TRILLIUM FLOW TECHNOLOGIES™ | SARASIN-RSBD

HYDROGEN HP DESIGN FOR HRS (HYDROGEN REFUELING STATIONS)

Application:

Compressed Gas Hydrogen (CGH2)

- Cylinders distribution/storage
- Road Transport distribution

Features:

- **Design approved** to operate with sufficient safety margin until a designated cycle count
- **Minimize dead** space and proper drainage to prevent the accumulation of hydrogen gas pockets

OVERALL PERFORMANCE IN DEMANDING APPLICATIONS

ICPE (installations classified for environmental protection) 1416 limits the Hydrogen dispenser @ P<700 bar @ 15°C, Q<120 g/s, and mentions the HD shall be protected against overpressure thanks to safety devices. With Ultra-High-Pressure, Trillium offers a full set of Pressure Relief Valves with safety certification for Hydrogen Refueling Stations.

SPECIFICATIONS

	UNIT	VALUE
Body Material		**A 479 Gr. 316/316L**
Inlet Size (B16.5)	in (mm)	3/8" (10) to 9/16" (15)
Design Rating		**MP Cone & Thread** (customized)
Orifice		2 sizes - [B] to [D]
Set Pressure [ASME BPVC Section VIII Division 1 §UG-126 (d)]	psig (barg)	Up to **15 000 (1035)** [+/- 3% for SP above 70 psig]
Blowdown Performance		7% or 0.2 bar as an industry standard, obtained with adjusting ring
Operating Temperature	°F (°C)	**-320 (-196)** to +1000(+538)
Tightness	% of Set P.	**95** (above API STD 527 requirement) Soft seated valves = No leakage allowed
Fugitive Emissions		ISO 15848-1
Environmental Conditions		IP65 according to EN 60529 Seismic : Eurocode 8
Design Standards		ASME BPVC Section VIII Division 1 PED 2014/68/UE, ATEX 94/9/EC **Cleanliness:** CGA 4.1 and ASTM G93 (or equivalent)

THE BENEFITS TO ADOPT THE UNIQUE FRENCH SUPPLIER

CUSTOMERS' CONCERNS & TRILLIUM'S REPLIES ON THESE CHALLENGES

Hydrogen service can increase the risk of PRD failure/embrittlement due to material property degradation caused by hydrogen attack.

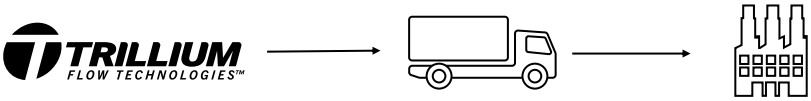
⇨ 316 Stainless Steel High Chrome (16 to 18%) and Nickel (10% to 14%) are recommended for their high ductility and corrosion resistance.

Leakage due to hydrogen blistering effects related to the compression and decompression phases.

⇨ The valve is designed with specific polymers to withstand this pressure and keep its tightness.

⇨ Helium testing is performed in a clean shop.

THE COMMITMENTS OF TRILLIUM FLOW TECHNOLOGIES FRANCE



- Customer focused - A manufacturing center based in France that reserves machining hours for shutdown or emergency.
- Sarasin-RSBD products are recognized globally for their high quality, innovative design and durability.

TFT France provides a comprehensive range of Sarasin-RSBD® Spring-loaded and Pilot-operated Pressure Relief Valves for the use of Hydrogen where essential protection is needed against overpressure scenarios.

2 TECHNOLOGIES	SPRING-LOADED	PILOT-OPERATED
Range of Materials	✓ ✓ ✓	✓ ✓ ✓
Robust Design	✓ ✓ ✓	✓ ✓
Pressure/Size Capability	✓ ✓	✓ ✓ ✓
Temperature Capability	✓ ✓ ✓	✓
Capacity/Size Capbility (Adjust Flow)	✓ ✓	✓ ✓ ✓
Performance (Back Pressure/Blowdown)	✓	✓ ✓ ✓
Stability (Simmer/Chattering)	✓	✓ ✓ ✓
Seat Tightness	✓ ✓	✓ ✓ ✓
High Inlet Loss (3%)	-	✓ ✓ ✓
In-line Maintenance - « Field Test »	✓	✓ ✓ ✓

ADDRESS

Rue Jean Baptiste Grison – ZI Bois Rigault Vendin-Le-Vieil,
Hauts-de-France, 62880, France

info@trilliumflow.com

TRILLIUM FLOW TECHNOLOGIES™