



Flexible and modular



Mikron Service Solutions

Flexible and modular

We ensure quick, competent and uncomplicated service and support for our customers. We work together with you to design a service solution profile tailored to your individual needs.



REACTIVE

Technical Support – repair your machine

- Helpdesk
- Remote Diagnostics
- Augmented Connection
- Service Assignment



PREVENTIVE

Service & Maintenance – prevent machine stops

- Technical Evaluation
- Preventive Maintenance
- Spindles & Groups Overhaul
- Extended Warranty
- Software Backups



PREDICTIVE

miS4.0 – predict your machine maintenance

- Production Monitoring
 - Condition Monitoring
 - Failure Analysis
 - Mikron cloud and IoT platform
 - miTool Monitoring System
 - Mikron miTool
- The next level of tool monitoring



PROACTIVE

Business Support – keep & improve machine productivity

- Process Monitoring (OEE Improvement)
- Training
- Energy Consumption
- New Applications & Simulations
- Engineering
- Interactive Troubleshooting
- Startup & Production Support
- Service Level Agreements



SPARE PARTS

Spare Parts – reliable supply of original Mikron spare parts

- Original Mikron spare parts
- Xchange Modules



SECOND LIFE

2nd life – guarantee continuous use of your investment

- Machine Overhaul
- Retooling
- Safety & Environments
- Updates & Upgrades
- Retrofitting



REACTIVE

Technical Support

Repair your machine

Mikron's Service experts help & support you.

Helpdesk

Immediate support from dedicated machine type experts, available on the phone for different situations. Four Service Centers around the world cover 24 hours support. 24/7 assistance or similar packages are available on request.

Services:

- Telephone support for solving technical problems
- Help for identifying spare parts
- Upon request and if necessary, we dispatch one of our service technicians

Remote Diagnostics

Regardless on the location of your machine, Mikron Service Engineers access and check all relevant machine status information in a matter of seconds.

Advantages:

- 95% of the cases can be diagnosed immediately
- Reduce machine downtime
- Avoid timeconsuming interventions

Remote Diagnostics is free of charge during the warranty period. Contact your Service Center for other options.

Augmented Connection

Real time visual collaboration improves and accelerates remote failures diagnostics and resolutions, extending the real machine status to our Service Engineers desk - immediate understanding of the problem.

Augmented features (step-by-step instruction, tutorials, etc.) allows our Service Engineers to support in a professional way your operators or maintenance agents, sending real time instructions how to solve or improve the machine conditions.

Wearing "hand-free" smart glasses or using smart phones/tablets, your operators can easily be connected with Mikron specialists and solve or improve machine conditions in a faster way avoiding long machine down times and on-site interventions

Augmented Connection platform can be also used for:

- Support during maintenance tasks
- On-line training
- Production support/assistance
- Parts recognition to easily buy spare parts

Also our Service Technicians use Augmented Connection to minimize intervention time.

Service Assignment

A pool of specialized field Service engineers/technicians are available worldwide to support you on site. With well selected partnerships we cover regions where Mikron has no facilities in order to offer you a worldwide first level support (faster reaction time).

Service & Maintenance

Prevent machine stops



Prevent production downtimes.

Technical Evaluation

Checklist based analysis of the system's actual conditions. The Mikron Service experts will inspect your machine/system in 0.5 to 3 days. After the inspection you will receive a detailed written inspection report, outlining machine conditions as well as suggestions/recommendations to maintain/replace worn parts or machine units.

Preventive Maintenance

Planned actions reduce unproductive and unplanned down times with preventive maintenance from Mikron Service Solutions. We suggest a yearly preventive maintenance done by Mikron specialists to avoid unexpected machine stops, to keep the system in the right conditions and to ensure the expected production output and quality. Tailored maintenance contracts are available up on request.

