

GASTIGHT DOORS

A Nuclear Decommissioning Project

Westmoor Engineering set foot in new territory with a project requiring the design, manufacture and test of radiological resistant gastight doors. The customer was a nuclear division of a Tier 1 UK construction conglomerate conducting work on a nuclear decommissioning site in the South East of England.

What issue was the client facing?

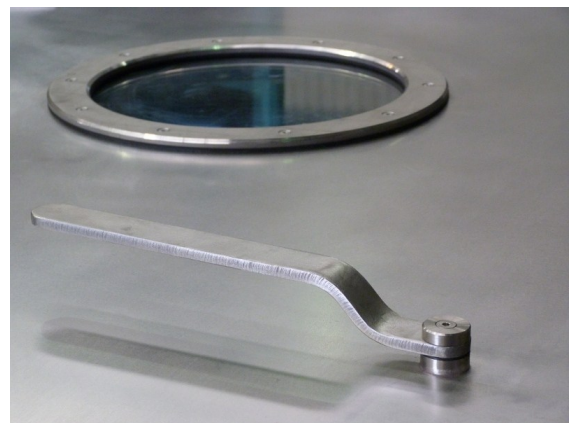
The client was building a dissolution facility for Fuel Element Debris (FED) treatment. Personnel access was required into the facility, but the access was required to also provide high integrity containment. The doors would be subject to dilute Nitric Acid and a radiological atmosphere and needed to hold 50 Pa gas pressure.

What was Westmoor's approach?

Westmoor had not previously produced equipment for use in a radiological atmosphere, but we were aware of the constraints and have an in-depth knowledge of materials and metallurgy. We worked closely with the client to develop a solution that met their exact requirements. We designed a custom door and performed FEA on the 3D CAD model to optimise material thicknesses and minimise localised stress under the gas pressure.

Were there any technically difficult challenges to overcome?

Stainless steel was selected for the material of the door due to its resistance to acid and radiological atmospheres. However stainless cannot be used in moving connections as it fuses with friction. Therefore the sliding parts such as the handle shaft and the 3 point locking and hinges needed separating by a material that was both lubricating yet resistant to the atmosphere. Using our extensive knowledge of materials we discovered a specialist polymer that could be customised to be used in all moving/sliding parts.



The gastight doors were designed and engineered to the client's exact specifications



The gastight doors were tested using Westmoor's in-house test facilities

How has the product benefitted the client's project?

The client has a specialist high containment gas-tight door that can be operated with minimum effort via a single lever, allowing for quick access to the facility. All doors were manufactured to the highest quality and tested in house with a third party inspector present to prove their capability, giving the customer complete reassurance of the product.

What did Westmoor learn from undertaking the project?

We developed our already expansive knowledge in the design, manufacture and testing of gastight access systems. We learnt about the constraints in supplying to the nuclear decommissioning industry, and the quality controls in place. Furthermore, supplying to a Tier-1 nuclear contractor has widened Westmoor's experience in the industry, giving us confidence about continuing to work within the industry.



Westmoor Engineering has been manufacturing doors and hatches since 1898, and currently operates from its Cramlington facility. Westmoor is part of Renown Group Ltd.

To find out more visit:

www.westmoorengineering.co.uk

