

Solar Collector Factsheet

Hewalex KS 2000 TP

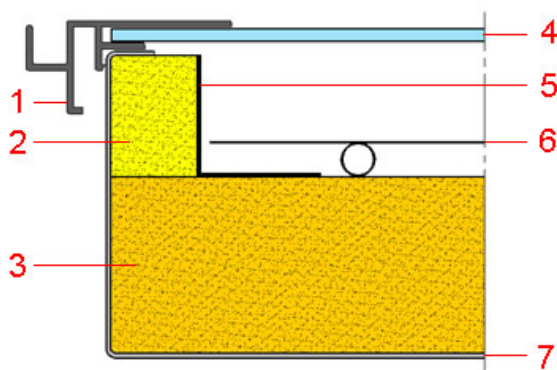


Model	KS 2000 TP
Type	Flat plate collector
Manufacturer	HEWALEX Sp. z o.o. Sp. k.
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Internet	www.hewalex.eu
Test date	05.2007

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

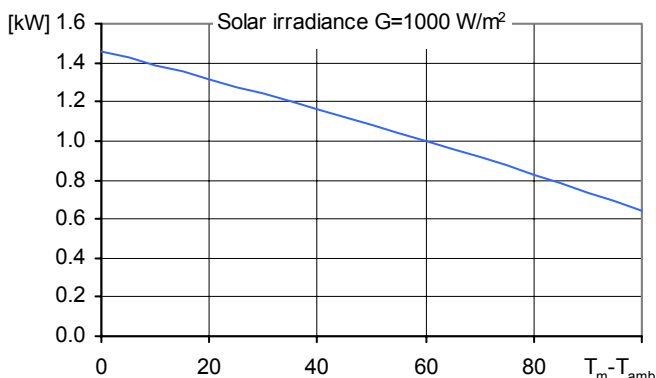


Dimensions		Technical data	
Total length	2.020 m	Minimum flowrate	70 l/h
Total width	1.037 m	Nominal flowrate	110 l/h
Gross area	2.095 m ²	Maximum flowrate	240 l/h
Aperture area	1.818 m ²	Fluid content	1.1 l
Absorber area	1.818 m ²	Maximum operating pressure	6 bar
Weight empty	40 kg	Stagnation temperature	219 °C
Types of mounting		Further information	
<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Construction for sloping roof <input checked="" type="checkbox"/> Integration into sloping roof <input checked="" type="checkbox"/> On flat roof with stand <input type="checkbox"/> Facade 		<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Units in different sizes available <input type="checkbox"/> Glazing replaceable 	
Construction		Hydraulic connection	
		G3/4"	

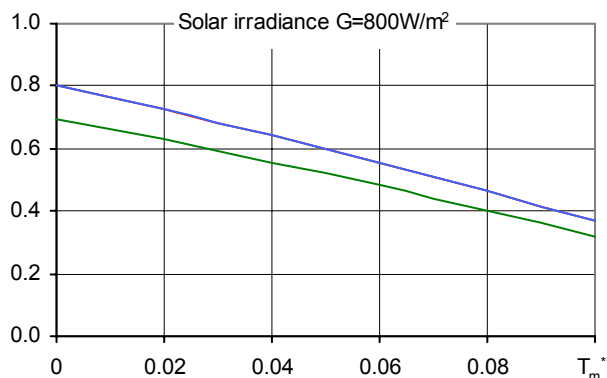


- 1 Cover rail
- 2 Lateral thermal insulation
- 3 Thermal insulation
- 4 Glazing
- 5 Black glass fleece
- 6 Absorber
- 7 Casing

Peak Power per collector unit W_{peak}



Relative efficiency η

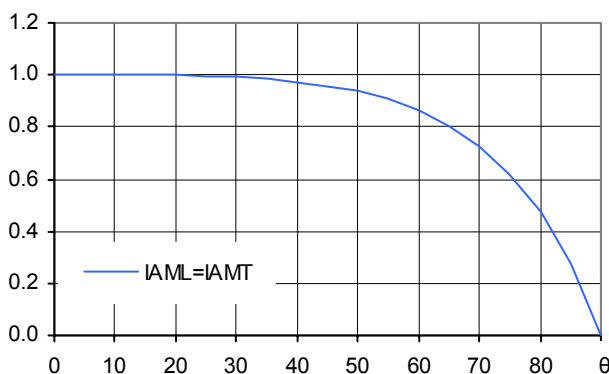


Peak Power W_{peak}	1458 W
Thermal capacity*	5.9 kJ/K
Flowrate during test	200 l/h
Fluid for test	Water-Glycol 33.3%

Reference	Gross	Aperture	Absorber
η_0	0.696	0.802	0.802
a_1 [$WK^{-1}m^{-2}$]	3.30	3.80	3.80
a_2 [$WK^{-2}m^{-2}$]	0.0058	0.0067	0.0067

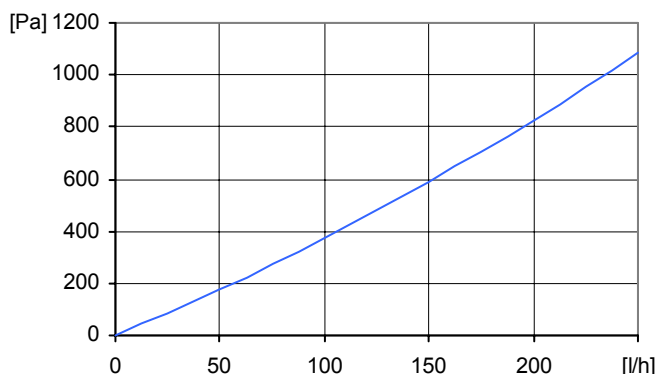
*) Specific thermal capacity C of the collector without fluid, determined according to 6.1.6.2 of EN12975-2:2006

Incident angle modifier IAM



K1, transversal IAM at 50°	0.94
K2, longitudinal IAM at 50°	0.94

Pressure drop Δp



Pressure drop at nominal flowrate
 $\Delta p = 416 \text{ Pa}$ ($T=20^\circ\text{C}$)

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**

4.90 m²
2.7 collectors 520 kWh/m²

63.7 m²
35.0 collectors 755 kWh/m²

15.3 m²
8.4 collectors 354 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.