Spindles & Units overhaul

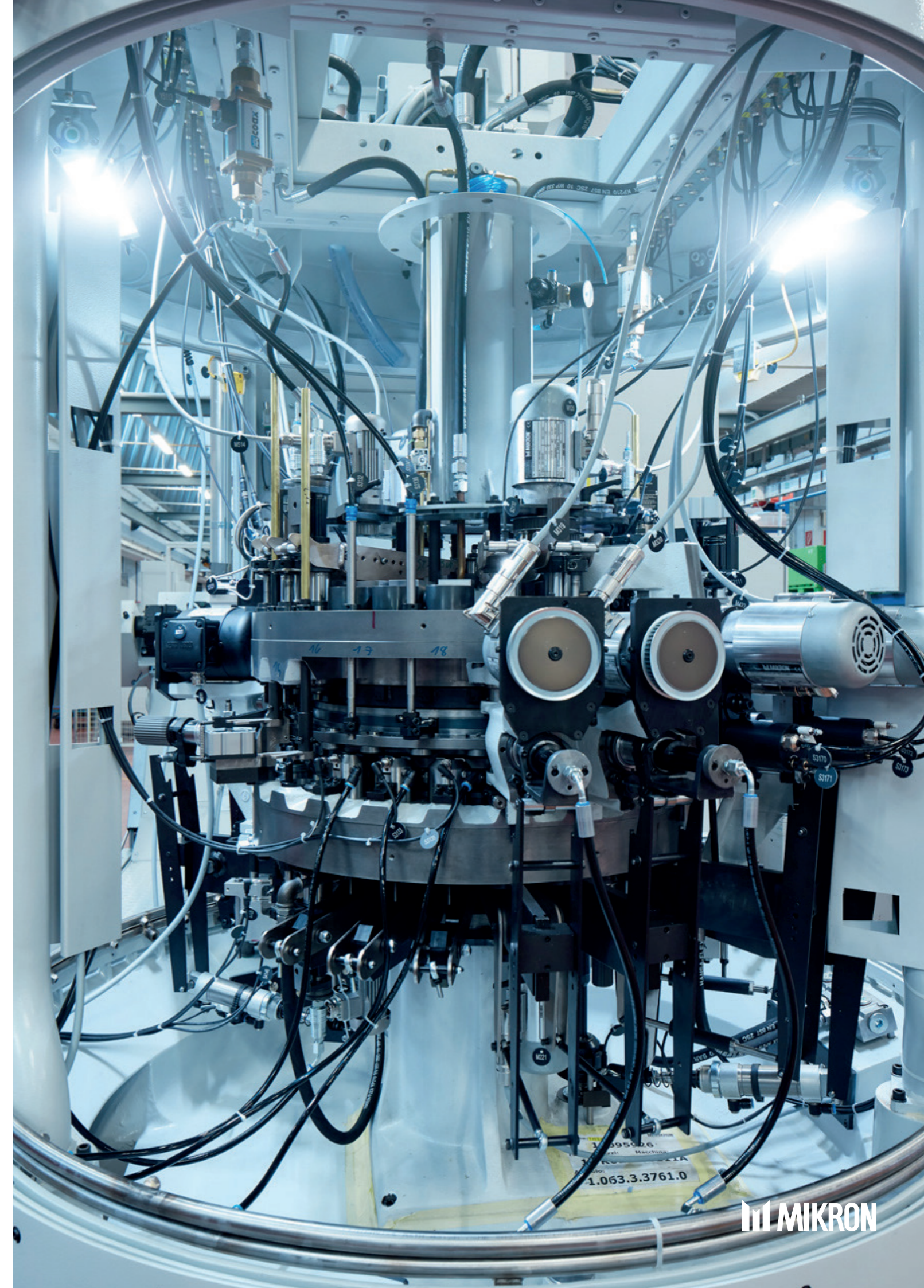
Accurate and highly productive machines require accurate spindles and an impeccable overhaul service. In our worldwide spindle repair centers, our experts test and overhaul your spindles with the expertise and know-how, you obtain only from the original equipment manufacturer. All revised groups pass a running test to ensure the Mikron quality and allows us to grant you additional 6 months warranty.

Extended Warranty

Mikron offers you the opportunity to extend your base warranty period up to 24 months. You can purchase the extension after machine acceptance or at latest 2 months after. A Technical Evaluation in the second half of the warranty period is required to obtain the extension.

