

Solar Collector Factsheet

RZ Solartechnik DF120-6



Model	DF120-6
Type	Evacuated tube collector
Manufacturer	R/Z Solartechnik
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Test date	11.2008

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



Dimensions

Total length	2.825 m
Total width	0.866 m
Gross area	2.446 m ²
Aperture area	1.684 m ²
Absorber area	1.609 m ²
Weight empty	55 kg

Technical data

Minimum flowrate	100 l/h
Nominal flowrate	120 l/h
Maximum flowrate	200 l/h
Fluid content	1.7 l
Maximum operating pressure	6 bar
Stagnation temperature	139 °C

Types of mounting

- Construction for sloping roof
- Integration into sloping roof
- On flat roof with stand
- Facade

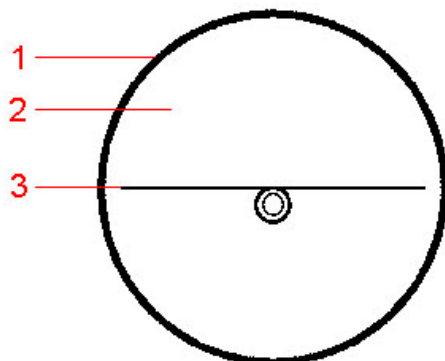
Further information

- Units in different sizes available
- Glazing replaceable

Hydraulic connection

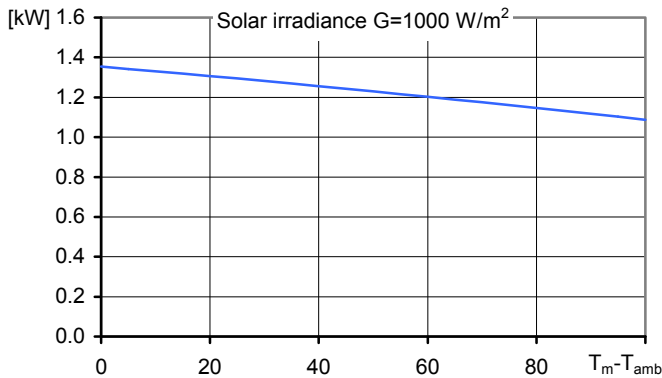
Copper pipe, nominal diameter 22 mm

Construction



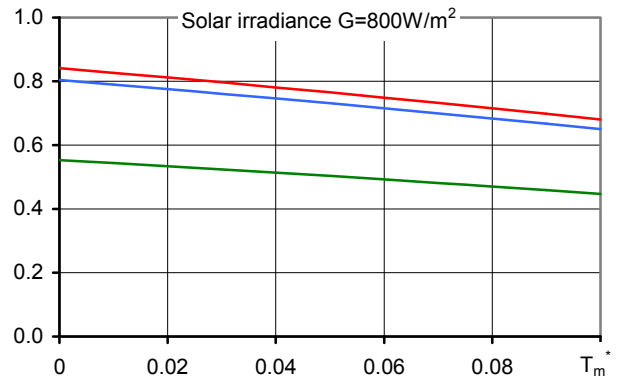
- 1 Glazing
- 2 Vacuum
- 3 Absorber

Peak Power per collector unit W_{peak}



Peak Power W_{peak}	1353 W
Thermal capacity*	4.0 kJ/K
Flowrate during test	100 l/h
Fluid for test	Water-Glycol 33.3%

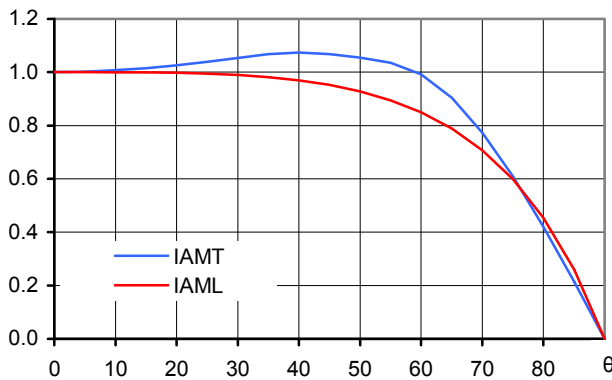
Relative efficiency η



Reference	Gross	Aperture	Absorber
η_0	0.553	0.804	0.841
a_1 [$WK^{-1}m^{-2}$]	0.93	1.36	1.42
a_2 [$WK^{-2}m^{-2}$]	0.0015	0.0022	0.0023

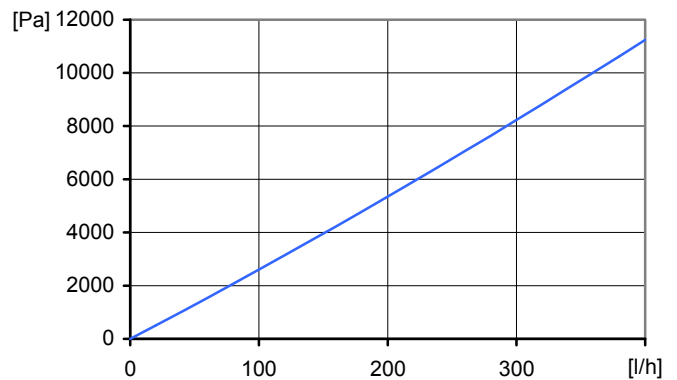
*) Specific thermal capacity C of the collector without fluid, determined according to 6.1.6.2 of EN12975-2:2006

Incident angle modifier IAM



K1, transversal IAM at 50°	1.05
K2, longitudinal IAM at 50°	0.93

Pressure drop Δp



Pressure drop at nominal flowrate
$\Delta p = 3142$ 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**

3.64 m²
2.2 collectors

701 kWh/m²

54.0 m²
32.1 collectors

889 kWh/m²

9.5 m²
5.6 collectors

580 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.