

## Solar Collector Factsheet: SPF-Nr. C632



<b>Model</b>	<b>AP-20</b>
<b>Type</b>	Tube collector
<b>Manufacturer</b>	Focus Technology Co., Ltd
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<b>Sales area</b>	CH,EU,US,CA,AU,ME,NZ

- Performance test EN 12975
- Quality test EN 12975

### Dimensions

<b>Total length</b>	1.929 m
<b>Total width</b>	1.496 m
<b>Empty weight with glass</b>	63 kg
<b>Liquid content</b>	0.58 l
<b>Aperture area</b>	1.876 m <sup>2</sup>
<b>Absorber area</b>	1.606 m <sup>2</sup>
<b>Gross area</b>	2.886 m <sup>2</sup>

### Technical data

<b>Minimum volume flow rate</b>	120 l/h
<b>Recommended volume flow rate</b>	120 l/h
<b>Maximum volume flow rate</b>	600 l/h
<b>Maximum operating pressure</b>	6 bar
<b>Stagnation temperature</b>	245 °C
(Ta = 30°C, G = 1000 W/m <sup>2</sup> )	

### Types of mounting

- Construction for flat roof
- Integration into sloped roof
- Construction for sloping roof
- Front mounting

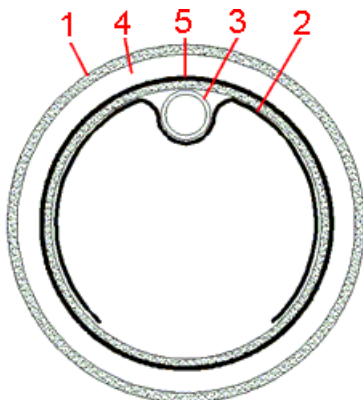
### Further data

- Variable module size
- Glazing replaceable

#### Hydraulic connections

Copper pipe, nominal diameter 22 mm

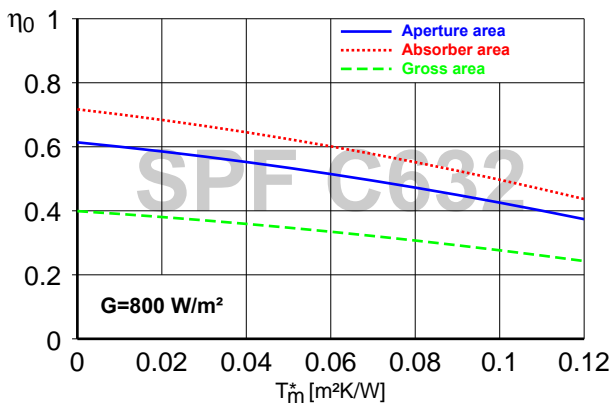
### Construction



#### Element list and Nomenclature

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

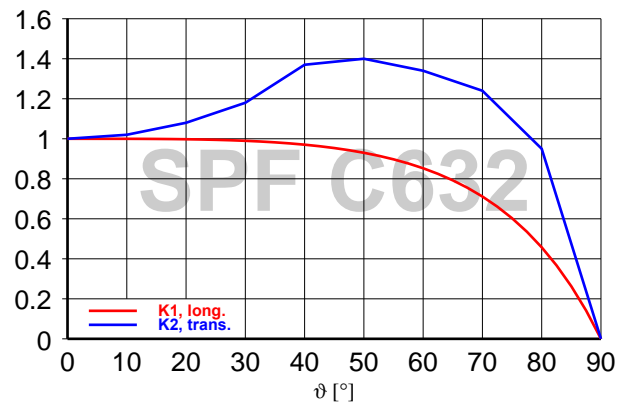
### Efficiency curve



Reference area	Aperture	Absorber	Gross
$\eta_0$	0.614	0.717	0.399
$a_1$ [W/(m²K)]	1.30	1.52	0.85
$a_2$ [W/(m²K²)]	0.0073	0.0085	0.0047
Test fluid: water-glycol 33.3%, volume current: 120 l/h			

### Angle factors

(Incident Angle Modifier)



<b>K1, longitudinal (50°)</b>	0.93
<b>K2, transversal (50°)</b>	1.40
<b>(special IAM)</b>	
<b>Heat capacity: C</b>	26.1 kJ/K

### System

(Climate: central Switzerland, collector orientation: south, cold water 10°C, hot water 50°C)

#### Short description of the system (simulation with Polysun)

Surface demand\*\*

Solar yield\*\*

#### 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 4'200 kWh/year

4.56 m²

561 kWh/m²

#### Water pre-heating Fss = 25% (\*)

2 tanks 1'500 l + 2'500 l, collector inclination 30°  
Domestic hot water 10'000 l/day (200 persons)  
Daily heat losses (circulation & tank) 60 kWh  
Energy demand of the reference system 191'700 kWh/year

64.4 m²

747 kWh/m²

#### Space heating Fss = 25% (\*)

Combined storage 1'200 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 (outdoor temperature -8°C)  
Energy demand space heating 12'140 kWh/year  
Energy demand of the reference system 16'340 kWh/year

12.5 m²

436 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.