



Industrial Process Analyzers

Multipurpose online, inline,
and atline chemical analysis

PEOPLE
YOU
CAN
TRUST

 **Metrohm**
Process Analytics

Monitoring your process 24/7



Maximize profitability, comply with regulations, and increase plant safety

Metrohm Process Analytics is known as a pioneer in process analysis and has become one of the global process industry's preferred solution providers for monitoring key parameters in large scale industrial manufacturing processes.

The first multipurpose process analyzer was developed by Metrohm in the 1970's, with a limited range to handle four sample streams.

Since then, Metrohm Process Analytics has continued to push the limits together with our customers by providing the best customized online analytical solution on the market.

Whatever your project requirements and budget, Metrohm Process Analytics has the right analyzer and monitoring solution for you. From our low-cost, single-stream dedicated 202X series to our multi-

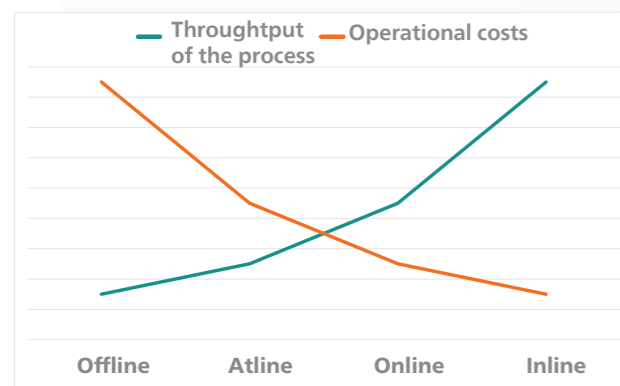
stream, multipurpose 2060 Process Analyzer range, we provide you with an innovative and customizable analyzer to cover all your process monitoring needs. We also offer nondestructive, «real-time» analysis with near-infrared (NIR) and Raman spectroscopy analyzers, and environmental solutions such as MARGA (Monitor for AeRosols and Gases in Ambient air).

Every minute counts

In laboratories, sample analyses are mostly carried out offline. However, this is not applicable in high throughput industrial processes, as offline analysis does not represent the most current process conditions due to the time delay between sampling and testing. Any beneficial process adjustments are delayed by hours or even days after an out-of-specification reading, causing losses of raw material, final product, and even company assets (e.g. corrosion due to ion exchanger breakthrough).

Inline analysis with industrial process analyzers and inline sensors saves time by automating measurements directly at the sample point. Reducing manual sampling **lowers costs, increases the safety** of plant operations, and much more:

- High analysis frequency leads to high quality products
- Protection of your company assets
- Increase your company profits
- Avoid incidents with process automation



Product and process optimization differences between offline, atline, online, and inline analysis

