

150 Valves and Actuators Repaired in 10 Days

Challenge

TotalEnergies Carling, which operates a major production center for hydrocarbon resins and polymers in northeastern France, needed to repair 150 critical process valves and their actuators during a planned 10-day turnaround that had spanned two weekend days and a public holiday. To meet the short timeline, TotalEnergies Carling sought one service partner located nearby with the capabilities and expertise to disassemble, repair, reassemble and test equipment originally supplied by multiple manufacturers.

Solution

Flowserve repaired 150 control, ball and butterfly valves plus associated actuation at our Quick Response Center (QRC) in Ettlingen, Germany, and returned them to enable TotalEnergies Carling to complete its turnaround project on time and within budget. In addition, we provided detailed digital documentation and daily communication so that the TotalEnergies Carling turnaround team was fully informed about the condition and status of their equipment and could be confident the repair work would meet agreed-upon timelines.

Tight timeline not a problem for TotalEnergies Carling with Flowserve as partner

The Carling-Saint-Avold plant operated by TotalEnergies Carling is a leading European producer of hydrocarbon resins and polymers. Its products are the raw materials for manufacturing customers in the food packaging, electronics, medical and automotive sectors.

Critical flow control equipment in the company's hydrocarbon resin processes includes 150 valves, most of which have been supplied by Flowserve. TotalEnergies Carling considered hiring a third-party repair service provider that would have subcontracted some of the valve turnaround project to Flowserve.

However, TotalEnergies Carling decided to work directly with Flowserve because of the two companies' longstanding relationship. Flowserve offered clear advantages. We designed and manufactured about two-thirds of the valves slated for repair in the turnaround project. We can draw upon

knowledge built from decades of experience in successfully managing turnarounds on a tight schedule. And we can leverage the Flowserve global engineering, manufacturing and support resources to meet the turnaround project's requirements.

In addition, Flowserve operates a QRC in Germany less than three hours from the TotalEnergies Carling site in France. This proximity made it possible for fast transportation in order to complete the turnaround on time.



Engineering prowess and repair capabilities at scale

Flowserve provided a one-stop shop to plan, coordinate and complete the repairs of the 150 valves and their actuators for TotalEnergies Carling.

Our specialists have deep knowledge about the equipment because Flowserve supplied the Argus® FK75M and FK79 floating ball valves as well as FK76M and FK76C trunnion mounted ball valves in use at the Carling-Saint-Avoid plant. Replacement parts and original equipment manufacturer (OEM)-level expertise regarding these valves are readily available at our QRC in the same Ettlingen facility where Flowserve manufactures Argus valves.

The project also included Valtek® FlowTop linear globe control valves from Flowserve.

About 10% of the control and on-off valves and all of the Scotch-yoke actuators were supplied to TotalEnergies Carling by other OEMs. That's not an issue for Flowserve. Our QRC repaired the third-party equipment with OEM replacement parts. We even train our service technicians by sending them to the actuator OEM's maintenance and repair classes.

TotalEnergies Carling solutions from Flowserve

Flowserve enabled TotalEnergies Carling to complete its turnaround on time by repairing 150 control, ball and butterfly valves plus associated actuation like the following models:



