

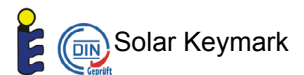
Solar Collector Factsheet

Riello CP25TV

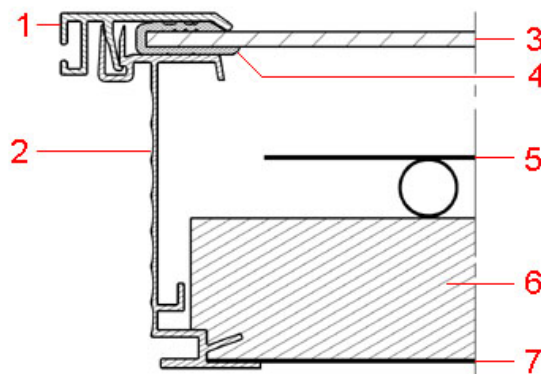


Model	CP25TV
Type	Flat plate collector
Manufacturer	Riello S.p.A.
Address	via Mussa 20
	IT-35017 Piombino Dese (PD)
Telephone	+39 0499 323911
Fax	+39 0499 323946
Email	info@riello.it
Internet	www.riello.com
Test date	12.2008

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

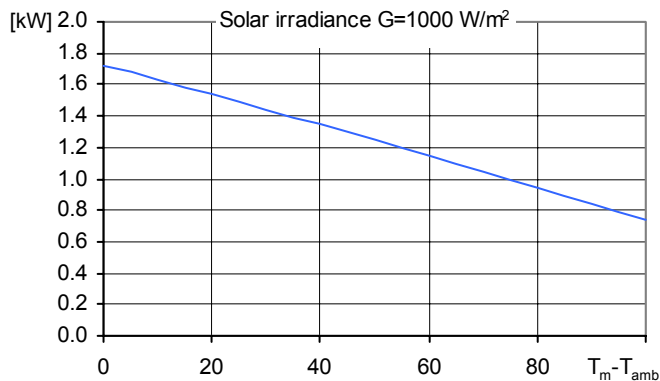


Dimensions		Technical data	
Total length	2.047 m	Minimum flowrate	18 l/h
Total width	1.187 m	Nominal flowrate	75 l/h
Gross area	2.430 m ²	Maximum flowrate	150 l/h
Aperture area	2.195 m ²	Fluid content	1.6 l
Absorber area	2.161 m ²	Maximum operating pressure	10 bar
Weight empty	40 kg	Stagnation temperature	204 °C
Types of mounting		Further information	
<input checked="" type="checkbox"/> Construction for sloping roof		<input type="checkbox"/> Units in different sizes available	
<input type="checkbox"/> Integration into sloping roof		<input type="checkbox"/> Glazing replaceable	
<input checked="" type="checkbox"/> On flat roof with stand		Hydraulic connection	
<input type="checkbox"/> Facade		Copper pipe, nominal diameter 22 mm	
Construction			



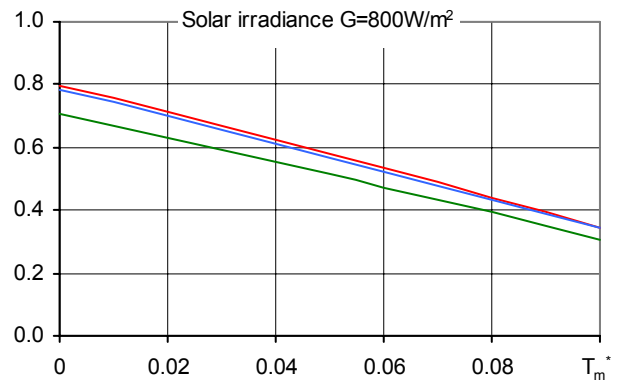
- 1 Cover rail
- 2 Frame
- 3 Glazing
- 4 Sealing profile
- 5 Absorber
- 6 Thermal insulation
- 7 Rear panel

Peak Power per collector unit W_{peak}



Peak Power W_{peak}	1724 W
Thermal capacity*	5.6 kJ/K
Flowrate during test	140 l/h
Fluid for test	Water-Glycol 33.3%

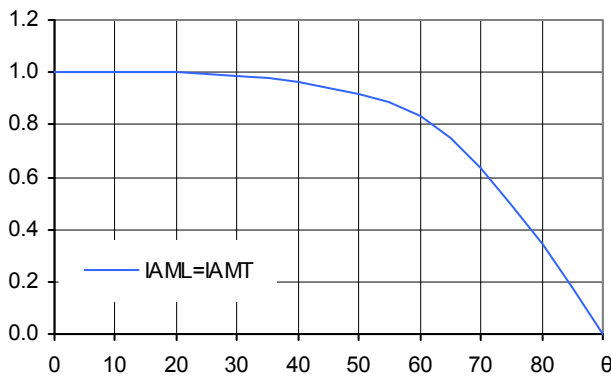
Relative efficiency η



Reference	Gross	Aperture	Absorber
η_0	0.710	0.786	0.798
a_1 [$WK^{-1}m^{-2}$]	3.80	4.20	4.27
a_2 [$WK^{-2}m^{-2}$]	0.0027	0.0030	0.0030

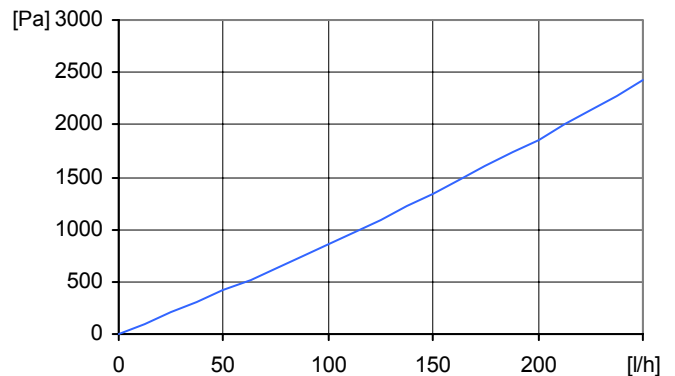
*) Specific thermal capacity C of the collector without fluid, determined according to 6.1.6.2 of EN12975-2:2006

Incident angle modifier IAM



K1, transversal IAM at 50°	0.92
K2, longitudinal IAM at 50°	0.92

Pressure drop Δp



Pressure drop at nominal flowrate
$\Delta p = 631 \text{ Pa}$ (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 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**

5.25 m²
2.4 collectors 484 kWh/m²

67.2 m²
30.6 collectors 715 kWh/m²

16.8 m²
7.7 collectors 321 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.