Software Backups

Mikron's secure platform allows you to store your machine software backups to be used in the future in case of need. Systematic and frequent data backups reduce risks of long machine stops due to loss of data or hardware problems.



miS4.0

Collect, Monitor & Predict

Collect data, monitor machine performance as well as conditions and predict maintenance tasks.

Production Monitoring

Easy collection of production data (KPIs, counters and status) with the miS4.0 module. On demand notifications will be sent out to operators or maintenance agents in case of machine status changes. Production data can be easily transferred from the machine to your PDA using standard interfaces.

Condition Monitoring

miS4.0 module collects predefined data from the machine sensors or electrical devices (e.g. drives, NC, PLC, etc.) allowing you to monitor the machine conditions. Your operator or predefined persons will be notified in case of critical machine conditions.

Failure Analysis

All relevant events affecting the machine performances are collected and displayed on two reports:

- Failures report by occurrences
- Failures report by downtime

Mikron cloud and IoT platform (SAP Leonardo)

Mikron provides an IoT cloud platform to manage in a secure way all the data coming from the field. You can share predefined conditions and/or production data with Mikron. This allows us to feed the cloud and permits our experts to monitor/improve your machine and processes.

Mikron specialists support you with specific actions to maintain/improve machine conditions. The analytics model and the Machine Learning engine that are running on the cloud elaborate big amount of data, allowing Mikron to push the analysis up to the failures prediction.

Predictive analysis benefits

- Control and improvement of the machines OEE
- Reliable production and maintenance planning
- Control and optimize the machines TCO:
 - Maintenance based on machine real conditions
 - Stock reduction
- Reduce unplanned failures
- Improve Mikron Service performances
- Back-end integration with several ERP systems
- Sales argument towards your customers



Mikron miTool

The next level of tool monitoring



PREDICTIVE

With the introduction of Mikron miTool, we offer our customers finally a more powerful, easy way of tool monitoring with innovative features, so you get the most out of your Mikron high performance system. High precision and high-volume part production involve sophisticated machining processes. Advanced Tool monitoring becomes crucial to avoid unexpected machine downtime, machine breakage, tool damage, material scrap and the likely issues. Surface finish, tolerances and machine efficiency can be improved.

Mikron miTool is easy to install and customers benefit greatly in terms of efficiency and expenditure.

- » Prevention of damage due to tool breakage or tool overload
- » Sensorless with automated learning of load limits (Option to integrate vibration and temperature sensors)
- » For turning, milling and drilling and smallest tool sizes (up to 1.5 mm diameter)
- » Powerful algorithm for efficient monitoring after the first workpiece. It has a built-in learning function, allowing it to compensate for differences in processes.
- » The system maximizes the service lives of both the tools and Mikron high performance machines

