



PUMPS

**FLEXIBLE AND INDIVIDUAL
PUMP CONTROL AND
ADJUSTMENT WITHOUT
PROGRAMMING SKILLS**

ANDRITZ PUMP CONTROLLER (APC)

ANDRITZ

ENGINEERED SUCCESS

ANDRITZ pumps for your industry



Water



Pulp and
Paper



Food



Mining and
Minerals



Power



Other
industries

ANDRITZ develops and manufactures customized, high-quality pumps for different branches of industry. We deliver pumps for various different water and wastewater applications. ANDRITZ pumps are operating successfully worldwide, for example in water management, waste water disposal, and also large infrastructure projects for irrigation and desalination as well as for drinking and industrial water supply.

Thousands of ANDRITZ submersible motors and pumps are operating in mines all over the world under the most rigorous conditions in water management and emergency drainage, including the largest submersible drainage pumps in the world. As equipment supplier to the pulp and paper industry, ANDRITZ offers a full program of pumps. For example, our product portfolio comprises medium-consistency pumps with an innovative fiber separation system as well as headbox pumps with efficiencies of over 90% and particularly low pulsation.

In addition, we supply powerful and reliable pumps for applications in the food industry, for example for proteins, dairy products or beverages, and a full program of pumps for the entire sugar and starch industries. ANDRITZ small-scale hydropower plants and pumps used as turbines, which can be used in both the private and municipal sectors and for industrial and commercial installations, complete the portfolio and ensure economically and ecologically independent electricity generation.

ANDRITZ Pump Controller (APC)

Flexible and individual pump control and adjustment without programming skills

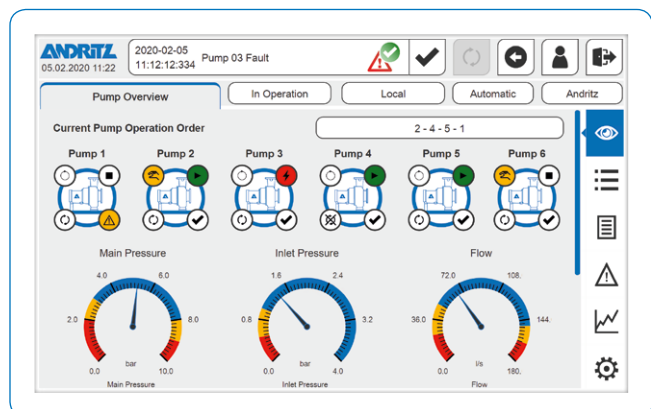
The tasks required to control a pump assembly can vary depending on the application. Generally, they not only include maintaining a specific output, but also optimum use of the pumps concerned in order to ensure the longest possible plant operating time. That is by no means easy. Hence, more and more plant operators are looking out for a low-cost, efficient and easy way of controlling their hydraulic machinery. With the ANDRITZ Pump Controller (APC), ANDRITZ offers a flexible control system for up to six pumps of different sizes and output that are interconnected to form a complete assembly. Due to its special configuration, the operator can run the plant without expert assistance, and more pumps can be added to the standard number at any time. In this way, the APC is excellently suited for use in sprinkler plants, waste water pumping stations, fire extinguishing plants, and water supply networks.

FLEXIBLE CONFIGURATION WITHOUT PROGRAMMING SKILLS

The APC offers a series of advantages that make plant operation simpler and safer overall. The control system is pre-programmed to the plant's general conditions, with the result that no trained personnel, nor any equipment or programming skills are needed for start-up. With the different configuration options, operating modes and available sensors can be integrated into the system with just a few clicks. The control modes enable the operator to choose between intermittent (direct online) or controlled operation via frequency converter. Freely adjustable control parameters also provide automatic and optimum adjustment to plant conditions, thus making a substantial contribution towards maintaining high operating reliability.

PRODUCT ADVANTAGES

- Flexible configuration makes it possible to support many different functions
- No programming skills needed
- Excellent operating convenience
- Optimum adjustment to operating conditions
- High operating reliability
- Low space requirement
- Long service life of the pumps and plant
- APC can be expanded flexibly in order to take account of individual customer requirements
- Secure remote access anywhere and anytime
- Can also be used to operate other manufacturers' pumps
- Easy to install, also in existing plants



ALL INFORMATION AT A GLANCE

Various different functions, such as operating, display, reporting, control and adjustment of the defined control variables (pressure, head and flow rate) are provided in a central and compact unit – the APC. The control system switches the pumps on and off, replaces pumps for optimum distribution of use between the pumps as well as changing pumps over in the event of a fault. These functions are performed automatically. The pumps are controlled on the basis of the continuous comparison between set and actual values. For this purpose, the software optimized for this application compares the current data recorded by the sensors installed in the plant with the set values and continuously corrects any deviations that may occur.

