

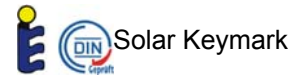
Solar Collector Factsheet

Eurosun Sunstar HP 65/30



Model	Sunstar HP 65/30
Type	Evacuated tube collector
Manufacturer	Eurosun Vacuum-Solar-Systems GmbH
Address	Frauenbergstraße 31-33 DE-35039 Marburg
Telephone	+49 6421 999 1797
Fax	+49 6421 999 1798
Email	info@euro-sun-solar.de
Internet	www.euro-sun-solar.de
Test date	09.2011

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



Dimensions

Total length	2.000 m
Total width	2.151 m
Gross area	4.302 m ²
Aperture area	3.405 m ²
Absorber area	2.975 m ²
Weight empty	77 kg

Technical data

Minimum flowrate	90 l/h
Nominal flowrate	240 l/h
Maximum flowrate	400 l/h
Fluid content	1.4 l
Maximum operating pressure	6 bar
Stagnation temperature	245 °C

Types of mounting

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

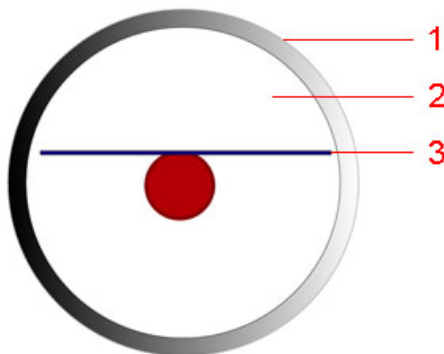
Further information

- ☒ Units in different sizes available
- ☐ Glazing replaceable

Hydraulic connection

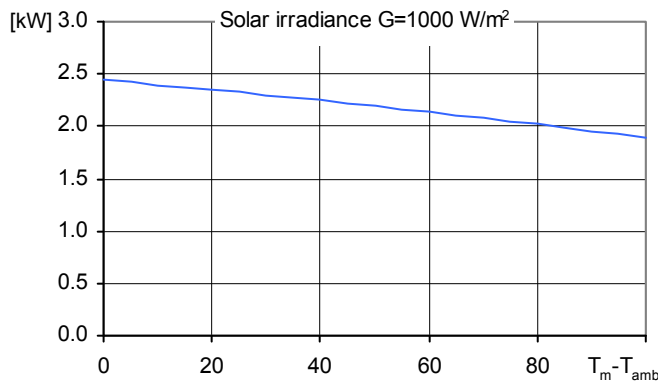
Copper pipe, nominal diameter 22 mm

Construction



- 1 Glazing
- 2 Vacuum
- 3 Absorber

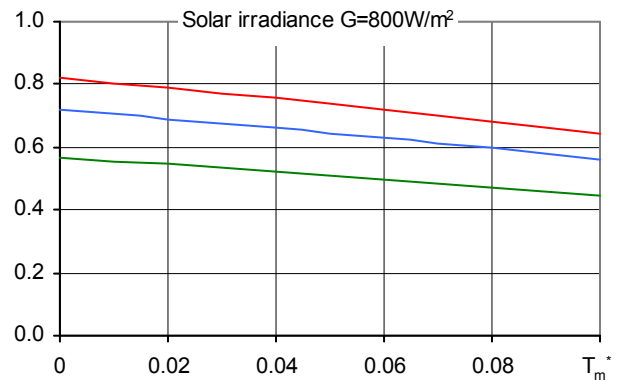
Peak Power per collector unit W_{peak}



Peak Power W_{peak}	2442 W
Thermal capacity*	8.3 kJ/K
Flowrate during test	240 l/h
Fluid for test	Water-Glycol 33.3%

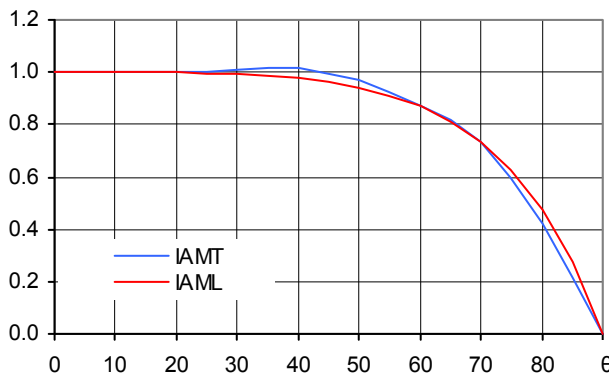
*) Specific thermal capacity C of the collector without fluid, determined according to 6.1.6.2 of EN12975-2:2006

Relative efficiency η



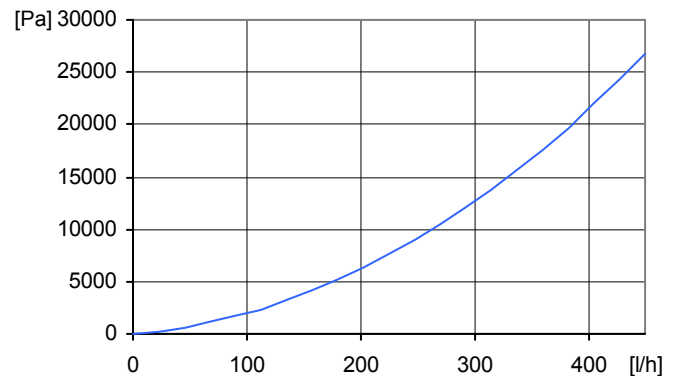
	Reference	Gross	Aperture	Absorber
η_0	0.568	0.717	0.821	
a_1 [$WK^{-1}m^{-2}$]	1.04	1.31	1.50	
a_2 [$WK^{-2}m^{-2}$]	0.0024	0.0031	0.0035	

Incident angle modifier IAM



K1, transversal IAM at 50°	0.97
K2, longitudinal IAM at 50°	0.94

Pressure drop Δp



Pressure drop at nominal flowrate
$\Delta p = 8514 \text{ Pa}$ ($T=20^\circ C$)

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**

4.22 m²
1.2 collectors

604 kWh/m²

62.6 m²
18.4 collectors

768 kWh/m²

11.2 m²
3.3 collectors

492 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.