



Anton Paar

since
1922

Great **people**
Great **instruments**

At the forefront of analytical instrumentation

We empower scientists around the globe so game-changing science finds answers to humanity's biggest challenges. This means outside-the-box ideas from people who don't just defy the status quo, but reshape it. At Anton Paar, we think the unthinkable to create the exceptional. For you. Every day anew, since 1922.

When Mr. Anton Paar founded the Austrian-based company, it was just the first step of a long journey. Since then, Anton Paar has continuously explored – and determined – new ways to merge high-precision engineering with scientific curiosity.

In the picture from left to right: Jakob Santner (CTO), Friedrich Santner (CEO), and Dominik Santner (COO).





Since 2003, Anton Paar has been owned by the Santner Foundation, a non-profit organization exclusively and directly aimed at charitable work. The foundation supports non-commercial scientific work and research in the field of natural science and technology for public utility, addiction prevention, and the rehabilitation of drug addicts.

Anton Paar develops, produces, distributes, and provides support for analytical instruments used in research, development, and quality control worldwide.

The company currently has more than 4,200 employees and is active in over 110 countries across the globe.

Anton Paar develops, produces, and distributes highly accurate laboratory instruments as well as process measuring systems and provides custom-tailored automation and robotics solutions around the world. Customers include the biggest international soft drink producers and breweries as well as petroleum, food, chemical, and pharmaceutical companies, and many more.

Anton Paar is committed to long-term partnerships with our customers and employees as well as responsibility towards society in general.

INNOVATION AND TRADITION
Innovation builds on research and development, but goes beyond technology and involves all of Anton Paar's employees. Innovation is the art of finding answers to tomorrow's questions. Customers need reliable application solutions that are precise, economic, and easy to use. Here are some of the reasons why our customers can expect more:

<div>16 % ↓ of Anton Paar GmbH's turnover invested in research and development</div>	<div>Cooperation with leading universities and research institutes</div>	<div>100 % ↓ of instrument production in-house following strict quality guidelines</div>
<div>Traditionally close-knit contact with the international scientific community</div>	<div>Longstanding tradition of high-precision manufacturing</div>	

ANTON PAAR OFFERS A RANGE OF INSTRUMENTS THAT PROVIDE COMPLETE CONFORMITY AND TRACEABILITY TO MEET STRINGENT REFERENCE STANDARDS AS WELL AS NATIONAL AND INTERNATIONAL REGULATORY REQUIREMENTS.



ANTON PAAR IS PRESENT AROUND THE WORLD

<div>11 Producing companies</div>	<div>37 Sales subsidiaries</div>	<div>50 Distribution partners</div>
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SALES AND SERVICE NETWORK
In addition to a broad product portfolio, Anton Paar meets your needs with our worldwide sales and service network. Specialists trained and certified in-house are at your service.

↓
CERTIFIED SERVICE
From the preventive maintenance programs to traceable calibrations and emergency service, Anton Paar accompanies you with certified service programs throughout the whole life cycle of your instrument.

↓
ON-SITE INSTALLATION
Your measurement solution of choice is installed on-site by an Anton Paar certified sales representative or certified service engineer in accordance with your individual requirements.

↓
APPLICATION SUPPORT
Benefit from Anton Paar's application know-how for a measurement solution that's customized to your application. Anton Paar provides a wide range of application solutions based on decades of technical expertise.

↓
TRAINING PROGRAMS
Anton Paar offers customer trainings and qualification tailored to every knowledge level. You're provided with future-oriented tips and advice for your measuring requirements, as well as the opportunity to exchange information with Anton Paar engineers experienced in your field of application.

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ANALYTICAL INSTRUMENT AND SYSTEM QUALIFICATION
For compendial use, Anton Paar offers instrument-specific qualification packages and compliant maintenance to meet the requirements of cGMP, GAMP 5, USP <1058>, and EU GMP Vol. 4, Annex 15. The software of the respective instruments covers the data security features according to 21 CFR Part 11, EU GMP Vol. 4 Annex 11, and ALCOA++.

