

Problem

The customer, a large valve OEM, was looking to pass fugitive emission tests for their globe control valve according to ISO 15848-1 for wide temperature range from -196°C up to 400°C with required class C tightness and CC1 endurance. These very stringent requirements for the valve came from the end user. Competitive solutions from the existing supplier did not give satisfactory results and the customer faced an issue of losing a big project for one of their main customers in the oil and gas industry.

Customer has stringent fugitive emissions criteria to meet

Application

Control Globe Valve 4" Class 600

- Temperature: -196°C to +400°C (-321°F to +752°F)
- Stem diameter: 25 mm (1 1/2")
- Stem material: 174 PH
- Stem surface finish: 0.4 μmRa
- Test pressure: 59 and 100 bar (856 psi and 1450 psi)
- Test media: Helium (97%)
- Test standard: EN ISO 15848-1
- Tightness class: C
- Endurance class: CC1
- Valve bonnet extension: 400 mm

Existing solution

Competitor's fugitive emissions graphite-based packing

James Walker solution

Supagraf[®] Control 6 ring set (ID 25.4 mm OD 38.1 mm DP 38.1) was offered since this product has been specifically designed for control valve applications where fugitive emission performance is required. Apart from its advanced lubrication package the product has non-metallic reinforcement that provides high pressure capabilities in dynamic applications, such as frequently operated control valves, as well as exceptional sealing performance. The product has been certified to the highest industry standards including ISO 15848-1 and TA-Luft/VDI2440.



Results and benefits

Despite very challenging test conditions (particularly related to very wide temperature range from -196°C up to 400°C and the required 20,000 mechanical cycles) the valve sealed with Supagraf[®] Control passed the test - reaching class B tightness requirement and so exceeding the requirements (Class BH ISO 15848-1 CC1 -196°C to 0°C, Class BH ISO 15848-1 CC1 0°C to +400°C).

Class B emissions pass



Reduced maintenance cost



Passed very demanding ISO15848-1 globe control valve test



Customer was able to secure a large amount of business on LNG project