

# Solar Collector Factsheet

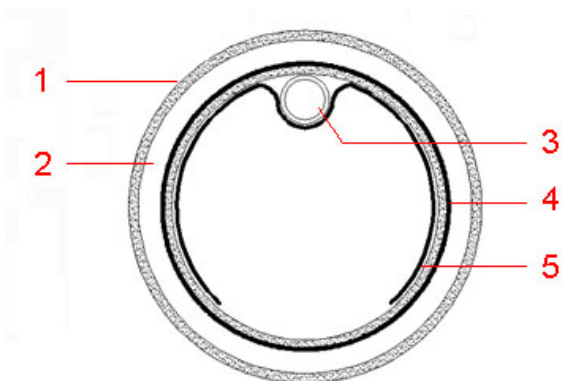
## Xinwang ANK 20



<b>Model</b>	<b>ANK 20</b>
<b>Type</b>	Evacuated tube collector
<b>Manufacturer</b>	Xinwang Green Energy Co., Ltd
<b>Address</b>	58 New Airport Road
	CN-213000 Changzhou
<b>Telephone</b>	+86 519 8326 88 83
<b>Fax</b>	+86 519 8326 88 82
<b>Email</b>	info@aucklatsolar.com
<b>Internet</b>	<b>www.aucklatsolar.com</b>
<b>Test date</b>	10.2001

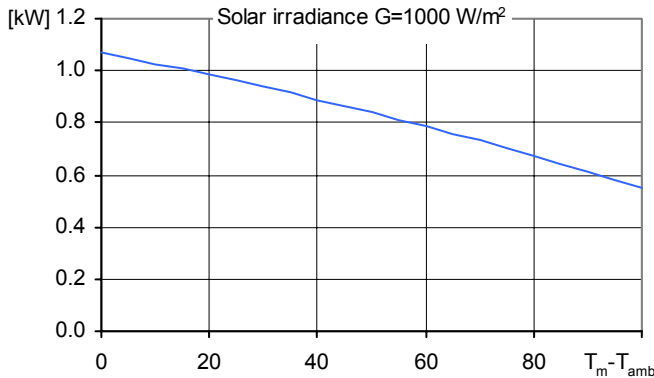
- Performance test EN12975:2001
- Quality test EN12975:2001

Dimensions		Technical data	
<b>Total length</b>	1.945 m	<b>Minimum flowrate</b>	80 l/h
<b>Total width</b>	1.467 m	<b>Nominal flowrate</b>	140 l/h
<b>Gross area</b>	2.853 m <sup>2</sup>	<b>Maximum flowrate</b>	300 l/h
<b>Aperture area</b>	1.869 m <sup>2</sup>	<b>Fluid content</b>	0.7 l
<b>Absorber area</b>	1.614 m <sup>2</sup>	<b>Maximum operating pressure</b>	6 bar
<b>Weight empty</b>	69 kg	<b>Stagnation temperature</b>	-- °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 checked="" type="checkbox"/> Glazing replaceable	
<input checked="" type="checkbox"/> On flat roof with stand		<b>Hydraulic connection</b>	
<input type="checkbox"/> Facade		Copper pipe, nominal diameter 22 mm	
Construction			



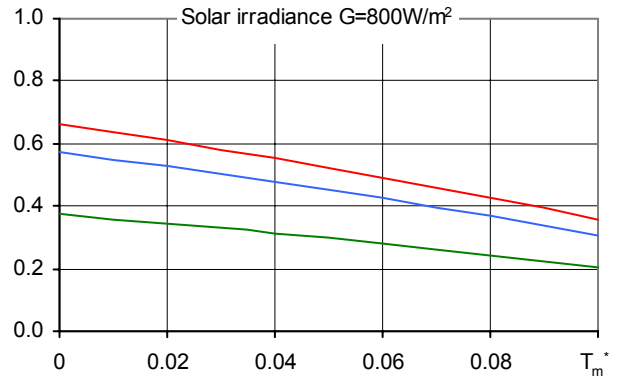
- 1 Glazing
- 2 Vacuum
- 3 Heat pipe
- 4 Absorber
- 5 Heat-conducting metal sheet

**Peak Power per collector unit  $W_{peak}$**



<b>Peak Power <math>W_{peak}</math></b>	1067 W
<b>Thermal capacity*</b>	23.1 kJ/K
<b>Flowrate during test</b>	110 l/h
<b>Fluid for test</b>	Water-Glycol 33.3%

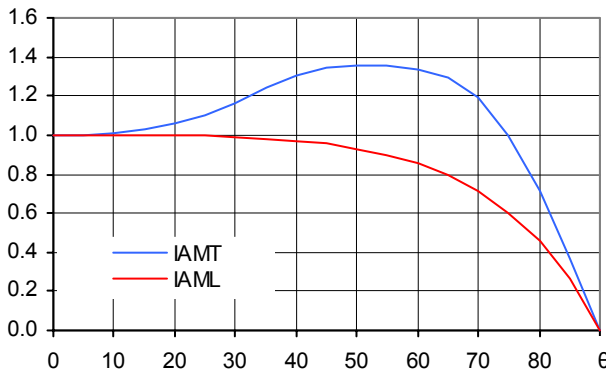
**Relative efficiency  $\eta$**



<b>Reference</b>	<b>Gross</b>	<b>Aperture</b>	<b>Absorber</b>
$\eta_0$	0.374	0.571	0.661
$a_1$ [ $WK^{-1}m^{-2}$ ]	1.37	2.10	2.43
$a_2$ [ $WK^{-2}m^{-2}$ ]	0.0044	0.0067	0.0078

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

**Incident angle modifier IAM**



<b>K1, transversal IAM at 50°</b>	1.36
<b>K2, longitudinal IAM at 50°</b>	0.93

**Pressure drop  $\Delta p$**

**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°

**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 m<sup>2</sup>, 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\*\***

5.61 m<sup>2</sup>  
3.0 collectors

455 kWh/m<sup>2</sup>

74.2 m<sup>2</sup>  
39.7 collectors

648 kWh/m<sup>2</sup>

16.6 m<sup>2</sup>  
8.9 collectors

327 kWh/m<sup>2</sup>

\*) 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.