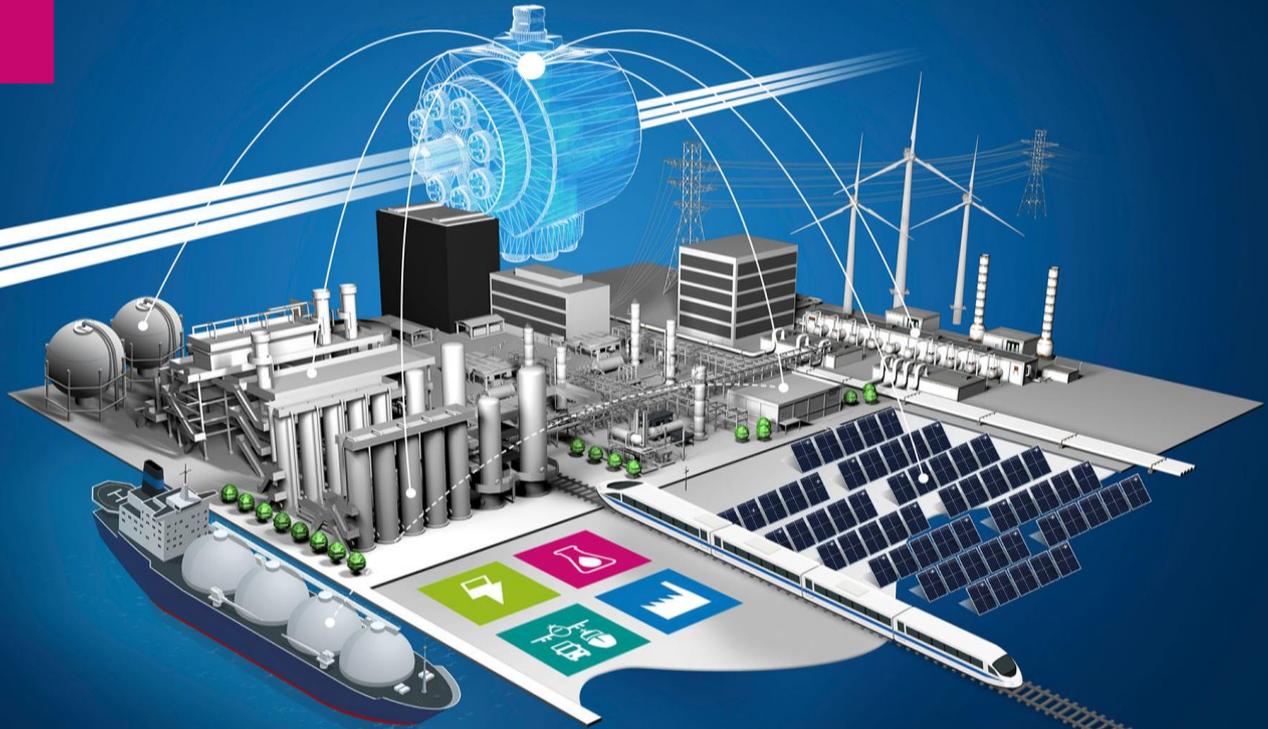


CHEMISTRY

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.



Chemistry

Chemistry is in our DNA.



Process description

Hydrogen is used as a basic material in many chemical processes. The largest share is used for ammonia synthesis, in refineries and for methanol production.



The starting point for the power-to-chemicals process is first the electrolysis of water. In the next step, the hydrogen produced in this process is used together with carbon dioxide to produce a synthesis gas for a methanol synthesis to methanol or gaseous and liquid hydrocarbons.

These in turn form the starting material for a variety of other processes for production of ethylene, propylene or other downstream products based on them.

Reacted with atmospheric nitrogen, the hydrogen can also be used for ammonia synthesis, a catalytic production process in the Haber-Bosch process. In this process, hydrogen and nitrogen can be obtained separately and mixed or used immediately as a nitrogen-enriched synthesis gas.



The reaction takes place at high temperatures and pressures as follows:

First, the necessary pressure level is established in the compressor. In the gas purifier, the gas is cleaned of adverse impurities and fed into the contact furnace. There, the gas mixture is heated and reacts with the catalyst to form ammonia gas. It is then cooled in the cooler and separated from unreacted hydrogen and nitrogen in the separator. The ammonia produced can then be used for production of urea or fertilizers, for example in the form of ammonium carbonate.

In the context of food chemistry, hydrogen is used for the preservation of foodstuffs as well as for the hardening of vegetable oils.

H₂





Requirements

- » High pressure and high temperature requirements.
- » Ammonia synthesis at 150 to 350 bar and about 400°C to 530°C.
- » Methanol production at 50 to 350 bar and about 200°C to 380°C.

KLINGER Schöneberg shut-off valves have already been used successfully for decades in the large-scale chemical industry in the most diverse processes and under extreme conditions.



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.**



Marcel Goßmann

Business Development Manager / Management Assistent

marcel.gossmann@klinger-schoeneberg.de

+49.6126.950.268