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Higher efficiency with Remote Services

How modern technology increases plant performance and availability
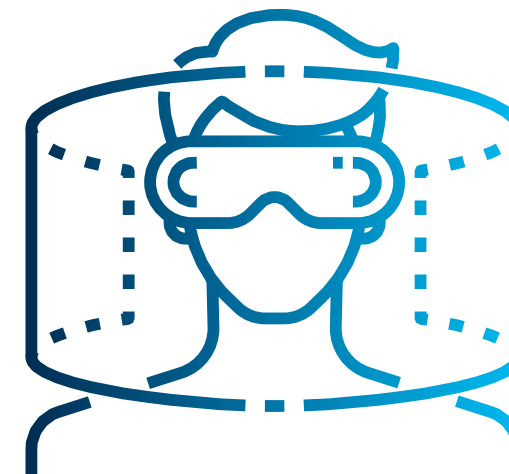
White Paper

Higher efficiency with ARNOLD Remote-Services

How modern technology increases plant performance and availability

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Introduction – Coping with the challenges

ARNOLD UMFORMTECHNIK sets store by its extended remote services to increase plant and machinery performance.

Industrial companies need to constantly increase their efficiency and reduce their costs while at the same time ensuring the safety and availability of their production facilities. Advanced digitization is opening up new opportunities in this area. Onsite operators and technicians can work more efficiently with direct online support from the experts at ARNOLD. Using real-time machine data for preventative maintenance, quickly repairing faults, updating software, and adjusting plant configurations all increase the availability of ARNOLD production plant and machinery availability. And no less important, reduced travelling times by service engineers minimise time and costs, while also improving the carbon footprint.

With its Remote Services, ARNOLD UMFORMTECHNIK offers a forward-looking solution to optimising machine availability and to simplifying servicing.

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Progress
with support from
digital services

ARNOLD Remote Services use advanced data analysis,
Virtual Reality (VR) technologies and secure VPN connections for
real-time support and preventative maintenance.

The key component of ARNOLD's Remote Service is an industrial PC installed onsite. It serves as a data hub, and continuously harvests operating parameters from one or more connected production machines. **For data security reasons the information is kept locally and not stored on the Cloud.**

On-site operators and service engineers use the remote service module to connect directly to ARNOLD's technical department and gain rapid and expert support. Several people can work together simultaneously, and exchange information.
VR headsets enable the

ARNOLD specialists to see and hear the environment where the onsite staff work. **An intuitive and individually adjustable user interface helps to evaluate the data and to carry out fault analyses, software updates, and adjustments to the operating parameters.**

Where ARNOLD's Remote Services can be deployed

Efficient digital support for your problem

ARNOLD's Remote Services cover a wide range of applications in many fields of manufacturing, including pressing plants, bodywork plants, and special machinery. They assist with the following:

- Assembly and commissioning for optimum plant start-up
- User training courses in correct operation and servicing.
- Maintenance and repair including preventative measures

- Rapid troubleshooting of malfunctions and faults
- Efficient parts supply and modernisation of existing systems (retrofit)

By integrating advanced diagnostics tools and automated planning functions, predictions and service schedules can be improved. A comprehensive translation tool means that it can be used internationally.

The latest VR technology of tomorrow

Voice-guided interaction and real-time collaboration

The ARNOLD VR headset is offered for hire, and comes equipped with a full Microsoft Teams account. Documents such as drawings, circuit diagrams and assembly instructions can be overlaid and shared in real time. Onsite operators and technicians see and hear exactly what the
ARNOLD operator is perceiving. The VR headset has voice guidance allowing users to work using commands such as "Open Teams and call ARNOLD Service". The

The entire process can be recorded and stored locally, thus ensuring continuous documentation.

goggles can also be used in loud production environments, assisted by Bluetooth headsets or similar devices. The ARNOLD specialists can also use the mouse pointer to navigate inside the VR headset field of vision, and indicate significant points to the user. This makes accurate guidance easier, and faults are found and corrected much faster.

