



CASE STUDY May 2018

Our Client | **Valtris Speciality Chemicals Ltd**



Project | **Replacement Pressure Vessel V559, Design, Manufacture & Installation**

Site | **Eccles, Manchester**
Project Additions | **Up-rated Vent on V264 Reactor**
Completion Due | **Q1, 2018**

Late in 2016 Valtris Specialty Chemicals near Manchester approached Richard Alan to design and build a replacement overflow vessel (V559) to improve the capacity on their epoxidation plant.

Richard Alan were subsequently commissioned in March 2017 with the design, manufacture and installation of a replacement vessel with a larger capacity.



V559 Specification: A vertical configuration overflow vessel, using 316 grade stainless steel with mill finish. 2100mm diameter X 2627mm with dished ends and carbon steel frame designed and fabricated to PD 5500: 2015.

Site glasses were to be included into the vessel shell so the phase separation of liquids could be seen, allowances had to be made for the incorporation of control instrumentation including **weigh cells and level instrumentation**.

In late 2017 just prior to installation of the new V559 a routine on-site COMAH inspection questioned the capacity of the existing venting and relief system on the main reactor. The relief system required to be upgraded to incorporate a 20" NB relief line with a bursting disc relief mechanism.

Richard Alan were asked to design and manufacture the 20" relief line to incorporate the burst disc. As part of the project the relief line required a robust support structure to hold the **70 tons of force** should the worst case relief scenario come about.

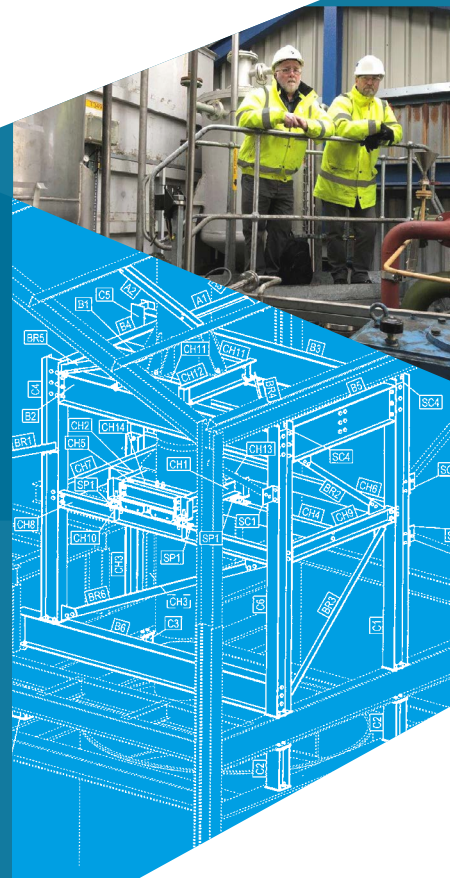
»» David Stevenson and Roger Starkey on-site



«« Steelwork 'trolley' fabrication

Due to the massive amount of pipe and valve congestion around the vessel, supporting structural steelwork was quite a challenging project in itself. An overhead trolley arrangement was designed to allow inspection of the vessel by disconnecting the bursting disc and bellows then rolling them out sideways.

»» Supporting steelwork design

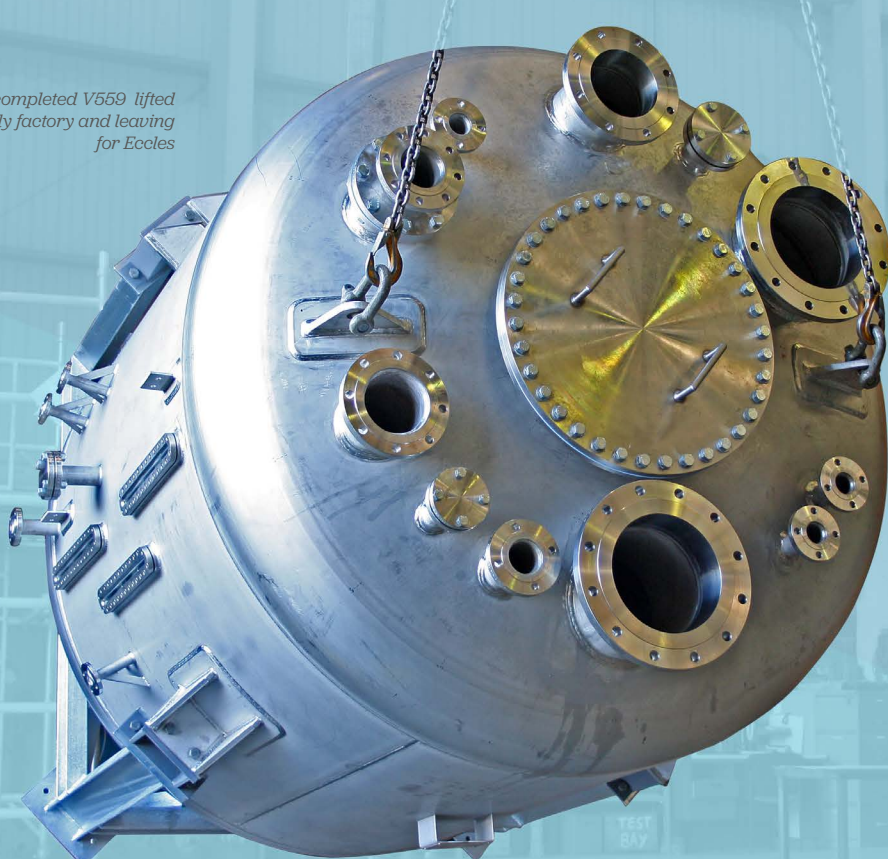


Ian Benbow - Valtris Engineering Manager commented.

« Just a quick note to express my gratitude for the speed in which RA responded to our request for an up-rated vent on the V264 reactor. To go from concept to installed in less than 2 weeks is testament to all those involved at your end and ours.. »

Both the installation of the V559 vessel and the installation of the new relief configuration on the reactor were completed in April 2018. Working with several other contractors from multiple disciplines the complete project was completed **2 days ahead of schedule** and the complete system was commissioned successfully.

»» The completed V559 lifted out of assembly factory and leaving for Eccles



«« Steelwork 'trolley' fabrication



Challenges/Results

During the design stage of both projects there were several challenges with the reaction forces and supporting structure required for the new relief line and in the allowances that had to be made in the design of the new V559 vessel to allow the required operation of the system.

The installation of both the projects brought about challenges with working to a tight schedule and working with and around other companies and disciplines who had their projects to complete.

The project was completed on schedule and this contributed to the successful commissioning of the entire project and the epoxidation plant.

« This project would not have been possible without the support of Richard Alan, with special thanks to Dave Stevenson and Steve Ramsay for their efforts especially over the past few weeks and also the design team Roger Starkey and Edward York for engineering the solutions.

If you could forward our thanks at Valtris to the members of your team that were involved and I look forward to the next project. »

Giles Colwill - Mechanical Engineer
Valtris Chemicals Ltd



Reach out to the Richard Alan team to discuss your next project, click [HERE](#) for all our contact details