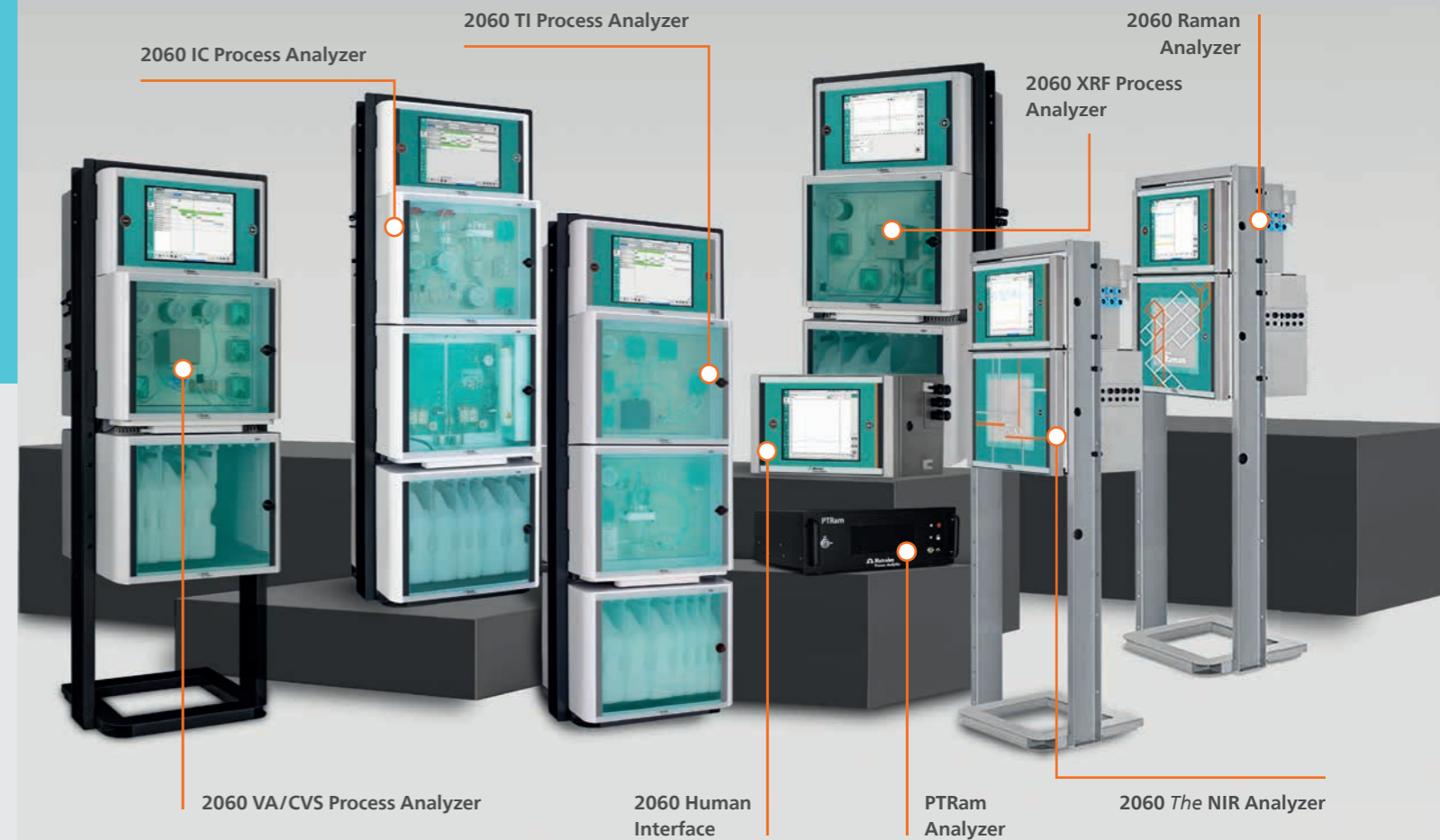


2060 Platform

The 2060 platform allows for customizable online monitoring of industrial processes with multiple parameters and streams. The platform includes the most versatile analyzers in Metrohm Process Analytics' product portfolio. The analyzers use a range of methodologies to provide 24/7 online monitoring of essential chemical parameters in industrial processes and wastewater streams.

KEY BENEFITS

- Maximum modular flexibility that allows the combination of several analysis cabinets (up to four) for multiparameter measurements on multiple streams
- Implementation of multiple analysis techniques in a single instrument to cover countless challenging applications
- Intuitive software designed to efficiently program and control this top of the line product without the need to learn several other control systems



BOOST YOUR PRODUCTIVITY

The 2060 platform's innovative modular layout allows for a wide range of combinations of several analysis modules for multiparameter observations across multiple streams.

Metrohm Process Analyzers are well-known for their modular configuration idea, and we've taken that versatility one step further. The 2060 Process Analyzers not only provide modularity within a single cabinet, but they can also combine up to four cabinets to form a single analyzer platform. The multi-cabinet structure provides maximum flexibility in addressing complicated process monitoring difficulties, resulting in sophisticated plant automation and increased process productivity.



2060 TI Process Analyzer with multiple cabinet configuration

2060 platform

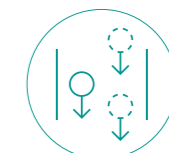
Multiple analytical techniques – one platform

The 2060 platform supports a variety of analytical techniques to suit various applications, including:

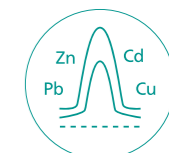
- **2060 TI Process Analyzer** for wet chemistry analysis
- **2060 IC Process Analyzer** for ion chromatography analysis
- **2060 VA/ CVS Process Analyzer** for voltammetric analysis
- **2060 XRF Process Analyzer** for X-ray fluorescence analysis
- **2060 The NIR Analyzer** for near-infrared analysis
- **2060 Raman Analyzer** for Raman analysis.



