

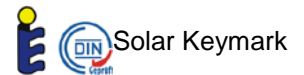
Solar Collector Factsheet

Hewalex KSR10



Model	KSR10
Type	Evacuated tube collector
Manufacturer	HEWALEX Sp. z o.o. Sp. k.
Address	ul. Juliusza Slowackiego 33
	PL-43-502 Czechowice-Dziedzice
Telephone	+48 (032) 214 17 10
Fax	+48 (032) 214 50 04
Email	hewalex@hewalex.pl
Internet	www.hewalex.eu
Test date	02.2010

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



Dimensions

Total length	2.130 m
Total width	0.856 m
Gross area	1.823 m ²
Aperture area	1.014 m ²
Absorber area	0.931 m ²
Weight empty	30 kg

Technical data

Minimum flowrate	48 l/h
Nominal flowrate	60 l/h
Maximum flowrate	90 l/h
Fluid content	1.8 l
Maximum operating pressure	6 bar
Stagnation temperature	303 °C

Types of mounting

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

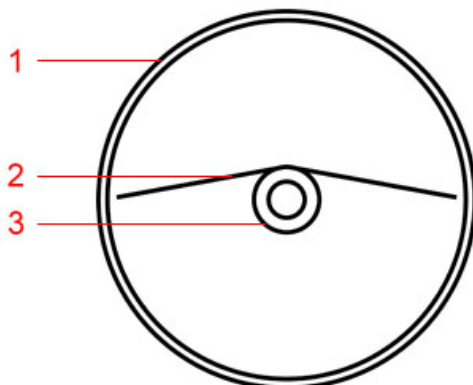
Further information

- Units in different sizes available
- Glazing replaceable

Hydraulic connection

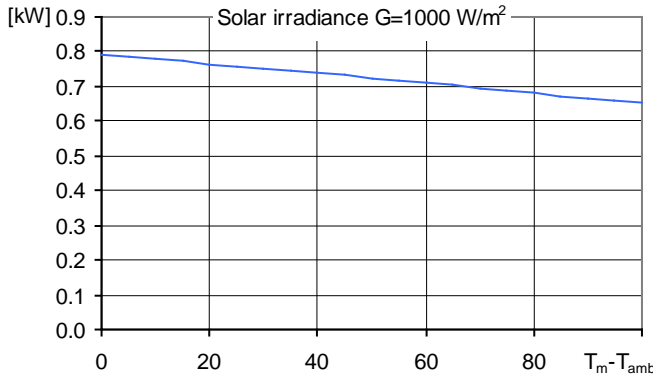
G3/4"

Construction



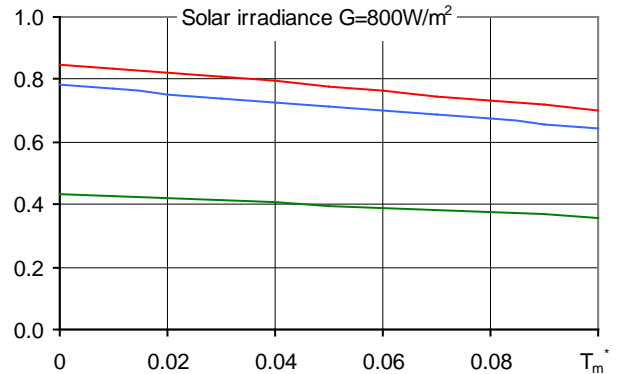
- 1 Glazing
- 2 Absorber
- 3 Coaxial tube

Peak Power per collector unit W_{peak}



Peak Power W_{peak}	791 W
Thermal capacity*	3.4 kJ/K
Flowrate during test	99 l/h
Fluid for test	Water-Glycol 33.3%

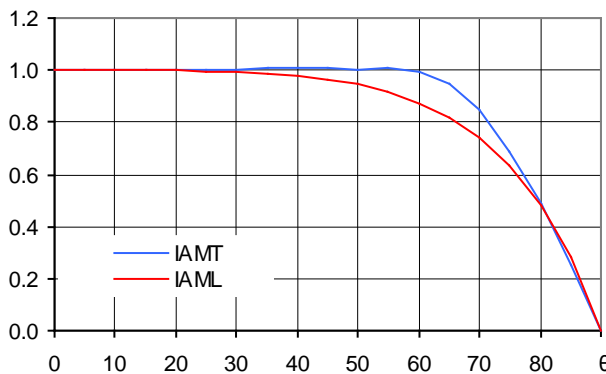
Relative efficiency η



Reference	Gross	Aperture	Absorber
η_0	0.434	0.780	0.850
a_1 [$WK^{-1}m^{-2}$]	0.70	1.27	1.38
a_2 [$WK^{-2}m^{-2}$]	0.0007	0.0012	0.0013

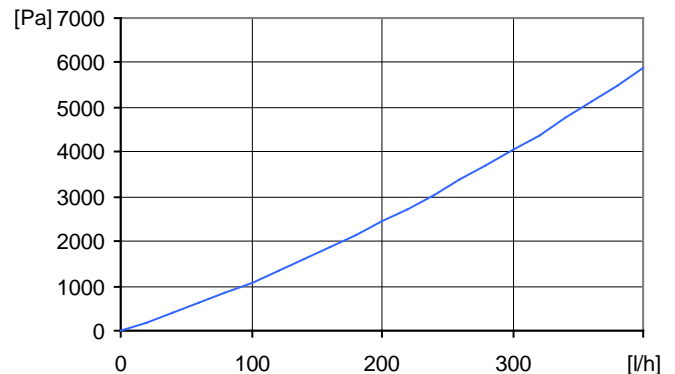
*) Specific thermal capacity C of the collector without fluid, determined according to 6.1.6.2 of EN12975-2:2006

Incident angle modifier IAM



K1, transversal IAM at 50°	1.00
K2, longitudinal IAM at 50°	0.94

Pressure drop Δp



Pressure drop at nominal flowrate
$\Delta p = 623$ 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: $F_{ss}^* = 60\%$

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

3.82 m²
3.8 collectors

56.3 m²
55.5 collectors

10.0 m²
9.9 collectors

Solar yield**

669 kWh/m²

854 kWh/m²

551 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.