



PUMPS

**REVOLUTIONARY FIBER
SEPARATION WITH UNMATCHED
ENERGY EFFICIENCY**

MEDIUM-CONSISTENCY PUMP, MC SERIES

ANDRITZ

ENGINEERED SUCCESS

ANDRITZ Pumps for your industry



Water



Pulp and
paper



Power



General
industries

ANDRITZ specializes in the development and manufacturing of high-quality pumps, offering a comprehensive range from standardized products to tailor-made solutions across various industries. Our pumps have achieved global success in diverse applications, including municipal drinking water supply, wastewater disposal, industrial water distribution, and significant infrastructure projects such as irrigation, seawater desalination, and water transmission.

In flood control, irrigation, and water transport, ANDRITZ not only provides the largest and most powerful pumps, but also complete systems and pumping stations. As a prominent supplier to the pulp and paper industry, we leverage strong process expertise to deliver pump solutions that enhance process stability and energy efficiency. Our product portfolio encompasses a full range of robust process pumps and innovative medium-consistency pumps with an advanced system to avoid fiber losses. Notably, our double-suction headbox pumps boast efficiency levels of up to 93% and low-pulsation impellers, crafted with innovative methods. They thus provide the best performance in the paper manufacturing process.

In line with our commitment to sustainability, ANDRITZ offers reliable small hydroelectric power plants and pumps utilized as turbines for private, municipal, industrial, and commercial applications. Our diverse range ensures economically and ecologically sustainable energy production. Specializing in hydroelectric storage, our pumps cover a wide range from high heads to high flows, showcasing our engineering competence.

Our pump series, distinguished by modern and robust designs, high efficiency levels, and sustainability features, find applications in various demanding industries, including sugar and starch, lysine, bioethanol, hydrogen, fertilizer, mining, offshore, and general process industries.

Additionally, ANDRITZ provides IIOT-enabled premium pump technology for enhanced process monitoring, thus reflecting our commitment to cutting-edge solutions.

Premium pumping technology

ANDRITZ MEDIUM-CONSISTENCY PUMPS, MC SERIES,

Fulfill highest customer expectations regarding efficiency, life cycle, easy maintenance, economic efficiency, and reliability. Thus, they ensure stable production at all times. Extensive test series carried out at our in-house test rigs have made a key contribution towards optimizing the degassing process and improving efficiency. Peak efficiencies of more than 73% and a minimum of components increase the effectiveness of this pump technology. Further strengths are a high degree of energy saving and short service times due to the modular set-up of the pumps. Their excellent economic efficiency has been proven many times.

APPLICATION IN THE PULP AND PAPER INDUSTRY

As suppliers of complete production systems for the pulp and paper industry, ANDRITZ has acquired broad expertise in the related process technologies. This forms the basis on which we develop successful components for conveying paper stock and pulp. ANDRITZ medium consistency pumps set new standards in conveying medium-consistency stock suspensions. These pumps operate in bleaching lines, pulp lines and recycled fiber lines conveying chemical and mechanical pulp as well as secondary fibers with consistencies of up to 18%. They are highly process-critical as the entire production volume of a plant runs through them. ANDRITZ medium-consistency pumps, featuring a single-shaft design, are renowned for their exceptional reliability and durability. These pumps facilitate operations across numerous applications without the necessity of any vacuum pump, attributed to the advanced SMARTSEP fiber separation system.

APPLICATION IN THE SUGAR INDUSTRY

Conveying medium-consistency wet beet pulp suspensions and all types of viscous media is a complex task. ANDRITZ offers a practically tested pump to transport traditional wet beet pulp from extraction systems to pulp presses using screw- or belt conveyors, bucket elevators or positive displacement pumps. ANDRITZ medium-consistency pumps fit perfectly into the application to replace existing old systems, as they offer state-of-the-art pumping of wet beet pulp and thus provide major advantages.

