



Swimming pool of Melegnano, Italy

SOLPOOL I01



The pilot plant in Melegnano (Milano) was installed in 1999 on a public swimming pool and partially financed by the European Community. 200 square metres of solar collectors provide heat for both, the hot water system (81 MWh/a) and the swimming pool (42 MWh/a). The performance of the plant has been monitored accurately during the first year. A solar performance guarantee (at least 500 kWh/sqm) was available for the first twelve months of operation, whereas the calculated heat production had been estimated to about 615 kWh/sqm. The plant has been planned according to large scale criteria (large collector modules, low flow). The total system costs amount to about 625 EUR/sqm.

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Technical Data of the Melegnano's Absorber System – Description of the CSTS

Year of construction of CSTS	1999
Thermal power	130 kW _{therm.}
Gross area of collectors	200 m ²
Aperture area of collectors	184 m ²
Type of collectors	Flat plate collectors
Type of assembly	On flat roof
Orientation of collectors	South (0°)
Inclination angle to horizon	45°
Freezing protection	Glycol
Overheating protection	Expansion vessel
Operation mode	Low flow
Use of CSTS for	Hot tap water heating, swimming pool heating
Buffer storage	./.
Hot tap water storage	12.0 m ³ (2×6 m ³)
Control of backup-system/CSTS	Separated control



Technical Help Desk

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SOLPOOL – Solar energy use in outdoor swimming pools.
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Intelligent Energy Europe

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Description of Melegnano's system

Building

Type of building	Sports centre
Number of dwellings, floors	90.000 users/year
Year of construction	1983
Total effective area (heated)	./.
Hot tap water consumption (measured/estimated)	not available
Whole energy consumption for heating purpose after CSTS implementation (Collective Solar Thermal System)	112.000 kWh/a

Costs

Total cost solar system	110.000 Euro
Cost of the CSTS/gross area of collectors	550 Euro/m ²
Subsidies	40%

Output

Output of solar heat**)	123.000 kWh/a
Reduction of final energy***)	164.000 kWh/a
CO ₂ -emissions avoided	37,7 t CO ₂ /a
Solar performance guarantee	Yes

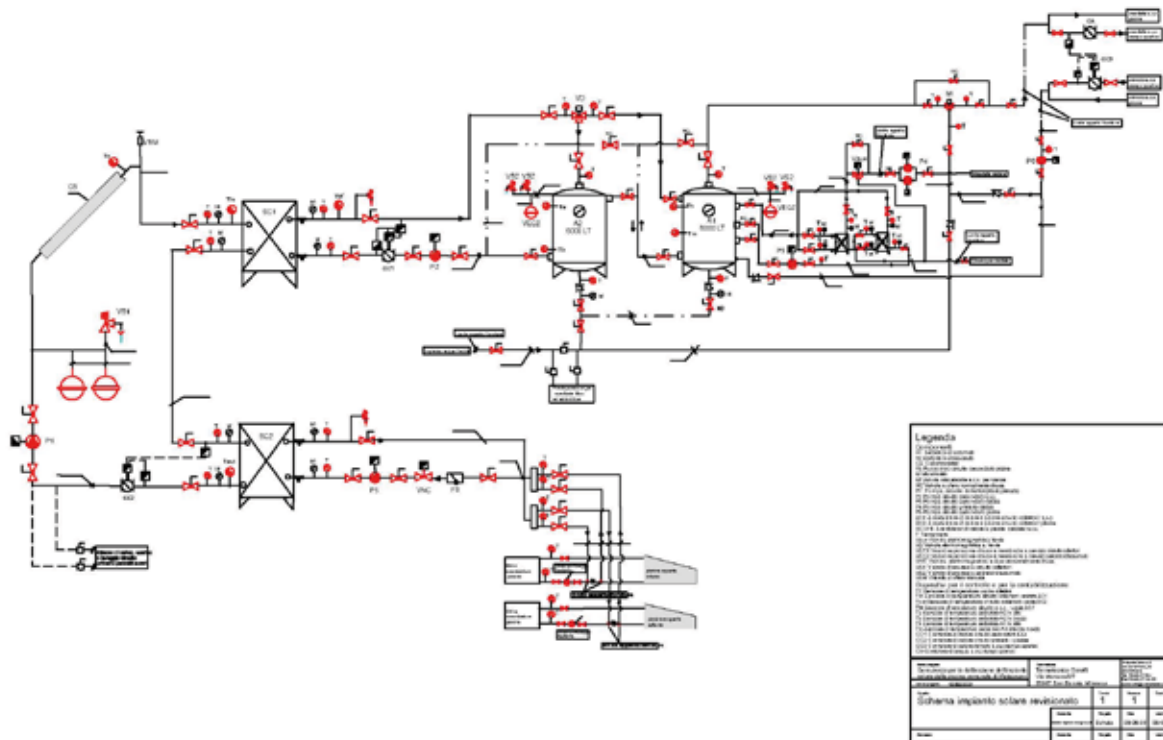
System engineering

Year of construction of CSTS	1999
Type of collectors	Flat plate collectors
Thermal power	130 kW _{therm.}
Aperture area of collectors*)	184 m ²
Buffer storage	./.
Hot tap water storage	12,0 m ³
Total capacity of boilers with energy source	350 kW, natural gas
Type of hot tap water heating	Centralised
Type of heating system	./.

*) Aperture area = light transmitting area of the front glass

** measured, between storage and piping to taps (solar system output)

*** related to the measured output mentioned before



Melegnano's installation scheme



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