Titration



Ion Chromatography



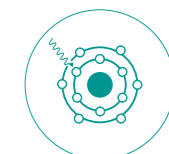
Voltammetry/ CVS



NIR spectroscopy



Raman spectroscopy



XRF spectroscopy

Process Wet Chemistry Analyzers

2060 TI Process Analyzer

Integrated solution for 24/7 online monitoring of critical chemical parameters with titration, pH, ISE, conductivity, coulometry, or photometry methods.

KEY FEATURES

- Modular flexibility to up to four cabinets
- Remote control capability makes evaluating results and inspecting diagnostics easier
- IP66/NEMA 4-rated: protection in harsh environments



2060 IC Process Analyzer

Complete and flexible system for online monitoring of ionic compounds in aqueous media from ng/L to % concentrations.

KEY FEATURES

- Conductivity, UV/VIS, or amperometric detection
- 24/7 unattended operation combined with continuous eluent generation
- Achieve high precision analyses of a wide spectrum of analytes with multiple types of detectors



2060 VA/ CVS Process Analyzer

Precise trace metal analysis with voltammetry or organic additives monitoring with CVS (Cyclic Voltammetric Stripping).

KEY FEATURES

- Inert components and protective enclosures ensure the necessary cleanliness levels essential for trace analysis
- Automated pre-treatment of samples, including pH adjustment, digestion, and dilution
- Up to 10 sampling streams

2060 XRF Process Analyzer

Reliable online x-ray fluorescence analysis for liquid process control

KEY FEATURES

- Up to 20 sampling streams
- Results in less than 60 seconds
- Non-destructive analysis from magnesium to uranium in liquid samples (z=12 to 92)
- Multiple analysis techniques in one platform (XRF with titration, photometry)



Process Spectroscopy Analyzers

Near-infrared (NIR) and Raman spectroscopy are fast, chemical-free, and non-destructive analysis techniques used in many industries for in-process control of manufacturing operations and measuring product quality. Metrohm Process Analytics offers three versions of process spectroscopy systems: the 2060 *The* NIR Analyzer, PTRam Analyzer and the 2060 Raman Analyzer.



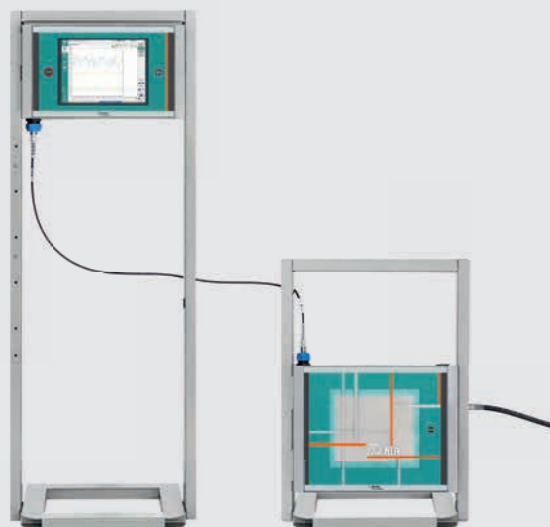
2060 *The* NIR Analyzer



2060 *The* NIR-Ex Analyzer

2060 *The* NIR Analyzer

The 2060 *The* NIR Analyzer is available in two versions, and they can be used in hazardous locations depending on your requirements: the 2060 *The* NIR-Ex Analyzer and 2060 *The* NIR-REx Analyzer for remote locations. Both analyzers are IECEx certified, and ingress protection 65 (IP65), guaranteeing the plant safety.



2060 *The* NIR-R Analyzer



2060 *The* NIR-REx Analyzer



2060 Raman Analyzer

The 2060 Raman Analyzer is available in two version: the 2060 Raman Analyzer and 2060 Raman-Ex Analyzer.



PTRam Analyzer

This analyzer allows the connectivity to one 2060 Human Interface, allowing that process data can be communicated in «real-time» to any industrial control system or directly to external devices and is accessible 24/7.





