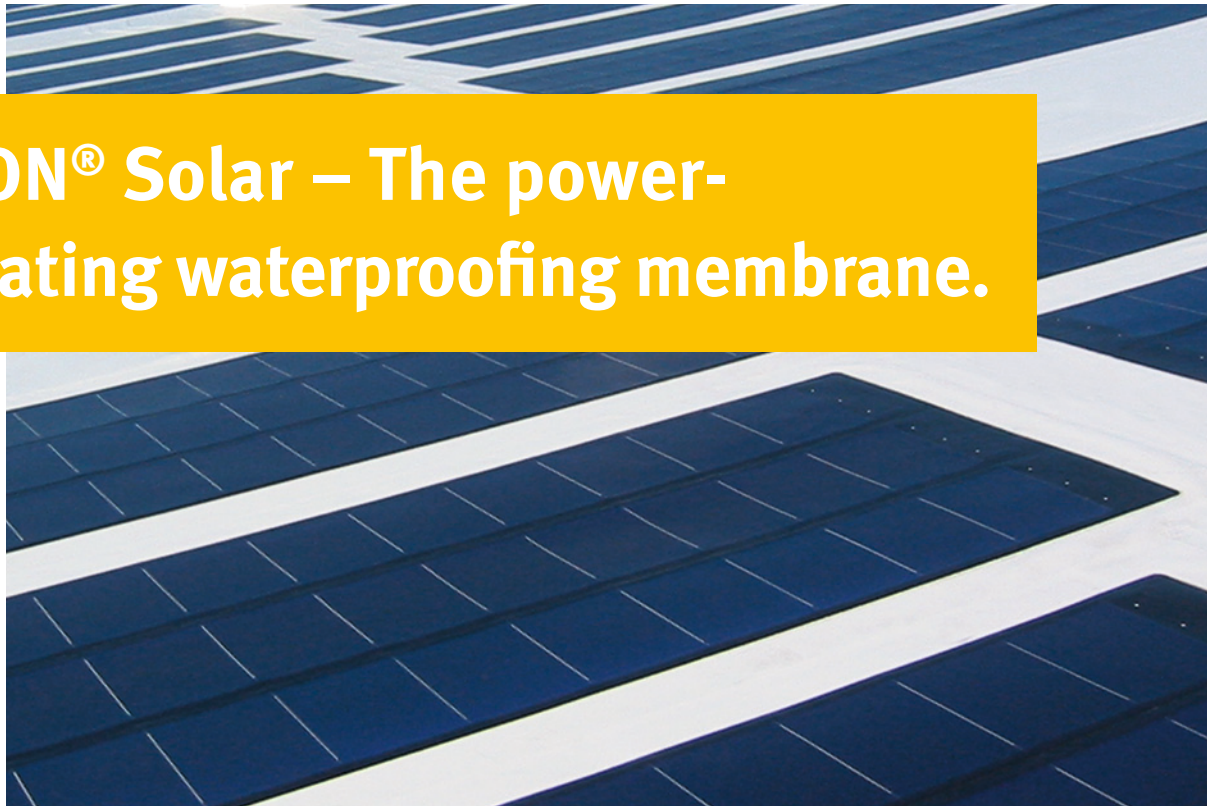


Glafey candle factory, Nuremberg



Hovet arena, Stockholm

EVALON® Solar – The power-generating waterproofing membrane.



Flat roof and solar technology: If there's one thing we know, it's both.

1999 has been a special year for the flat roof industry:

With EVALON® Solar, alwitra presented the world's first building-integrated solar installation – a waterproofing membrane for both waterproofing and power generation at the same time.

“The power-generating waterproofing membrane” quickly established itself as the economical solution for utilising large unused roof areas only suitable for light loads.

In total, a PV capacity of almost 40 MWp has been installed on more than 2,000 roofs. Thus, EVALON® solar waterproofing membranes help to avoid approximately 20 million kilograms of CO₂ emissions every year. Nearly 20 years after having invented the first solar waterproofing membrane, alwitra is now presenting its next multifunctional innovation: EVALON® Solar cSi – the world's one and only waterproofing membrane with integrated crystalline PV modules without glass.



