

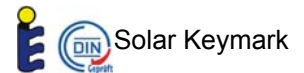
Solar Collector Factsheet

AMK-Collectra OPC 10



Model	OPC 10
Type	Evacuated tube collector
Manufacturer	AMK-Collectra AG
Address	Bahnweg Nord 16
	CH-9475 Sevelen
Telephone	+41 (081) 750 17 17
Fax	+41 (081) 750 17 18
Email	amk@amk-solac.com
Internet	www.amk-solac.com
Test date	06.2008

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



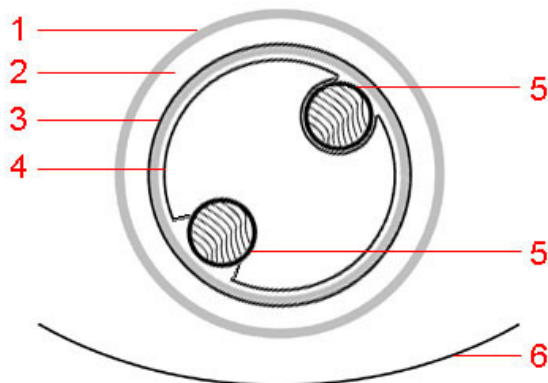
Dimensions	Technical data
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Total length	1.700 m	Minimum flowrate	30 l/h
Total width	0.850 m	Nominal flowrate	45 l/h
Gross area	1.445 m ²	Maximum flowrate	100 l/h
Aperture area	1.143 m ²	Fluid content	1.4 l
Absorber area	1.650 m ²	Maximum operating pressure	10 bar
Weight empty	33 kg	Stagnation temperature	323 °C

Types of mounting	Further information
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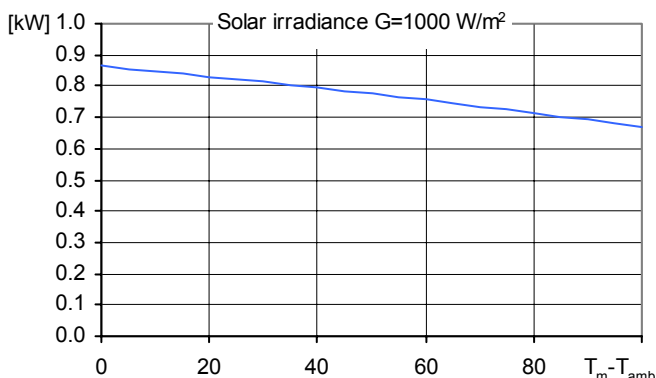
- | | |
|--|---|
| <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Construction for sloping roof <input type="checkbox"/> Integration into sloping roof <input checked="" type="checkbox"/> On flat roof with stand <input checked="" type="checkbox"/> Facade | <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Units in different sizes available <input type="checkbox"/> Glazing replaceable <p>Hydraulic connection
G3/4"</p> |
|--|---|

Construction	
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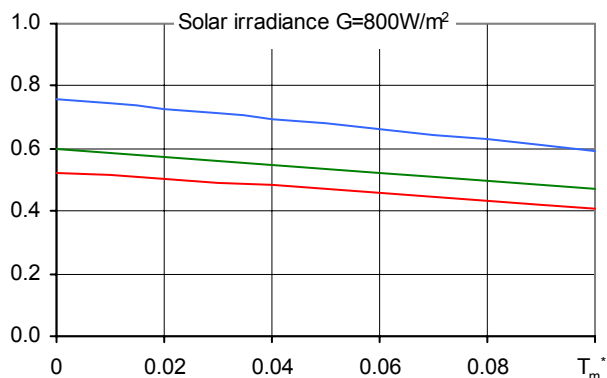
- 1 Glazing
- 2 Vacuum
- 3 Absorber
- 4 Heat-conducting metal sheet
- 5 U-tube
- 6 CPC reflector

Peak Power per collector unit W_{peak}



Peak Power W_{peak}	865 W
Thermal capacity*	9.1 kJ/K
Flowrate during test	100 l/h
Fluid for test	Water-Glycol 33.3%

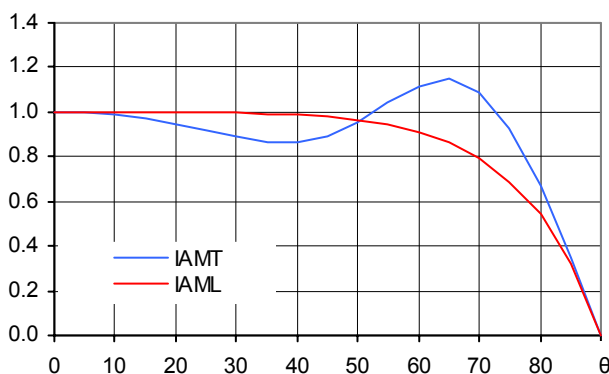
Relative efficiency η



Reference	Gross	Aperture	Absorber
η_0	0.598	0.756	0.524
a_1 [$WK^{-1}m^{-2}$]	1.12	1.41	0.98
a_2 [$WK^{-2}m^{-2}$]	0.0023	0.0029	0.0020

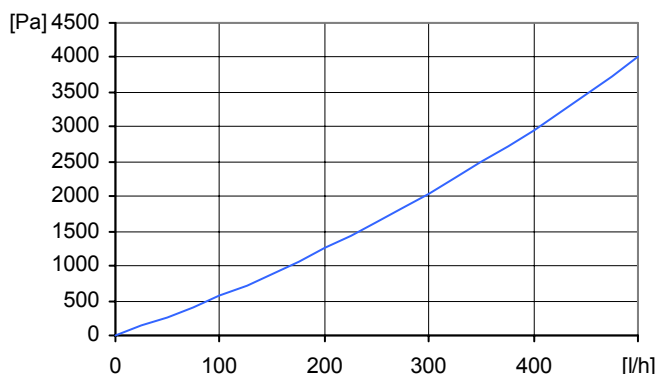
*) Specific thermal capacity C of the collector without fluid, determined according to 6.1.6.2 of EN12975-2:2006

Incident angle modifier IAM



K1, transversal IAM at 50°	0.96
K2, longitudinal IAM at 50°	0.97

Pressure drop Δp



Pressure drop at nominal flowrate
$\Delta p = 240$ 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

4.05 m²
3.5 collectors

59.1 m²
51.7 collectors

11.1 m²
9.7 collectors

Solar yield**

631 kWh/m²

813 kWh/m²

496 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.