

# Solar Collector Factsheet

## Fakro SKW 114x118



<b>Model</b>	<b>SKW 114x118</b>
<b>Type</b>	Flat plate collector
<b>Manufacturer</b>	Fakro PP SP. z o.o.
<b>Address</b>	ul. Wegierska 144a
	PL-33-300 Nowy Sacz
<b>Telephone</b>	--
<b>Fax</b>	--
<b>Email</b>	
<b>Internet</b>	<b>www.fakro.com</b>
<b>Test date</b>	11.2011

- Performance test EN12975:2006
- Quality test EN12975:2006



### Dimensions

<b>Total length</b>	1.108 m
<b>Total width</b>	1.138 m
<b>Gross area</b>	1.261 m <sup>2</sup>
<b>Aperture area</b>	1.130 m <sup>2</sup>
<b>Absorber area</b>	1.128 m <sup>2</sup>
<b>Weight empty</b>	27 kg

### Technical data

<b>Minimum flowrate</b>	55 l/h
<b>Nominal flowrate</b>	68 l/h
<b>Maximum flowrate</b>	105 l/h
<b>Fluid content</b>	0.9 l
<b>Maximum operating pressure</b>	6 bar
<b>Stagnation temperature</b>	197 °C

### Types of mounting

- Construction for sloping roof
- Integration into sloping roof
- On flat roof with stand
- Facade

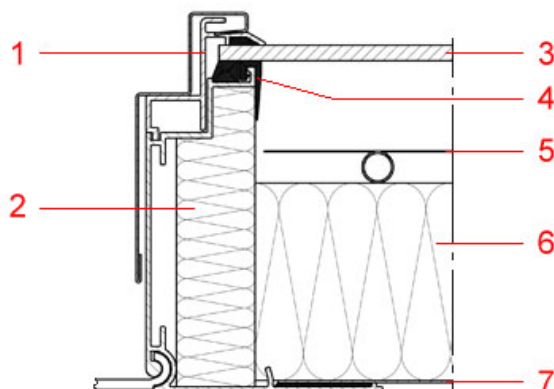
### Further information

- Units in different sizes available
- Glazing replaceable

### Hydraulic connection

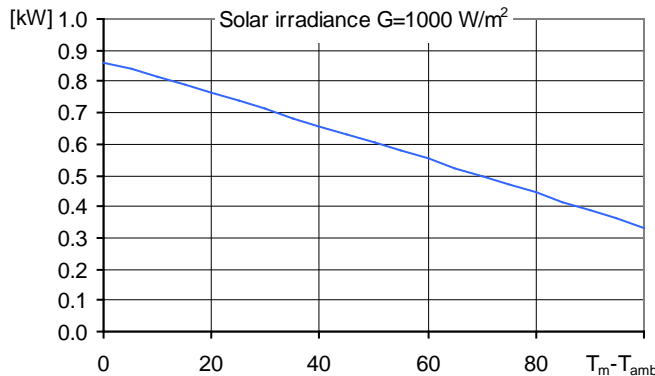
R3/4"

### Construction



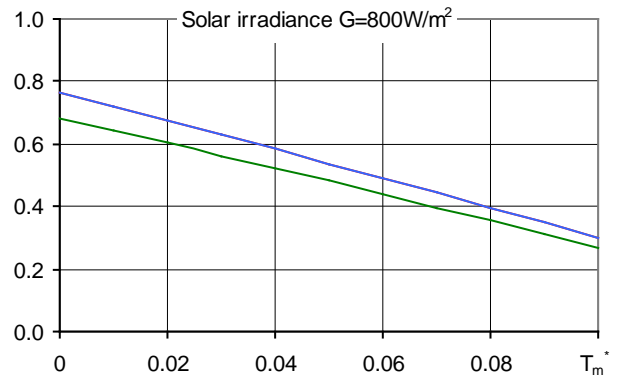
- 1 Frame
- 2 Lateral thermal insulation
- 3 Glazing
- 4 Glass support rail
- 5 Absorber
- 6 Thermal insulation
- 7 Rear panel

**Peak Power per collector unit  $W_{peak}$**



<b>Peak Power <math>W_{peak}</math></b>	863 W
<b>Thermal capacity*</b>	3.2 kJ/K
<b>Flowrate during test</b>	125 l/h
<b>Fluid for test</b>	Water-Glycol 33.3%

