

# SOLAR POWER PLANTS

Reliable and proven industrial valves for energy and hydrogen economy.





» **SOLAR POWER PLANTS**

Green hydrogen thanks to solar energy.

» **ELECTROLYSIS**

Power to Valve for green hydrogen.

» **REFORMATION**

Valves for gray and blue hydrogen.

» **HYDROGEN INFRASTRUCTURE**

Proven valves for compression, pipeline transport and storage.

» **CHEMISTRY**

Chemistry is in our DNA.

» **PETROCHEMISTRY**

Safe shut-off of liquid and gaseous media, high pressure and temperature.

» **VARIOUS INDUSTRIES**

Made of steel for green steel.

» **HEAT & POWER GENERATION**

Valves for sector coupling.

» **MOBILITY**

An important application area for hydrogen.



# Solar Power Plants

Green hydrogen  
thanks to solar energy.



## Process description

Solar thermal power plants convert the sun's radiation into heat. Here, the sunlight is concentrated and heats thermal oil, water or a molten salt.

In this case, for example, synthetic thermal oil is heated up to 400°C by the concentrated solar radiation and fed to a central point in the solar power plant.



There, the heat from the oil heats the water, producing steam that drives a turbine to generate electricity.

In addition, molten salts are often used as a heat transfer medium in solar thermal power plants because of their better properties.

While thermal oil can only be used up to approx. 400°C, molten salts are stable up to approx. 565°C. In this way, steam can be generated at a higher temperature, which has a positive effect on the efficiency of the steam turbine and thus on the energy generated in the power generator.

The salt then flows into a storage tank, where it must be kept at a constant temperature.



By integrating thermal storage, power generation is decoupled from the available solar radiation and is thus demand-driven.

The plant then pumps the salt on to a steam generator, where the heat from the salt turns water into steam. During this process, the salt cools and is then fed back into the cycle.

On the way of the molten salt from the steam generator back to the central tower, there is a risk that the temperature of the salt falls below a specific limit of approx. 228°C and the salt solidifies.

H<sub>2</sub>





## Requirements

- » High temperature resistance up to 565°C.
- » The medium thermal oil is very creepable.
- » High demands on the tightness of the valve, as thermal oil flames atmospherically.
- » The molten salt is a crystallizing medium.
- » Corrosion resistance.



## Solutions

Unique operational challenges in handling thermal oil and molten salts require high quality isolation valves from KLINGER Schöneberg to minimize impact on cost, risk and personnel.



## **INTEC K811 - Three-piece high-pressure ball valves**

High precision bearings and both sides spring loaded seat ring elements are responsible for a safety handling in all applications of the high-pressure ranges.



**HAPPY TO PROVIDE  
YOU WITH FURTHER  
INFORMATION.**



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