



ANDRITZ MULTI-STAGE RING SECTION PUMP

HP-RO Series

ANDRITZ

ANDRITZ pumps for your industry



Water



Pulp and
paper



Power



Other
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

For over 170 years, ANDRITZ has been a byword for competence and innovation in designing centrifugal pumps. With robust state-of-the-art equipment, it offers the best performance in terms of efficiency, life cycle costs and ease of maintenance. Design, material selections and manufacturing are based on the highest standards to fulfill customer expectations.

ANDRITZ MULTI-STAGE RING SECTION PUMP

ANDRITZ HP-RO is a ring section diffuser-type, multi-stage pump specially designed for high pressure membrane feed services in seawater reverse osmosis applications, as well as other high pressure services with clean liquids. The HP-RO design is sturdy and highly configurable, it is hydraulically optimized and manufactured with precision castings to satisfy the highest Sea Water Reverse Osmosis (SWRO) plants demands with its market-leading efficiency.

PRODUCT FEATURES AND BENEFITS

1. Excellent proven hydraulics

- Highest market efficiencies.
- Excellent and stable NPSH required values.
- Double volute discharge casing reduces the radial forces.
- Precision casting diffusers and impellers to ensure hydraulic shape and high performance.

2. Bushing and wear ring

- Use of non-metallic (PEEK) wear rings and bushings to assure optimum efficiency.
- Replaceable and interchangeable for all stages.

3. Axial thrust balancing

- Use of balancing disc to ensure optimum efficiency and control of the axial thrust.

4. Flanges

- Flexible flange configuration tailored to customer requirements, ensuring optimal alignment with the piping layout. Rotation possible in 90-degree increments.

5. Bearings and Lubrication

- Product-lubricated bearings at both Drive and Non-drive ends, allowing excellent lubrication and cooling of the bearings.
- No oil or grease lubrication is required.

6. Easy Maintenance

- Ring-section construction means the product-lubricated bearings, balancing discs and mechanical seal are accessible and can be easily maintained.
- Product lubricated slide bearings used for a long pump life and reduction of required spare parts.
- Mechanical seal on low pressure side only.

7. Highest quality materials for Sea Water

- Super Duplex with PREN>40 values as standard for sea water osmosis applications. A995 Gr. 5A or Gr. 6A to maximize the corrosion resistance.

FIELDS OF APPLICATION

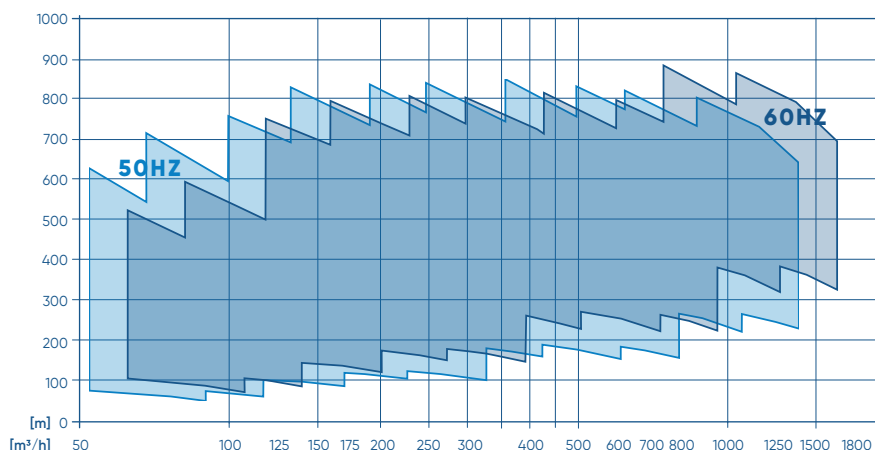
- Seawater Reverse Osmosis application
- Clean water transport
- Other high-pressure application with clean liquids



Multi-stage ring section pump, HP-RO series

PRODUCT FACTS:

- Nominal discharge size: up to DN200
- Flow rate: up to 1400 m³/h
- Head: up to 850 m
- Discharge pressure: up to 100 bar
- Temperature: up to 80°C
- Stages: from 3 up to 9 stages



MATERIAL COMBINATIONS

HP-RO SERIES	1.4474	1.4469	1.4417	1.4462	1.4410	PEEK
Casing	■	■	■			
Impeller	■	■	■			
Diffuser	■	■	■			
Bearing Housing	■	■	■			
Shaft				■	■	
Balance Disk				■	■	
Wear Rings						■

European standard		US standard	
Number	Name	Grade	UNS
1.4474	GX4CrNiMoN26-5-2	ASTM A890 Grade 3A	J93371
1.4469	GX2CrNiMoN26-7-4	ASTM A995 Grade 5A	S32615
1.4417	GX2CrNiMoN26-7-3	ASTM A995 Grade 6A	S31500
1.4462	X2CrNiMoN22-5-3	ASTM A789 Grade S32205	S32205
1.4410	X2CrNiMoN25-7-4	ASTM A789 Grade S32750	S32750

Apart from these materials, others can also be used according to project's requests.
Please, ask for more information.





- 1 SUCTION CASING
- 2 SLIDE BEARING
- 3 MECHANICAL SEAL
- 4 WEAR RING

- 5 INTERSTAGE BUSH
- 6 STAGE CASING
- 7 DIFFUSER
- 8 IMPELLER

- 9 BALANCING DISC
- 10 DISCHARGE COVER
- 11 DISCHARGE CASING

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



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!

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