



ANDRITZ offers highly sophisticated condition monitoring solutions for pumps.

ANDRITZ: well ahead in serving solutions

Founded in 1852 in Graz (Austria) as a foundry, ANDRITZ is one of the world's leading suppliers of plant equipment and services for hydropower stations, the pulp and paper industry, metal working and steel industries, as well as for solid-liquid separation in the municipal and industrial segments. The pump division is the oldest part of the company. ANDRITZ is not solely a pump manufacturer in the way many of its competitors are; the company is a technology group of which pumps are a global division. Managing Aging Plants had the pleasure of speaking with Dr. Uwe Seebacher (Global Director Marketing, Communications & Strategy, Pumps and Separation) about the IIoT, monitoring solutions and much more.

By Jolanda Heunen

ANDRITZ's reference portfolio spans the entire globe. Just a few recent examples are engineered pumps for irrigation in Egypt and India, and for drinking water supply in Atlanta, USA or standard pumps for the production of

tapioca starch in Thailand. We have also delivered three fully automated Krauss-Maffei peeler centrifuges for another tapioca starch project in Thailand which were designed specifically to reach the same previous performance as up to 20

manual centrifuges. "We set ourselves no limits," Dr. Seebacher tells, "we, for example, also redesigned an already existing pump series for the transport of tomato juice concentrate in accordance with the customer's requirements."

As a technology group, ANDRITZ knows the entirety of processes and value chains and views pumps as one component hereof. "We offer a wide range of innovative products and services, including services in the Industrial Internet of Things (IIoT) sector under the brand name of 'Metris'," Dr. Seebacher tells.

In addition, the international technology group is active in power generation (steam boiler plants, biomass power plants, recovery boilers, and gasification plants) and environmental technology (flue gas cleaning plants), and offers equipment for the production of nonwovens, dissolving pulp, and panel board, as well as recycling plants.

"It is exactly this diversity of various technologies serving different – but sometimes also the same – industries combined under one roof that significantly distinguishes us from our com-

petitors," Dr. Seebacher continues. "Due to this setup, there is not only a massive knowledge pool, but also regular transfer among the business units and product groups, resulting in numerous customer benefits."

Well ahead in the field of the IIoT

ANDRITZ is well ahead in the field of the Industrial Internet of Things. Their IIoT activities were already launched back in 2005. Dr. Seebacher explains: "As this will be a core topic in the future to maintain and enhance the ability to compete, ANDRITZ has combined its innovative IIoT solutions – which are field-proven in many reference plants – under the technology brand Metris."

Metris technologies include the latest state-of-the-art Industrial IoT solutions as well as smart digital services. These can be fully tailored to individual customer requirements and

unite their clients' physical and digital worlds. "Thereby, our IIoT technologies become the basis for 'Internet of People' (IoP) solutions by connecting our customers' specialists with each other, as well as with our experts." This value-adding interrelation results not only in a professional preparation of the collected data improving the plant's performance, but also enables ANDRITZ's customers to successfully practice applied business intelligence.

Serving customers with monitoring solutions

Long-term plant monitoring to maintain continuous operating reliability and performance by collecting and evaluating pump-specific data has always been an integral part of ANDRITZ's portfolio. "Even before the issue of the IIoT manifested itself, we already measured the most important performance values of our pumps



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In the chemical industry, regular shutdowns of the process are required to seal the decanter casing again. Investing once in an innovative upgrade product (FRP – Fiber Reinforced Plastic decanter casing) by ANDRITZ can solve the issue with wear and downtime.

during operation,” Dr. Seebacher states. Based on this, the company developed a smarter version and today delivers highly sophisticated condition monitoring solutions for pumps. This can be a standard software package or tailored to specific customer requests. “These special pump monitoring packages comprise operating condition comparisons with ‘should be’ curves which include variable speed curves such as head, performance, motor power or NPSH versus

flow curves,” Dr. Seebacher explains. “In addition, temperature, vibration and electrical analyses are performed.” All data can be analysed within the software or exported to various file formats. Limits and alert notifications with a traffic light system approach are also provided. Moreover, locally installed measurement devices and signals from control stations can be connected to the Metris Database. “Our monitoring system for pumps comes with industrial hardware such as a programmable logic controller,

an iPC and an HMI for visualizing the pumps’ operation on site.”

Safety and efficiency

Dr. Seebacher sees safety as an important issue for aging industrial facilities. “This goes hand in hand with efficiency: pumps offer an often underestimated and also unexploited potential for improvement in terms of energy consumption and process efficiency,” he sketches and continues to explain that the reason behind this is that these hydraulic machines are often not operating at their optimum, but either at partial load or overload – due to pumps being incorrectly sized or because conditions in the plant have changed.