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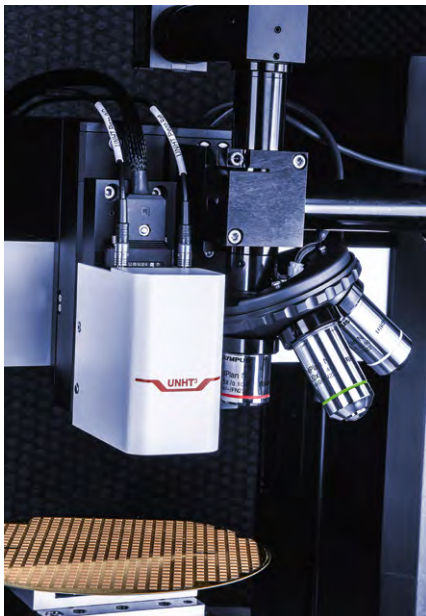
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- Maximum load of 50 mN or 100 mN (optional)
- Load resolution of 3 nN
- Depth range up to 50 µm or 100 µm (optional)
- Depth resolution of 0.003 nm
- Temperature tests up to 200 °C
- True creep measurements
- Dynamic mechanical analysis with sinus mode
- 600 measurements per hour
- Complies with ASTM E2546 and ISO 14577

Ultra Nanoindentation Tester: UNHT³

This ultra-high resolution nanoindenter measures mechanical properties, such as modulus, creep, and viscoelastic properties, of all types of materials at the nanoscale. It eliminates thermal drift (10 fm/sec) and mechanical compliance thanks to its patented active surface referencing system and measuring head. For high-temperature measurements up to 800 °C, a vacuum chamber version (UNHT³ HTV) is available. For soft and biological materials, we offer UNHT³ Bio.



- Maximum load of 500 mN
- Load resolution of 20 nN
- Depth range up to 200 µm
- Depth resolution of 0.01 nm
- Negligible thermal drift down to 0.05 nm/sec
- Dynamic mechanical analysis (DMA) with sinus mode
- 2-minute indenter exchange
- No thermal stabilization needed
- Complies with ISO 14577 and ASTM E2546

Nanoindentation Tester: NHT³

NHT³ applies low normal forces with depths in the nanometer range to measure hardness, elastic modulus, viscoelastic properties, and creep. It characterizes organic, inorganic, hard, and soft materials. Thanks to the “Quick Matrix” mode and the unique top surface referencing technique, NHT³ provides high throughput (600 measurements per hour), high precision, and stability.



- Maximum load of 500 mN
- Load resolution of 20 nN
- Depth range up to 200 µm
- Depth resolution of 0.01 nm
- Active anti-vibration table
- <1 mm positioning accuracy without microscope
- Intuitive user interface
- Guided software workflow
- 600 measurements per hour
- Complies with ISO 14577, ISO 19278, and ASTM E2546

Nanoindentation Tester: Hit 300

Hit 300 is a nanoindentation tester built for all users and all environments. Ready to use after only one hour of training, it measures hardness, elastic modulus, and viscoelastic properties. It can characterize PVD and CVD hard coatings, polymers, and metals.



- Compact two-in-one design, for measurement of both wet and dry samples
- Liquid measurement range from 0.04 µm to 2500 µm
- Dry measurement range from 0.1 µm to 2500 µm
- Dry jet dispersion technology
- Measurement reproducibility better than 1 % variation
- Complies with ISO 13320