SMARTSEP

The greatest advantage of the ANDRITZ medium-consistency pump is its innovative fiber separation system SMARTSEP. This system was specially developed by ANDRITZ in order to eliminate a major problem in all medium-consistency pumps - that of fiber loss, particularly in run-up operations and at low consistencies. Medium-consistency pumps used to mainly operate with a complicated measuring and control system to monitor the degassing line. With ANDRITZ SMARTSEP, an additional separation impeller returns fibers reliably to the pump and guides air out of the pump at the same time. This allows easy control of the degassing valve and no fibre loss, especially during start-up and at low consistencies. When the pump is in operation the valve is open, whereas when the pump is not running the valve is closed. Pressure difference control is only used in rare cases (booster positions).

MC SERIES - FIELDS OF APPLICATION:

- Chemical pulp
- Mechanical pulp
- Groundwood
- Recycled fibres
- Molasses
- Sugar industry
- Sugar cane bagasse

PRODUCT FACTS:

- Consistency up to 18%
- Head up to 640 ft
- Flow rate up to 20,000 admt/d
- Pressure up to 300 psi
- Temperature up to 200° F
- IIoT ready

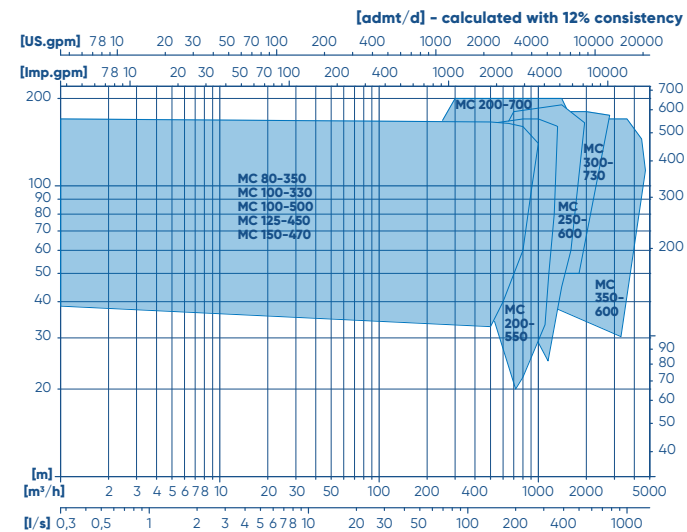
*These values are guidelines and may differ depending on project requirements



Innovative separation system SMARTSEP

MAIN ADVANTAGES AT A GLANCE:

- Excellent efficiency, which is significantly above industry average - thus low energy consumption
- Very easy control and no fiber loss during the degassing process (at any consistency)
- Good homogenization of the stock
- Simple and cost-efficient design



