



PUMPS

**HIGH DEGREE OF ENERGY
SAVINGS AND INNOVATIVE
FIBER SEPARATION SYSTEM**

MEDIUM-CONSISTENCY PUMP, MC SERIES

ANDRITZ

ENGINEERED SUCCESS

ANDRITZ Pumps for your industry



Water



Pulp and
paper



Food



Mining and
minerals



Power



Other
industries

ANDRITZ develops and manufactures high-quality custom tailored pumps for various industries. We supply pumps for different water and waste water applications. ANDRITZ pumps are operating successfully worldwide, for example in water resources management, waste water disposal, as well as large infrastructure projects for irrigation, desalination, and for drinking water and industrial water supplies.

Thousands of ANDRITZ submersible motors and pumps have been installed in mines around the world, working under severest conditions in water management and emergency drainage, including the largest submersible dewatering pumps in the world.

As plant and equipment supplier to the pulp and paper industry, ANDRITZ provides a complete pump program. Our product portfolio comprises medium-consistency pumps with an innovative fiber separation system, for example, as well as headbox pumps with efficiencies of over 90% and particularly low pulsation.

We also supply high-performance and reliable pumps for food applications such as proteins, dairy products, or beverages as well as a complete pump program for the entire sugar and starch industry. To round off the portfolio, ANDRITZ small hydropower plants and pumps used as turbines suitable for the private as well as the municipal sectors, and for industrial and commercial facilities ensure an economic and ecological independent power generation.

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 70% 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, providing energy savings of up to one third compared to other medium-consistency pumps and lower investment costs due to lighter construction.

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 16% b.d. They are highly process-critical as the entire production volume of a plant runs through them. ANDRITZ medium-consistency pumps have proven to be not only extremely reliable and robust thanks to their single-shaft design, but in most applications, they can also be operated without an internal or external vacuum pump due to their innovative fiber separation system, SMARTSEP.

APPLICATION IN THE SUGAR INDUSTRY

Conveying medium-consistency wet beet pulp suspensions and all types of vicious 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 ap-

plication 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 makes it possible to guarantee that there are no fiber losses, particularly in run-up operations and at low consistencies, and an easy control of the degassing valve. 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
- Waste paper
- Molasses
- Sugar industry

PRODUCT FACTS:*

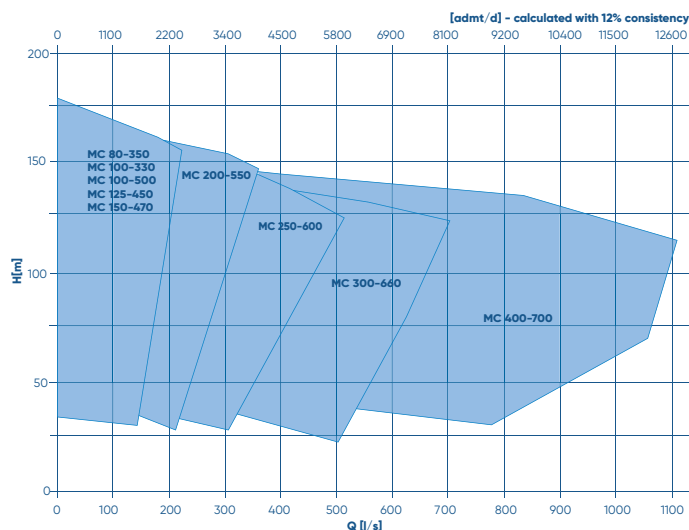
- Consistency up to 16%
- Head up to 190 m
- Flow rate up to 13,000 admt/d
- Pressure up to 25 bar
- Temperature up to 140° C
- IIoT ready

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

Innovative separation system SMARTSEP

MAIN ADVANTAGES OF SMARTSEP AT A GLANCE:

- Excellent efficiency (>70%), which is significantly above industry average - thus low energy consumption
- Very easy control and absolutely no fiber loss during the degassing process (at any consistency)
- Good homogenization of the stock
- Simple and cost-efficient design without vacuum pump



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 5,000 bdmt/day. Finally, ANDRITZ medium-consistency pump has a flexible volute set-up with four supporting legs and thus can be installed vertically or horizontally with a flexible degassing line arrangement.