Particle Size Analyzers: PSA 990, PSA 1090, PSA 1190

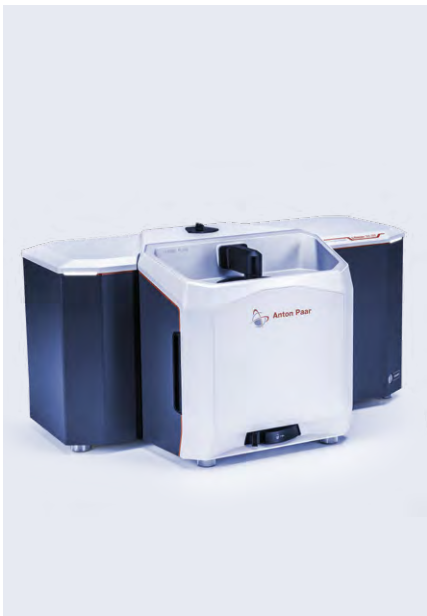
Based on laser diffraction technology, PSA instruments provide information about the size distribution of dry powders and particles in dispersion. The PSA series stands out for its broad measuring range and ability to measure both liquid dispersions as well as dry powders with a single instrument. Switching between both modes is done with a click. Its design guarantees realignment-free operation even in the harshest environments.



- Particle size determination from 0.3 nm to 10 µm
- Three different measurement angles
- Minimum sample volume of 12 µl
- Determination of particle concentration
- Patented cmPALS method to determine zeta potential
- Molecular mass determination
- Continuous transmittance measurement
- Refractive index within ±0.5 %

Particle Sizing: Litesizer DLS Series

Litesizer DLS determines size and concentration of particles dispersed in liquids via dynamic light scattering. Zeta potential is measured via electrophoretic light scattering. Further, molecular mass and transmittance of the samples and the refractive index of solvents can be determined with the software. Three measurement angles, including automatic angle selection, provide optimal conditions for concentrated or diluted samples.



- Measures particle size and shape, particle by particle
- Up to hundreds of thousands of particles per second
- Disperses particles using liquids, compressed gas and free fall.
- 5 MPix camera with up to 144 fps
- Easy to train and use, three clicks get you started
- Finds even a single particle among millions

Dynamic Image Analyzer: Litesizer DIA 500

Based on dynamic image analysis, Litesizer DIA 500 measures up to hundreds of thousands of particles per second and provides size and shape data. Three powerful dispersion units handle nearly any sample. A unique analysis mode enables finding even a single particle among millions. The instrument complies with a range of standards, including ISO 13322-2, ISO 13322-1, ISO 9276-2, ISO 9276-6, ISO 9276-11, and ISO 14488.



- An intuitive one-page workspace offers full information about a measurement, from settings to results
- Easy to train and use, three clicks get you started
- Recalculation and analysis of results at any moment
- Quality control mode
- FDA CFR Part 11-compliant
- Easy export and report building

Particle Analysis Software: Kalliope

One software to operate all Anton Paar's particle sizing instruments: the Litesizer DLS series, the PSA series, and Litesizer DIA 500. It provides easy and intuitive understanding of all measurement settings and results on one page. It enables easy recalculation of results, analysis, and report building. It's also available with an FDA CFR Part 11-compliant software package.



- Low torque and deflections measurable down to 0.5 nNm and 0.05 μ rad
- Testing under real-life conditions: temperatures from -160 °C to +1000 °C, humidity from 5 % RH to 95 % RH
- Custom adaptation via 200+ accessories
- Typical testing modes: Torsion, Tension and Compression, Flexure, Peel, Puncture and Friction

Universal Testing Machine: UTM Micro

A whole new world of low-force and low-torque mechanical parts testing – to a never-before-accessible micro range. Use it as a UTM or as a sophisticated combination of rheometer, tribometer, and device for dynamic mechanical analysis (DMA) with optical methods to further investigate the behavior of components. Time and personnel costs are optimized: minimal training required and automated test procedures are included in the software.



- Automatic spindle recognition with Toolmaster™
- Peltier temperature system for quick heating (8 K/min) and cooling rates (4 K/min)
- Temperature range of -20 °C to +180 °C
- 21 CFR Part 11-compliant package (optional)
- PC control via RheoCompass™ software

Rotational Rheometer: RheolabQC

RheolabQC is a rotational rheometer that combines performance with easy operation and a robust design for fast, routine rheological checks. It investigates the flow behavior of paints and coatings, food, cosmetics, pharmaceuticals, adhesives, oils, asphalt, and much more. RheolabQC can be operated either as a stand-alone or software-controlled rheometer. Several measuring geometries and accessories, including a Peltier temperature device, are available.



