

Solar Collector Factsheet

Winkler VarioSol A



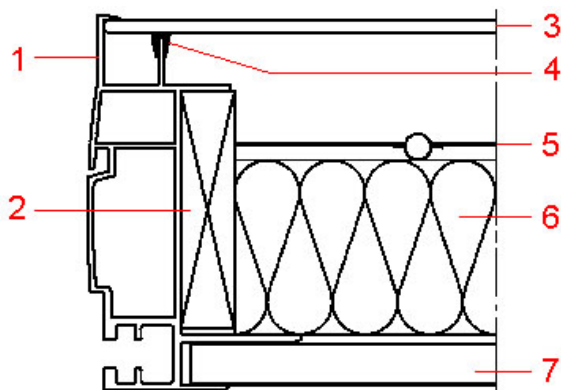
Model	VarioSol A
Type	Flat plate collector
Manufacturer	Winkler Solar GmbH
Address	Räterweg 17
	AT-6800 Feldkirch
Telephone	+43 (05522) 76139
Fax	+43 (05522) 76139-21
Email	solar@winklersolar.com
Internet	www.winklersolar.com
Test date	03.2003

- Performance test EN12975:2001
- Quality test EN12975:2001



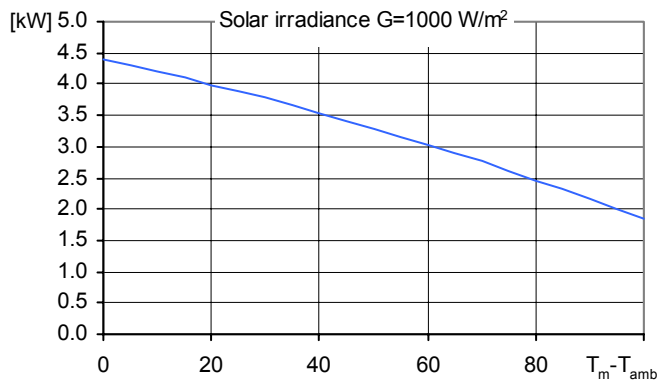
SPF Quality Label

Dimensions		Technical data	
Total length	2.010 m	Minimum flowrate	120 l/h
Total width	3.015 m	Nominal flowrate	240 l/h
Gross area	6.060 m ²	Maximum flowrate	960 l/h
Aperture area	5.525 m ²	Fluid content	3.2 l
Absorber area	5.410 m ²	Maximum operating pressure	6 bar
Weight empty	190 kg	Stagnation temperature	202 °C
Types of mounting		Further information	
<input checked="" type="checkbox"/> Construction for sloping roof		<input checked="" type="checkbox"/> Units in different sizes available	
<input checked="" type="checkbox"/> Integration into sloping roof		<input checked="" 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			

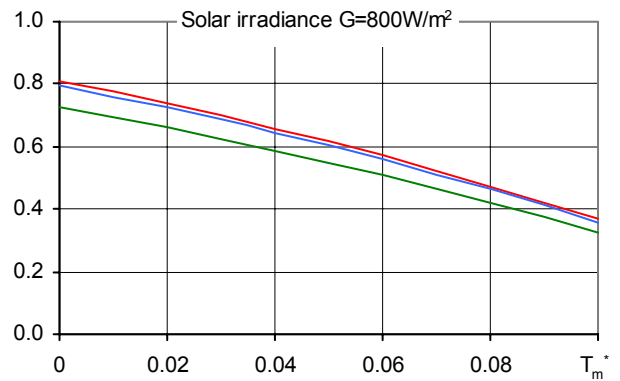


- 1 Casing
- 2 Lateral thermal insulation
- 3 Glazing
- 4 Sealing profile
- 5 Absorber
- 6 Thermal insulation
- 7 Casing, Rear panel

Peak Power per collector unit W_{peak}



Relative efficiency η

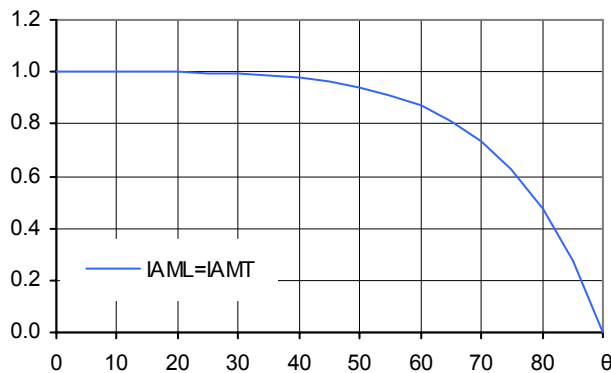


Peak Power W_{peak}	4393 W
Thermal capacity*	14.7 kJ/K
Flowrate during test	350 l/h
Fluid for test	Water-Glycol 33.3%

Reference	Gross	Aperture	Absorber
η_0	0.725	0.795	0.812
a_1 [WK ⁻¹ m ²]	3.04	3.33	3.40
a_2 [WK ⁻² m ²]	0.0117	0.0128	0.0131

*) Specific thermal capacity C of the collector without fluid, determined according to 6.1.6.2 of EN12975-2:2001

Incident angle modifier IAM



Pressure drop Δp

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

Pressure drop at nominal flowrate
 $\Delta p = \text{-- Pa}$ (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°

Surface demand** **Solar yield****
Number of collectors

Domestic hot water: Fss* = 60%
Tank 450 l, collector inclination 45°,
Daily energy demand 10 kWh (4-6 persons)
Energy demand of the reference system 4200 kWh/year

4.79 m²
0.9 collectors 532 kWh/m²

Water pre-heating: Fss* = 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

63.0 m²
11.4 collectors 763 kWh/m²

Space heating system: Fss* = 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

14.7 m²
2.7 collectors 366 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.