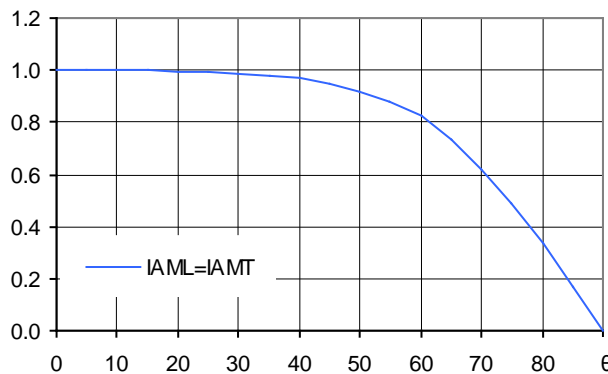
**Relative efficiency  $\eta$**



<b>Reference</b>	<b>Gross</b>	<b>Aperture</b>	<b>Absorber</b>
$\eta_0$	0.684	0.764	0.765
$a_1$ [WK <sup>-1</sup> m <sup>2</sup> ]	3.96	4.42	4.43
$a_2$ [WK <sup>-2</sup> m <sup>2</sup> ]	0.0024	0.0027	0.0027

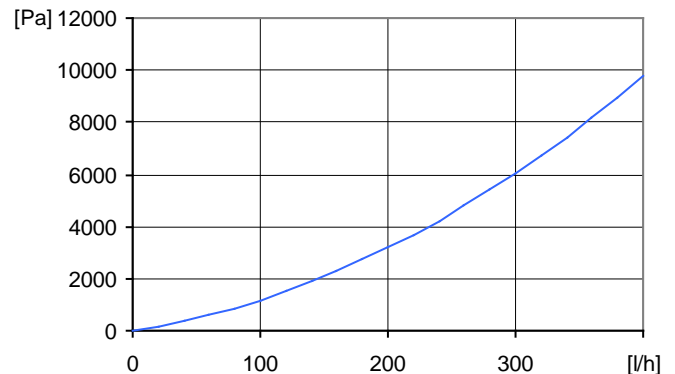
\*) Specific thermal capacity C of the collector without fluid, determined according to 6.1.6.2 of EN12975-2:2006

**Incident angle modifier IAM**



<b>K1, transversal IAM at 50°</b>	0.92
<b>K2, longitudinal IAM at 50°</b>	0.92

**Pressure drop  $\Delta p$**



<b>Pressure drop at nominal flowrate</b>
$\Delta p = 706$ Pa (T=20°C)

**SPF Simulation of systems using Polysun**

**Short description of the system**

Climate: Central Switzerland, orientation of the collectors: South,  
Cold water 10°C, Hot water 50°

**Domestic hot water: Fss\* = 60%**

Tank 450 l, collector inclination 45°,  
Daily energy demand 10 kWh (4-6 persons)  
Energy demand of the reference system 4200 kWh/year

**Water pre-heating: Fss\* = 25%**

2 Tanks: 1500 l & 2500 l, collector inclination 30°,  
Domestic hot water consumption 10'000 l/day (200 persons)  
Daily heat losses (circulation and tanks) 60 kWh,  
Energy demand of the reference system 191'700 kWh/year

**Space heating system: Fss\* = 25%**

Combined storage 1200 l, collector inclination 45°,  
Daily energy demand 10 kWh (4-6 persons), Building 200 m<sup>2</sup>, moderately  
heavy construction, well insulated, Heating power demand 5.8 kW (ambient  
temperature -8°C), Energy demand space heating 12140 kWh/year,  
Energy demand of the reference system 16340 kWh/year

**Surface demand\*\*  
Number of collectors**

**Solar yield\*\***

5.64 m<sup>2</sup>  
5.0 collectors      451 kWh/m<sup>2</sup>

71.3 m<sup>2</sup>  
63.1 collectors      674 kWh/m<sup>2</sup>

18.6 m<sup>2</sup>  
16.5 collectors      289 kWh/m<sup>2</sup>

\*) Fractional solar savings: Proportion of the final energy that, thanks to the solar system, can be saved compared to a reference system.  
\*\*) Surface demand and solar yield are given with respect to the aperture area.