- TruRay illumination for a clear view of your sample
- Software guiding you through rheological measurements
- QuickConnect for fast and easy mounting of the measuring system
- EDU Edition for academia
- Toolmaster™ automatic tool recognition and configuration
- Air-cooled Peltier temperature units (H-PTD, C-PTD, or P-PTD)

Modular Compact Rheometers: MCR 72 and MCR 92

MCR 72 and MCR 92 are streamlined for daily lab routines and are easy to use. A range of accessories are available for both models. For academic use, both instruments are available as an EDU Edition, which includes special packages for both teachers and students.



- Wide range of temperature accessories for temperatures from -160 °C to +1000 °C
- 200+ accessories for the perfect custom fit
- Customized solutions on request
- Torque range from 0.5 nNm to 300 mNm
- Normal force measurements up to 70 N
- Full pharma compliance

Modular Compact Rheometers: MCR 102e, MCR 302e, MCR 502e Power

Backed by 25 years of experience in EC technology, the MCR Evolution rheometer series conducts any type or combination of rheological tests (rotational or oscillatory) based on low-friction, air-bearing-supported permanent magnet synchronous EC motor technology. The system's modularity lets users integrate a wide range of temperature devices and application-specific accessories to solve all kinds of measurement tasks.



- High-end rheometer for sophisticated research
- One rheometer, two drive units, all rheological working modes
- Torque range of 0.5 nNm to 230 mNm
- Maximum rotational speed of 6000 rpm
- Ready for DMA in torsion, tension, bending, or compression mode
- 200+ accessories
- Temperature range of -160 °C to +1000 °C

Modular Compact Rheometer: MCR 702e MultiDrive

The MCR 702e MultiDrive can perform rheological tests with two torque transducers and drive units at once. Due to its modular setup, the high-end rheometer can work in combined motor transducer (CMT) mode using one EC motor as well as in counter-rotation, counter-oscillation, and separate motor transducer mode (SMT) using two EC motors. This means it covers all possible rheological applications.



- Glovebox-ready
- Combinable with external setups
- One rheometer, two drive units, all rheological working modes
- Torque range of 0.5 nNm to 230 mNm
- Maximum rotational speed of 6000 rpm
- Ready for DMA in torsion, tension, bending, or compression mode
- 200+ accessories
- Temperature range of -160 °C to +1000 °C

Modular Compact Rheometer: MCR 702 Space MultiDrive

MCR 702e Space MultiDrive is the top-level rheometer based on the technology and concept of the MCR 702e MultiDrive that can additionally easily be combined with external setups (e.g., confocal microscope) to conduct advanced material characterization.



- Rotation and oscillation at a temperature range of 300 °C to 1730 °C
- Complies with ISO and ASTM standards
- Viscosity measurements between 1 mPa.s and 10⁸ Pa.s
- Speed of 300 rpm
- CE safety concept

Furnace Rheometer System: FRS 1800, FRS 1600

The FRS 1800 and FRS 1600 furnace rheometer systems combine a DSR 502 rheometer head and a lab furnace. Both instruments measure viscosity and the viscoelastic properties of all kinds of melts in rotation and oscillation. They also characterize the softening/ melting and solidification behavior of a sample. The instruments provide high-quality data for R&D, QC, and process development.