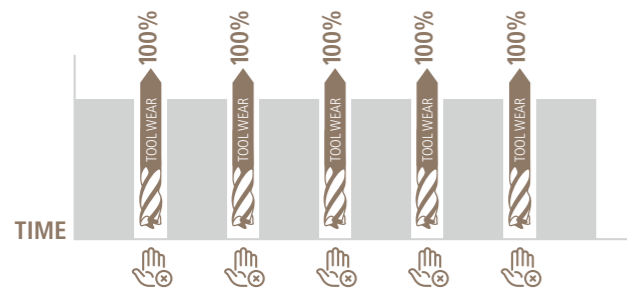


WHAT MAKES MIKRON miTOOL SO SPECIAL FOR YOU

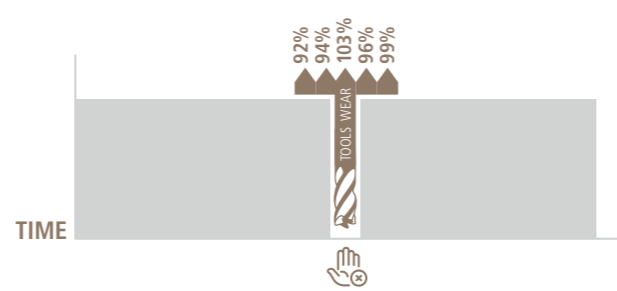
- » Highest sensibility and quality of data points deliver the finest and exact monitoring curves
- » Intuitive icon driven graphical interface for easiest use and monitoring by operators
- » Intelligent algorithm for advanced process optimization and cutting tool wear identification
- » Mikron miTool is able to store data and history for each tool configuration and monitoring curve
- » Dashboard with statistical overview for each tool allows the optimization of the entire production process
- » Mikron miTool permits all modifications (set up, regulations...) without machine stop
- » Automatic actions programmable for each channel e.g. save data in database, send notification, preventively stop the machine
- » Perfectly integrated into Mikron high performance systems

Intelligent powerful algorithm for optimal intervals to change several cutting tools at the same time leads to higher machine efficiency and economy (less machine stops)

5 CUTTING TOOLS CHANGED AT 5 STOPS



5 CUTTING TOOLS CHANGED AT 1 STOP



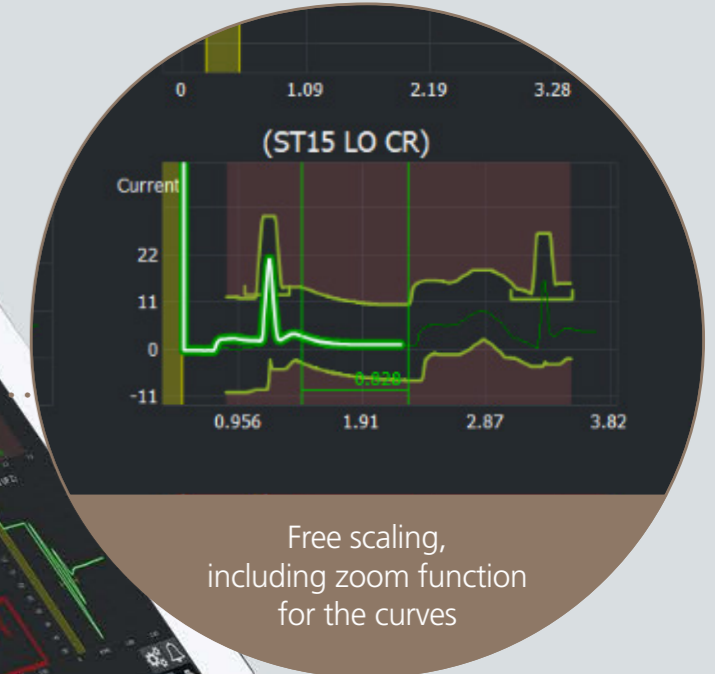
Number of machine stops for cutting tool changes



PREDICTIVE

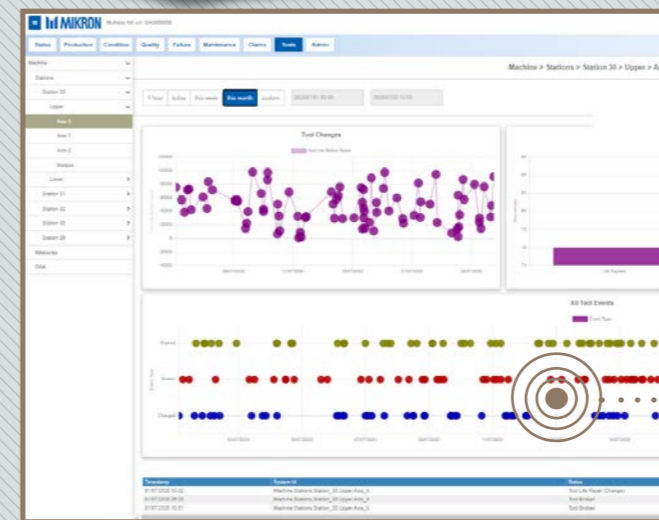
Mikron miTool interface - general overview

Parallel and time independent monitoring of up to 200 channels



Free scaling, including zoom function for the curves

Intelligent menu driven user interface easy to operate



Easy monitoring with Mikron miTool dashboard in a simple and independent way by a common web browser. For the optimization of the entire production process all statistical data are available (number of tool changes, number of broken or life expired tools)

Business Support

Keep & improve machine productivity



Mikron offers professional services based on our experience and resources to help you successfully manage today's complex manufacturing processes.

