



„Green Lab Fab“

Efficiency and resource conservation in production processes



In the manufacturing process of its products, Pfeiffer Vacuum does not only attach importance to advanced technologies and highest quality standards but also to energy and resource efficiency, as these are important features of the corporate philosophy. With the incorporation of these features in Pfeiffer Vacuum products, efficient solutions with significant cost savings can be provided to customers. But not only customers benefit from efficient and thus cost-saving production. Even Pfeiffer Vacuum's own manufacturing processes should be as efficient and environmentally conscious as possible. Pfeiffer Vacuum takes its environmental responsibilities very seriously and wants to optimally fulfill them in order to be able to guarantee a sustainable value chain to customers, starting with the very first link.

Combination of efficient products and sustainable production as a recipe for success

At Pfeiffer Vacuum, customers' interests constitute the largest and most important focus. Therefore, the improvement of efficiency and sustainable operation of the vacuum solutions for customers has so far been the top priority. In recent years, impressive progress has been achieved concerning this matter and product development has significantly expanded: For some time now, development projects have been carried out according to the „Eco Design“ approach. This means that the environmental impact of a product throughout its entire life cycle is considered right at the beginning of the development phase. At least three environmental aspects are optimized for each new project.

After the implementation of this milestone regarding sustainable product development, Pfeiffer Vacuums' own manufacturing process should also fulfill the requirement of conscious and sustainable management. The overall sustainability requirement does not simply entail efficient operation management on the client's side, using energy-saving products from Pfeiffer Vacuum. It also involves making the company's own creative process in all its facets as efficient as possible in order to establish Pfeiffer Vacuum as an energy pioneer in the industry.

Green Fab Lab as a milestone of sustainable production

The „Green Fab Lab“ concept was implemented as a pilot project in the Pfeiffer Vacuum production facility in Annecy, France. It includes comprehensive measures to increase efficiency and resource conservation in all matters concerning the production cycle.

In a **filtration unit**, cooling lubricants, chips and production residues are filtered out and can then be reused. This leads to the draining processes being reduced by a factor of ten and to a significant reduction in oil and water consumption. In terms of the production process, this results in stable processing steps and reduced wear of tools and machines.

Thanks to the **environmentally friendly design of the production buildings and factories**, it was possible to optimize the use of natural light. This reduces the cost of illumination significantly. The risk of contamination was also greatly reduced, due to automated coolant and chemical supply systems. Thanks to the use of a central outgassing system with filters, this significantly improved the air quality. Hence, also the working conditions were optimized.

Through **regular measurement and analysis of machined parts**, processing tools are constantly being adjusted and adapted. This leads to a decrease in the waste of raw materials, energy and goods. Consistent process monitoring optimizes production processes in terms of speed and relevance. Increased flexibility in production, better traceability of manufactured components and, not least, improved productivity can be achieved by this measure.

To meet the decontamination requirements in production, an **environmentally friendly industrial cleaning system** was installed. Components can be cleaned and rinsed solvent-free before assembly. Thanks to a new machine concept, the cleaning system uses 30 % less energy and 60 % less water than other cleaning systems. Moreover, significantly less detergent is required. Thus, the cleanliness of the finished parts can be

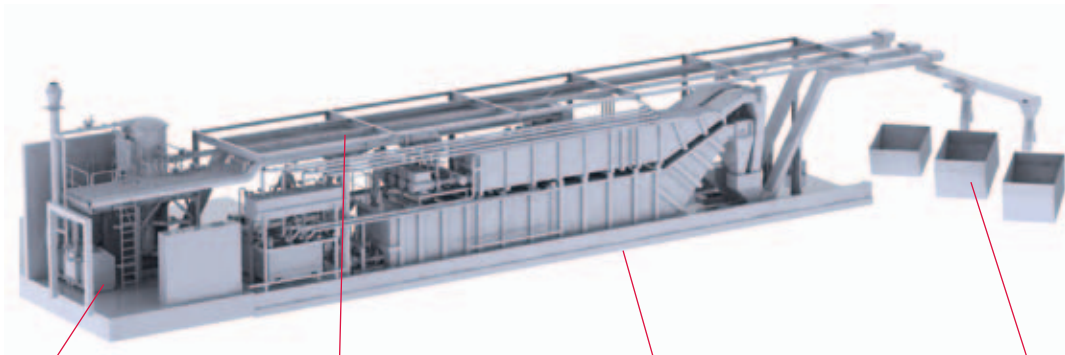


Figure 1: Industrial cleaning machine for decontamination

improved and, most importantly, monitored. With the new cleaning system, the cleaning capacity is also twice as high.

