



PUMPS

**DESIGNED FOR
A LONGER LIFE**

HDM. HEAVY DUTY MINING

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.

Customized premium pump technology

For over 170 years, ANDRITZ has been a byword for designing and manufacturing customized pump solutions at the highest level. Our engineered pumps are operating in various industrial applications successfully all over the world. They offer robustness and wear resistance, and fulfill highest customer expectations in terms of efficiency, life cycle, maintenance friendliness, and economic efficiency. The high standard of ANDRITZ centrifugal pumps is based on decades of experience in designing hydraulic machines and extensive know-how. In the interests of our customers, we set no limits on size and flow rate in the development and manufacture of customer-specific pumps. Experienced experts assist our customers with planning, development, installation, start-up and after-sales service. Engineering, design, material selection and manufacturing all run according to defined standards. The processes are transparent and can be adapted to individual needs. Our goals at ANDRITZ are to provide first-class products and service to secure sustained customer satisfaction.

Extracting increasing quantities of water reliably and economically from ever-greater depths for the water supply, and for water drainage, represents one of the biggest challenges facing operators. The use of single-suction submersible motor pumps for pumping huge quantities or from great depths is associated with extreme loads on the unit. The higher the pump performance, the stronger the axial thrust exerted on the pump, the motor and its thrust bearing. The consequences are overloading and untimely shutdown. Doubling up, however, means greater durability as a double-suction pump design provides full compensation of axial thrust.

THOUSANDS OF ANDRITZ HDM. HEAVY DUTY MINING PUMPS

have been produced and are in trouble-free operation working under even the toughest conditions around the globe; including the biggest submersible motor pump in the world. This applies to all areas of water extraction and drainage, for example, in mining and surface mining to extract coal, gold, copper, tin or diamonds, in offshore, as well as in deep wells to extract water.

FIELDS OF APPLICATION

Water extraction and drainage in:

- Mining and surface mining to extract coal, gold, copper, tin or diamonds
- Offshore
- Deep wells to extract water

FACTS:

Performance data of the pump:

- Well diameter: beyond 20" (inch)
- Flow rate: up to 6,000 m³/h
- Head: up to 1,500 m
- Pressure : up to 150 bar
- Speed: up to 3600 rpm

Performance data of the motor:

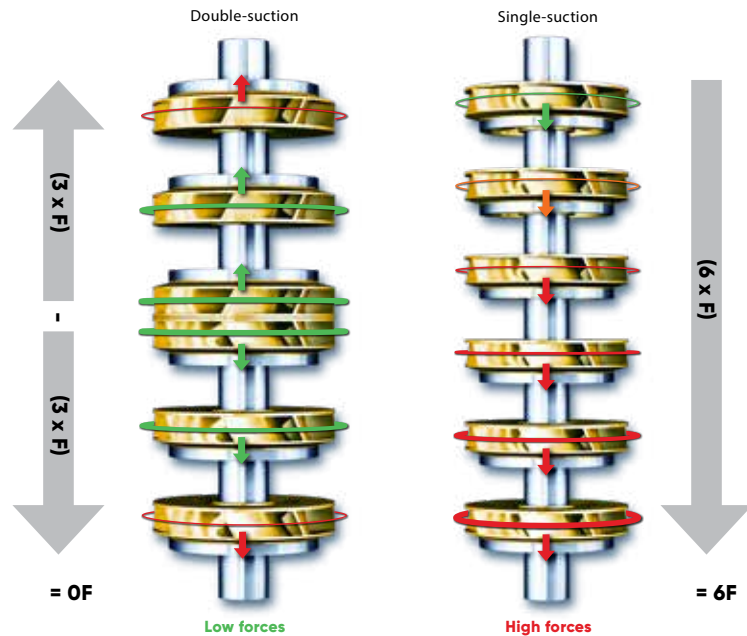
- Frequency: 50 Hz / 60 Hz
- Voltage: up to 14,000 volts
- Motor power: up to 6,000 kW
- Speed: up to 3600 rpm
- Temperature: up to 75 °C
- Materials: The materials are selected individually depending on project and customer requirements; including grey cast iron, ductile iron, bronze, aluminium bronze, duplex stainless steel.



HDM. Heavy Duty Mining

PRODUCT FACTS

- Maintenance-free
- Long service life
- Maximum operating reliability
- High cost-effectiveness
- Optional supply with modular shaft technology for flexible extension or reduction of the number of stages



