

Peace of mind with Sulzer

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INTRODUCTION:

Sulzer manufactured and delivered the first pump as early as the 19th century. Since then, we have been keeping liquids on the move by an ever-increasing number of various pump and agitator types. In the past decade we increased our product portfolio to cover high-speed compressors. Together with acquisitions and growth in our sales, we have delivered altogether well above half a million machines, and they can be found in every part of the world. Most of them serve tirelessly in continuous duty in the customers' main processes. However, to make the best out of them year after year, they need high-quality and timely maintenance.

Although we are currently serving various kinds of process industries in their most demanding applications, our roots are in the pulp and paper industry. Our customers continuously drive the development of the production processes and their reliability. Over the decades we have had a vast number of projects with pulp and paper industry customers and with major engineering and process manufacturing companies, aiming at better energy efficiency, higher reliability, and ease of maintenance. Thanks to this cooperation and our own engineering skills, we have developed products that are a perfect fit for the process applications in pulp and paper mills. We have also created innovative service concepts and products to bring equipment availability and reliability to the level desired by the customer.

Continuous development

Sulzer has been developing pumping solutions for the process industries for more than 130 years. When purchasing a Sulzer product, a customer buys into a vast network of expertise and knowledge available from the moment an agreement is made through to when the pump retires from action.

Among the major successes we can list the removal of duplicate stand-by pumps from the processes and changing the pumping of medium-consistency stock from positive displacement technology to centrifugal pumps. Since the first commercial installation of an MC centrifugal pump in 1980 we have developed two more generations with ever increasing pumping capacity and energy efficiency. We have also supported a major leap for easier and faster maintenance by back-pull-out designs and assemblies with no need for manual adjustment of clearances.

Getting rid of duplicate stand-by pumps was mainly achieved by better manufacturing materials, including duplex steels and other highly durable alloys, sturdy product structures with adequate material thicknesses, and strong components like bearing and sealing arrangements that handle higher loads than in the past. We have continued the development towards even more modular product structures allowing easier and less costly changes to products as well as cross-utilization of components.

Our medium-consistency centrifugal pump technology cut the customers' energy and maintenance bills remarkably. High hydraulic performance and high energy efficiency have been on our

demand list for every product development project for a long time. In pulp and paper applications, the energy cost accounts for well over 90% of a pump's lifetime costs.

One of the latest additions to our portfolio is the mechanical seal. With the acquisition of a mechanical seal manufacturer, we got access to mechanical sealing technology and a great opportunity to develop our own Sulzer mechanical seal to fit our equipment perfectly. To begin with, we focused the development work on our process pump series and then continued with other products like agitators and multi-stage pumps. Our development work has proven to be very successful as we now have a very large number of pumps and agitators running with Sulzer mechanical seals around the world. Our own mechanical seal allowed us to integrate the seal to our products in an optimal way, also ensuring its efficient servicing.



Figure 1: Sulzer has an experienced global service network to help its clients in all their pumping, mixing and aeration needs.



Figure 2: Our pump service masters even the most demanding applications in pulp and paper mills.

Performance is everything

When it comes to pumps, agitators and high-speed compressors, performance is everything. Processes and operations depend on them, often transporting hazardous or corrosive liquids. Pumps always need to be in working order – many applications require continuous operation, and downtime costs money. Sudden part failure can be disastrous.

Even though our products are very durable by design and construction, they are still subject to various external loads and particles or impurities in the pumped or mixed liquids. For this reason, we pay considerable attention to how our products can be serviced efficiently. We use the latest technology when manufacturing the components of our equipment. Thus, the parts are precise by dimensions and materials and the delivered spare parts are exactly the same as in the originally delivered equipment. They will fit in place perfectly in one go, every time. This speeds up the maintenance considerably, which is crucial should the equipment have failed suddenly and need immediate repair.

In addition to regular spare parts, we started to kit the small wear items in service kits more than 20 years ago. Our service kits have proven to be very popular among maintenance teams because they are easy to order and use when replacing major components like impellers, side plates and seals and when servicing the bearing unit. The service kits include exactly those small wear items that should be changed at the same with the major spare part to ensure reliable operation for the planned mean time between service.

An even more impressive solution for quick service is our exchange unit program in which Sulzer delivers a complete rotating assembly of a process pump to the customer. It can be installed into the pump in just a couple of hours, and the pump can be put back into duty right away. The customer returns the worn unit to Sulzer for inspection and reconditioning.