- Complies with standards, including AASHTO, ASTM, DIN EN, FGSV, AGPT, GOST, IS, and SATS
- Temperature range of -50 °C to +400 °C
- Peltier temperature device for dry sample heating from -50 °C to +220 °C
- Toolmaster™ technology ensures accuracy
- Fully automatic temperature calibration and verification routines

Dynamic Shear Rheometer: SmartPave 92, SmartPave 102e

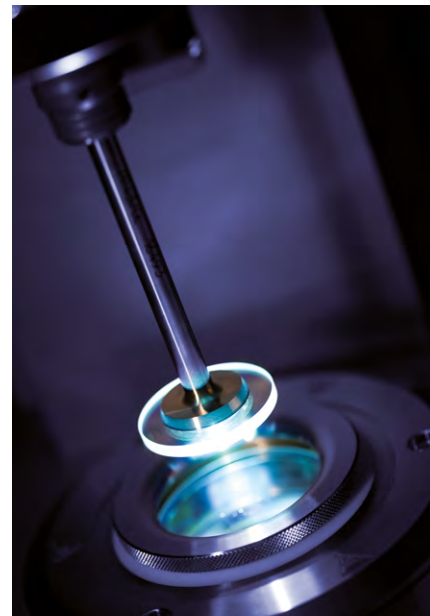
The SmartPave series is based on the latest technology used by MCR rheometers with the well-established EC motor system. It incorporates innovative features that take bitumen and asphalt binder rheology to previously unattained levels of accuracy, comfort, and ease of use.



- Analyzes any powder in any state
- Patented dust protection
- Fluidization and quality control tests with outstanding reproducibility
- Temperature control from -160 °C to +980 °C
- Humidity option
- Complies with ASTM D6773, DIN 1055, USP 1174, Ph.EUR:2.9.49, and ISO 8130-15:2023

Modular Compact Rheometers: True Powder Rheology

Our MCR Evolution rheometer combined with the powder shear and flow cell enables comprehensive powder characterization. This system guarantees the determination of powder behavior in any state with high precision. Due to its extreme versatility, the powder cells can be used for in-depth powder characterization (e.g., shear, compressibility, and wall friction tests) or as an easy-to-use quality control tool.



- Structure analysis and optics**
 - Rheo-SALS/SAXS/SANS, particle image velocimetry, microscopy, polarized imaging, Raman, IR spectroscopy, dielectric spectroscopy
- Material characterization**
 - Building material cell, starch cell, DMA, extensional rheology, tack tests, interfacial rheology cell, powder cell, tribology cell
- Additional parameter setting**
 - Pressure, humidity, magnetic and electric field, UV light

Modular Compact Rheometers: Accessories

More than 200 application-specific accessories are available for easy integration into MCR rheometers. We offer accessories specially designed for additional parameter settings, for structural analysis, and RheoOptics. Parameters include magneto- and electrorheology, UV, pressure, and humidity. Other accessories are available that transfer MCR rheometers' capabilities into other material characterization applications.



- Maximum load of 1000 mN
- Load resolution of 0.01 µN
- Depth range up to 600 µm
- Depth resolution of 0.1 nm
- Patented Synchronized Panorama Mode
- Active force feedback
- Fast response time to small applied forces
- Post-scan software measurements
- Wear testing mode with bidirectional cycles
- Complies with ASTM D7187

Nano Scratch Tester: NST³

The NST³ nano scratch tester is particularly suited for the characterization of adhesion and scratch resistance of thin films and coatings with a typical thickness of less than 1000 nm. It can be used for the analysis of organic and inorganic coatings of both soft and hard materials.



- Maximum load of 30 N
- Load resolution of 10 μ N
- Depth range up to 1 mm
- Depth resolution of 0.05 nm
- Friction force measurement
- Detection of acoustic emission
- Automatic detection of critical loads
- Patented Synchronized Panorama Mode
- Complies with ISO 14577, 20502 and 27307:2015, ASTM C1624, E2546, and G171