MATERIAL COMBINATIONS

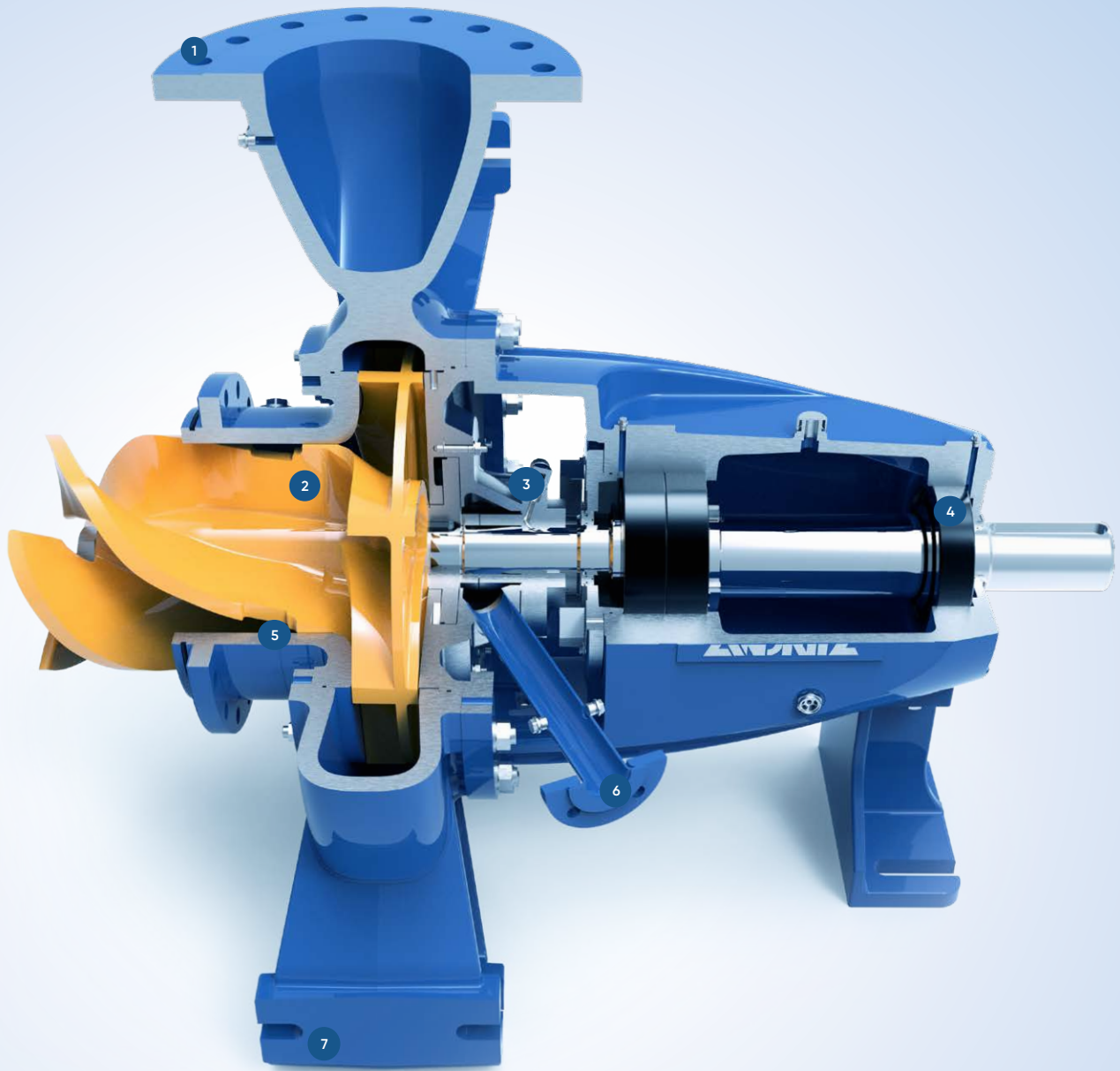
MC series	1.4517	1.4462	1.4474	1.4469	Hastelloy®	5.5610
Impeller	■	■	■	■		■
Separator		■		■		
Stator		■		■		
Volute casing			■	■		■
Casing cover			■	■		■
Front lining			■	■	■	■
Fluidisator	■		■	■		■

European standard

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

US standard





1 REDUCED COSTS

- Control valve can be mounted directly to the pressure flange (without an adaptor)