IMPACT

PROCESS CONTROL TO A WHOLE NEW LEVEL

The intelligent and proprietary Metrohm Process Analytics IMPACT software (Intelligent Metrohm Process Analytics Control Technology) is used across the 2060 platform. IMPACT is a complete solution offering a wide range of possibilities for process monitoring and automation.

It facilitates the acquisition of analytical data from Metrohm process analyzers, displays and transfers results to any Distributed Control System or Programmable Logic Controller (DCS, PLC), seamlessly connects to external systems (e.g., sensors), and smoothly executes advanced programs.

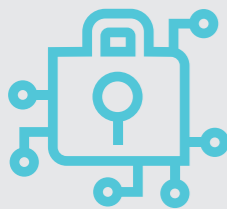


«REAL-TIME» DATA

Knowledge is key, and the **IMPACT software** is ideal for superior process monitoring. Data are collected and displayed in «real-time» on the HI. Operators can at any moment have an overview of the predictions for each of the sample streams, so they can be up to date at all times.

TAILORED PROGRAMS

With **IMPACT software**, advanced programs can be tailor-made to perfectly match each application. As each program is independent, **IMPACT** can be programmed to monitor multiple measuring points at the same time or control a sample conditioning system (SCS).



DATA INTEGRITY

Your data are safe with us. The **IMPACT software** has been designed to store results in an encrypted database. All collected data are fully traceable, preventing data tampering. The power buffer and the controlled shutdown sequence prevent data corruption, and the operating system is embedded, preventing user accessibility as another layer of protection.

MULTILEVEL ACCESS

Different access levels can be configured to make even the routine user feel at ease with the **IMPACT software**. Advanced users can have a deeper access to the software and change/edit parameters.



CUSTOMIZABLE OPERATION SCREENS

IMPACT software can be configured to show multiple operation screens. These screens can be defined to control programs (start, stop, loop, cycles, status...) and to display results in different formats (charts, histograms, tables...). Each user can have their own operation screen defined based on their personal requirements.

ALARMS AND DIAGNOSTICS

Not only does the **IMPACT software** provide the results from the analysis, it also performs health checks more commonly used on the whole system and proactively informs operators of potential issues. Alarms are triggered if hardware faults are detected, or analytical data are trending out of range.



Inline sensors

ProTrode pH sensors

Metrohm Process Analytics' ProTrode sensors are inline pH sensors specifically built for the chemical, pharmaceutical, and biotechnology industries. These sensors use type HT and H grade glass, which allows for stable readings and precise measurements across a wide pH range.

KEY BENEFITS

- **Reliable:** correct and trusted results over the entire lifetime of the sensor
- **Flexible:** adaptable for measurements in vessels, tanks, or pipes
- **Robust:** designed for a wide range of process environments
- **Maintenance-free:** the ProTrode sensors are always ready to use