In addition to ease of maintenance, this exchange unit program also offers the customer a clear financial benefit.

Sulzer also provides a full range of inventory management solutions to support customers to manage their stock and reduce inventory costs. With our solution, customers may release capital currently tied in their spare part inventory for more productive use.

Keeping customers up to speed

Sulzer's global Customer Support Services network carries out regular mill surveys and energy audits to ensure optimal performance. The service experts can suggest improvements such as replacing ageing spare parts with technologically superior alternatives. The energy efficiency and performance studies may reveal that the whole pumping system or parts of it could be modified to reduce power consumption or to enhance reliability.

Regular consultations with Sulzer help extend the lifetime of the pumping and agitation systems by ensuring more reliable operation, fewer unexpected failures, and lower lifetime costs.

The modular approach of Sulzer's solutions is designed to make operation as convenient and functional as possible. Maintenance or upgrading can be carried out easily, and the modular structures allow the customers to manage with less spare parts.

We can upgrade the equipment with more durable materials, change the seal to our Sulzer mechanical seal with proven reliability, change the pump type or include additional features like air removal or self-priming without changing the pump size. With our continuous research on fluid dynamics and the resulting hydraulic development, we have also brought various hydraulic retrofits to the market. The intelligent modular designs and retrofits allow the customers to keep the original footprint, avoiding all the costs of changing the pump base and piping.

Digital technologies

Our development efforts do not focus only on equipment and their components and features. We have introduced a smart condition monitoring system, Sulzer Sense, to turn pumps into intelligent, connected devices. This is a great asset also in the pulp and paper industry where the pumps, agitators and high-speed compressors are mostly in continuous duty. Our condition monitoring system is designed to measure the temperature and vibration of the pumps in operation and to transmit the data wirelessly. The users receive information about the performance and reliability of their pumps and can act upon alarms or other signals showing abnormal development of monitored values. Our condition monitoring system is a valuable addition to our long list of developments to increase the reliability of the equipment and to generate cost savings.

Driving sustainability with Sulzer

Our technology is helping to recycle clothing, create bioplastics and renewable fuels as well as repurposing a large number of our pumps. 95% of Sulzer's products are well serviceable by design and 99% of the materials used in our products are recyclable.

More than a decade ago Sulzer management decided to set aside a budget to buy back some pre-owned process pumps from businesses that no longer needed them or had ceased their operation. To facilitate a seamless process, the sales, procurement, operations, and financial departments joined forces to locate second-hand pumps, purchase them and then find a new purpose for them by refurbishing the pump to its new duty. Sulzer guarantees the performance of the pump with a normal test run and offers a standard one-year guarantee.

The process has winners on all sides. The previous owners have now realized the value of an asset that was unused, even if it was a brand-new spare pump. Sulzer in turn has acquired a pump that it can easily repurpose and refurbish, thanks to the extensive in-house pump knowledge and expertise. As far as the new customer is concerned, they effectively get a perfect-quality pump with a very short lead time, saving time and money for the project in question.

The customer looking for pre-owned equipment contacts their local sales representative with their requirements. The delivery time of pre-owned equipment may be just a few days depending on the scope of delivery. With the pre-owned equipment offering together with the exchange unit service, Sulzer is at the forefront of the sustainability movement.



Figure 3: Spare parts are delivered quickly from our parts processing centers.

Long-term trust with great future

Sulzer builds the existence of the business on long-term relationships and partnerships with our customers. The true value of selecting Sulzer is in our deep knowledge of the customers' processes and their pumping, agitation, and aeration applications. We earn our position day after day by providing state-of-the-art products, spare parts, and highly competent field service and workshop repair solutions to our customers.

The pulp and paper industry has always been a bio-based industry developing towards an even higher utilization rate of the raw material used in the production processes. Like many other industries, pulp and paper is also continuously evolving with new innovations related to the production processes and the products. Sulzer wants to be a fundamental part of this evolution and story of the future.

Sulzer's in-depth knowledge of pumping, agitation, and aeration applications gives us a perfect position to offer and develop our products and service solutions to perfectly fit the customer needs, right now and in the future.

Figure 4: HST high-speed compressors add to our product portfolio for the wastewater treatment plants.



Figure 5: Mechanical seal testing at our full-scale research and development center.