Efficient remote servicing with our module

Achieving the goal securely, rapidly, and reliably

ARNOLD specialists switch into the machinery via the remote service module and VPN connections from various providers such as Forticlient or Pulse Secure. As an alternative, ARNOLD provides a pre-configured VPN router. Connection is made via WLAN, LAN, or mobile network. **A key-operated switch allows customers to activate the connection when necessary, thus retaining control over access.**

In the event of a fault ARNOLD Service asks the customer to switch through the VPN connection. The situation is clarified with the customer and recorded on the ticket system. If remote clarification is not possible, a service is scheduled and carried out. For servicing visits, the fitters analyse the machine data and bring with them any necessary replacement parts. Service logs are kept and records of remote sessions are made and filed on the system in the form of a data record accessible to all parties. Ideally, circuit diagram, operating instructions, parts lists, and PLC programs are available in the same location.

Intuitive operation and tailored plant overview

To ensure efficient control and monitoring of the plant, the user interface is designed for intuitive operation and clear visualisation.

System administrators set the user rights, i.e. who can do what. Immediately after logging in, users see a brief, configurable overview of the current plant status, for example if it is in automatic mode, has a fault, or is on standby. Significant data such as minimum, average, and maximum values over the past hour are show in graphic form, and can also be configured individually.

The overview uses colour to highlight statuses such as "on","off, and "fault" for rapid identification. All the values can be tracked to any point in time. Maintenance engineers can swiftly identify events that occurred in the past and temporary faults.

Comprehensive documentation and intelligent alarm functions

Accurate records and proactive warnings

With ARNOLD's Remote Services you receive comprehensive records and alarm functions:

⊕ The logbook permanently records all relevant events for each machine. These include messages, faults, operator inputs, and changes to settings. Filters make it easier to find specific entries quickly.

⊕ The daily, or shift log records all maintenance and repair work and ensures that the entire team is always fully aware of the situation. Images, files, and documents can be attached to each of the entries for complete documentation.

⊕ To monitor sensitive areas of the plant, actuators and sensors are assigned specific limit values. If the system exceeds or falls below these values, an alarm is triggered automatically, and an entry made on the logbook, or an email notification sent to the relevant personnel. Critical statuses could be, for example, a fall in air pressure to below 4 bar, or reaching, or not reaching the daily target.

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Data security takes top priority

Comprehensive protective mechanisms to ensure that remote access is secure.

To guarantee maximum security, access to the plant systems is exclusively over secure VPN connections. The customer must actively give permission for such connections, for example using a physical key-operated switch. It means that you are always in control over who accesses your plant and machinery.

The data can be stored in various ways:

● at the machinery itself, using internal storage media or an industrial PC.
● on your own servers, to maintain full control over the connection and the data
● on your own cloud solution. Here you need to check the extent to which the location of your cloud server, and the data protection laws applicable there, meet your security needs. This is particularly relevant where providers store data security on computing systems outside the EU.

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The benefits of ARNOLD's Remote Services

The latest technology for optimised production processes

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A RNOLD Remote Services offer clear benefits for the operation and maintenance of industrial production plants:

- Efficient and fast communication between process controllers, maintenance engineers, operators, and servicing experts with the voice-controlled VP goggles
- Fast diagnosis and fault troubleshooting minimise downtimes and boost productivity
- Improved machine availability with preventative maintenance and rapid reaction to faults

- Better scheduling of maintenance visits, which are carried out more efficiently.
- Fewer service visits save travelling costs and time
- The records stored at the machine itself available to everyone involved increases quality and speeds up communication and problem handling
- Controlled access and secure VPN connections protect against unauthorised access and loss of data.

Companies using ARNOLD's Remote Services increase their competitiveness.

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Significant cost savings, increased machine availability, rapid problem-solving, and preventative maintenance.

To sum up

ARNOLD Remote Services and continual enhancements give companies a technological lead:

⊕ The rapid diagnosis and troubleshooting means that downtime is minimised
  and the machinery's operational availability improves.

⊕ Fewer site visits and more efficient servicing save time and costs, contributing to
  overall economic efficiency.

⊕ Less machine downtime and improved operating processes increase
  production capacities and efficiency.

⊕ VR goggles and documentation that is accessible to everyone involved, stored right
  by the
  machinery, simplify communication and increase the quality of works.

⊕ Data recording with alarm function means that problems can be
  detected before they result in machine failure.

⊕ Secure VPN connections and local storage options protect critical
  operational data from unauthorised access.

⊕ The scope and type of Remote Services can be easily adapted to different plant and
  machinery types, and company size.

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