HelioPower 370 | Invisible solar heat under roofing felt

Modular panels

Take advantage of the opportunity for invisible solar heat under the roofing felt and avoid architectural disturbances in the roof covering. Black roofing felt efficiently gathers the warm rays of the sun. The heat quite naturally passes into the underlying material, which consists of a modular panel system with circulating water that gives the possibility of using this continuous energy in a most advantageous way – who doesn't know "the burning feeling" of walking on hot asphalt on a summer day.
The principle works by integrating the solar panels in the roof covering between the roofing felt and the underlying insulation – either by adding 50 mm extra insulation or in the already existing roof insulation. A 25 mm grove is made in the insulation and the solar panels are placed here. Then 170 mm wide aluminium sheets are mounted on each side of the panels. The entire system is simply fastened with traditional insulation dowels, which are mounted through the "alu-wings" and the system is thus attached to the underlying covering. The solar heat panels are connected in series and the water is led into the technology room of the house, where a pump and a heat exchanger are mounted. The roof can then be covered with roofing felt in the traditional manner.
We always use materials in aluminium, stainless steel or plastic, which ensures as long a lifespan as roofing felt or even longer. The free and continual energy from the sun can be used to preheat of water for everyday uses, for heating, floor heating or even for heating the pool in the garden.

Effect in Denmark

The invisible 25 square metre solar collection system for a villa can supply 5-7 kWh when the sun shines on the roof. Roofing felt can get as hot as 70 degrees on a day without wind and sun from a clear sky. In Denmark we have between 1,200 and 1,700 hours of sunshine in a year. This means that 1,200 sunshine hours with an output of 5 kWh will add up to 6,000 kWh in a year. With an electricity price of DKK 1.8 per kWh, the output is worth around DKK 11,000. How much you actually save will depend on the ability to use the energy as it is delivered by the sun, which means that the actual saving will be around DKK 5-8,000 per year.

HelioPower
- Invisible solar heat

Hidden solar panel under roofing felt ”HelioPower 370”

HelioPower 370 solar heat panel has been developed for mounting underneath the roofing felt on the roof. Unlike other systems, HelioPower 370 is completely hidden under the roof covering and is not exposed to the weather, which gives an extraordinarily long lifespan of 30-50 years or more. The panels are made from environmentally friendly and durable profiles made from extruded aluminium, AlMgSi, with 30 % recycling. All components in the solar heat circuit consist exclusively of aluminium, plastics and stainless steel for elimination of corrosion problems.

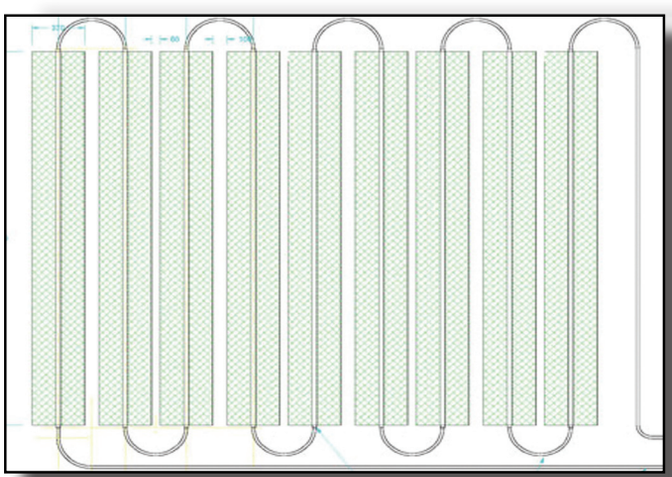
Technical data

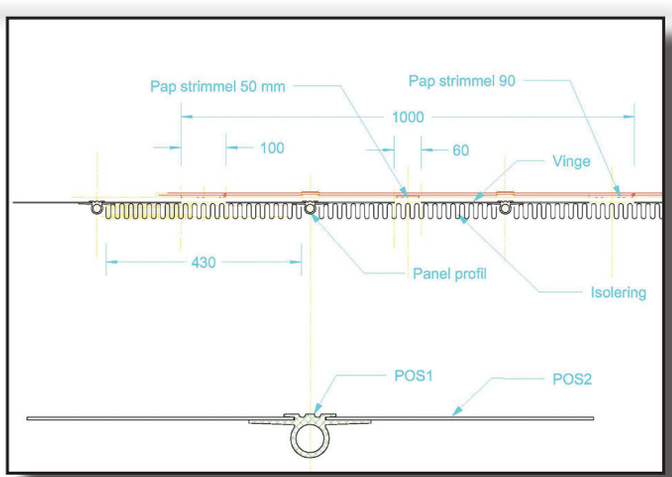
System	Unit of measurement	Value
Panel use per/m roof surface	Lbm/m²	~2
Weight panel	Kilo/lbm	3
Spring pressure	Bar	>20
Conduction tubes inside dimension	mm	18,4
Conduction tube tab	Pa/lbm/500l/h	400
Panel width	mm	370
Panel weight incl. fittings	Kilo/m²	~6
Fluid circuit system difference pressure (120 lbm. Ø18) kPa/500l/h excl. fittings	kPa/500l/h	48
Max. system pressure	Bar	3
Panel fitting, thread type and conduction	BSPT	1/2”
Efficiency*	%	25
Max. effect	W/m²	250
Lifespan – water/30% glycol	year	>30
Roof pitch angle	degrees	0-60

* Measured in comparison to visible solar panels. HelioPower solar panels are fitted in an area which is 4 times larger than when using traditional visible solar panels, which gives an equivalent total yield.

Standard construction and estimated yearly energy yield for single-family house.

Installation	Unit of measurement	Value
Used roof surface area (south facing, 45° angle)	m²	~25
Effective panel area	m²	19,98
Panel weight incl. fittings	Kilo	120
Panel amount	Piece X length in mm.	18 x 3000
Yearly energy yield	kWh/m²/year	250





List of parts for a module for 25 square metre roof

(The drawing shows a half module)

18 pieces x 3 meter panels with insulation
36 nipple pieces
19 pieces Ø22 x 500 mm tubes
19 pieces Ø22 x 600 mm tube insulation
30 m Ø25 mm steel tube

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December 2008