ProTrode 250



ProTrode 200



ProTrode 350



ProTrode 300



202X Process Analyzers

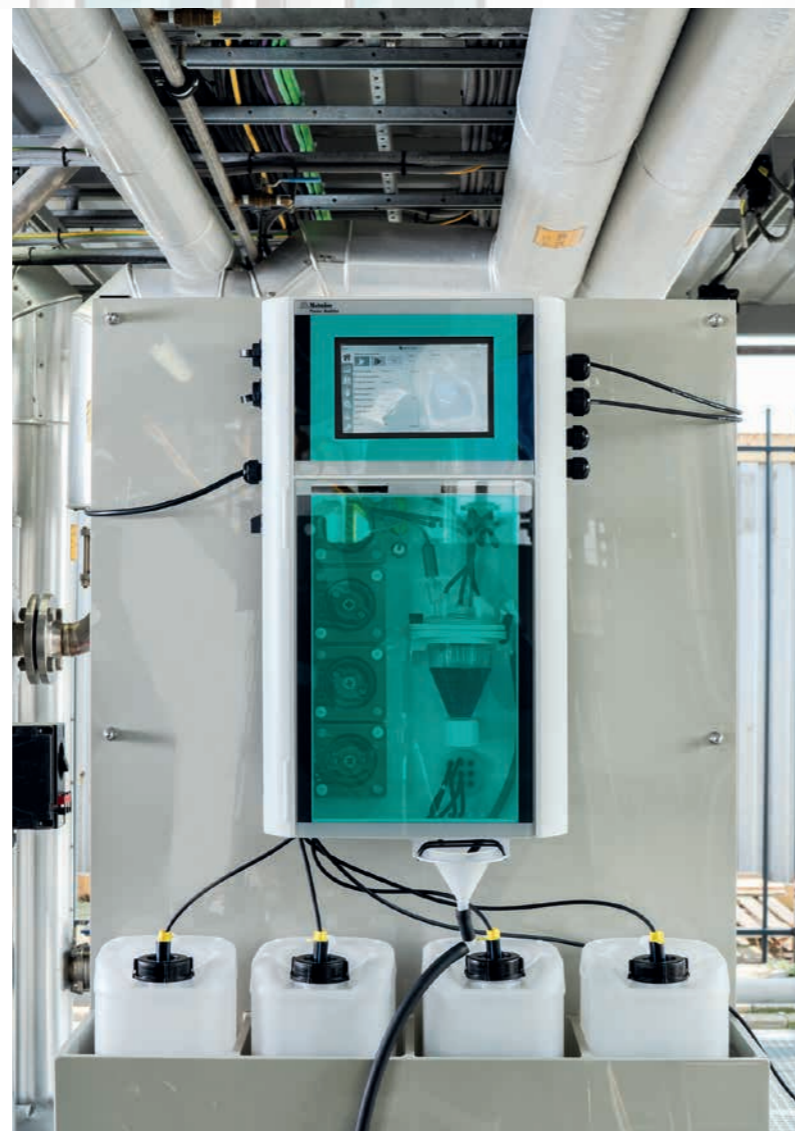


The 202X series is based on a single-method Process Analyzer especially suitable for monitoring chemicals in water and wastewater for several sectors. This series can monitor up to 2 sample streams, and is available in three versions, the 2026 Titrolyzer, 2026 pH Analyzer, and 2029 Process Photometer.

At Metrohm Process Analytics, we understand the diverse needs of our customers when it comes to sample analysis. The 202X Process Analyzers are also available in a heavy-duty (HD) version designed specifically for harsher samples that would normally require preconditioning.

KEY BENEFITS

- Wide range of straightforward field-proven applications in several markets
- Compact footprint for tight industrial spaces: 326 x 273 mm
- High resolution dosing system for accurate and reproducible results



2035 Process Analyzers



The 2035 Process Analyzer is designed with versatility in mind. This series comes in three different configurations: potentiometric, photometric, and thermometric. Also, additional measuring techniques such as pH and conductivity can be combined. Modularity of the wet part of the 2035 Process Analyzer means there is an analyzer configuration for any challenge.

KEY BENEFITS

- Multi-stream single technology
- Robust process design (with strict separation of the wet part from the electronics)
- Freely programmable alarms to inform you about relevant events (such as result limit, low reagents, and maintenance)



Explosion proof solutions

In hazardous environments, where concentrations of flammable gases, harmful vapors, or dust occur, it is vital that instruments are safe to operate and do not initiate an explosion. Explosion-proof Process Analyzers are configured to comply with explosion-proof electrical area classifications. (ATEX, ClassI Div2/ ClassI Div1...)

For these environments, Metrohm Process Analytics has developed the 2045 Ex-Proof Analyzer for wet chemistry applications and 2060 The NIR-EX/REx Analyzers for spectroscopic applications.

BENEFITS OF EXPLOSION PROOF ANALYZER

- No «Hot work permits» needed for servicing
- Proven safety and reliability
- Smart design avoids the need for purging large analyzer shelters (small footprint)
- Certified Ex-Proof Zone 1 and 2 "in accordance with EU Directive 2014/34/EU and ClassI Div2/ ClassI Div 1 in accordance with NEC"



Air monitoring solutions

MARS

Metrohm AeRosol Sampler «MARS» is a sample preparation module that collects aerosol particles from an air stream and transfers them to the aqueous phase.

The water-soluble ionic fraction (anions and cations) can then be evaluated using ion chromatography (e.g., Metrohm Compact or Professional IC series), voltammetry (e.g., Metrohm Professional VA series), or any other appropriate analysis technique.

