

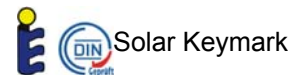
Solar Collector Factsheet

Wankang CD-1800/58-30Tubes

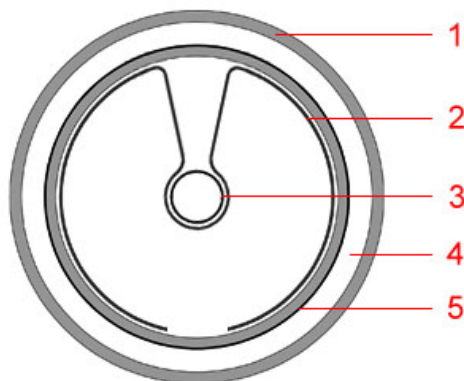


Model	CD-1800/58-30Tubes
Type	Evacuated tube collector
Manufacturer	Wuxi Wankang Solar Water Heater Co., Ltd.
Address	No.6, Xiaohu Road, Chengchang Industry Park Huangtu Town, Jiangyin City CN-213000 Wuxi
Telephone	+86 510 86650098
Fax	+86 510 86650098
Email	sales@wksolar.com
Internet	www.wksolar.com
Test date	03.2010

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

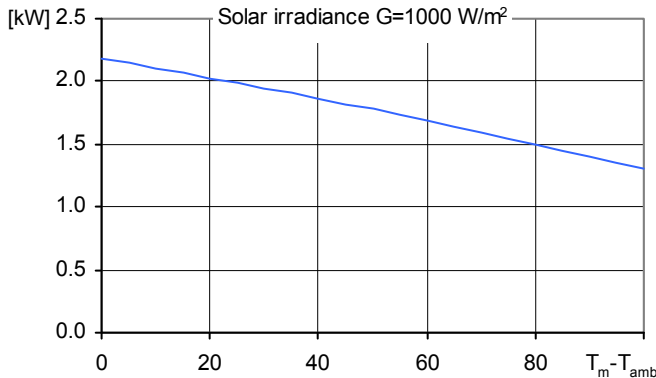


Dimensions		Technical data	
Total length	1.984 m	Minimum flowrate	180 l/h
Total width	2.450 m	Nominal flowrate	360 l/h
Gross area	4.861 m ²	Maximum flowrate	480 l/h
Aperture area	3.565 m ²	Fluid content	2.0 l
Absorber area	5.821 m ²	Maximum operating pressure	6 bar
Weight empty	123 kg	Stagnation temperature	213 °C
Types of mounting		Further information	
<input checked="" type="checkbox"/> Construction for sloping roof		<input 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			



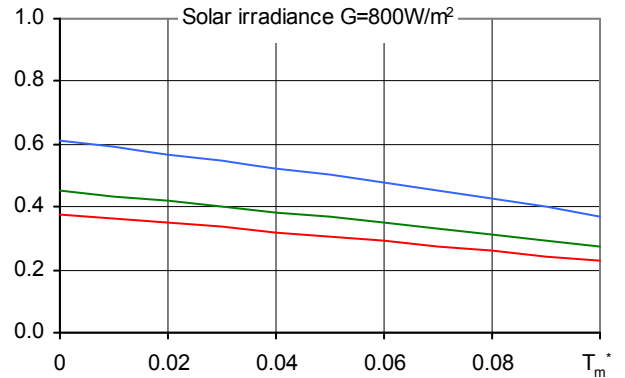
- 1 Glazing
- 2 Heat-conducting metal sheet
- 3 Heat pipe
- 4 Vacuum
- 5 Absorber

Peak Power per collector unit W_{peak}



Peak Power W_{peak}	2183 W
Thermal capacity*	35.5 kJ/K
Flowrate during test	250 l/h
Fluid for test	Water-Glycol 33.3%

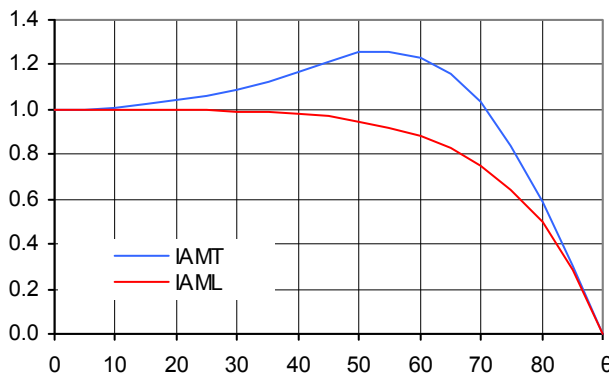
Relative efficiency η



Reference	Gross	Aperture	Absorber
η_0	0.449	0.612	0.375
a_1 [$WK^{-1}m^{-2}$]	1.51	2.06	1.26
a_2 [$WK^{-2}m^{-2}$]	0.0031	0.0042	0.0026

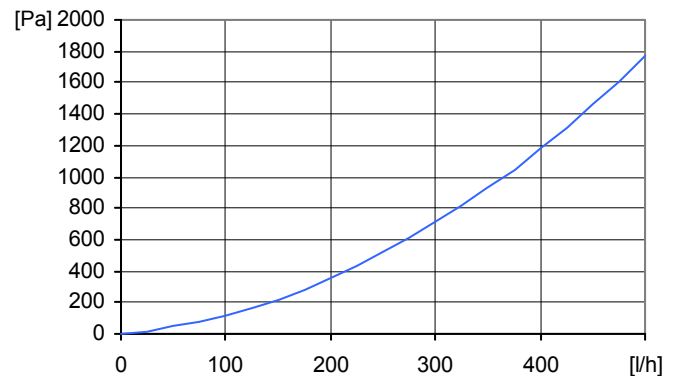
*) Specific thermal capacity C of the collector without fluid, determined according to 6.1.6.2 of EN12975-2:2006

Incident angle modifier IAM



K1, transversal IAM at 50°	1.26
K2, longitudinal IAM at 50°	0.95

Pressure drop Δp



Pressure drop at nominal flowrate
$\Delta p = 977 \text{ Pa}$ (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°

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**

5.13 m²
1.4 collectors

498 kWh/m²

69.0 m²
19.4 collectors

682 kWh/m²

15.1 m²
4.2 collectors

362 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.