

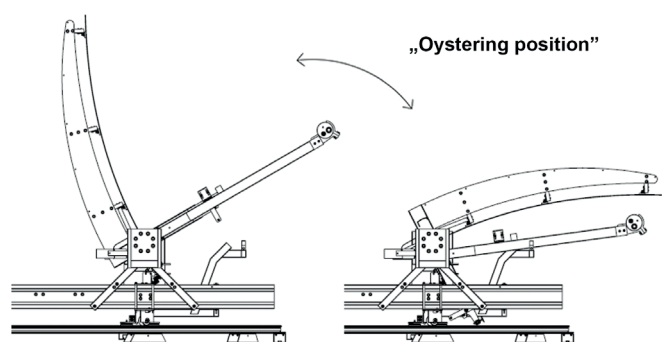


SunOyster in operation

Discover how the SunOyster generates MORE solar energy!

SunOyster technology – doubles the power

SunOyster Systems has developed a **new concentrating solar technology** which can produce heat or both heat and electricity from the same device – achieving efficiencies higher than anything else available in the market: The SunOyster can convert **up to 75%** of the direct solar radiation!



Inspired by nature

The heart of the SunOyster is a **hybrid receiver** which combines the best of Concentrated Solar Power (CSP) and Concentrated Photovoltaics (CPV) technology: The cost-efficient CSP mirrors track the sun bi-axially. The 4 m long receiver is protected by a borosilicate glass tube filled with nitrogen. Inside the tube, special glass lenses concentrate the light a second time to reach 500 times the power of the sun. Highly efficient (44%) CPV solar cells developed for spacecraft convert this directly into electricity. The cells are liquid cooled. This fluid can reach temperatures up to 110°C. The purely thermal receiver can reach even higher temperatures e.g. for process heat.

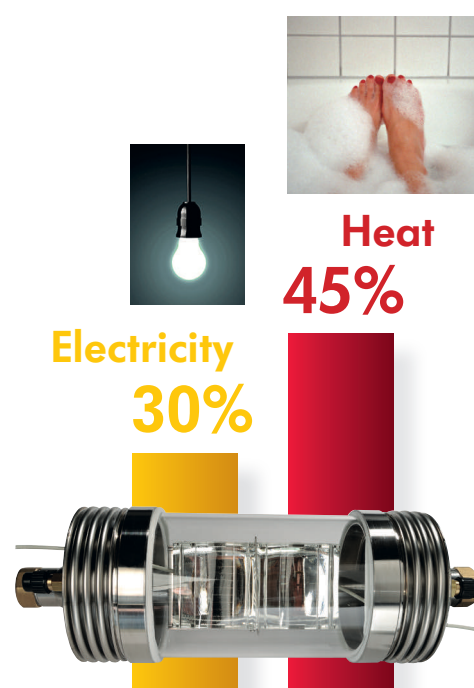
The proprietary **control system** of the SunOyster tracks the sun automatically all day. It allows online monitoring, so that the customer can admire the energy generation via a SunOyster App.

The first model of the SunOyster, the **SO 16**, has two 8 m² toughened glass mirrors. The mirrors are a proven technology as used in solar thermal power plants (CSP).

The SO 16 is **light enough** to be installed horizontally on rooftops. When installed on the ground, it can be easily mounted on steel anchors, avoiding complex concrete foundations.

Take advantage of the benefits

- The SunOyster can generate at least **twice as much energy** from a given surface area as the best photovoltaic (PV) modules.
- In case of danger such as strong wind the SunOyster closes down the mirrors to a **secure position** – like an oyster closes its shell.
- In sunny regions the SunOyster produces the **cheapest solar energy** wherever heat or cold are needed.