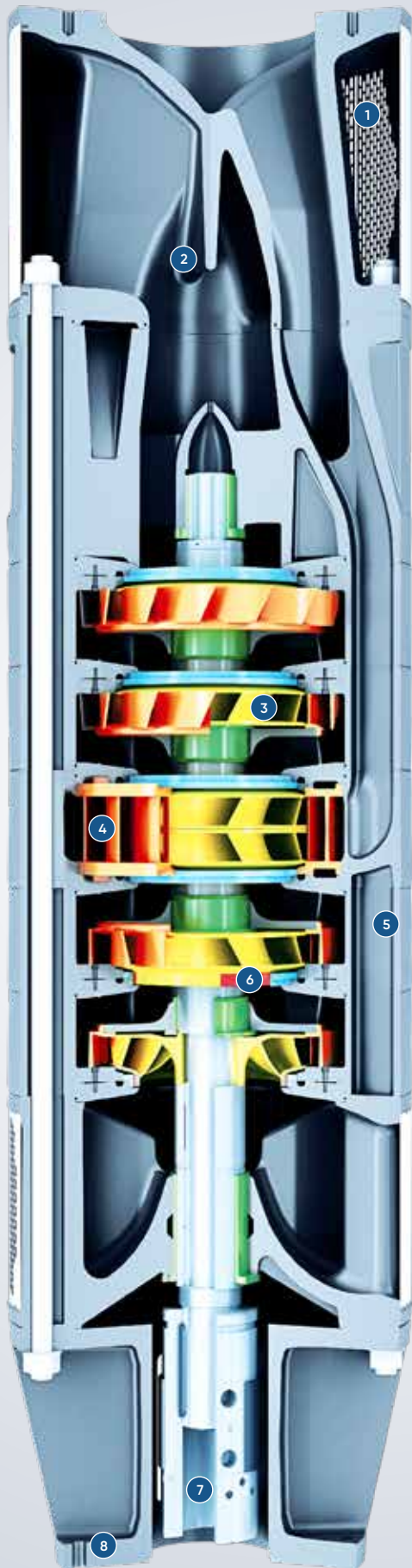
With HDM, two contra-rotating submersible motor pumps are arranged on top of each other and driven by a continuous pump shaft. The suction branches of the two pumps are located at the ends of the HDM module. Each of the two pumps transports half the capacity to the middle of the pump at full pressure. There, a deviating stage directs the flow to the pressure line via the external casing channels. The double-suction design completely compensates the axial thrust. Loads on the unit are kept to a minimum and the thrust bearing is no longer subjected to tons of thrust. This significantly reduces wear and tear, increasing service life up to 20 years or more.

The division of work between the two pumps not only achieves complete compensation of axial thrust, it also halves the suction velocity outside the pump. This protects the well walls around the intake openings and minimizes the intake of abrasive solids and silt. There is an even more compelling benefit: With half the delivery

flow going to each pump, smaller impeller intake cross-sections are possible and therefore, lower circumferential velocity in the seal gaps.

EVERY PUMP FEATURING HDM IS TAILOR-MADE FROM STANDARD MODULES BASED ON PROJECT AND CUSTOMER REQUIREMENTS.

- **Hydraulics module:** The optimum combination of impeller, diffuser and casing leads to the best adaptation to the desired operating point at extremely high efficiency.
- **Material module:** A choice of materials enables flexible adaptation to suit your operating conditions.
- **Motor module:** Each HDM features a heavy duty motor specially adapted to power usage of up to 14,000 volts. This minimizes both the cross-sections for energy transmission and transmission losses.
- **Cooling module:** Here the MCT – Modular Cooling Technology – is deployed. It can be configured to suit any requirement.



1 SUCTION AREAS

The two suction areas half the suction velocity and minimise the intake of abrasive solids and silt.

2 INLET/OUTLET CASING

The upper inlet/outlet casing delivers optimum rates of flow in the suction and pressure area.

3 HYDRAULICS

Various hydraulics enable flexible adaptation to suit the operating conditions at maximum efficiency.

4 DEVIATING STAGE

The deviating stage combines the delivery flows from the two pumps and directs it via the external casing channels.

5 HIGH-QUALITY MATERIAL SELECTION

A choice of materials offers maximum flexibility to suit specific operating conditions.

6 WEAR PARTS

Wear parts made of corrosion- and abrasion resistant materials protect all important components under even the toughest conditions.

7 HEAVY DUTY MOTOR

The use of custom heavy duty motors reduces the cross-section for energy transmission, as well as transmission losses. Adapted to the relevant environment, the MCT – Modular Cooling Technology delivers maximum operational reliability.

8 ZERO AXIAL THRUST

The double-suction design compensates axial thrust, thereby neutralising the load on the pump, the motor and its thrust bearing.



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 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!

EUROPE

ANDRITZ AG
Stattegger Strasse 18
8045 Graz, Austria
p: +43 316 6902-2509
f: +43 316 6902-413
pumps@andritz.com

ANDRITZ Pumps Germany GmbH
Marie-Curie-Straße 19
73529 Schwäbisch Gmünd,
Germany
p: +49 7171 609-0
f: +49 7171 609-287
ritz@andritz.com

ANDRITZ Hydro S.L.
Polígono Industrial La Garza 2
Carretera de Algete M-106, Km. 2
28110 Algete
Spain
p: +34 91 6636 409
f: +34 91 425 1001
bombas.es@andritz.com

ASIA

ANDRITZ (CHINA) LTD.
No.83 B Zone, Leping Central Tech-
nology & Industry Park, Sanshui Dis-
trict, Foshan 528137, Guangdong,
P.R.China
p: +86 0757 6663-3102
atc_pumps@andritz.com

ANDRITZ Technologies Pvt. Ltd.
S.No. 389, 400/2A & 400/2C,
Padur Road, Kuthambakkam
Village, Poonamallee Talluk,
Thiruvallur District –
600124, Chennai, India
p: +91 44 4399-1111
pump.in@andritz.com

ANDRITZ FZCO
Building 6WA – Office No. 329
54522 Dubai,
United Arab Emirates
p: +971 506 069 884
dubai@andritz.com

SOUTH AMERICA

ANDRITZ HYDRO
Alameda Tocantins 350, 120 andar
06455-020, Barueri, SP – Brasil
p: +55 11 4133-0000
f: +55 11 4133-0037
bombas.br@andritz.com

NORTH AMERICA

ANDRITZ Inc.
5405 Windward Parkway, Suite 100W
Alpharetta Georgia 30004-3894
United States of America
m: +1 305 282 1479
p: +1 770 640-2500
pumps.us@andritz.com

[ANDRITZ.COM/PUMPS](https://www.andritz.com/pumps)

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