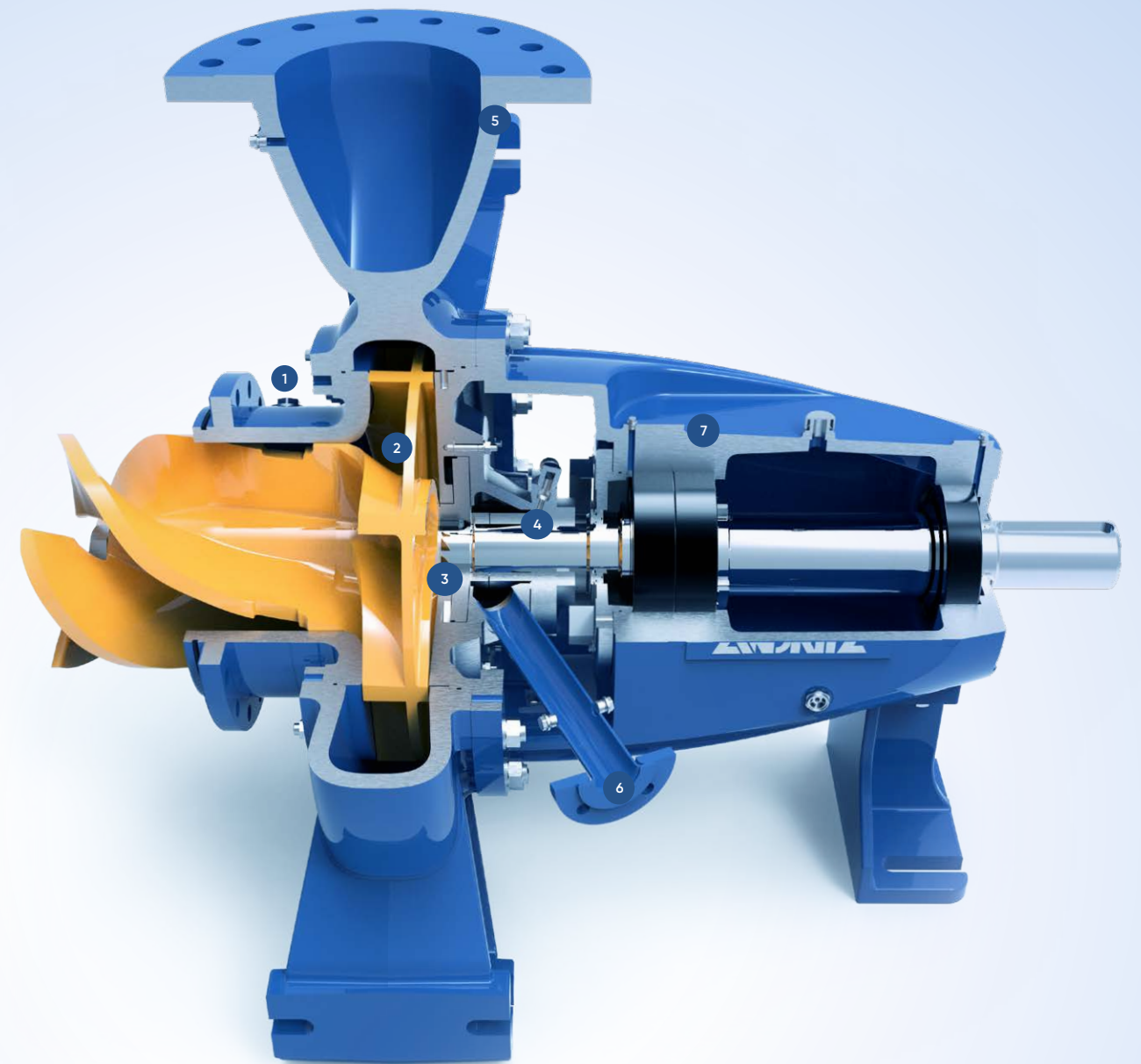
DEGASSING SYSTEM

Due to this integrated degassing system, the first single-shaft solution tried and tested in practice for pumping medium-consistency pulp can be used for almost all media and operating ranges without requiring any vacuum pump. Coordinated equipment sizes cover both the requirements

of smaller plants, as well as the full performance spectrum of larger new plants with capacities of up to 20,000 bdmt/day. Finally, ANDRITZ medium-consistency pumps can be installed in variable positions due to the four supporting leg design. They can be set-up either vertically or horizontally with an adapting degassing line arrangement.

| | GREY CAST IRON | DUPLEX STAINLESS STEEL | SUPER DUPLEX STAINLESS STEEL | ABRASION RESISTANT CAST IRON | HASTELLOY C-22 |
|-----------------------|----------------|------------------------|------------------------------|------------------------------|----------------|
| MC SERIES | | | | | |
| Impeller | | ■ | ■ | ■ | |
| Fluidizator | | ■ | ■ | ■ | |
| SmartSep | | ■ | ■ | | |
| Casing / Casing cover | | ■ | ■ | ■ | |
| Bearing housing | ■ | | | | |
| Front Lining | | ■ | ■ | ■ | ■ |
| Shaft | | ■ | | | |

| US standard | | European standard | |
|-------------|--------|-------------------|------------------------|
| Grade | UNS | Number | Name |
| Class 40B | / | 5.1301 | EN-GJL 250 |
| Grade 3A | J93370 | 1.4474 | X3CrNiMoN27-5-2 |
| Grade 3A | S32205 | 1.4462 | X2CrNiMoN22-5-3 |
| Grade 5A | S32615 | 1.4469 | GX2CrNiMoN26-7-4 |
| Grade 5A | N06022 | 2.4602 | Hastelloy® NiCr21Mo14W |
| Grade 3D | F45009 | 5.5610 | EN-GJN-HB555 (XCr23) |
| Grade 1C | J93373 | 1.4517 | GX2CrNiMoCuN25-6-3-3 |