An **automatic rotary device for the processing, measurement and management of components** allows the environmentally harmful aluminum and stainless steel chips to be collected and recycled. With the help of the rotary device, coolants can also be filtered and distributed centrally.

An **automated painting system** was installed to dry, varnish and feed the pumps. Thanks to this system, solvents are no longer necessary for painting and cleaning processes. The painting requires 30 % less energy and it causes 30 % less waste during the painting process than comparable systems. This not only increases the reproducibility and quality of the painting process but will also improve productivity and allow for a smooth distribution of work.

The interaction of all these components increases the quality of production processes significantly and makes them environmentally friendly and efficient. Pfeiffer Vacuum has thus succeeded in implementing a sustainable production strategy and in meeting its requirements regarding the conservation of energy, resources and the environment in the production process.

With energy consciousness towards the future

With the „Green Fab Lab“ concept and its extensive use throughout different areas in production, Pfeiffer Vacuum is able to implement its efficiency requirements. This not only contributes, with the help of energy and resource-saving Pfeiffer Vacuum products, to the efficient management of operations on the customer side, but also results in significant savings with regard to energy consumption, waste management and the use of limited resources within the company's own production process. This makes production more efficient and environmentally responsible. In addition, the „Green Fab Lab“ raises the awareness of Pfeiffer Vacuum's employees regarding the issue of energy and resource efficiency, which causes a multiplier effect and the general environmental awareness in the workforce increases.

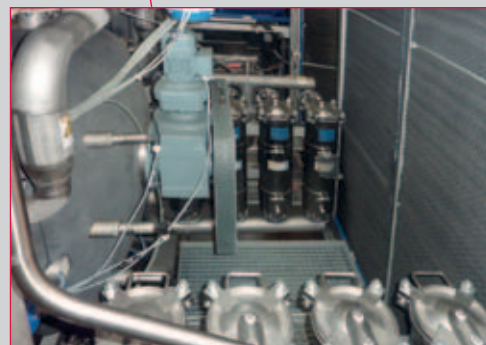
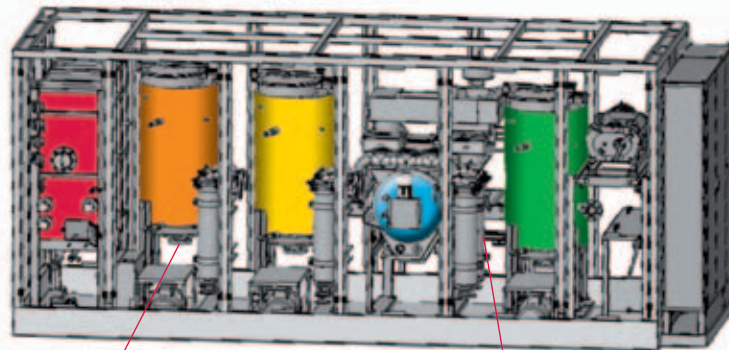


Figure 2: Filtration unit for sorting and recycling coolants, chips and production residues

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from a single source**

Pfeiffer Vacuum stands for innovative and custom vacuum solutions worldwide, technological perfection, competent advice and reliable service.

**Complete range
of products**

From a single component to complex systems:
We are the only supplier of vacuum technology
that provides a complete product portfolio.

**Competence in
theory and practice**

Benefit from our know-how and our portfolio of training
opportunities! We support you with your plant layout
and provide first-class on-site service worldwide.

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