



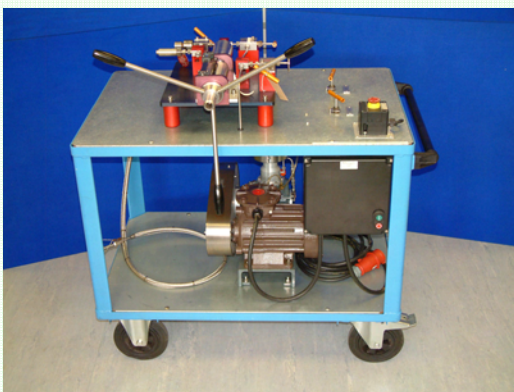
Progress and Future Developments Involving High Pressure Hydrogen at ISIS

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The Furnace, Pressure and Special Systems Section are currently progressing and developing equipment with the aim to provide an experimental environment achievable of up to 8kBar with a Hydrogen pressure medium within Neutron and Hydrogen compatible materials

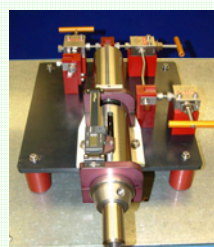
Existing Hydrogen Safe Equipment at ISIS

Portable High Pressure Hydrogen Rig:



The 7000 Bar Hydrogen Hand Pump Rig has been used in an experiment to maintain a pressure of 2800 bar for a five day period at a temperature of 20 K. This experiment was conducted using the Inconel high pressure cell RLI 469, which is one of the two Hydrogen high pressure Inconel cells within the ISIS group.

Sitec:



Gas Intensifier Manifold

- 7000 bar Hydrogen Hand Pump Intensifier
- 7000 bar High Pressure Hand Valves
- 1/4" O.D. x 1/16" I.D. High Pressure Stainless Steel 316 Tubing
- Standard Sitec High Pressure Connections

Hydrogen High Pressure Inconel Cells:

RLI 338 :

- Max Pressure 2000 bar @ 873 K



RLI 469 :

- Max Pressure 5000 bar @ 773 K

Top Industrie:



One Stage Diaphragm Hydrogen Compressor

- 180 bar Inlet Pressure
- 2500 bar Outlet Pressure

Hydrogen Transducers:



Top Industries :

- 2500 bar



Intersonde XP11 :

- 3000 bar

New Hydrogen Equipment at ISIS



Stansted:

- 10,000 bar Transducer and Readout

New Hydrogen safe transducers have now been supplied by Stansted Fluid Power Ltd. These transducers are manufactured from a Nickel Chromium Alloy and surpass our existing transducers with the capability of measuring pressures in the range of 10,000 bar. Stansted are presently producing Hydrogen safe Rupture Discs and assemblies to accompany the Transducers, these are also rated to various pressures up to 10,000 bar. This new equipment will assist ISIS to reach its aims in developing new systems capable of achieving initially 5000 bar and eventually 8000 bar for Hydrogen use.



Stansted:

- 10,000 bar Rupture Disc Assembly Components and Drawing

