

Practical innovations and cost savings

Domo Beilen takes a critical look at their sleeves

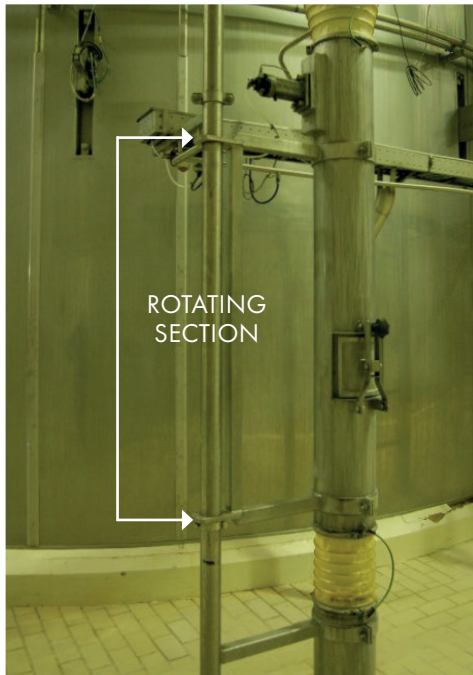


Fig. 1: The pipe section with sleeves can be easily disconnected and moved aside - rotating section.

Domo in Beilen, the Netherlands, is part of FrieslandCampina. For decades a by-product of cheese production has been processed into various ingredients and end products at this location. All end products are powders. In Beilen Gerrit de Lange is always looking for improvements. In this article we talk to him about the more than 1500 sleeves used in the plant. We talk about standardization, rotating constructions and lighting in the warehouse.

Gerrit de Lange's official title is Processing Team Leader of the technical service department. "I am responsible for the maintenance of the processing division of this plant. In other words from milk to powder. My colleague Jan-Marcel Lunenburg handles the packaging division." The technical service department has 40 employees, including warehouse and work preparation. They work in day shifts and after 4.30 pm a mechanical engineer and an electrical engineer are present. In addition to regular preventive and corrective maintenance, De Lange is always looking for and implementing improvements "They may be quality improvements, efficiency improvements or simply cost-savings by doing things more cleverly. And each time we come up with something new!"

TODDLER NUTRITION

For the production of toddler nutrition we use whey supplied by cheese factories. After desalination we blend the whey with milk and vacuum-evaporate the mixture. The Domo brand and the location in Beilen are part of the Ingredients business group of FrieslandCampina (see boxed text). The process is based on thick whey and thin whey, which are by-products from various cheese factories. After desalination in an ion exchanger, the mixture is evaporated in an evaporator and is then led to a crystallization tank in which lactose crystals are formed. The liquid is then split into two flows: lactose (milk sugar) and Hiprotal. Hiprotal is a high-protein end product which, after drying, has a protein content of 45 percent and is used as an ingredient by the food industry. After drying, lactose is a suitable ingredient for toddler nutrition. In addition to the production of various ingredients, the plant in Beilen also produces a variety of in-house products such as coffee creamer and toddler nutrition. De Lange: "We have stopped the production of coffee creamers to fully dedicate ourselves to the production of toddler nutrition. We produce it under private labels and our own brand Friso."

EXTENDED CAPACITY

There are currently 450 people working in Beilen, but soon we will add another 45 employees from the head office (which is now still located in Zwolle, the Netherlands). The production plant is operational full-time in five shifts, 365 days a year. The Small Packaging department (sachets, tins) works in three shifts and the Bulk Packaging department (bagged products, big bags) in five shifts.

FRIESLANDCAMPINA AND DOMO

The Domo location in Beilen is part of the Ingredients business group of Friesland-Campina. This business group produces and supplies ingredients worldwide to producers of daily food, special nutrition and pharmaceutical products. Other business groups are: Consumer Products Europe, Consumer Products International and Cheese & Butter. FrieslandCampina was recently established, but has a combined tradition dating back more than 125 years. During this period the company has evolved into an international producer and supplier of dairy products, fruit drinks and ingredients. FrieslandCampina has 20,000 employees worldwide. Last year the annual turnover was 8.2 billion euros. At their location in Beilen Domo produces nutritional ingredients, based on milk and whey. These ingredients are used for infant and toddler nutrition, other foods and pharmaceutical products. Other Domo locations are Beidum, Borculo, Dronrijp and Workum.