ACCESS INDEPENDENT OF TIME AND LOCATION

Besides direct control on site, it is also possible to access the APC at any time and from anywhere by means of a remote interface. With this plant extension, a secure connection can access the APC and check the interface via a browser. If the customer so wishes, this option can also enable remote support and installation of various updates by ANDRITZ staff. The internet connection needed for this purpose can be set up via the Ethernet or a mobile connection.

PROTECTED IN EVERY RESPECT

In addition to the local and remote control and adjustment function, this solution also includes protection functions to prevent dry running, monitor the flow, and prevent seizing. In order to prevent any damage, dry running protection shuts down the plant automatically if the system pressure falls below a set level. Dry running protection can be integrated easily by means of an additional pressure sensor.

Flow monitoring is controlled by a summarizing flow monitor. If no flow is detected at the outlet at the end of a preset period after a pump is started up, the monitor deactivates the pump concerned automatically.

Seize prevention ensures the longest possible lifetime of the pumps and thus of the plant. The test run function here ensures that the pump also operates perfectly after longer shutdown periods because it starts up the pump in cycles after a configurable period of time. An alternative function enables the pump to be exchanged automatically according to certain criteria.

AS FLEXIBLE AS A SWISS ARMY KNIFE

Due to its flexible configuration, the standard design of ACP can be extended to add some more functions as required. These include:

- Taking additional digital and analog input and output signals into account for connecting to higher-level systems
- Module for vibration monitoring
- Module for energy monitoring
- Connection to various bus systems
- Integration of additional pumps
- Remote interface for access independent of time and location





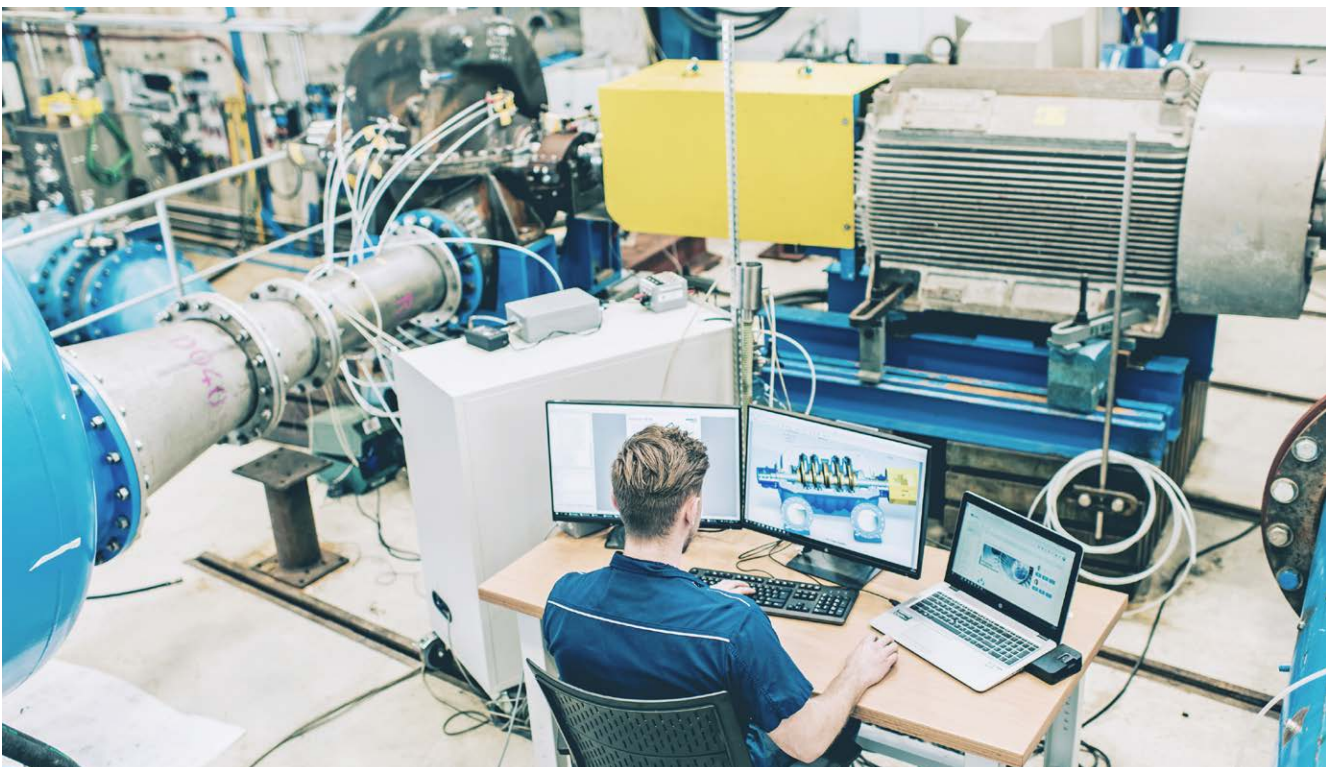
Always a flow ahead - Research and development

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, Switzer-

land, 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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