SPF Solartechnik Prüfung Forschung

C782

Solar Collector Factsheet
Navitron SFB 20

Model	**SFB 20**
Type	Evacuated tube collector
Manufacturer	Navitron Ltd
Address	The Drey, Old Dixton Road
	UK-NP25 3SQ Monmouth
Telephone	+44 1600 714786
Fax	+44 1600 714786
Email	sales@navitron.org.uk
Internet	**www.navitron.org.uk**
Test date	12.2006

☑ Performance test EN12975:2001
☑ Quality test EN12975:2001

Dimensions

Total length	1.639 m
Total width	1.466 m
Gross area	2.403 m^2
Aperture area	1.747 m^2
Absorber area	2.655 m^2
Weight empty	49 kg

Technical data

Minimum flowrate	30 l/h
Nominal flowrate	120 l/h
Maximum flowrate	200 l/h
Fluid content	1.1 l
Maximum operating pressure	8 bar
Stagnation temperature	225 °C

Types of mounting

☑ Construction for sloping roof
☐ Integration into sloping roof
☑ On flat roof with stand
☑ Facade

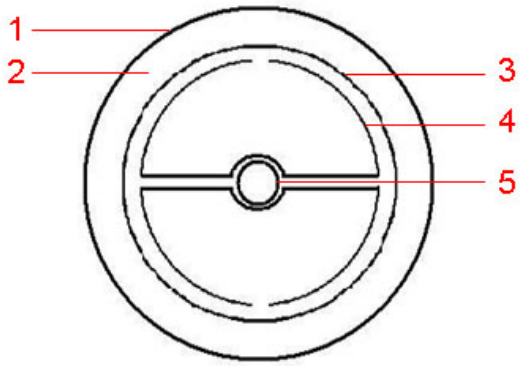
Further information

☑ Units in different sizes available
☐ Glazing replaceable

Hydraulic connection

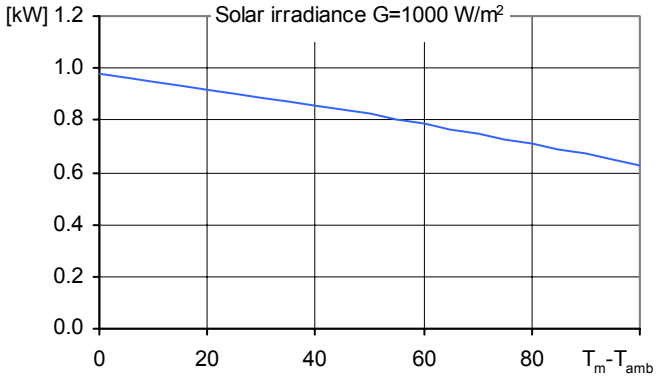
Copper pipe, nominal diameter 22 mm

Construction

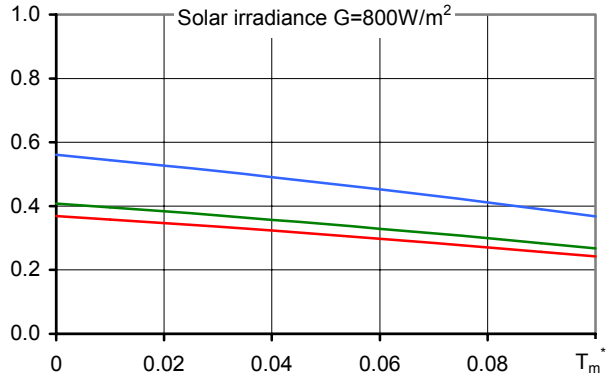


1 Glazing
2 Vacuum
3 Absorber
4 Heat-conducting metal sheet
5 Heat pipe

Peak Power per collector unit W_{peak}



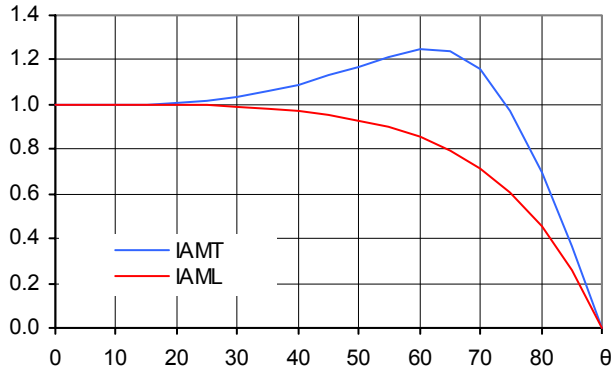
Relative efficiency η



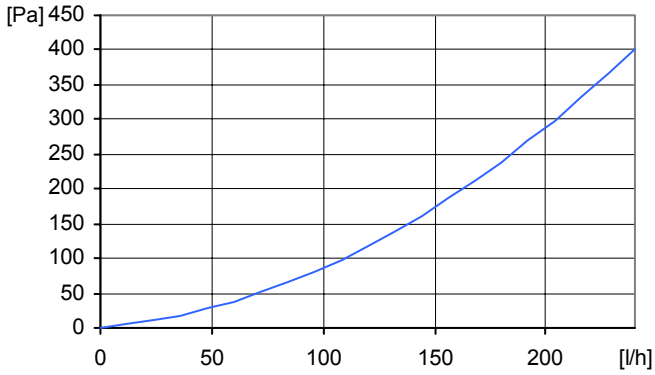
			Reference	Gross	Aperture	Absorber
Peak Power W_{peak}	980 W		**η_0**	0.408	0.561	0.369
Thermal capacity*	13.7 kJ/K		**a_1 [$WK^{-1}m^{-2}$]**	1.17	1.61	1.06
Flowrate during test	119 l/h		**a_2 [$WK^{-2}m^{-2}$]**	0.0029	0.0040	0.0026
Fluid for test	Water-Glycol 33.3%					

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

Incident angle modifier IAM



Pressure drop Δp



K1, transversal IAM at 50°	1.17
K2, longitudinal IAM at 50°	0.93

Pressure drop at nominal flowrate

Δp = 118 Pa (T=20°C)

SPF Simulation of systems using Polysun

Short description of the system	**Surface demand** Number of collectors**	**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 4200 kWh/year	5.49 m^2 3.1 collectors	464 kWh/m^2
Water pre-heating: Fss* = 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	74.7 m^2 42.8 collectors	626 kWh/m^2
Space heating system: Fss* = 25% Combined storage1200 l, collector inclination 45°, Daily energy demand 10 kWh (4-6 persons), Building 200 m^2, 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	15.8 m^2 9.1 collectors	344 kWh/m^2

*) 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.