Micro Combi Tester: MCT³

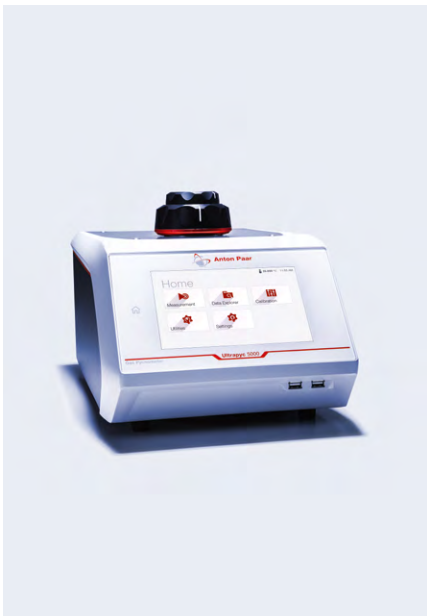
The MCT³ micro combi tester combines instrumented indentation testing (IIT), scratch, and tribology in one measurement head. The wide load range of this instrument lets users characterize hardness, elastic modulus, adhesion, scratch resistance, friction, and wear of thin films and bulk materials. MCT³ can be used for the analysis of organic and inorganic as well as soft and hard coatings.



- Maximum load of 200 N
- Load resolution of 0.1 mN
- Depth range up to 1000 μ m
- Depth resolution of 0.05 nm
- Speed from 0.4 mm/min to 600 mm/min
- Patented Synchronized Panorama Mode
- Pre- and post-scan feature
- Vickers hardness tester capabilities
- Complies with ASTM C1624, D7027, G171, ISO 20502, and DIN EN 1071

Revetest® Scratch Tester: RST³

The Revetest® scratch tester is the industrial standard for characterizing hard-coated materials with a typical film thickness exceeding 1 μ m. It's a reliable instrument for the characterization of both coating/substrate adhesion and surface scratch resistance. With its easy-to-use software package, it performs scratch tests in a wide variety of testing modes, including simple scratch testing and bidirectional cycles for wear testing.



- Entry-level model with a wide range of sample cell volumes from 4.5 cm³ to 135 cm³
- Industry-leading graphic interface with 7" touchscreen
- TruPyc technology ensures accuracy across all sample cell sizes
- AP Connect-compatible

Solid Density Analyzer: Ultrapyc 3000

Ultrapyc 3000 measures true/skeletal density of solid and semi-solid samples using gas expansion in the classical sample-first direction. The instrument conducts density measurements of solids, powders, semi-solids, and slurries in many industries, including the automotive, battery, building materials, ceramics, food, mining, personal care, petroleum, and pharmaceutical industries.



- Low sample amounts:**
- 0.25 cm³ to 4.5 cm³ (5000 Micro)
 - 4.5 cm³ to 135 cm³ (Ultrapyc 5000)
 - TruPyc technology ensures accuracy across sample cell sizes
 - PowderProtect mode eliminates risk of elutriation of fine powders
 - Integrated Peltier temperature control from 15 °C to 50 °C
 - Disposable cups for tough-to-clean samples
 - AP Connect-compatible

Solid Density Analyzers: Ultrapyc 5000, Ultrapyc 5000 Micro, Ultrapyc 5000 Foam

Ultrapyc 5000, Ultrapyc 5000 Micro, and Ultrapyc 5000 Foam measure true density of solids, semi-solids, and foams using gas expansion. The instruments are equipped with Peltier temperature control and a user-friendly graphical interface. The instruments conduct density measurements of solids, powders, semi-solids, and slurries in many industries, including the automotive, battery, building materials, ceramics, food, mining, personal care, petroleum, and pharmaceutical industries.



- 260 taps per minute
- 3 mm drop height
- Automatic cylinder rotation
- Compatible with cylinders from 5 mL to 1000 mL (requires adapter)

Tapped Density Analyzers: Autotap and Dual Autotap

These one- and two-station automated tapped density analyzers for powders, granules, and small pellets comply with various internationally recognized standards. They provide high-level test method control with a user-selectable, lockable number of taps. A large range of sample sizes can be accommodated with different graduated cylinders.