The world's first solar waterproofing membrane – the original by alwitra



1999: First EVALON® Solar project in the city of Jena

EVALON® Solar cSi – The solar waterproofing membrane – redefined.

EVALON® Solar cSi: Unique integration of globally available robust crystalline silicon solar cells into the proven synthetic waterproofing membrane EVALON® by alwitra. The multifunctional solar waterproofing membrane ensures reliable protection of buildings against precipitation and generates electric power by direct conversion of solar radiation. Thanks to the patented glass fibre reinforced duromer core, EVALON® Solar cSi not only guarantees stability and durability: The special design without glass also allows for flexible installation on undulating or curved roof areas.



extremely light weight



highest yields



flexible



waterproof



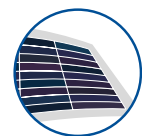


EVALON® Solar cSi performance profile

- low net weight of only 3.3 kg/m², also suitable for roofs with a low bearing capacity
- two integrated solar modules in one solar waterproofing membrane EVALON® Solar cSi
- easy laying and installation thanks to topside connecting cables
- ultra light-weight, semi-flexible PV module with crystalline silicon cells, without glass or framework
- small required roof area (less than 10 m²/kWp) thanks to high efficiency
- dirt repellent surface and very low dazzling effect (textured ETFE front sheet)



building integrated



crystalline silicon cells



certified



conform

Technical data

Solar waterproofing membrane

Technical data EVALON® Solar cSi waterproofing membrane	
Type of waterproofing membrane	EVALON® V
Type of solar waterproofing membrane	EVALON® Solar cSi V 460
Number of EVALON® Solar cSi modules	2
Power at STC	460 Wp (2 x 230 Wp)
Membrane width	1.55 m
Membrane length	3.47 m
Installation grid	1.26 m to 1.44 m
Nominal thickness of the waterproofing membrane incl. PV module and backing	3.5 mm
Nominal thickness of the homogeneous membrane sealing layer	1.5 mm
Mass per unit area	3.3 kg/m²
Bending radius	> 2 m
Min. required area	9.5 m²/kWp
Reaction to fire	EN 13501-1 class E
Bitumen compatibility	EN 1548
External fire performance	DIN CEN/TS 1187-1 / EN 13501-5 / DIN 4102-7 Class B _{ROOF} (t1) Resistant to flying sparks and radiant heat, confirmed by General Building Construction Supervision Test Certificates
Preconditions	• Substrate must be suitable for mechanical fastening (pressure-resistant) • Do not install solar waterproofing membranes in areas with ponding water • Ponding water / puddles on modules must be absolutely avoided

Technical data

PV module



Technical data EVALON® Solar cSi module	Values according to DIN EN 61215 at STC
Power P_{MPP}	230 Wp with +5 W / -0 W tolerance (54 PV cells)
Open circuit voltage U_{oc}	34.59 V
Short circuit current I_{sc}	8.72 A
Voltage U_{MPP}	27.91 V
Current I_{MPP}	8.29 A
Maximum current (reverse current resistance) I_{max}	20 A
System voltage U_{max}	1,000 V
Temperature coefficient - power	-0.387 %/°C
Temperature coefficient - open circuit voltage	-0.295 %/°C
Temperature coefficient - short circuit current	0.055 %/°C
Front side	dirt-repellent ETFE foil
Cell embedding	patented glass-fibre reinforced plastic
Connection box	certified by TÜV (IP 67) with 3 bypass diodes
Connecting cable	2 x 4 mm², 1,000 mm with connector TE Connectivity „Solarlok PV4S“
Module dimensions	1,520 mm x 1,000 mm

All data are taken from tests and comply with the current standards.
Normal tolerances apply.
EVALON® Solar cSi is certified according to DIN EN 61215 and DIN EN 61730.

Because of the reverse current resistance of 20 A, in case of connection in parallel of more than 3 strings, use of 15 A PV DC fuses at all poles (i.e. at plus AND minus) is required.



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