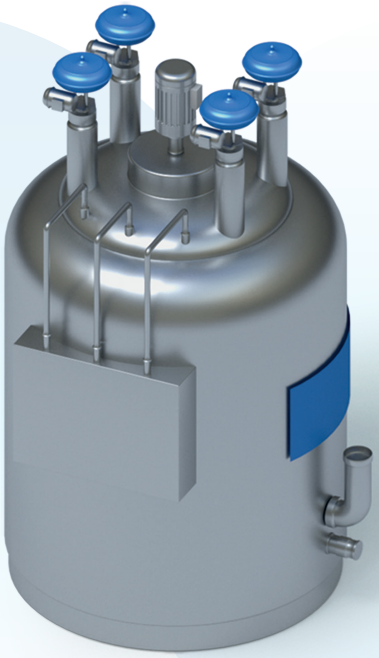
PRODUCT SHEET

Hydrogen Liquefier

V1.0.0



A liquefier is a device that can be used to liquefy hydrogen gas. Hydrogen becomes liquid when it reaches the extremely low temperature of -252.9 °C at atmospheric pressure; the liquefier is a cooling system able to achieve this temperature under the right conditions. There are multiple technologies that allow hydrogen to be cooled to the point where it becomes liquid.

Benefits

- On-sight liquid hydrogen production
- High quality liquid hydrogen
- Easy to operate
- Potential closed-loop system that reliquefies hydrogen
- Small quantities of liquid hydrogen

Features

- All stainless steel
- High vacuum insulation
- Qualified welding to the highest standards (ISO 3834-2)
- Output and size according to customer request
- Pre-cooling with LN_2 (optional)
- Minimum LH_2 production: 30 liter per day

Applications

- Small quantities of liquid hydrogen for testing applications
- Small quantities of liquid hydrogen for mobility applications (drones)
- Research centre (physical and chemical properties)
- Superconductivity

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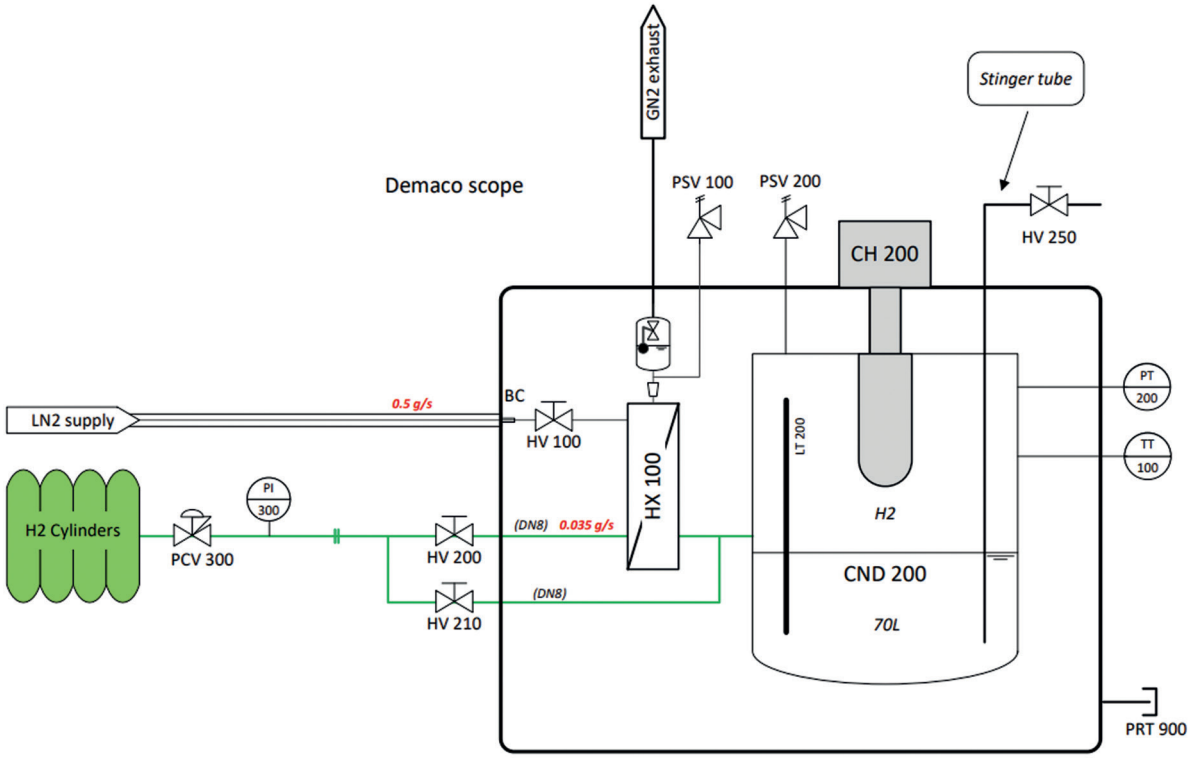
Typical P&ID



Interfaces

Johnston coupling

Welded couplings with vacuum

Instrumentation panel

Materials

Process parts:
1.4401/1.4404~316/316L

Vacuum vessel:
1.4301/1.4306~304/304L

Optional:
1.4401/1.4404~316/316L

Multi-Layer Insulation:
Glass paper and aluminium foil

Related documents

Safety guidelines:	D0061116
Manual:	On request

Design specifications

Design according to Demaco standard based on EN13480

Other design codes on request

Suitable for ambient temperatures -25 till +38 °C

Cleanliness level:
- Oil and grease-free

Static vacuum with Multi-Layer Insulation

Standard testing for each individual liquefier:
- Dimensional check
- Pressure testing (if applicable on request)
- Helium leak test (<1x10^{-9} mbarL/sec)
- Vacuum retention test after 24h at ambient temp (acceptance level <2x10^{-4} mbar)
- Functional test (LH_2 production)

Documentation

By default, a standard manufacturer data book record is part of each project and contains:
- General drawing
- Safety guidelines
- User manuals
- Declaration of conformity (if applicable)

Extended data books are available on request

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