

Solar Collector Factsheet

Sieger Solar Sunstar HP65-20

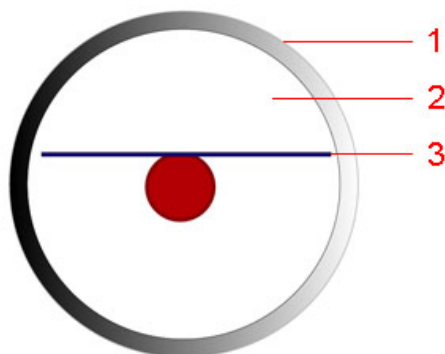


Model	Sunstar HP65-20
Type	Evacuated tube collector
Manufacturer	SG Sieger-Solar KG
Address	Heideweg 28
	DE-53604 Bad Honnef
Telephone	+49 2224 90 13 70-0
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Email	info@sg-sieger-solar.de
Internet	www.sieger-solar.de
Test date	06.2007

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

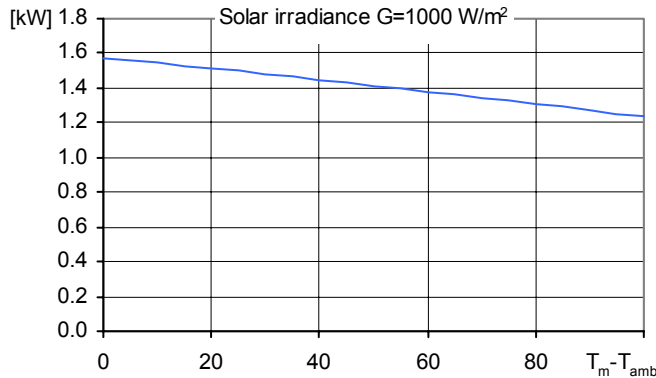


Dimensions		Technical data	
Total length	1.975 m	Minimum flowrate	60 l/h
Total width	1.453 m	Nominal flowrate	160 l/h
Gross area	2.870 m ²	Maximum flowrate	250 l/h
Aperture area	2.113 m ²	Fluid content	1.0 l
Absorber area	1.983 m ²	Maximum operating pressure	6 bar
Weight empty	58 kg	Stagnation temperature	252 °C
Types of mounting		Further information	
<input checked="" type="checkbox"/> Construction for sloping roof		<input checked="" type="checkbox"/> Units in different sizes available	
<input type="checkbox"/> Integration into sloping roof		<input type="checkbox"/> Glazing replaceable	
<input checked="" type="checkbox"/> On flat roof with stand		Hydraulic connection	
<input type="checkbox"/> Facade		Copper pipe, nominal diameter 22 mm	
Construction			



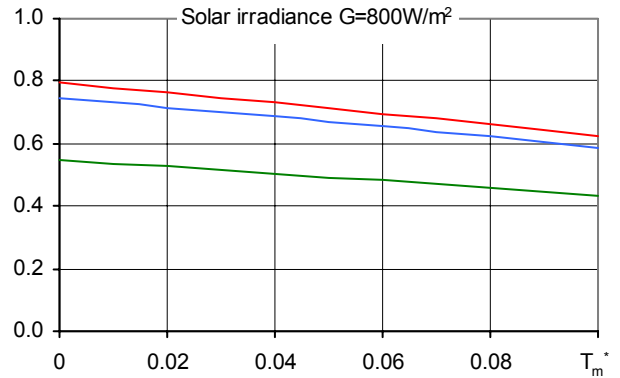
- 1 Glazing
- 2 Vacuum
- 3 Absorber

Peak Power per collector unit W_{peak}



Peak Power W_{peak}	1575 W
Thermal capacity*	5.7 kJ/K
Flowrate during test	160 l/h
Fluid for test	Water-Glycol 33.3%

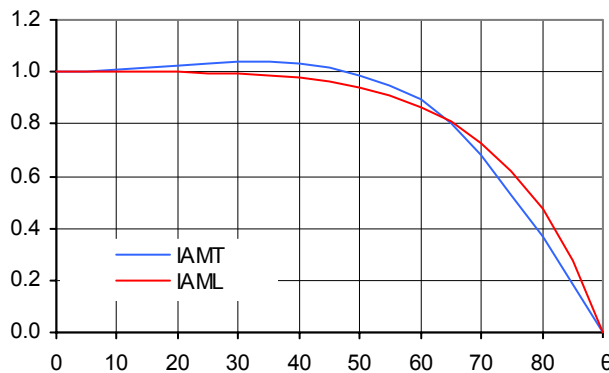
Relative efficiency η



Reference	Gross	Aperture	Absorber
η_0	0.549	0.745	0.794
a_1 [$WK^{-1}m^{-2}$]	1.05	1.43	1.52
a_2 [$WK^{-2}m^{-2}$]	0.0013	0.0018	0.0019

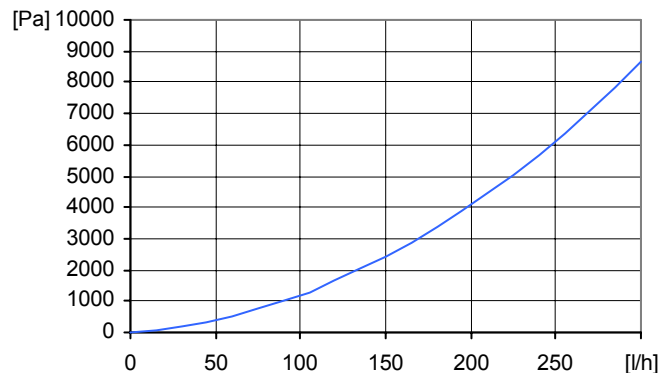
*) Specific thermal capacity C of the collector without fluid, determined according to 6.1.6.2 of EN12975-2:2006

Incident angle modifier IAM



K1, transversal IAM at 50°	0.98
K2, longitudinal IAM at 50°	0.94

Pressure drop Δp



Pressure drop at nominal flowrate
 $\Delta p = 2715 \text{ Pa}$ ($T=20^\circ\text{C}$)

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

4.07 m²
1.9 collectors

60.2 m²
28.5 collectors

10.7 m²
5.1 collectors

Solar yield**

627 kWh/m²

797 kWh/m²

512 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.