

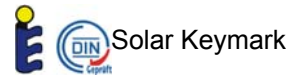
Solar Collector Factsheet

Hewalex KSR10



| | |
|---------------------|--------------------------|
| Model | KSR10 |
| Type | Evacuated tube collector |
| Manufacturer | HEWALEX |
| Address | Witosa 14 A |
| | PL-43-512 Bestwinka |
| Telephone | +48 (032) 214 17 10 |
| Fax | +48 (032) 214 50 04 |
| Email | hewalex@hewalex.com.pl |
| Internet | www.hewalex.pl |
| 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

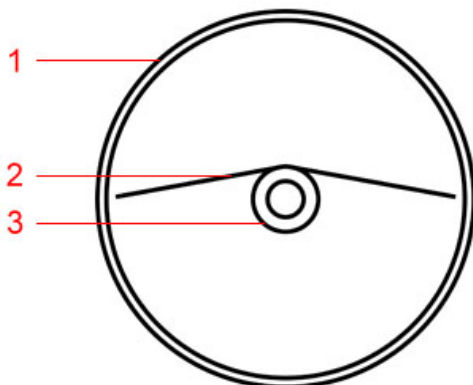
Further information

- Units in different sizes available
- Glazing replaceable

Hydraulic connection

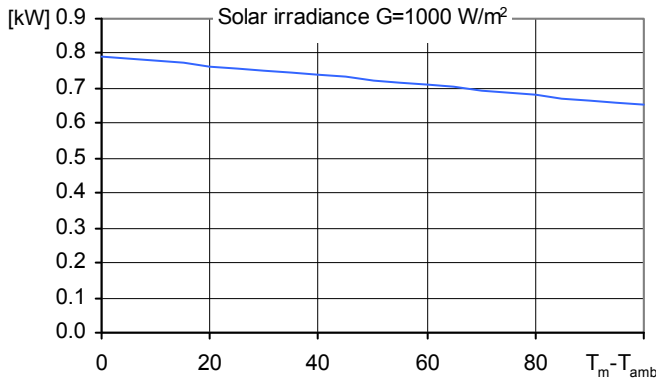
G3/4"

Construction



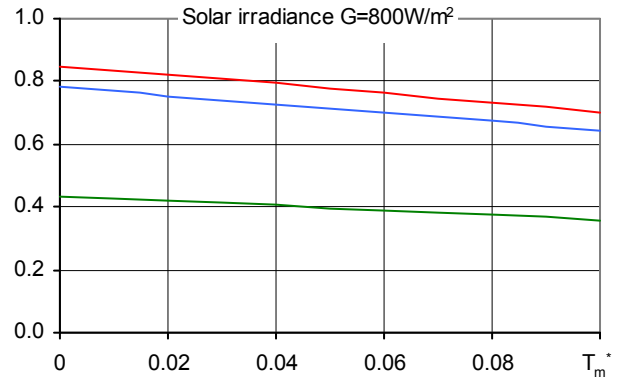
- 1 Glazing
- 2 Absorber
- 3 Coaxial tube

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% |

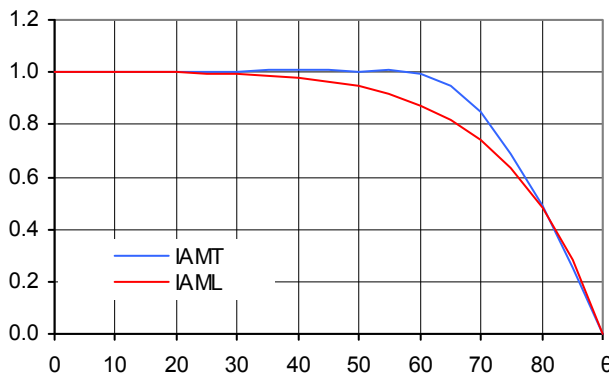
Relative efficiency η



| | | | |
|---------------------------|--------------|-----------------|-----------------|
| 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 |

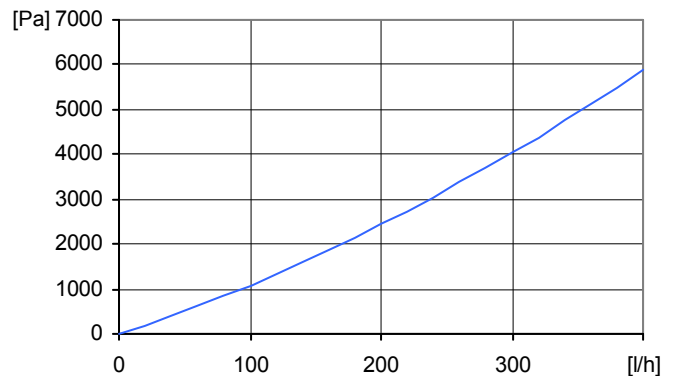
*) Specific thermal capacity C of the collector without fluid, determined according to 6.1.6.2 of EN12975-2:2006

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

Solar yield**

3.82 m²
3.8 collectors

669 kWh/m²

56.3 m²
55.5 collectors

854 kWh/m²

10.0 m²
9.9 collectors

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.