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De Lange: "We have a strict separation between dry and wet during the manufacturing process. The first part, the so-called pre-processing area, is wet. Then the semi-manufactured products will enter the fluid bed dryer via nozzles under high pressure. The basic product is enriched with other ingredients in the drying tower. From this point onwards, the process is and will remain dry." The change of recipes depends on the demand. "At tower 2 dedicated to specialties it may happen once a day. Tower 5 which is dedicated to toddler nutrition, runs continuously for approx. two weeks and that is what we like to see. Every 14 days we stop for 24 hours to give the tower a regular clean-up." The demand for Domo toddler nutrition is expected to increase, which requires an extended production capacity. De Lange: "We plan to introduce a new drying tower 6, which has a capacity similar to tower 5, but with different technology. And we have plans for a double production line in which the drying tower can truly run continuously. Furthermore, we are going to take a close look at the restricted areas: how we can come up with smart solutions for splitting them into medium care and high care."

FROM PROBLEM TO INNOVATION

Every day Gerrit de Lange works on innovations and improvements. "Every day I talk to people from Planning and Quality Control, the Production Team Leader and a process engineer about various problems and new developments." De Lange has a lot of experience. Before he started working for Domo eleven years ago, he worked at two cheese factories. He sees problems as a challenge for innovation. If too many problems occur at a certain location, I start looking for innovative solutions. Quality and hygiene always come first, but we also look at decreasing the production costs by reducing the number of malfunctions and downtime. Therefore, it is crucial that we are able to accurately determine when preventive maintenance is required." In case the installation has to be modified, the QA (Quality Assurance) department plays an important role. "They ask lots of critical questions. This will eventually result in solutions that work, without any unexpected surprises." It is a challenge for Gerrit de Lange to find clever solutions and this continues even after working hours. He tells us about the time that he was having problems with blocked sleeves. As a result, it became very time-consuming to remove the sleeves. "They had bolted flanges and it took a long time to loosen them. Now we have come up with a rotating construction where the pipe section in question, complete with sleeves, can be easily removed by using quick-couplings. After loosening the couplings, the entire construction can be moved aside for a quick inspection of the inlet and outlet and to clean them, if necessary. It saves a lot of time!"

VARIETY IN SLEEVES

Talking of sleeves: the production location in Beilen has over 1500. De Lange: "One of our service technicians works nearly full-time on maintaining, inspecting and replacing all sleeves. We have been doing business with Euromanchetten for years now and they are helping us out with changing a few things. First of all, I want to reduce the wide variety of sleeves to a limited number of sizes. We have estimated that we currently have a few hundred different sizes. I believe we can reduce that number to a few dozen different sizes and types. I would like to change the majority of sizes to 250 mm and 100 mm high as much as possible. It might be difficult, but right now we have too many sleeves that have only one centimetre difference in length - we can do much better than that." Domo has also stopped using double-walled sleeves. They were used to reduce the noise production during the product flow. De Lange: "But there is always noise throughout the entire building, so they have no effect at all. And there is always a risk of contamination if the inner wall starts to leak and products or detergents get stuck in the gap between the inner and outer wall."

STOCK IN THE DARK

There is a well-assorted stock of complete sleeves and materials kept in Beilen. Gerrit de Lange: "We keep most common sizes in stock and most of them are Filcoflex sleeves with quick-couplings (Jacob seals). And if we need a different type of sleeve, Euromanchetten can usually quickly supply them from their large stock. About 80 percent of our sleeves are transparent to enable visual inspections of the product flow. We are currently testing PU sleeves, which are not only transparent, but also antistatic. But the differences in materials will remain, depending on the type of product to be processed and whether dry or wet cleaning is required. For wet cleaning the sleeves must be able to resist exposure to lye and water with a temperature of 80°C." All modifications are recorded meticulously to keep our documentation up-to-date. This way, the size and material of a certain type of sleeve is always clear. De Lange: "This is to avoid any mistakes while replacing sleeves and it makes reordering at Euromanchetten very simple. Incidentally, the average service life of a sleeve is usually more than a year, depending on the use. But exposure to light will shorten its service life: in other words, UV radiation. That is why the lights in the warehouse are switched off automatically. Nothing fancy, but very effective!



Fig. 2: Warehouse with complete sleeves on the left and fitting materials on the right.