Process Monitoring (OEE improvement)

Through the miS4.0 module or/and on-site support of our experts we monitor your machine conditions and its handling. With this information and our know-how, we are able to suggest corrective actions. Machine monitoring or on-site support are available on request or can be planned in a regular and systematic manner.

Training

Mikron Service Solutions offers training modules tailored to your requirements and machine configurations. We provide you with the necessary technical knowledge to:

- Optimally and efficiently use of your machine
- Assure flawless production
- Increase the durability of your machine

New training platform with 3D models, step-by-step tutorials and virtual training are available for the new Mikron machine platforms.

Energy Consumption

With the miS4.0 module we monitor machine motors as well as other electrical components and define action to reduce the energy consumption.

This product has been mainly developed for older machines with obsolete components, that can be easily replaced with an updated version.

New Applications & Simulations

Our applications Engineers support you on new machine changeovers and retoolings. With their experience on specific machine characteristics, manufacturing processes, NC programming and easy access to our tool specialists, they can suggest you the more efficient solution to manufacture your new parts.

Simulation technologies are available on the new Mikron machine platforms to test new applications (cutting parameters, collisions, operation sequence, etc.) without stopping the production.

You will stop your machine only when all the new application details have been set. Contact our Service Center for more information.

Engineering

Mikron Service Solutions dispose of an own engineering team (mechanical & electrical). We have the manufacturer know-how and experience to improve actual situation or implement new solutions.

Interactive Troubleshooting

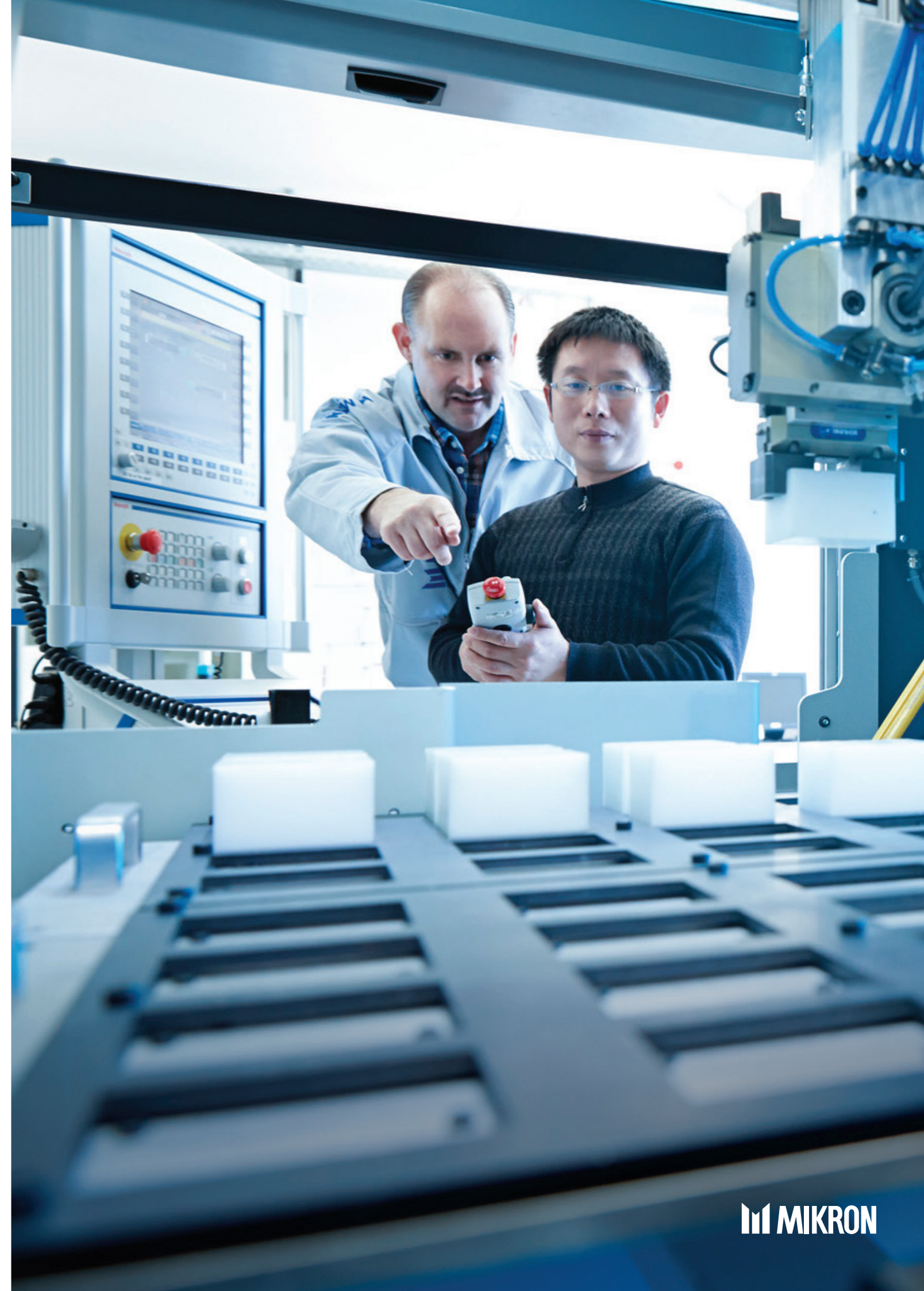
Interactive troubleshooting system is optionally available on the new Mikron machines platforms. If connected with the platform, the system is regularly updated to give you the best resolution information to solve in an effortless way each new issue. You avoid or reduce intervention costs.