Argus FK75M floating ball valve



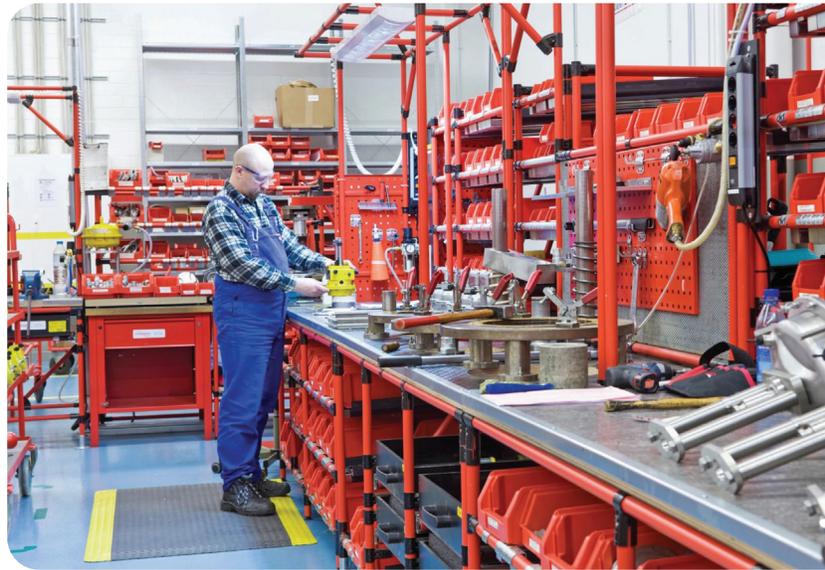
Valtek FlowTop linear globe valve



Argus FK79 valve



Argus FK76M trunnion mounted ball valve



Customer benefits of single project coordinator

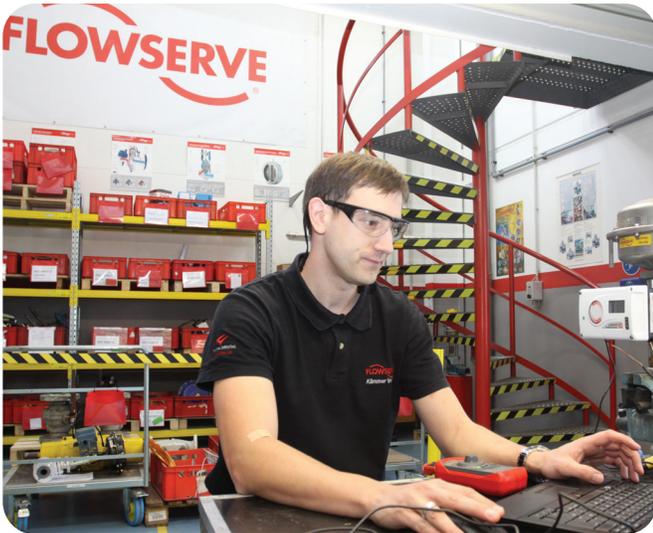
Our extensive knowledge of the valves and actuators plus our proven experience in managing turnarounds enabled the Flowserve team in Germany to quickly understand the TotalEnergies Carling project requirements. We could respond to their schedule with urgency and timely action as a result.

We served as a single point of contact for TotalEnergies Carling to coordinate our in-house resources and the third-party providers. And our extensive portfolio of fluid motion control solutions met a majority of the customer's requirements and provided a simplified procurement process.

TotalEnergies Carling discovered more benefits of partnering with Flowserve. Our product expertise, global network of engineering, manufacturing and service resources, and an agile team of experienced turnaround specialists enabled us to:

- **Reassign field service employees** from other nearby Flowserve facilities to supplement our team in Germany. We also took the unusual step of scheduling our team to work over a three-day weekend that included a public holiday in order to meet the customer's 10-day turnaround timeline.
- **Change our normal workflow** to handle the volume of repairs in a compressed schedule. Instead of having one technician responsible for all repairs to a given valve, we organized the repairs by tasks and then assigned those tasks to multiple teams of technicians.
- **Document the condition of each valve and actuator** by creating a digital record, including photos, which was shared online and in real time with TotalEnergies Carling.

- **Proactively alert TotalEnergies Carling** whenever valves or actuators needed repairs or replacement parts beyond what had been agreed upon in the original scope of work. The real-time, digital documentation enabled our QRC specialists to provide repair options and costs that empowered the TotalEnergies Carling team to make well-informed business decisions.
- **Decontaminate the valves and actuators** to avoid exposure to hazardous chemicals as well as fire and explosion risks.
- **Conduct functional tests** on every valve and actuator along with pressure tests to confirm the repaired valves could meet the customer's requirements of 3.5 and 6 bar (51 and 87 psi).



Repair work fully completed on time

TotalEnergies Carling prioritized repairs for each of the 150 valves and their actuators and provided Flowserve with a detailed work schedule. We delivered repaired equipment to meet three scheduled shipments back to the Carling-Saint-Avoid plant; as a result, TotalEnergies Carling re-installed the equipment to complete its turnaround project and resume production on time.

Superior turnaround support and emergency service

Flowserve understands how critical it is to have a trusted partner to provide fast, reliable service to keep facilities up and running. This is why Flowserve QRCs offer the maximum level of valve support — including 24-hour emergency response and on-site repairs with mobile units in addition to the resources required for large-scale, planned turnaround projects like this one.

Our valve QRC capabilities typically include:

- Control valve repairs
- Actuation repairs
- Valve automation
- Remanufactured valves
- Field services and on-site repairs
- Oxygen cleaning
- Full machine and weld shops
- Turnaround management
- Plant surveys
- Functional and leakage testing

For more information about turnaround repairs, contact your Flowserve representative.