1 CHEMICAL FEEDING

- Optimized blending of chemicals in fluidizator area

2 IMPELLER DESIGN

- Contribution of CFD in the design process to optimise efficiency

3 SMARTSEP SEPARATOR SYSTEM

- Ensures optimum degassing performance with minimised fibre loss

4 SAFETY FIRST

- Double mechanical seals on all of our MC pumps

5 FLEXIBLE PUMP INSTALLATION

- Thanks to the four-legged housing shape, the discharge nozzle can be set up both horizontally or vertically

6 CONFIGURATION OF INSTALLATION

- Degassing line can be arranged on the left or right pump side to ensure optimal accessibility

7 HEAVY DUTY DESIGN

- Engineered for a long service life

Always a flow ahead - Research and development

Our Pump Technology Center (PTC) ASTROE enjoys an internationally renowned reputation for its hydraulic developments and investigations. The high efficiency of the ANDRITZ pump series is ensured by Computational Fluid Dynamic (CFD) calculations and extensive testing carried out in our company owned laboratory.

Continuously increasing demands by customers in our operating industries emphasize the significance of R&D in the constant optimization of products and services. Today, efficiency, flexibility, and reliability over an extended lifetime are the major challenges of the market.

Our commitment to research and development forms the basis for our advances in hydraulic machine manufacturing. With PTC ASTROE, center for hydraulic engineering and laboratory, we have an internationally renowned institute for hydraulic development work at our disposal.

We are developing and testing our pumps at different locations worldwide. Our test stands are among the most accurate in the world. By networking these research and development centers, we provide a continuous transfer of know-how within the ANDRITZ GROUP for the benefit of our customers. The main tools for R&D are numerical simulation methods as well as experimental measurements in the laboratory and on site. State-of-the-art equipment, highly precise measuring instruments as well as the latest simulation technologies, and powerful software form the basis of the high technical quality of the pumps and turbines from ANDRITZ.



Greater efficiency for a competitive edge - Pumps service

Optimization / Modernization / Operating reliability

The conditions of your plant have changed, but your pumps are still operating as previously and therefore, wasting energy? Would you like to optimize your system to reduce costs? With ANDRITZ, you will have a competent partner for these and numerous other services at your side.

Service and maintenance have a long tradition at ANDRITZ and complement the product portfolio. The century-long expertise is reflected not only in a service portfolio with innovative solutions and advanced products that can be optimally adapted to the respective customer needs, but also in a specially trained staff. ANDRITZ has specialized in the servicing of pumps to achieve improved efficiencies and adaptations to changed operating points of the installed pumps. A large potential for savings can

already be achieved by improving the efficiency of 20 percent of the installed pumps. Our service team provides prompt, professional, and reliable assistance – also for other manufacturers' products. Book our service package and you can be sure of the best operating reliability for your systems in the long term. We conduct an expert assessment together with you, thus creating transparency and making an optimum solution possible that is tailored to your needs. After examining your plant, we determine its savings potential and realize it by improving the efficiency of the pumps installed. Additionally, this individual solution lowers your maintenance costs. You do not have to think about personnel, nor about maintenance schedules or utilities. Assembly is conducted according to defined schedules and with assistance from our trained personnel.



AN OVERVIEW OF OUR SERVICES

- Supply of original spare parts
- Deployment of trained personnel
- Installation and start-up
- Inspection
- Repairs, overhauls, maintenance
- Machine assessment by an expert for early fault detection
- Consulting and modernization
- Performance and vibration measurement
- Fault and damage analyses
- Feasibility studies
- Energy consulting for pumps and systems
- Preparation of maintenance schedules
- Service and maintenance agreements
- Automation and Electrical Power Systems
- Electronic equipment
- Training



INNOVATION SINCE 1852

The internationally renowned ANDRITZ GROUP has been building pumps for more than 170 years. We offer innovative and targeted solutions with pumps and complete pumping stations. Our longstanding experience in hydraulic machine manufacturing and complete process know-how forms the basis of the high standard of ANDRITZ pump engineering. Our quality and high-efficiency products as well as our understanding of customer requirements have made us a preferred partner for pumping solutions worldwide. ANDRITZ offers everything from a single source – from development work, model tests, engineering design, manufacture and project management, to after-sales service and training. We also perform complete start-up on site and guarantee our customers the best support. Our declared goal is your complete satisfaction. See for yourself!

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