

## HelioPower 150 | Invisible solar panels below natural slate



### Aluminium solar panels

As the sun's rays are absorbed effectively in the black slate roof, there is every reason to exploit this renewable energy optimally.

The solar water heating principle works by the modular shaped aluminum solar panels are placed between the battens before the slates are mounted.

The panels are based on a spring to ensure the panels always have good contact with the rear side of the slate.

The insulation on the back side of the panels ensures that the heat from the slates is directed to the integrated tubes containing a circulating fluid.

Thus, the free and renewable energy from the sun may be used for preheating of tap water, for space heating or heating of the pool in the garden.

### Effect

The invisible solar panel unit of 25 square meters to a cottage can provide 5-7 kilo Watt, when the sun is shining on the roof.

A natural slate roof can reach up to 70 degrees on a day without wind and the sun from a serene sky.

In Denmark (56° latitude) the sun shines between 1,200 and 1,700 hours a year. Based on 1,200 hours of sunshine and only 5 kW delivered, the solar unit will sum up to 6,000 kW/h in a year.

In South Africa, USA or the like (34-40° latitude) the sun shines between 2,000 and 4,000 hours a year. Based on 3,000 hours of sunshine and only 5 kW delivered, the solar unit delivery will sum up to 15,000 kW/h in a year.



**HelioPower**  
- Den usynlige solfanger

## Invisible solar panel below natural slate "HelioPower 150"

HelioPower 150 solar panel is developed to install hidden under the natural slate sheathing, on the roof and as well as the façade. HelioPower system is complete hidden below roof and façade and is not exposed to the weather, which result in an extraordinary lifespan at 30-50 years or even more.

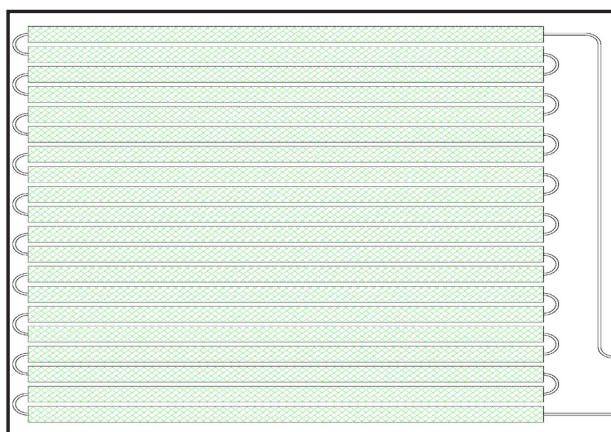
The design is based on an extruded aluminium profile with integrated cooling pipe and insulation for invisible mounting under the climate shield. The chosen alloy is AlMgSi, which is well known for its high corrosion resistance and long life time. Furthermore the product is based on 30% aluminium recycling.

### Technical information

Cassette details	Måleenhed	Værdi
Running meters per m2 roof surface area	meters	~4
Weight incl. EPS	Kg/meters	1,9
Burst pressure	Bar	>20
Transmission pipe inside dimension	mm	18,4
Transmission pipe losses	Pa/m/500l/h	400
Width	mm	150
Weight including fittings	Kg/m <sup>2</sup>	<10
Roof system diff pressure (120 m. Ø18) excl. fittings	kPa/500l/h	48
Maks system pressure - preset from HelioPower	Bar	3
Connections, thread type and dimension	BSPT	1/2"
Efficiency at 56° latitude	%	~25
Efficiency at 34° latitude	%	~55
Maximum power delivery at 56° latitude	W/m <sup>2</sup>	~250
Maximum power delivery at 34° latitude	W/m <sup>2</sup>	~550
Lifetime - water/30% glycol	year	>30
Roof angle	degree	20-90

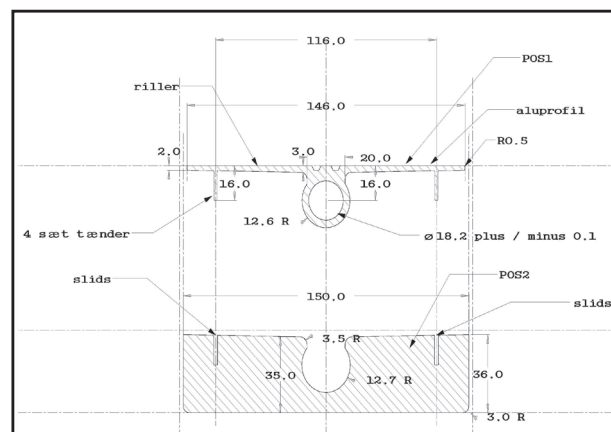
### Standard example

Anlæg	Måleenhed	Værdi
System size, necessary roof surface area (facing south)	m <sup>2</sup>	~25
Effective cassette area	m <sup>2</sup>	21,6
Weight including fittings	Kg/m <sup>2</sup>	<10
Cassette consumption	pcs x length, mm	20 x 6000



#### Cassette for a module at 25 m<sup>2</sup> roof

- 20 psc. Threaded cassettes à 6 mtr including back side insulation
- 132 psc. Floating stainless steel springs
- 19 psc. Stainless steel corrugated connection hoses
- 30 metre System connection hose with insulation
- 1 psc. thermo sensor PT1000



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