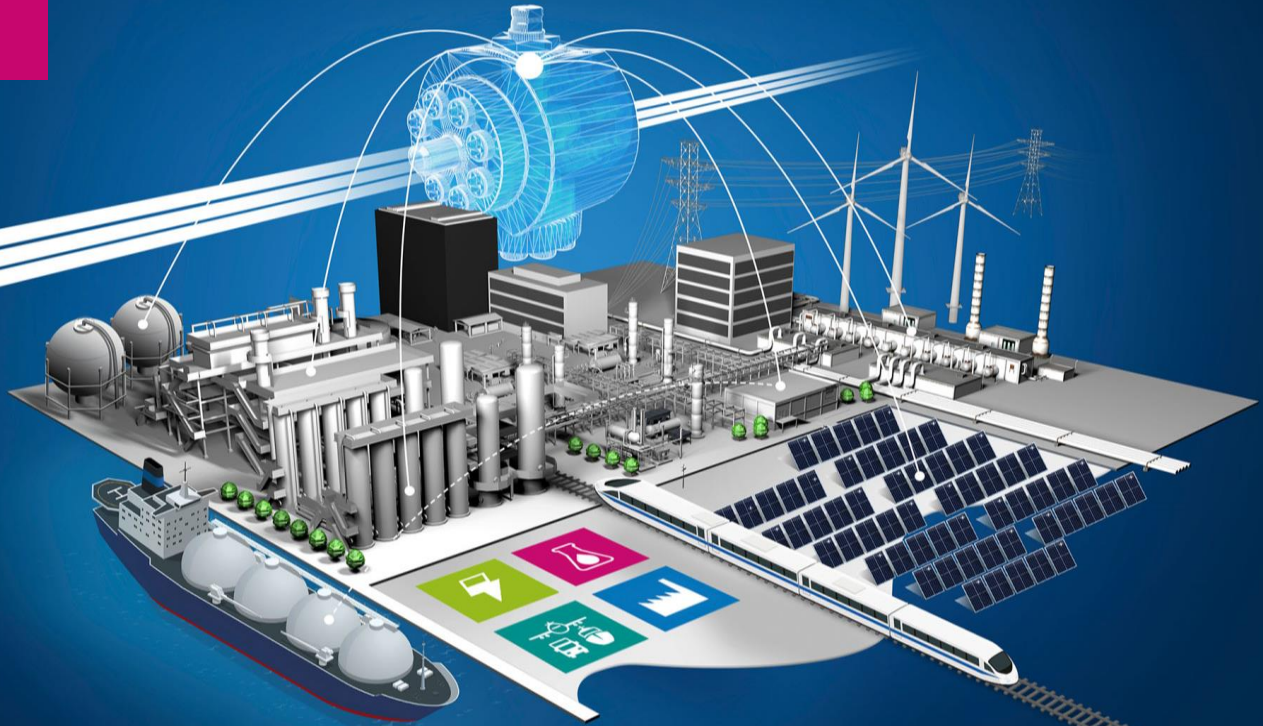


REFORMATION

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.

Reformation

Valves for gray and blue hydrogen.



Process description

On an industrial scale, steam reforming is now the most common process for producing hydrogen.

This involves the endothermic catalytic conversion of hydrocarbons such as methane and naphtha to synthesis gas (a mixture of carbon monoxide and hydrogen). These processes are carried out on a large scale under pressure and at high temperatures.



To produce pure hydrogen, the carbon monoxide is largely converted with water vapor to carbon dioxide and hydrogen (so-called shift reaction).

The carbon dioxide and other components (e.g. unreacted methane and carbon monoxide) are then removed from the gas mixture by adsorption or membrane separation. This is referred to as gray hydrogen.

The separated residual gas (H_2 , CH_4 , CO) is used together with a portion of the feed gas to fire the reformer.

H_2



If the CO_2 produced after hydrogen production is captured and stored (carbon capture and storage, CCS) or reused (carbon capture and utilization, CCU), this is referred to as blue hydrogen.

This is also climate-neutral as long as the captured carbon dioxide is not released into the atmosphere.





Requirements

- » High temperature requirements up to 950°C.
- » Nominal pressure up to 50 bar.
- » Reforming process using supercritical water on heterogeneous catalyst at 250 - 300 bar and 400 - 550°C.
- » Operating safety.

Solutions



The high requirements in handling synthesis gases and supercritical water are fully met by KLINGER Schöneberg valves.



INTEC K200

Two-piece flanged ball valves



Proven design with perfect technical functionality. The ball valves are available in various material combinations and with different features.

INTEC K200

floating ball, soft seated

INTEC K220

floating ball, soft seated,
single side spring loaded seat ring



INTEC K811

Three-piece high-pressure ball valves



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

INTEC K811

trunnion mounted ball, metal seated, both sides spring loaded seat rings



HAPPY TO PROVIDE YOU WITH FURTHER INFORMATION.



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