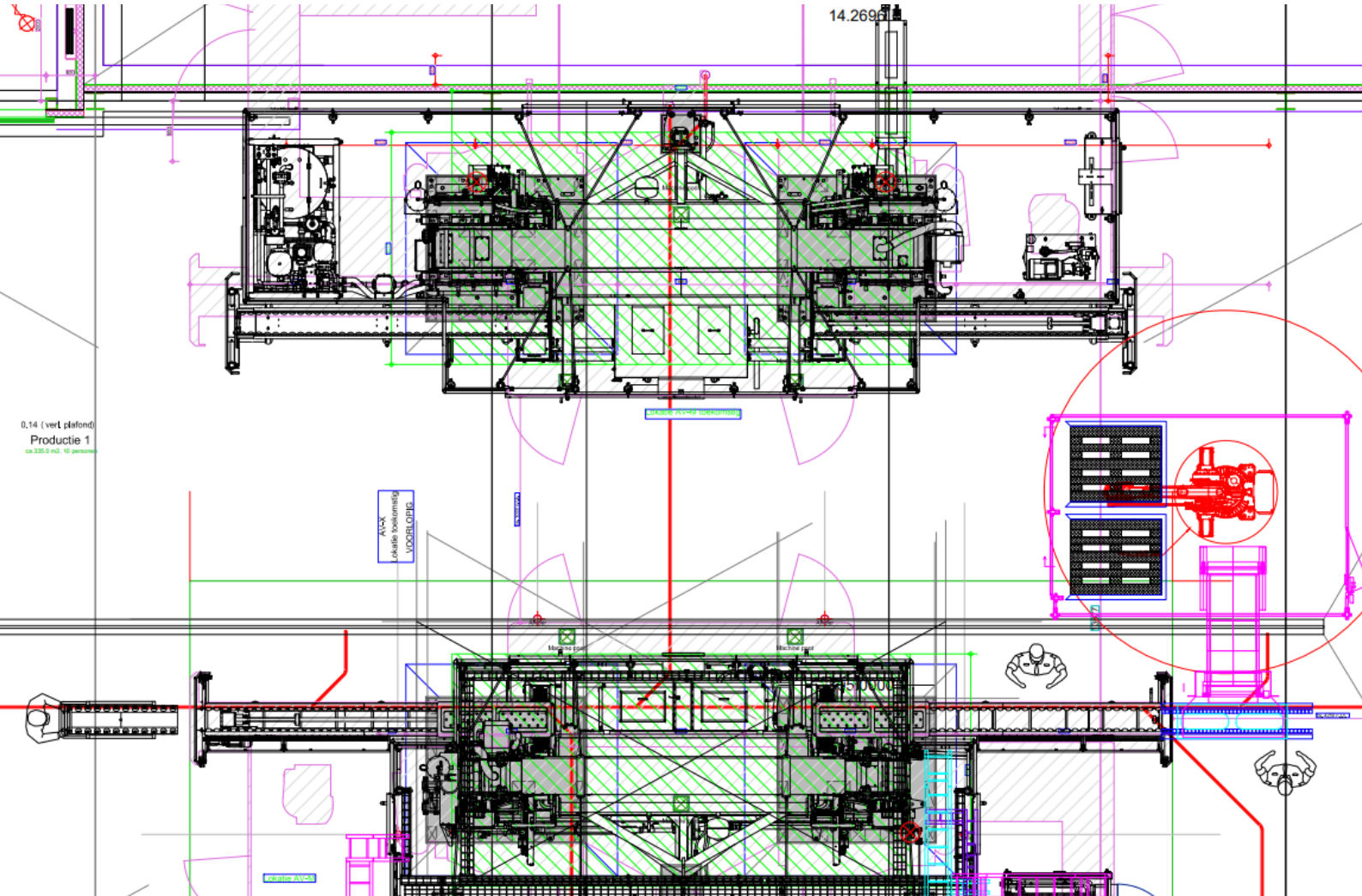
Interreg North-West Europe
COTEMACO
European Regional Development Fund

Success Story

Technical and economic feasibility

Pascal Processing



HPP treatment factory

Company description

Pascal Processing is a certified toll station for HPP. Pascalization or High-Pressure Processing (HPP) is a mild preservation technique for packaged fresh food and food products. Pascal Processing uses this HPP technique to put packaged foodstuffs under very high pressure. They use purified water and pressures up to 6,000 bar or 87,000 psi. The product is treated under ultra-high-water pressure, which inactivates micro-organisms. The low temperature of the treatment results in a lingering taste, smell, appearance, texture and nutritional value. The quality of the products is almost fresh.
Pascalization technology extends the shelf life of cooled, fresh products such as fruit juices, smoothies, sauces, meat and meat products, dips, ready meals, and shellfish.

Motivation/starting point

Pascal Processing, along with a large part of the Dutch companies in the food processing industry, is faced with the challenge of a shortage of workers.
Many operations in which food is processed, sorted and packaged require manual labor. Costs are rising due to the scarcity of labor.
Working at Pascal Processing is often physically demanding. Products are processed under low temperatures (cold-chain 4-7°C) to prevent loss in the chain and to guarantee quality. Employees often stand shoulder to shoulder doing the same work throughout the day, without moving from place to place. Production areas are continuously moist, due to maximum use of machines and high volumes. Due to hygiene requirements, smooth, cleanable surfaces are required. With the proliferation of machines, food processing environments are eminently noisy.

