

# Solar Collector Factsheet

## Hewalex KS 2000 SP

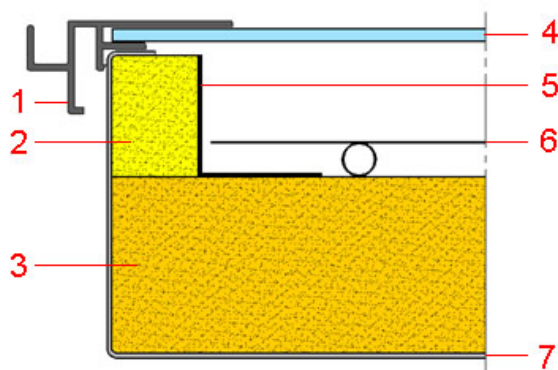


|                     |  |
|---------------------|--|
| <b>Model</b>        | <b>KS 2000 SP</b>  |
| <b>Type</b>         | Flat plate collector                                       |
| <b>Manufacturer</b> | HEWALEX  |
| <b>Address</b>      | Witosa 14 A  |
|                     | PL-43-512 Bestwinka  |
| <b>Telephone</b>    | +48 (032) 214 17 10  |
| <b>Fax</b>          | +48 (032) 214 17 11  |
| <b>Email</b>        | hewalex@hewalex.com.pl                                     |
| <b>Internet</b>     | <a href="http://www.hewalex.com.pl">www.hewalex.com.pl</a> |
| <b>Test date</b>    | 05.2007  |

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

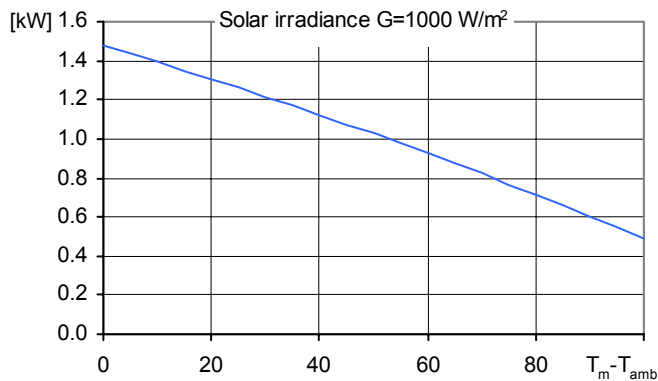


| Dimensions  |                      | Technical data   |         |
|---|----------------------|--|---------|
| <b>Total length</b>   | 2.019 m              | <b>Minimum flowrate</b>  | 72 l/h  |
| <b>Total width</b>  | 1.037 m              | <b>Nominal flowrate</b>  | 108 l/h |
| <b>Gross area</b>   | 2.094 m <sup>2</sup> | <b>Maximum flowrate</b>  | 240 l/h |
| <b>Aperture area</b>  | 1.817 m <sup>2</sup> | <b>Fluid content</b>   | 1.1 l   |
| <b>Absorber area</b>  | 1.815 m <sup>2</sup> | <b>Maximum operating pressure</b>                                      | 6 bar   |
| <b>Weight empty</b>   | 39 kg                | <b>Stagnation temperature</b>  | 192 °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 type="checkbox"/> Glazing replaceable                           |         |
| <input checked="" type="checkbox"/> On flat roof with stand       |                      | <b>Hydraulic connection</b>  |         |
| <input type="checkbox"/> Facade                                   |                      | G3/4"  |         |
| Construction  |                      |  |         |



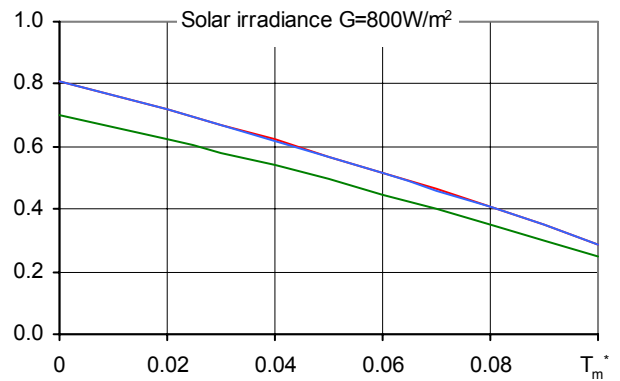
- 1 Cover rail
- 2 Lateral thermal insulation
- 3 Thermal insulation
- 4 Glazing
- 5 Black glass fleece
- 6 Absorber
- 7 Casing

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



|   |                    |
|---|--------------------|
| <b>Peak Power <math>W_{peak}</math></b> | 1474 W             |
| <b>Thermal capacity*</b>                | 6.1 kJ/K           |
| <b>Flowrate during test</b>             | 200 l/h            |
| <b>Fluid for test</b>                   | Water-Glycol 33.3% |

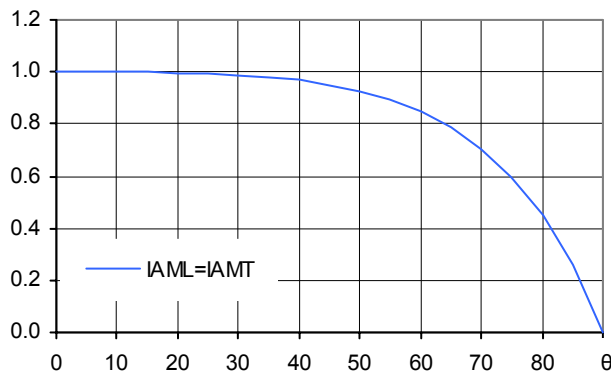
**Relative efficiency  $\eta$**



|                           |              |                 |                 |
|---------------------------|--------------|-----------------|-----------------|
| <b>Reference</b>          | <b>Gross</b> | <b>Aperture</b> | <b>Absorber</b> |
| $\eta_0$                  | 0.704        | 0.811           | 0.812           |
| $a_1$ [ $WK^{-1}m^{-2}$ ] | 3.87         | 4.46            | 4.46            |
| $a_2$ [ $WK^{-2}m^{-2}$ ] | 0.0083       | 0.0096          | 0.0096          |

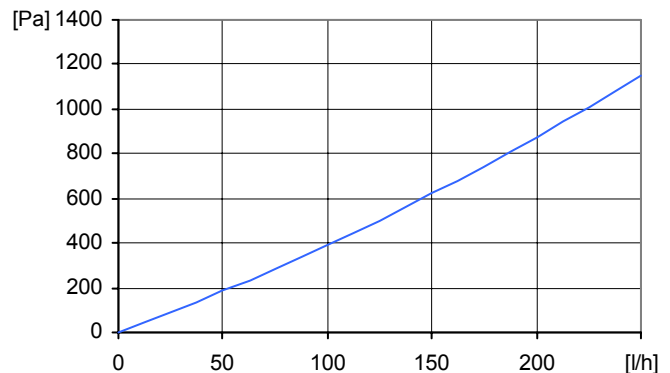
\*) Specific thermal capacity C of the collector without fluid, determined according to 6.1.6.2 of EN12975-2:2006

**Incident angle modifier IAM**



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

**Pressure drop  $\Delta p$**



|  |
|--|
| <b>Pressure drop at nominal flowrate</b> |
| $\Delta p = 425$ 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**<br>Number of collectors | Solar yield**          |
|--|------------------------|
| 5.26 m <sup>2</sup><br>2.9 collectors    | 483 kWh/m <sup>2</sup> |
| 66.9 m <sup>2</sup><br>36.8 collectors   | 730 kWh/m <sup>2</sup> |
| 17.5 m <sup>2</sup><br>9.6 collectors    | 307 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.