



PRODUCTION LINE FOR FILOFORM

Turnkey installation in energy-neutral unit

In Geldermalsen, in the Dutch province of Gelderland, Filoform has opened a modern commercial unit featuring the latest technology in the field of sustainability, and a state-of-the-art production and R&D facility. In the preparatory phase, the team from RIJKERS was engaged for one of our specialisms: engineering the complete process installation, including pipework and controls, and delivering it in a turnkey state.

Filoform supplies a wide range of applications and products to meet the most stringent requirements demanded of cable, fibre-optic and utilities grids. The company produces different types of synthetic resins for perfectly sealing and insulating cable joints. To meet increased demand, Filoform has realised a complete new commercial unit together with RIJKERS as its partner in designing and building the new production line for synthetic resin.

The first contact arose via the RIJKERS website. After various substantive consultations, the presentation of the lay-out and the flow diagram followed, after which both parties reached agreement. What was the deciding factor? The detailed total picture, which was right both technically and financially. For Filoform, this process represents a major step in growth, from manually mixing and dosing to a fully automatic installation and a fivefold increase in batch sizes. A trajectory in which we helped the client with our proactive and advisory approach.



Solid project management

Sharing knowledge

Filoform engaged RIJKERS due to our dependability, expertise and solution-oriented way of working. In the preparatory phase, we convinced Filoform by sharing our active information and know-how. Not just by simply meeting the client's demand, but also by reflecting the underlying motivation. Based on our extensive experience with handling different types of clay and PMDI hardeners, we recommended a suction transport system instead of augur transport. The problems that Filoform suffered with dust are now a thing of the past. We also placed an extra drier in the filler pipe to remove surplus moisture from the product.



Project management

As always, we put a lot of effort into sound project management, ensuring that all phases of design, execution and assembly ran smoothly and harmoniously. This involved coordinating installation of the production line – engaging contractors, directing the work and overseeing a flawless execution. This included the E-engineering for the software and control elements by one of our permanent partners. Because we executed the entire process under our own management, the client had very little to worry about.

Complex challenge

Via a single uniform mixing process, Filoform now produces different recipes with totally different properties in terms of composition and viscosity. But not before they had presented us with a complex challenge: transporting and weighing of the very light powder Aerosil. In contrast to other parties, we did manage to create a sensitive weighing system with a dosing accuracy of between 0.1 and 0.5 kilograms. The product has a bulk weight of 70 kg/m³. But that had to be achieved in a weighing system that also has to weigh product that are ten times heavier. Filoform was positively surprised by this result and can now successfully expand its product range.

Flexible set-up

After a smooth engineering process and regular consultation with the client, fitting work started in May 2018. Slightly later than planned due to a delay in delivery of the commercial unit. To ensure that the production process could start before the peak period of Filoform, our employees gave it an all-out effort. This included continuing the assembly and installation process during the holidays to shorten the fitting time by four weeks. The client is very satisfied, and highly values our flexible approach.



Fully automatic and modern process system

Mixer department

The fully automatic process system comprises a storage silo, a big-bag discharge system and a bag-sorting unit, two storage tanks, a mixer tank, three reservoir tanks with the necessary pipework and related equipment. "We have created a completely new mixer department for Filoform, including controls", explained project leader Hans van Geffen. "In close consultation with the client, we gradually optimised the production line and reduced costs. For example, by opting for steel instead of stainless steel where possible. And during the assembly process too, we applied a number of improvements. Together we came to the most ideal solution."



Separate production lines

There are different production lines to keep the two end products – a resin and a thickener – separate for the entire process. The resin mainly comprises Omyacarb and castor oil. When this resin mixes with Poly MDI in the cable joints, a chemical reaction arises. This means the cable joint is completely sealed, thus fully protecting the underground cable networks.

Low moisture levels

Some tanks are equipped with an insulated heating ribbon to keep the products at the right temperature. The powder is supplied via the suction transport in the mixer tank. The product is then mixed in a mixer unit for two to three hours and inserted into a vacuum. The aim of this is to keep moisture levels as low as possible. Moisture is disastrous for the end product. The mass is then pumped to one of three reservoir tanks.

Integration of sections old line

For adding other ingredients, the production line has a big-bag discharge system and a bag-filler unit. An extraction filter prevents the dust released from entering the production hall. For the same reason, vacuum transport is used for the powders. But the delivery of the job is not the end for RIJKERS. Hans van Geffen: "The old Filoform production line still has a smaller mixer tank and two reservoir tanks. We will integrate these to the new line at a later stage to further increase production capacity."

The facts

- Turnkey delivery of fully automatic process system for Filoform: mechanicals, electronics and controls
- Engineering, production, assembly and process optimisation
- Weighing system with a dosing accuracy between 0.1 and 0.5 kilograms
- A single storage silo for clay (Omyacarb): 40 m³
- Two steel storage tanks for castor oil and Poly MDI: net 40 m³
- Big-bag discharge system with suction transport to mixer tank
- Bag-filler unit
- A single mixer tank with vacuum transport: Stainless-steel 304
- Three reservoir tanks: Stainless-steel 304
- Pipework with related equipment
- Project size: around one million euros
- Lead time: one year



The client's view

To increase production capacity in order to meet the demand from its customers, Filoform opted for a new-build solution. "At the same time, we wanted to construct a commercial unit that meets the highest sustainability requirements", explained CEO Alexander van Citters. "Now we have a modern and energy neutral unit that reflects our goal of corporate social governance. CO₂-management is a key part of this." In addition to a large number of solar panels and additional insulation, the building has heat pumps, hot-air pumps and underfloor heating everywhere. And that delivers a positive effect for the production processes and a healthy indoor climate.

In the mixer department, the new production line is already running at full speed and the first experiences are positive. "We have of course had a couple of minor malfunctions, but they have now been solved", added Alexander van Citters. "Simply because things often turn out differently in practice than expected. In any case, the cooperation went very smoothly and in a pleasant atmosphere. It is becoming increasingly clear to us that the RIJKERS experts complement our wishes well. It's no accident that RIJKERS is already busy with the next project. That involves integrating parts of the old line into the new production environment. This will make us even more flexible in the production of recipes that meet our requirements."

RIJKERS

It's all about details. 

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