Ingenieurbüro Andreas Holl

Conceptual Design - Engineering Services - Training - Consulting

Fluid System Components Hydrogen

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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 (chemical / petrochemical industry)
  - Steel production
  - Food processing
  - Mobile sector and many other applications

Int. Codes and Standards

- ISO 11114-4 / ISO 15848 / ASTM B31.12 / IGC DOC 121 / IGC DOC 15 IGC DOC 75 / ISO 4126-1 / API 520 / ASME VIII / ISO 14687 / SAEJ2719 ISO 19880-3
- Additional German DVGW G 260

Tubing, flanges, threads and fittings in hydrogen plants

- Material requirements
- Corrosion - Hydrogen embrittlement
- Cleaning for the various requirements
- Requirements for tubes - stainless steel
- Requirements for tubes and pipes / pipelines – carbon steel
- Fittings, threads and flanges
- Tube cutting and bending in hydrogen systems
- 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
- Metering and regulation of H2. Design considerations for valves and regulators. Sizing and calculation of valves and pressure regulators
- Gas mixer, hydrogen blending, hydrogen / natural gas mixtures

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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