Ingenieurbüro Andreas Holl

Conceptual Design - Engineering Services - Training - Consulting

Fluid System Components
Hydrogen - Ammonia
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Description

Hydrogen Basics

- Characteristics of hydrogen
- Gas purity
- Safety distances for hydrogen systems

Hydrogen Generation and Applications

- Hydrogen generation / quality level (purity)
  - Electrolyser - Steam Reformer - Pyrolysis
- Hydrogen applications / quality level (purity needed)
  - Fuel cells - Reducting agent - Steel production - other applications

Int. Codes and Standards

- ISO – ASME – ASTM - IGC - SAE – CGA – CSA – EC – DVGW – IGC – EIGA – AIGA – API – DOT – TRG – EN - NACE

Tubing, flanges, threads and fittings in hydrogen plants

- Material requirements
- Corrosion - Hydrogen embrittlement
- Cleaning for the various requirements
- Requirements for stainless steel tubes and carbon steel tubing / piping
- Fittings, threads and flanges
- Dimensioning of tubes - Permitted flow velocities

Valves and pressure regulators in hydrogen systems

- Requirements for valves and pressure regulators in hydrogen systems
- Material, lubricant and cleaning requirements
- Design considerations for valves and regulators. Sizing and calculation of valves and pressure regulators
- Gas mixer, hydrogen blending, hydrogen / natural gas mixtures

Ammonia – Basics

- Characteristics of ammonia

Fluid System Components in Ammonia Plants (gaseous/liquid)

- Material requirements
- Sealing materials
- Cleaning and lubricants
- Requirements for pipes, fittings, threads and flanges
- Dimensioning of pipelines

Other fluid system components

- Check valves - Deflagration safety devices
- Filters - Pressure transducers - Sensors
- Control valves - Coaxial valves - Butterfly valves - Safety valves - Solenoids

Technically permanently leak proof fluid system components

Procedure for pressure testing - leak testing - purging - inertization and commissioning

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