



High-pressure hydrogen testing facility

Designed and manufactured in-house by TWI

Pair of bespoke pressure vessels for mechanical testing of specimens exposed to pressurised hydrogen gas across a broad temperature spectrum.

Features and benefits

- Custom-built facility enclosed in dedicated testing cells behind blast door
- Capable of generating unique experimental data
- Standard testing atmosphere: 99.9999% purity hydrogen gas
- Can support other gases where needed
- Automatic environment/temperature control
- Supported by full range of analytical equipment

Some applications

- Determine the effect of hydrogen on materials and components for hydrogen service, such as hydrogen processing and storage equipment, high-pressure cylinders, pumps and valves
- Research to support growth of hydrogen as a fuel source in the automotive and aerospace sectors
- Hydrogen charging: exposing specimens to hydrogen gas at high temperatures and pressures before testing to assess materials' susceptibility to internal hydrogen embrittlement

Technical specification

- Max supported pressures: 450 bar
- Operating temperature range: -50°C to +85°C
- Max tensile load: 100 kN (450 bar)
- Max compressive load: 50 kN (both vessels)
- Monotonic or cyclical loading (up to 5 Hz)
- Able to accept various specimen geometries