Model of receiver with concentrator cells

SunOyster power, heat & cost efficiency

The SO 16 *hybrid* from serial production will **generate** almost 5 kW peak electrical, and at the same time up to 7.5 kW thermal power. In the middle of Europe (eg Munich) this means up to 5,000 kWh electricity and 7,500 kWh heat energy p.a. SO 16 *heat* has 12 kW thermal and generates 12,000 kWh heat p.a. In regions with higher direct sunshine this production increases dramatically – twice as much in areas like in Florida or Southern Spain, even more in California or Australia, and up to 3 times in Chile or South Africa.

The **sales price** for volume production matches that of high quality PV systems. But the SunOyster also produces heat, so the total costs can be allocated to both electricity and heat. Then the electricity from the SunOyster is one third cheaper than from PV.

The resulting **cost** of electricity is far below the cost from the grid, and the cost of heat far below the cost from oil or gas boilers. Depending on the price of conventional energy the SunOyster can often achieve a total payback time less than 5 years, falling to less than 2 years on the equity if a loan is used for the investment.

SunOyster applications

Thanks to the **high temperature** level, the SunOyster can supply a broad variety of heat applications.



Room heating



Warm water



Process heat



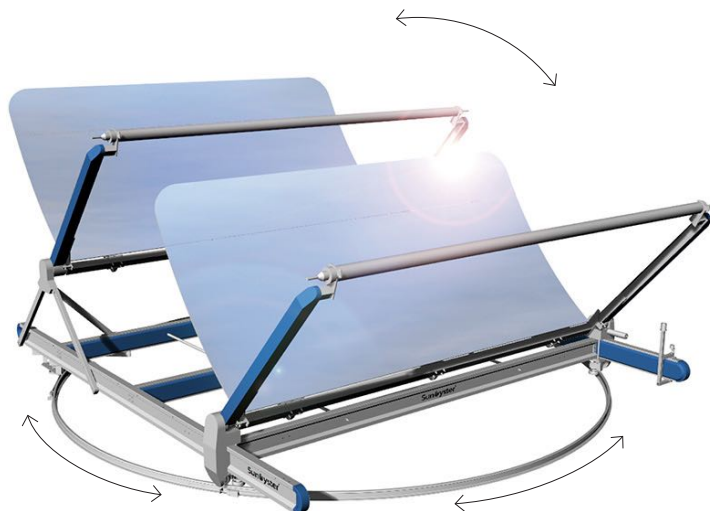
Desalination



Cooling



Pre-heating steam plants



Industrial design with rounded edges (design patent),
with the bi-axial automatic tracking and
the brilliant mirror surface – it simply looks cool!

Commercial users in particular can save money. By using thermal refrigeration systems to convert the heat into cold, the SunOyster can cover the complete energy demand of **hotels, office buildings, shopping centres or cool stores**. The SunOyster can also cover the power and high grade heat requirements of many industries such as food, textile or chemical manufacturers.

For **private users** the SunOyster can be mounted on the top of roofs, garages, carports or simply placed on the ground. Taking the example of a house with a swimming pool in Southern Italy the SunOyster can cover domestic hot water demand throughout the year. In winter, it can heat the house. In summer, the heat can be converted by small thermal chiller into cold to air-condition the house. If the waste heat of the chiller is further used to heat domestic hot water or the pool, this tri-generation is extremely efficient. In spring and autumn the SunOyster can heat the swimming pool.

Multiple SunOysters can contribute energy to **large scale applications**: for example the heat can be used to dry fuel, pre-heat combustion air or be injected in the steam cycle of a power plant. The solar heat thereby substitutes for fossil fuel or biomass consumption. Another possible use is desalination plants.

In particular, there is great potential in the field of solar cooling. The areas of highest direct sunshine also require a lot of cooling. The European Union generously supports our project „**SunOyster cooling – SOcool**“. It includes setting up a pilot production, testing and certification of our technology, and demo projects in hotels, offices and villas with pool.



SO 16 *pvplus*

Both the SunOyster 16 *heat* and *hybrid* are available as version ***pvplus***: With additional 4 kW of PV modules.



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SunOyster®

Double the Power.