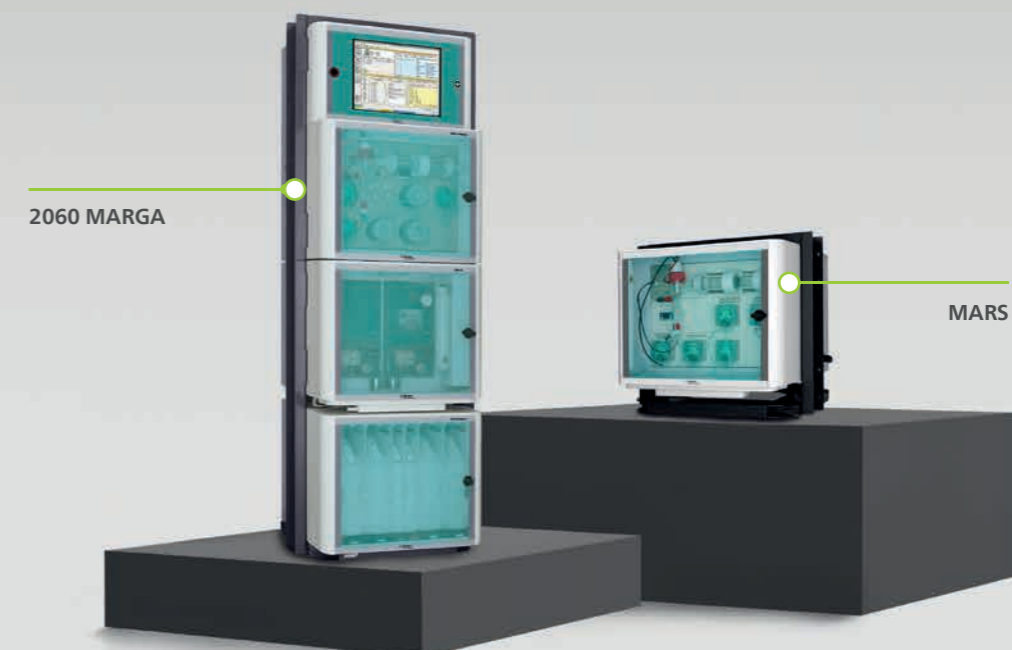
2060 MARGA

In addition to the aerosol fraction of ambient air, the 2060 MARGA «Monitor for AeRosols and Gases in ambient Air» captures the ionic load of the gas fraction and transports it to the aqueous phase for further analysis by dual channel ion chromatography.

2060 MARGA is intended for continuous, unattended operation in the field and comes in two versions:

The **2060 MARGA Research (R)** is an ideal choice for air monitoring during research programs. When the 2060 MARGA R is not in use for air monitoring, the IC can be utilized as a standalone laboratory device to supplement other research projects.

The **2060 MARGA Monitor (M)** is used to continuously measure air quality from a fixed point.



