



Driven by development

A constant focus on research and development is and always has been essential for Alfa Laval. This is, without a doubt, the most important condition for the company to be able to deliver products and solutions of the highest quality to industries around the world. The goal is clear: remain a market leader in heat transfer, separation and fluid handling.

The company's growth rate and the tempo of its product launches are constantly accelerating, and major initiatives have been undertaken in the last few years. The most important of these were the launch of two new platforms for separators and heat exchangers and the development and implementation of several digital solutions.

These changes were made possible in large part due to a comprehensive analysis of the entire Group in 2016. Everything from the company's R&D processes to the product range and marketing were put under the microscope and reviewed from several perspectives. The analysis also included the company's services offering and, not least, the rate and scope of digitization. Challenging and reviewing our offering is an ongoing process, which will continue throughout all areas to ensure the company's competitiveness.

Life cycle analysis can help the company define and implement methods that also take environmental aspects into consideration during the development and design of key technologies. The ambition is that every new product, in addition to being more efficient, should have a smaller impact on the environment than the product it replaces. It is not only about the product's own life cycle, however – it is also about developing a product or solution that can help make the customer's processes more resource efficient.

The rate of product launches has increased over the past few years. Between product improvements, upgrades and entirely new products, Alfa Laval launches approximately 100 products annually, which is the equivalent of around two products per week. The focus is on delivering products and services that can provide improvements for the customer, whether in terms of energy efficiency or the ability to digitally monitor product performance.

A competence center for tomorrow's solutions

During the last few years, Alfa Laval has established international competence and test centers in different key areas. There is a center for high-speed separators in Tumba, Sweden as well as several facilities in Denmark: a center for hygienic fluid handling in Kolding, a center for the development marine solutions in Aalborg and center for membrane filtration in Nakskov. In 2019, another competence center was opened in Søborg, where the next generation of decanters will be developed, tested and optimized. This center will also focus on digital solutions.

In addition to competence centers, Alfa Laval has different product-based business centers. Each center focuses on a specific product portfolio, such as compact heat exchangers, fluid handling products or

boilers. These centers are responsible for research and development as well as further developing existing product platforms. They are also responsible for product strategies, pricing, sales tools and training as well as follow-up and evaluation of product launches. Product and business development takes place every day of the year at Alfa Laval.

Approximately 2.5 percent of Alfa Laval's annual sales are invested in R&D, the equivalent of hundreds of millions of Swedish kronor every year. In 2019, investments in R&D amounted to approximately SEK 1,086 million. It is therefore of the utmost importance that we protect the products that are the final result of these development efforts and investments. When a new product, design or function is ready, Alfa Laval's patent department steps in. Every year, the patent department handles a large number of internal reports on new inventions, of which approximately 35–70 lead to new patent applications. The patent department also deals with trademark registrations and investigations as well as monitoring and handling patent infringements. At year-end 2019, Alfa Laval had more than 3,700 patents in its portfolio.

Continuously developing the operations

For Alfa Laval, working with development is about much more than the concept of "R&D". Development is continuous and permeates all areas of the operations, allowing the company to lead the way in a changing world. When it comes to the supply chain – that is, the Operations Division – this work is handled by Operations Development. They make sustainable improvements across the entire chain, from procurement and production to distribution and logistics, which encompasses further developing the procurement process and investigating, developing and evaluating new production technology within the framework of Industry 4.0. During the year, a pilot project was established for additive manufacturing: 3D printing of product components.

Operations Development has employees at major production facilities spread around the globe. Everything they do is about change, big and small. The goal of their work is to find solutions that strengthen the company's competitiveness. The unit manages hundreds of projects every year.

Another unit that also works with development is Corporate Development. They work according to a strategic, long-term view of technical development in possible future growth areas and new market concepts. They also support long-term activities carried out in the company's various functions, and investigate and analyze different possibilities when it comes to new technologies or areas that could present future challenges or opportunities.

**2.5%**

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**35-70**

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**>3,700**

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**Operations Development**

Contributes to the development and optimization of the supply chain. Refines procurement processes and investigates, develops and evaluates new cost-efficient production technologies.

**Corporate Development**

Takes a strategic, long-term view of technical development in terms of potential future growth areas and new market concepts for the company as a whole.