2 REDUCED CHEMICAL CONSUMPTION

- Optimized blending of chemicals

3 SMARTSEP SEPARATOR SYSTEM

- Prevents fiber loss in any operating situation

4 STURDY BEARING

- CFD and trial stand for optimization of the axial thrust
- Prolonged operating life

5 SERVICE-FRIENDLY, SIMPLE MAINTENANCE

- Modular design of impeller and fluidizer allows fluidizer replacement without dismantling the pump

6 FLEXIBILITY OF INSTALLATION

- Flexible (left/right) degassing line arrangement
- Easy-to-operate on/off degassing valve

7 FLEXIBLE ALIGNMENT OF DELIVERY BRANCH

- Volute with four supporting legs



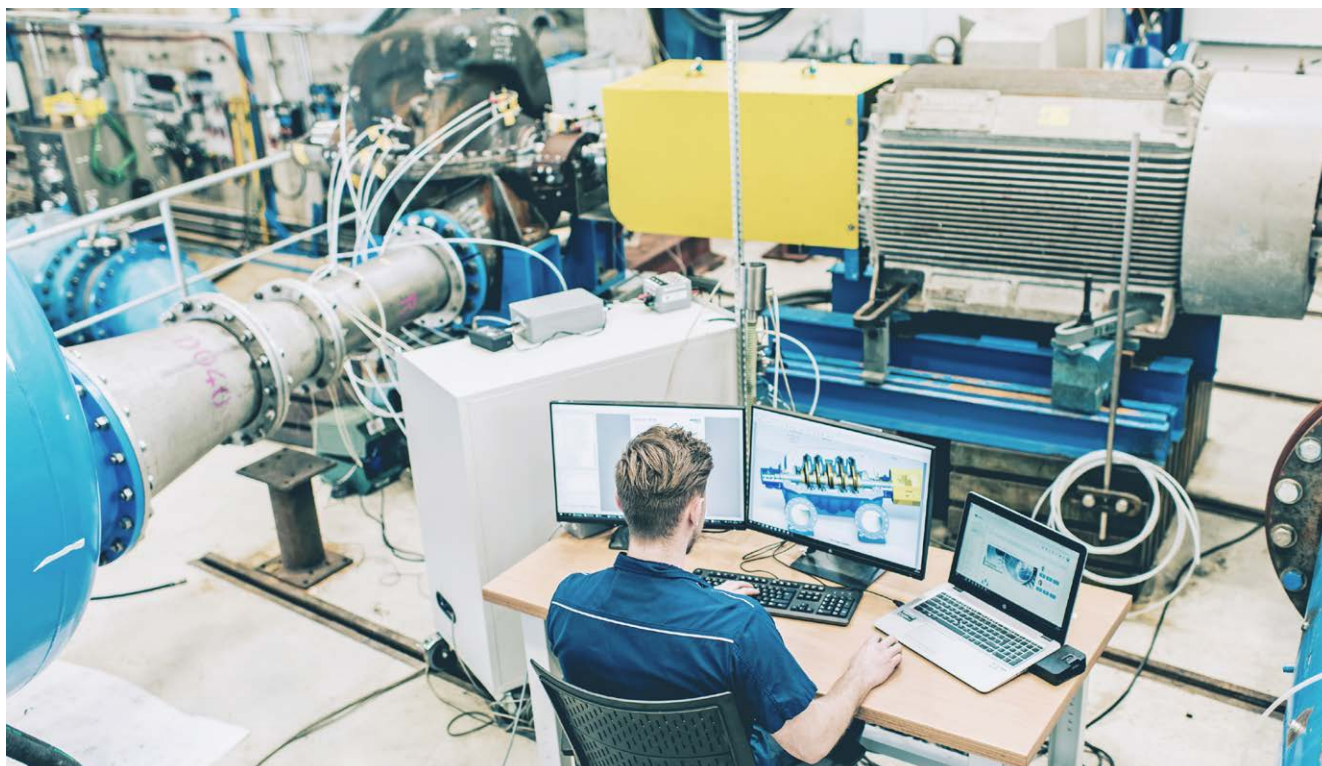
Always a flow ahead - Research and development

Our affiliate 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 ASTROE, center for hydraulic engineering and laboratory, we have an internationally renowned institute for hydraulic development work at our disposal. We are currently developing and testing our pumps and

turbines at five locations in Austria, Germany, Switzerland, and China. 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 165 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 form 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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