

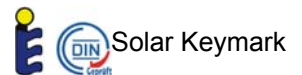
Solar Collector Factsheet

Fakro SKW 78x140



Model	SKW 78x140
Type	Flat plate collector
Manufacturer	Fakro PP SP. z o.o.
Address	ul. Wegierska 144a
	PL-33-300 Nowy Sacz
Telephone	--
Fax	--
Email	--
Internet	www.fakro.com
Test date	11.2011

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



Dimensions

Total length	1.411 m
Total width	0.780 m
Gross area	1.101 m ²
Aperture area	0.910 m ²
Absorber area	0.909 m ²
Weight empty	22 kg

Technical data

Minimum flowrate	44 l/h
Nominal flowrate	55 l/h
Maximum flowrate	85 l/h
Fluid content	0.6 l
Maximum operating pressure	6 bar
Stagnation temperature	197 °C

Types of mounting

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

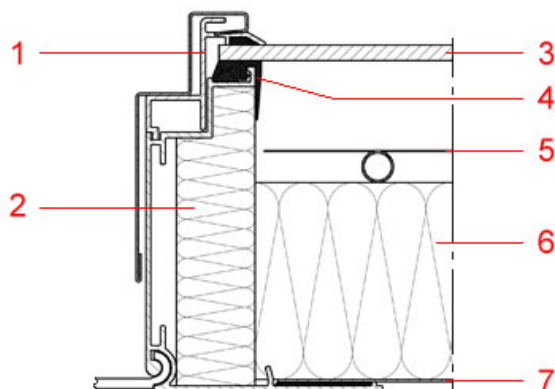
Further information

- Units in different sizes available
- Glazing replaceable

Hydraulic connection

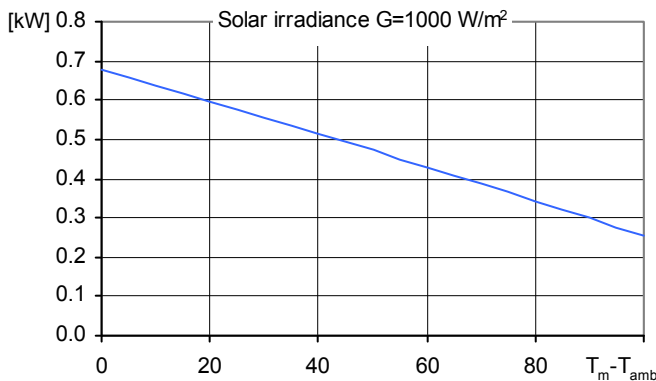
R3/4"

Construction



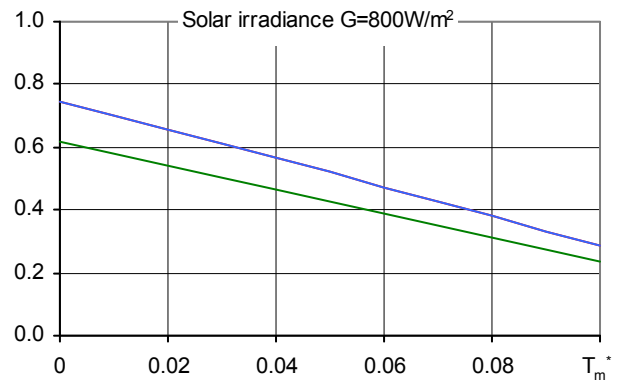
- 1 Frame
- 2 Lateral thermal insulation
- 3 Glazing
- 4 Glass fixing profile
- 5 Absorber
- 6 Thermal insulation
- 7 Rear panel

Peak Power per collector unit W_{peak}



Peak Power W_{peak}	679 W
Thermal capacity*	2.1 kJ/K
Flowrate during test	100 l/h
Fluid for test	Water-Glycol 33.3%

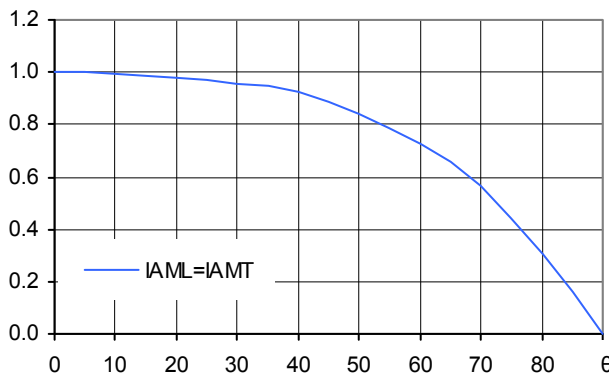
Relative efficiency η



Reference	Gross	Aperture	Absorber
η_0	0.617	0.746	0.747
a_1 [$WK^{-1}m^{-2}$]	3.67	4.44	4.44
a_2 [$WK^{-2}m^{-2}$]	0.0019	0.0023	0.0023

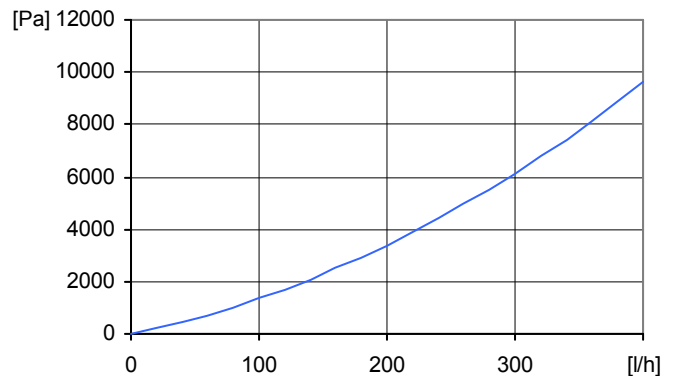
*) Specific thermal capacity C of the collector without fluid, determined according to 6.1.6.2 of EN12975-2:2006

Incident angle modifier IAM



K1, transversal IAM at 50°	0.84
K2, longitudinal IAM at 50°	0.84

Pressure drop Δp



Pressure drop at nominal flowrate
 $\Delta p = 652 \text{ Pa}$ ($T=20^\circ\text{C}$)

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: $F_{ss}^* = 60\%$

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: $F_{ss}^* = 25\%$

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: $F_{ss}^* = 25\%$

Combined storage 1200 l, collector inclination 45°,
Daily energy demand 10 kWh (4-6 persons), Building 200 m², 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**

6.21 m²
6.8 collectors

409 kWh/m²

78.1 m²
85.8 collectors

616 kWh/m²

21.1 m²
23.2 collectors

255 kWh/m²

*) 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.