SOLAR COOLING
Pleion Group
PRODUCT RANGE

SOLAR SYSTEMS
Distribution and marketing of solar systems in Italy and Europe

COLLECTORS
Production of VACUUM TUBE COLLECTORS

TANKS
Production of BUFFER TANKS and FRESH WATER TANKS

110 Employees
500 sqm of offices and show room
17.500 sqm of production and warehouse
21.5 Mln Euro Turnover

Visit www.pleion-group.com
INNOVATIVE PRODUCTS

PLEION GROUP

The First Smart Solar Collector in the world

Overheating and stagnation have been always the most important issues for solar collectors. PLEION has developed the first smart cover system for vacuum tube collectors that can control the solar power based on the temperature inside the cylinder.

The Solar Shower

PLEION developed CORNICHE, the first design oriented SOLAR BEACH SHOWER which works without electricity and is the perfect solution for beach’s, marina’s and hotel’s applications.
SOLAR ENERGY AND SOLAR COOLING DEMAND
SOLAR COOLING SYSTEM MAIN COMPONENTS

- Vacuum Solar collectors
- Solar storage tank
- Plate heat exchanger
- Absorption Chiller
- Storage tank for refrigerated water
- Cooling tower
- Backup Boiler
- Backup chiller
- Environments
PLEION SOLAR VACUUM COLLECTORS

**X-RAY 15**
- 15 vacuum pipes double-walled with REFLECTOR CPC
- Height 200 cm
- Width 171 cm
- Empty weight 78 kg
- Gross area 3.43 m²
- Aperture area 2.87 m²
- Absorption area 360° 3.86 m²
- Flow 2.25 l/min coll
- Connectable in a row up to 6

**X-RAY 10**
- 10 vacuum pipes double-walled with REFLECTOR CPC
- Height 197 cm
- Width 111 cm
- Empty weight 41 kg
- Gross area 2.20 m²
- Aperture area 1.91 m²
- Absorption area 360° 2.57 m²
- Flow 1.50 l/min coll
- Connectable in a row up to 12

**X-AIR14 + ECLIPSE COVER**
- 14 vacuum pipes double-walled with ECLIPSE SYSTEM
- Height 200 cm
- Width 131 cm
- Empty weight 72 kg
- Gross area 2.63 m²
- Aperture area 1.33 m²
- Absorption area 360° 1.145 m²
- Flow 1.00 l/min coll
- Connectable in a row up to 8
PLEION SOLAR VACUUM COLLECTORS

+15% PARALLEL DISTRIBUTION TESTED BY SAPIENZA

HIGH EFFICIENCY
LESS PRESSURE DROP
LESS INSTALLATION COSTS
WORKING TEMPERATURES

- Solar storage tank: 90°C → 78°C
- Absorption machine: 78°C → 16°C
- Storage tank for refrigerated water: 16°C
- Temperature reached by the solar field: 92°C
- -12°C
- 90°C

- Systems:
  - radiant system
  - fan coil system
  - etc
SOLAR COOLING SYSTEM MADE BY PLEION

Solar Cooling System at the service of
Air Force Base
Location: SIRACUSA
AIR CONDITIONING REQUEST

• Dormitory (30 rooms)
  30 fan coil
  2,5 kW each one

• Canteen Area
  75 W/m²
  300 m²

• Hall 200 sqm
  75 W/m²
  200 m²

Total cooling request: 75 + 22 + 15 = 112 kW
HOW CAN WE ACHIEVE IT?

- n. 64 X-RAY 15
- Solar storage 3x2000 liters
- SYSTEMA SYDHL115
- Cold storage 2000 liters

Technical Room
SOLAR FIELD COLLECTORS

TOTAL SOLAR POWER 110 kW
(operating condition)

Solar field 1
n.24 X-Ray15

Solar field 2
n.40 X-Ray15
ENERGY EFFICIENCY RATIO

Electric power

<table>
<thead>
<tr>
<th>Component</th>
<th>Power (W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absorber chiller</td>
<td>310</td>
</tr>
<tr>
<td>Pump Absorber-Tower</td>
<td>3.500</td>
</tr>
<tr>
<td>Pump cooling</td>
<td>1.300</td>
</tr>
<tr>
<td>Tower fun</td>
<td>2.200</td>
</tr>
<tr>
<td>Solar pump</td>
<td>300</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>7.610</strong></td>
</tr>
</tbody>
</table>

TOTAL ELECTRICAL POWER: 7,6 kW

COOLING POWER: 105 kW

\[ \text{EER}_{\text{rated}} = \frac{105}{7.6} = 13.8 \]