“If we consider that the running costs for operation of these pumps – such as the cost of energy, maintenance, and repair – amount to many times the purchase and maintenance costs over their entire service life, this waste of resources has enormous consequences,” Dr. Seebacher states. “These costs can be reduced by optimizing service management in close coordination with the supplier. Around a third of these costs can be saved from the smaller coordination effort and from the reduction in repair and maintenance costs. The lion’s share – which is around two-thirds – can be optimized with enhanced performance resulting from greater operating reliability and sustainability, longer plant lifetime, plant availability, and

Application story: Service needs expertise from small to very large

Regardless of the size and number of pumps, ANDRITZ covers service of the smallest, standard pump in a pulp mill up to the largest engineered pump in an infrastructural mega-project. One of the most prestigious projects in the recent history of the ANDRITZ service team was the order to supply a storage pump to an Austrian energy supply company. The original hydraulic machine of the ternary pumped storage set first went into operation in 1968. By the time it was decommissioned in 2016 this pump had seen 7,600 start-ups, been in operation for a total of 52,600 hours, and pumped a total of 540 million cubic meters of water from a reservoir to a man-made lake 906 meters higher up. This corresponds to 18 times the useful content of this lake.

After nearly forty years of service, the decision was taken to renew the pump. ANDRITZ was awarded the contract because it offered the best technical solution, providing higher efficiencies compared to competitors as well as easier pump assembly and maintenance. A new six-stage, horizontal storage pump was delivered with significantly higher efficiency, delivery rate, and thus performance. The new pump was specially designed, developed and manufactured according to the requirements and needs of the customer. Only materials of the highest quality were used in order to guarantee high wear resistance as well as an extremely long life time of the machine once again. An excellent combination of hydraulics and mechanics also allowed a compact design with easy pump maintenance. Following a successful model test in the presence of the customer, trial operation with the new pump began in the autumn of 2016. Compared to its predecessor, it achieves an increase in flow rate from 2.73 m³/s to 3.32 m³/s. Likewise, the rated capacity increased from 27.2 MW to 32.29 MW and the head from 788 to 889.4 meters.

process quality, and improved service cycle planning.”

Dr. Seebacher continues to take decanter centrifuges applied in the chemicals industry from the separation section as another example: “Depending on the type of acids processed, even high-grade titanium decanter cases can’t always resist the corrosion caused by changing process conditions such as rising temperatures. Now when you consider highly concentrated hydrochloric acids are being processed, small quantities of the acid can escape from the decanter centrifuge. For keeping this under control, regular shutdowns of the process are required to seal the decanter casing again – a process that is not working efficiently. In such cases regular maintenance is very important, as is investing once in an innovative upgrade product (FRP – Fibre Reinforced Plastic decanter casing) that solves the issue with wear and downtime.”

Future-oriented, targeted, and regular equipment services can achieve all of the aforementioned effects quickly and easily as well as preventing downtime, inefficiencies, and other risks. Appropriate adjustment of the equipment to the plant conditions can lead to a reduction in energy consumption. “In a broader sense, this not only contributes to a considerable reduction in costs over the entire service life of the

equipment, but also to significantly lower CO2 emissions,” Dr. Seebacher states.

“Optimum plant operations also save maintenance costs and extend the lifetime of the pumps and separation equipment. This can amount to a significant overall increase in plant availability and productivity.”

ANDRITZ’s plans for the future

Though looking ahead is important for growth, providing a long-term prognosis is certainly not an easy task. “We live in a rapidly changing world and deal with equally behaving markets,” Dr. Seebacher remarks. “A passion for innovative technology, absolute customer focus, reliability, and integrity are the central values to which ANDRITZ commits. We are a reliable and competent partner and help our customers to achieve their corporate and sustainability goals.”

It is based on these values and credo that the company defines their long-term goals. “Group-wide we focus on markets with high long-term and sustainable growth rates and constantly expand our product portfolio through organic growth.” This includes research and development as well as suitable complementary acquisitions. In addition, it is ANDRITZ’s goal to maintain and expand our position as a preferred supplier by virtue of technology, quality and references.

Dr. Seebacher: “Therefore, we emphasize our development of innovative and sustainable technologies through intensive R&D. Thereby, we focus on digitalization to support customers in reaching their goals with regard to productivity, operating costs, energy efficiency, environmental protection and the overall best ROI for our customers.”

About Dr. Uwe Seebacher



Uwe Seebacher is currently running the global marketing and communication activities for the global pumps division and the Separation business area of the ANDRITZ GROUP.

Dr. Seebacher runs the global marketing and communication activities for the global pumps division as well as the Separation business area of the ANDRITZ GROUP. In these positions he benefits from his international track record in strategic and operational marketing and communication as well as organizational development. Dr. Seebacher is also a lecturer at many highly recognized business schools and universities and author of various leading management publications. He was granted a variety of awards for innovative marketing concepts and initiatives for institutions and projects including Allianz, the European Union, the Austrian Chamber of Commerce, Bayer Leverkusen, and BASF.



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