Startup & Production Support

Our specialized technicians support you on-site during the production startup and mass production (e.g. support weakest production shifts). We monitor how your operators are handling the machine and instruct them how to run and maintain it in the best way.

Service Level Agreements

Mikron offers you a wide support program, giving you the possibility to bundle different packages to keep and improve your machine productivity. Contact your Service Center for more information.





SPARE PARTS

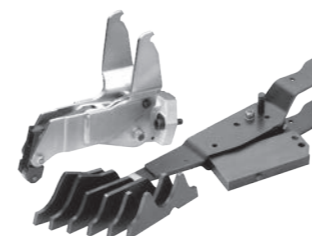
Spare Parts

Reliable supply of original Mikron spare parts

How you benefit from using original Mikron spare parts & Xchange modules.

Original Spare Parts:

- Less machine downtime and a longer durability for your system, as spare parts are manufactured according to high-precision material specifications and state-of-the-art production technologies.
- Continuous improvements of our components.
- Fast maintenance. Our service technicians are thoroughly familiar with Mikron original spare parts. Maintenance is easy and time-efficient for both, the customer and Mikron Service Solutions.
- Extensive stock of Mikron original spare parts – even for older systems.



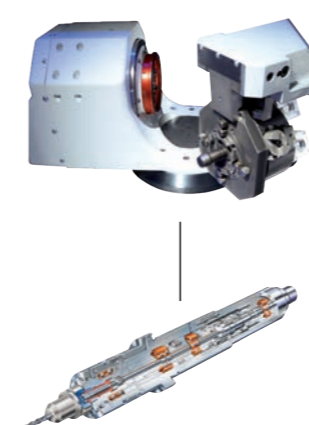
Original Mikron Cams



Original Mikron Spare Parts



Original Mikron Precision Collets



Mikron Xchange Modules

Original Xchange Modules

Your Advantages:

- System downtime is minimized
- High degree of operational reliability
- Lower initial outlay
- Mikron know-how is tried and tested – the risk of error is minimized
- Same warranty as for new parts

2nd life

Guarantee continuous use of your investment



Give your machine a second chance.

Machine Overhaul

Your system will require an overhaul after several years of operation to restore it to its original quality and efficiency. After a full analysis has been performed, the system will be either partially or if necessary, completely overhauled and customized to your requirements. We usually do the machine overhauls in our Mikron facilities, where we have dedicated teams and specific tooling/equipments, but we are also able to overhaul your machine on-site to avoid shipping time and costs. Upon request, the system will be updated with state-of-the-art technology.