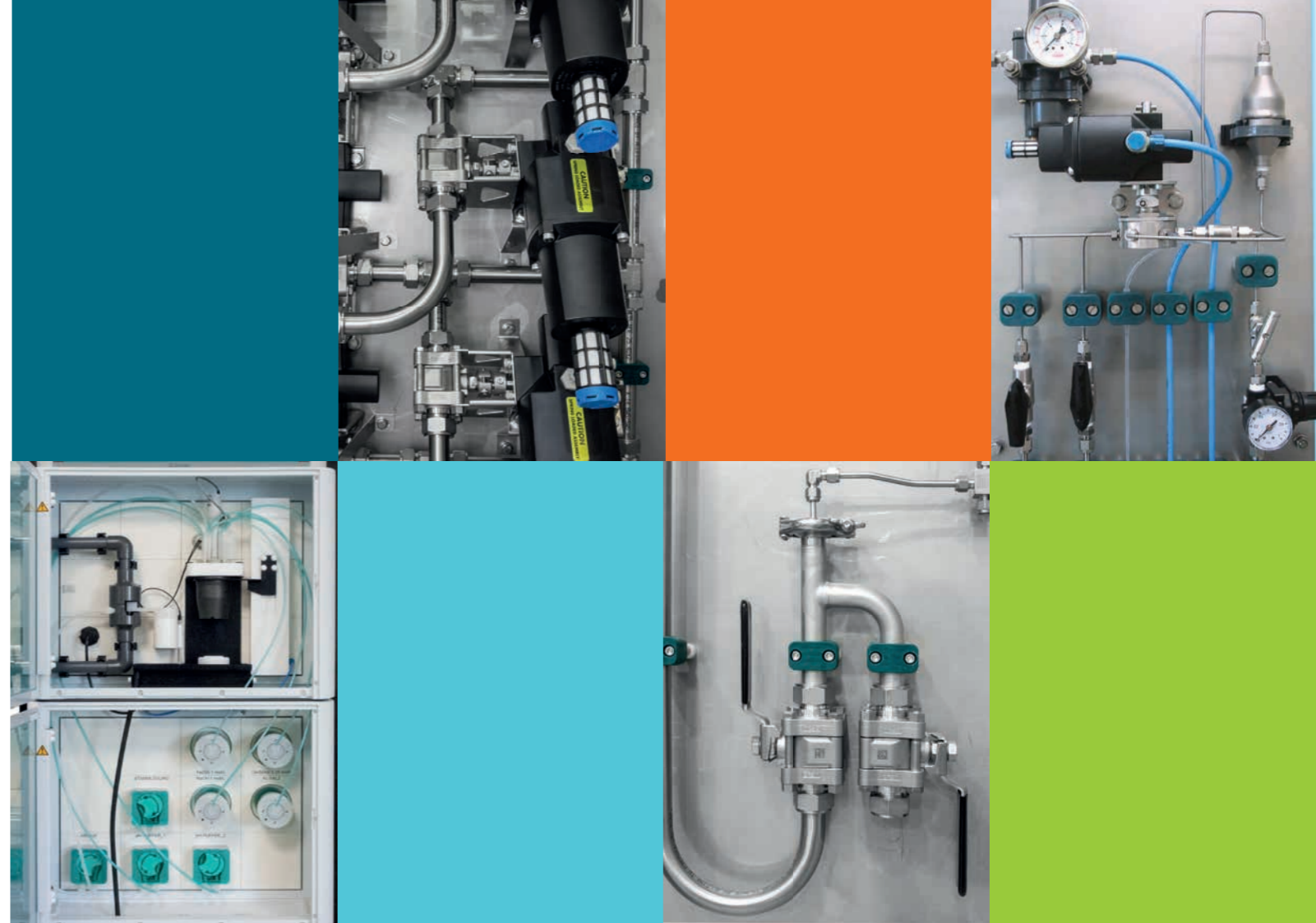
Problem solver – Preconditioning and integrated systems

Besides the chemical analysis, sample preparation, preconditioning, and location of the analyzer are deciding factors for the success of inline, online, and atline analysis. We can provide a full solution for almost any application: an analyzer in combination with sample preparation or even a complete package with a shelter, piping, wiring, and interfacing. This allows seamless startup and integration of the instrument on site.

Metrohm Process Analytics can engineer and supply virtually any «unit operation» for sample preconditioning. With more than 45 years of experience, Metrohm Process Analytics can provide a complete and exact solution for almost any application. Projects range from one analyzer in combination with simple sample panel preparation to complete complex turn-key packages. On site, only the necessary utilities and the sample stream need to be connected, saving significant time and energy in the start up phase of the instrument.

SAMPLE PRECONDITIONING SOLUTIONS:

- Pressure reduction
- Cooling
- Heating, heat tracing
- (Ultra) filtration
- Precipitation and settling
- Dilution (to avoid crystallization)
- Degassing
- Homogenizing
- Flow metering
- Phase separation



Consultation and design
of a customized
preconditioning system

Customized
preconditioning system
on site

Sample preconditioning
with shelter on site

We are here for you worldwide

Metrohm Process Analytics is present in more than 170 countries. Every subsidiary has its own service organization, spare parts warehouse, and trained service engineers. Distributors are either equipped with the same infrastructure or receive service and repair support from our Regional Support Centers (RSC), or directly from our headquarters in the Netherlands.

The high standards we maintain are also a promise to you. Regardless of when or where in the world you rely on our services, these services are performed to the same exacting standards.

Wherever you need us, we're there to help.



Local service and support – worldwide



