Cryogenic Testing
Experience a new level of performance
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Cryogenic testing

To enhance and support our high standards of valve design and production we operate stringent cryogenic testing programmes through our in-house facility. These tests include leakage, torques, and cycling under typical cryogenic conditions.

Tests are carried out to recognised international standards or can be designed to our customer’s own specifications to ensure application suitability.
Severn Glocon Cryogenic valves at customer installations

Severn Glocon Valves are installed at a cryogenic nitrogen generator in Japan operating at a temperature of -171 °C and 9.5bar pressure, manufactured and certified in accordance with the exacting standards of the Japanese High Pressure Gas Control Laws.

Customised ‘extended cold box’ valves for the Korea Gas Corporation LNG terminal at Inchon comprising fifteen Severn Glocon Series 4000 globe control valves, in 3”, 6” and 8” sizes to control the flow of liquefied natural gas at a temperature of -162 °C.

Series 5000 valves produced for Trains 3 and 4 at the Ras Laffan Gas Company onshore LNG expansion programme in Qatar.

Valves for the world’s largest LNG project on Sakhalin Island in the Sea of Okhotsk on the east coast of Russia. Pressure rated from Class 300 to Class 1500 in sizes from 2in to 30in the valves, some of which are specifically designed for cryogenic duties, which will be operating in ambient temperatures as low as -33 °C, are designed in accordance with strict Russian oil and gas industry GOST standards.

Performance benefits

☑ Assures performance
☑ Proves endurance and reliability
☑ Ensures standards compliance
☑ Ensures functionality
☑ Improves delivery through on-site testing
☑ Reliable test records
☑ Reduced time in start-up
☑ Independent assessment of test reports
Specifications

Standards and Specifications
Our aim is to cut a clear path through often complicated and confusing standards and specifications. This is achieved by formulating specific in-house procedures in order to get test and acceptance parameters into a standard formatted document that clearly defines method & acceptance levels.

Process
Testing is performed using a Nitrogen bath and Helium as the flow/pressure medium. Testing equipment includes a Mass Spectrometer where leakage can be detected to a level of less than 1 PPM.

Operational reliability can be verified for use with the following gases
- Helium
- Hydrogen
- Nitrogen
- Air
- Fluorine
- Argon
- Oxygen
- Natural Gas
- Methane
- Carbon Dioxide

Cryogenic valves are tested to the following standards by our qualified in-house team
- BS 6364
- ASME B16.34
- ANSI FCI 70-2
- ISA 75-19
- API 598

As well as customer specifications such as
- Shell MESC SPE 77/306
- Shell 77/312
- Air Products
- BOC
- British Gas
- UKAEA
- KGC
- And specific project specifications

Cleaning
- BS EN 12300 (vessels – cleanliness for cryogenic service)
- BOC Specification 50000810
  - Cleaning
  - Degreasing
  - Packaging for oxygen duty
- BOC Specification 50000736
  - Cleaning
  - Degreasing
  - Packaging for high purity
- BOC Specification 50000634
  - Cleaning
  - Degreasing
  - Packaging for general service – commercially clean

Air Products Specifications
- 4WPI-SW70002 Process clean (Class B) inspection & acceptance
- 4WPI-SW70003 Oxygen clean (Class AA) inspection & acceptance
  A control panel ensures the pressure for test & purge are maintained

PMI – Full positive material Identification can be offered
Specifications (continued)

Pressure Testing

BS EN 12266 Part 1
☐ Pressure tests
☐ Test procedures
☐ Acceptance criteria
☐ Mandatory requirements

BS EN 12266 Part 2
☐ Tests
☐ Test procedures
☐ Acceptance criteria
☐ Supplementary requirements

ISA 75 - 19

Low Temperature Testing

Proven tests on Globe valve size ranges ½" (15mm) to 36" (900mm).

Portable calibrated test rig containing
☐ Mass Spectrometer
☐ Pressure Helium flow
☐ Temperature measurement abilities

Welding

☐ ASME Boiler and Pressure Vessel Code Section IX Gas tungsten arc welding (GTAW or TIG)
☐ ASME IX quals, ASTM A370 Charpy Testing.
☐ Shielded metal arc welding (SMAW) Material P8 Group 1
☐ Material P1 Group 1 and 2 (stainless steels) (carbon steels)
☐ Bonded welding stores
☐ Ferrite Checking in welds via calibrated digital Ferrite Meter

HSE

Atmospheric Oxygen monitors positioned to eliminate Asphyxiation hazard by visual and audible warnings. Tests are conducted by qualified test personnel using the correct PPE.

Specifications (continued)

All equipment calibrated to ISO 9001
Introduction to Severn Glocon Group plc

Asset optimisation through World-Class Engineering Intelligence

With over 50 years’ experience, the Severn Glocon Group plc provides world-class engineered valve products and services to process plants across the globe.

We provide leadership in design, manufacture and technical services for severe service control and choke valves, using reliability data from our unique performance evaluation systems.

Those services are complemented by our wide range of mechanical isolation valves and actuators, along with proven operational plant support.

We deliver world-class quality, reliability and optimum performance for plant operators globally.

Our commitment to our World-Class Engineering Intelligence ethos underpins everything we do. By this we mean that our bespoke products are intelligently designed to excel at their purpose, optimising control performance for our clients, in even the most challenging operating conditions. Our continuing investment in the most experienced, highly skilled engineers, located locally across the globe, delivers the best in valve selection and operating services.
The Severn Glocon Group policy is one of continuous improvement and we reserve the right to modify these specification details without notice.

PRECISION | RELIABILITY | PERFORMANCE

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