





Case story | VACON® NXP Liquid Cooled

Small size, big performance

The situation

Leading global chemical company LANXESS develops and produces chemical intermediates, additives, specialty chemicals, and plastics across 33 countries worldwide with annual sales of €6.1 billion.

With high product demand and a global marketplace, achieving sustainable production, environmental protection, and energy efficiency can be difficult.

But sustainability and social responsibility are key principles at the company, with many of its products providing sustainable solutions in sectors like electric mobility.

So when expanding production capabilities for its High Performance Materials division ...

...Danfoss VACON[®] NXP Liquid Cooled drives proved an ideal choice to help realize LANXESS' aims.



The challenge

At the LANXESS High Performance Materials site in Krefeld-Uerdingen, Germany—its largest production facility—additional compounding lines were needed to produce engineering plastics for the automotive and electronics industries.

This project comprised the new electrical infrastructure for 5 compounder lines and a total connection power of 9.4 MW. Planning for the project started in 2018, but there were a few key challenges to overcome.

- The LANXESS project required close coordination between multiple parties to ensure that everything ran smoothly, meeting deadlines
- Particularly noteworthy were the factory acceptance tests at Danfoss Drives, the System Integrator and, most recently, on the finished compounding lines at LANXESS, which were carried out under COVID-19 conditions
- Standardization of existing motor control centers (MCC) from 500 V to 400 V for the new compounding lines. These new MCC cabinets with integrated Danfoss drives for 400 V mains supply were designed as a new LANXESS standard together with the System Integrator, Kautz Starkstrom-Anlagen GmbH in Trier, Germany. Thanks to close cooperation, potential difficulties were eliminated

"We've worked with Danfoss worldwide on many previous projects and have always been impressed with the support and solutions offered. VACON[®] NXP drives have run reliably for 15 years at our site in Krefeld-Uerdingen."

> Johannes Goertz, Senior Project Manager Process Control Technology, LANXESS





Up to **10%**

energy savings due to centralized cooling water for transformers, drives and motors



The solution

Working in close co-operation with the team at LANXESS and several third parties, the engineering and design of the drive project was handled by the Danfoss Centre of Excellence (CoE) in Germany, which engineers individual customer-specific drive application requirements. The CoE team supported the entire project from order receipt through to the final Factory Acceptance Test, Site Acceptance Test and start-up support.

Danfoss recommended VACON® NXP Liquid Cooled 12-pulse NFE drives for AC motor speed control. These drives offer a compact footprint in comparison to air-cooled drives, high efficiency, and low noise level during operation. Positive past experience with liquid-cooled Danfoss drives and VACON® HXM120 heat exchangers prompted the LANXESS team to integrate the transformers in this project into the liquid-cooling system. This decision contributed greatly to the increase in overall energy efficiency, consequent reduction in energy costs, and low carbon footprint of the project. The compact size and simple installation of the VACON® NXP units streamlined the engineering remarkably, saving both time and money.

Danfoss also supplied 40 VACON® NXP Air Cooled drives for auxiliary units such as conveyors, pumps, and fans. Those were fully integrated into the LANXESS standard cabinet 400 V / 500 V / 690 V MCC design. This new future-proof integrated design required 35% less space than the traditional MCC solutions.

The outcome

Danfoss' designs for the project and extensive testing proved to be exactly what was needed, with the VACON[®] NXP liquid- and air-cooled drives at the heart of a highly optimized setup.

Two Durethan[®] and Pocan[®] compounding lines are already installed and in full operation at the site, with three more to come. They have been seamlessly and efficiently integrated into the site operations and have been running non-stop since.

The compounding lines are all covered by a DrivePro[®] Life Cycle Services agreement, which guarantees 24/7 availability of service.

The Krefeld-Uerdingen installation shows the importance of close communication and cooperation between all invested parties on a project. Finding the best solution means not only specifying products such as VACON[®] NXP drives to meet technical challenges and specific requirements, but also sharing expertise to overcome logistical issues when they arise.

"The new compounding lines have been running in continuous operation without issues, and we're highly satisfied with how

Markus Drenkers, Site PCT Production Engineer Process Control Technology, Lanxess

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efficient Danfoss' solution is."



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