

# Research and development

In a competitive world with continuously changing customer preferences, investments in research and development (R&D) are crucial to success. The ability to respond to new demands and changing needs by offering new product designs and an updated offering is what ultimately enables companies to boost their competitiveness, capture market shares and improve their profitability.

Alfa Laval has always been characterized by a focus on continuous development. Since 1883, the company has developed numerous new products and worked steadily to implement these in a growing number of applications and industries. However, Alfa Laval's definition of innovation goes beyond this: "People creating and implementing new ideas that create value."

Inspiration is all around us – customers who express new needs, new legislation, experimenting with new manufacturing materials, other companies, new market trends and new production technologies, to name only a few examples. It does not necessarily need to result in new products or even upgraded versions of existing ones. It can just as well be about finding new ways to do business, new production methods or new features that can change the overall customer experience, such as the addition of service packages. Alfa Laval's fundamental belief is that everything can be developed and improved, and all initiatives are carried out with the aim of staying a step ahead of the competition and remaining the customer's first choice for new equipment, spare parts and service.

## Strict requirements in the R&D process

Alfa Laval conducts R&D at some 20 product centers and has more than 500 dedicated employees who help to ensure that the company's offering remains on the cutting edge. Every year, between 2 and 2.5 percent of the company's sales are invested in R&D, resulting in the launch of some 35 to 40 new products. It all starts with an idea – or rather, several ideas contributed not only by the R&D organization itself but also by the sales and aftermarket organizations, whose frequent customer contact provides useful insight into emerging needs and trends. What follows next is a clearly defined process, with ongoing reconciliation and analysis, which explains why only a few of the original ideas make it all the way through to launch. In other words, the difficult part is not finding inspiration, but rather assessing the potential of these new ideas, creating strong products and launching them effectively.

The organization uses various indicators to gauge its results. One such indicator is the percentage of sales attributable to products launched within the past five years; another is the amount of time it takes to recover

the total project cost and generate the same amount as a gross margin. R&D is crucial and it is vital that the company take a strict approach and only allow projects with the very best potential to go all the way.

## Patents protect the company's business

Investments in R&D are not free, which is why it is important to ensure that the revenue generated by a new invention remains within the company. Alfa Laval's patent department is responsible for protecting and defending the company's technologies and business. Every year, the company adds between 35 and 70 new patent applications, ensuring that the percentage of the company's portfolio that is patent protected increases continuously. At year-end 2016, Alfa Laval had more than 2,500 patents in its portfolio. This is an important part of the company's work to ensure profitable growth.

## Products launched during the year

### Alfa Laval LKH Prime and Alfa Laval LKH Prime UltraPure

The Alfa Laval LKH Prime Pump sets a new standard in self-priming pump technology. Based on the market-leading Alfa Laval LKH pump range, it is a versatile, efficient self-priming pump that uses a combination of air-screw technology and advanced design to meet the most stringent standards and hygiene requirements in the food, dairy, beverage, hygiene product and home care industries. Its superior efficiency results in reduced energy consumption. Together with the fact that it is based on the market-leading LKH pump range, this delivers a low cost of ownership and increased uptime. The pump is also available in the UltraPure model, which is designed to meet the needs of customers in the pharmaceutical industry.