Pascal Processing is finding it increasingly difficult to find personnel for the production site where, in a cold and wet environment, monotonous, repetitive heavy (reinforcement) tasks take place, such as lifting the heavy crates and baskets and then packing them back into crates and boxes. Filling the baskets manually is especially hard work. Pascal Processing is aware that further digitization and automation is necessary to maintain the company but would also offer the opportunity to further grow the company, including employability.

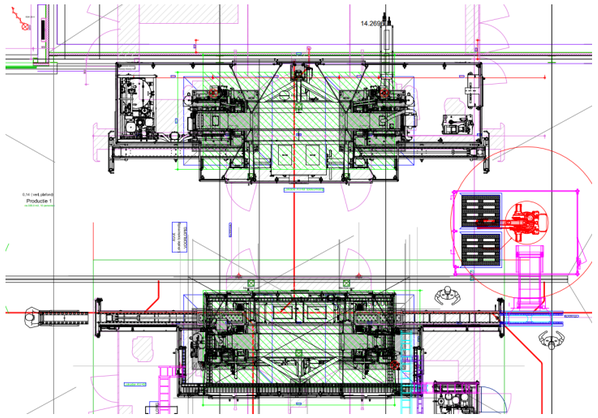
Consumers increasingly want more freedom of choice and variety. As a result, we see increasingly smaller batches in production with constant or increasing total volumes. This presents Pascal Processing with a challenge to efficiently meet this demand from the retail/consumer. Also now that the strong growth that the organization is experiencing is expected to continue, a good balance must be sought between the use of technology and the deployment of employees, the control of jet plans and monitoring of production (data connection across the chain).) should be better. COTEMACO has been asked to look into a robot solution that can make the input of crates with product into the baskets to be pascalized hands-free and from there to create a starting point for introducing further automation and deployment of robots/cobots within the organization, whereby in a later stage At this stage, the packaging and removal of the finished product will be considered.

Analysis

Food is perishable by nature but can be preserved for longer by means of traditional preservation techniques, such as pasteurization (short-term heating), sterilization (prolonged heating) or the addition of preservatives. The disadvantage of heating is that it comes at the expense of the nutritional value, vitamins, taste and appearance of the product.
HPP is a preservation method. At HPP, packaged foods such as meat (products), fish, egg products, juices, smoothies, dips, ready-made meals, etc. are put under very high-water pressure, so that bacteria and fungi are inactivated. The food remains completely intact because the pressure on the food is equally high everywhere. This way of preserving is completely natural and the foods retain their original nutritional values and vitamins.
Pascal Processing is looking for a robot solution that can take the import of crates with product (food in packaging, most crate 60*40) from a pallet per layer and then onto a belt or otherwise. In the latter case, the intention is to do this in baskets from pallets on which the crates are stacked. This is now done manually and is very physical work. Incidentally, an additional challenge is that it concerns different crates. It is also the intention that the emptied crates are neatly stacked on a pallet and then removed. The process is therefore shortened: destacking, emptying product into baskets, stacking the crate empty.

Technical realization

The COTEMACO Support program for Pascal Processing was carried out by the Technology Providers of Food Tech Brainport in the Netherlands. The support consisted of a feasibility study regarding the technical and economic feasibility, as well as the feasibility of financing. The technical and economic feasibility has been assessed by Technology Providers Van de Weert, member of the COTEMACO Support team at Food Tech Brainport.



Result

In the spring of 2021, the Technology Providers conducted the feasibility studies in close contact with Pascal Processing. Several technically available solutions were evaluated and optimized in iterations to meet the processing requirements in the factory. Special attention was paid to safety requirements for personnel, hygiene and health issues related to food products, ease of operation and flexibility and integration with other digital platforms such as the company's ERP. In the final phase of the project, when the technical and economic feasibility had been established, it was decided to postpone the realization to 2022. In the summer of 2021, Pascal Processing moved to a new location and the case was submitted by the COTEMACO team and Food Tech Brainport as a development case for the NextGen subsidy program of the Dutch government. There is also an option to directly robotize the output of the machine in addition to the input of goods on the pascalization machine.

Interview

Have your expectations been met - technical implementation and support through COTEMACO?

"With the help of COTEMACO, we now have an idea of how we can design our new production location hands-free and reorganize the production flow. In the new situation, we will certainly need fewer people on the machine and the tasks that remain on the machine will be a lot less heavy and physical."
Jasper van Altena, Managing Director, Pascal Processing

What is COTEMACO?

The project, which is an initiative of Interreg North-West Europe, aims to support around 60 SMEs in the automotive and food manufacturing industries with so-called „test environments" and to encourage them to integrate collaborative robotic systems and digital technologies into their business. Accordingly, in addition to increasing production flexibility, the relocation of production abroad will be curbed and the number of jobs in manufacturing increased, which will generally lead to an improvement in the competitiveness of the companies involved.
In the project new technologies are implemented in application examples - the aim is to move from the prototype in the laboratory environment to the transfer to production, taking into account the legal situation and certifications.

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