



Combined indoor/outdoor pool Billstedt



SOLPOOL D05

The solution developed together with Bäderland Hamburg for the combined indoor/outdoor swimming pool of Billstedt, was tailor-made to the particular needs of the pool facilities. The solar heating system is unique in Europe and includes the following components:

- Solar absorber system: 950 m² absorber surface area
- Heat exchanger output: 2 x 540 kW
- Heat pump run with a gas engine and NH₃ (ammoniac) as cooling medium
 - Winter days: 207 kW
 - Summer days: 390 kW
 - + Engine waste heat: 50 kW
 - + Exhaust gas waste heat: 60 kW

With the implemented system energy savings of approximately 50% (gas) are achieved. At times of low sun irradiation, the ambient heat is used in combination with the heat pump. In addition the waste heat from the gas engine is used for heating purposes. Collateral positive effects:

- TEWI value (Total Equivalent Warming Impact): zero, which means no contamination with fluorocarbons;
- A particularly higher heating power-COP (Energy requirement/Performance). That means that low kinetic energy levels are necessary to run the heat pump.

Installation, Planning and Design

Firma:
SOLKAV Alternative Energie Systeme GmbH
www.solkav.at

Operator and pool

Betreiber: Bäderland Hamburg GmbH
Adresse: Kombibad Billstedt
Archenholzstr. 50a,
22117 Hamburg

Swimming Pool and Solar System

Year of installation	2007
Pool surface area	Indoor pool 500 m ² Outdoor pool 1.600 m ²
Absorber area	905 m ²
Absorber type	Solkav ClassicSolar
Heat Pump	Motor: Ford WSG 1068
Auxiliary energy	2 x 840 kW (gas boiler)
Specific yield	~280 kWh/(m ² -a) (exclusively with the absorbers)
Energy savings	~1.000 MWh of gas per year
CO₂-Savings	~210 t CO ₂ per year
Investment costs	350.000 EUR
System costs	387 EUR/m ² absorber surface area, complete system
Operation cost savings	~46.000 EUR per year (data from year 2007)



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SOLPOOL – Solar energy use in outdoor swimming pools.
A cooperation project of DGS and TTZ, Germany;
APE, Slovenia; CRES, Greece; Save-Rema, Hungary;
CZREA, Czech Republic; ALE, France and LECCE, Italy. SOLPOOL is
funded by the European Commission within the ALTENER programme.



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