Retooling

Retooling your existing system allows you to re-use the basis of the existing machine for a new application. You save most of the investment that a new system would require. Mikron Service Solutions will prepare the system to produce the new parts. The necessary design work will be carried out by the Mikron team. Experienced Service Technicians will implement the retooling on-site. Many of our customers combine a retooling with a machine overhaul.

Safety & Environments

Mikron supports you to assure your machine's safety and environment regulations/compliance.

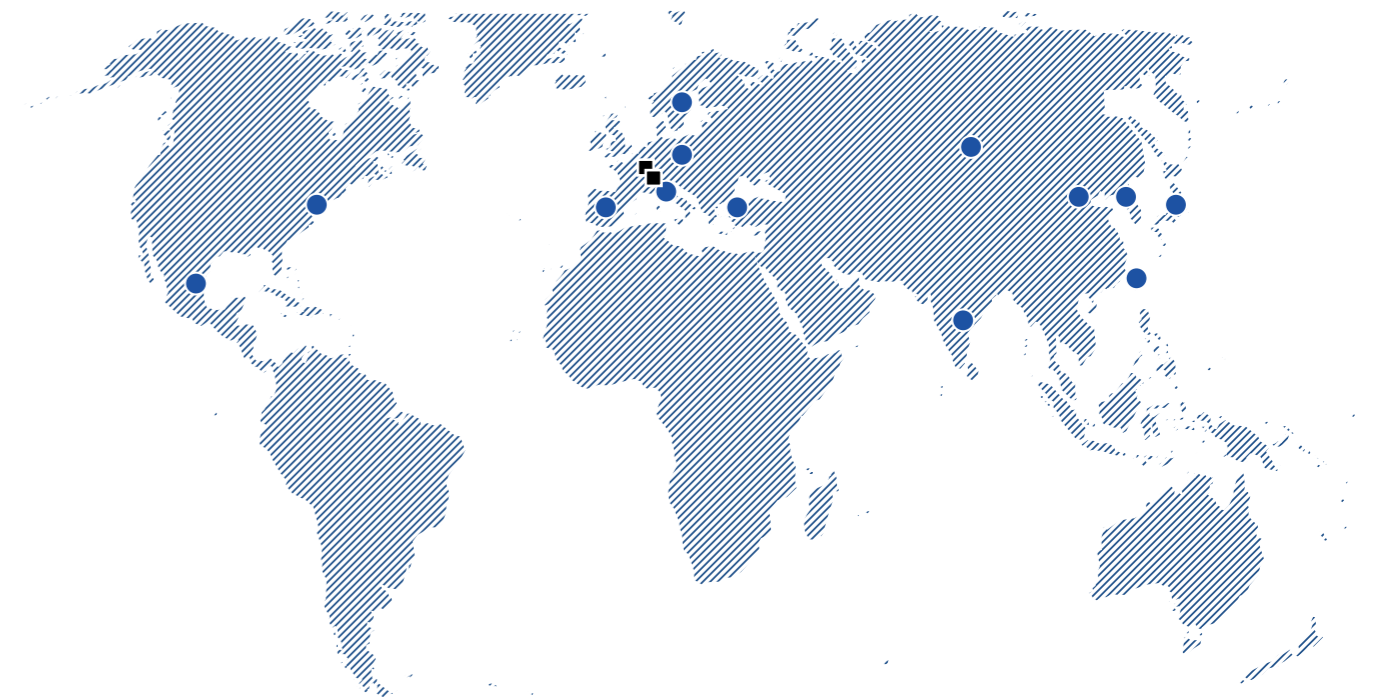
Updates, Upgrades & Retrofitting

Your machine has been successfully producing for 20 to 30 years. Now is the time to update, upgrade or retrofit it to the latest technology as well as improve productivity and quality. Contact your Service Center for more information.

Global Support

Ready for you

Contact your Service Center today, we gladly be of assistance.



- Production sites
Switzerland, Agno; Germany, Rottweil
- Strategic partnership or presence

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