- One, two, or three independent analysis stations
- Six best-in-class degassing stations
- Precise manifold temperature control from 35 °C to 50 °C
- TruZone active coolant level control
- 90+ hour cryogen Dewar
- PowderProtect elutriation protection
- Compliant with 15+ ASTM, DIN, and ISO standards

High-Vacuum Pysisorption Analyzer: Autosorb 6100

An accurate and agile high-vacuum gas sorption analyzer capable of determining specific surface areas below 0.01 m²/g, pore volumes up to 500 nm, and pore size distributions down to 0.35 nm of porous solids. Twelve base instrument configurations and five modular upgrades ensure these adaptable instruments keep pace with your research. Includes the powerful Kaomi for Autosorb software that's accessible for both new and experienced users.



- Four analysis and four degassing stations in one compact footprint
- 5-point BET analysis on four samples in as little as 20 minutes
- 4 x 40-point mesopore runs in under eight hours
- PowderProtect: Intelligent sample cell evacuation reduces risk of fine powder elutriation



- Four independent analysis stations for increased throughput and flexibility
- Coolant level sensor on each station maintains a constant, small cold-zone for maximum sensitivity
- Micropore/krypton version includes a turbo-molecular pump and one torr transducer (optional)



- 1100 °C max furnace temperature
- Automated, built-in fan for furnace cooling
- Automated injection/titration loop
- Dedicated sample preparation stations
- Tungsten/rhenium 2-filament TCD
- Multiple gas input ports with automated gas selection
- Complies with up to 20+ ASTM, DIN, and ISO standard methods

Surface Area and Pore Size Analyzers: Nova 600 BET, Nova 800 BET, Nova 600, Nova 800

The new-generation Nova analyzers deliver operational simplicity across the entire workflow from sample preparation to analysis to reporting of results. The series consists of four models – 600 BET, 800 BET, 600, and 800 – that combine up to four analysis stations with four degassing stations to deliver analysis with unprecedented velocity: speed vectored at precision.

Gas Sorption Analyzer: QUADRASORB evo

QUADRASORB evo is a high-performance surface area and pore size analyzer with four completely independent analysis stations. Each analysis port can be programmed with different analysis and measurement conditions. Four units in one, with an optional micropore or krypton version, QUADRASORB evo meets the needs of any high-throughput R&D or QA laboratory wanting reliable and accurate BET surface area and detailed pore size results.

Chemisorption Analyzers: Autosorb iQ-C and ChemBET

Measure active metal areas and perform temperature-programmed analyses for catalysts and reactive porous materials as well as standard surface area measurements. Programmable measurement sequences enable easy analyses with minimal user intervention. Instruments include an advanced data reduction package with peak deconvolution. The autosorb iQ-C and ChemBET Pulsar are adaptable additions for any catalyst characterization.



- Available with two or four analysis stations
- Precise manifold and vapor source temperature control from 40 °C to 110 °C
- Sample analysis temperatures from 20 °C to 100 °C
- In situ sample preparation up to 400 °C

Vapor Sorption Volumetric Gas Sorption Analyzer: VSTAR

The VSTAR is a volumetric vapor sorption analyzer that goes beyond basic water sorption to provide vapor and gas sorption analyses over a broad range of analysis conditions. Based on the fast and high-resolution vacuum-volumetric gas sorption technique analysis, results are typically delivered in half the time required by classical DVS methods. Wide chemical compatibility lets users measure isotherms and the kinetics of many species.



- 1- or 2-station gas sorption analyzer
- High-pressure measurements up to 100 or 200 bar
- High-precision transducers
- Precise manifold temperature control from 35 °C to 50 °C
- Performs measurements from 15 K to 773 K with optional temperature control accessories
- Library of advanced equations of state included

High-Pressure Gas Sorption: iSorb HP

The iSorb HP series provides high-quality gas adsorption and kinetic data to a maximum of 100 bar or 200 bar absolute. The iSorb HP series is perfect for evaluating materials in gas storage, gas separation, or emission control applications.



- Two low-pressure stations and one or two high-pressure stations
- Pore size range from 0.036 µm (PM 60 models) or 0.064 µm (PM 33 models) to 1100 µm
- Pressures from 0.2 psi to 60000 psi available
- Process up to 12 samples a day

Mercury Intrusion Porosimeters: PoreMaster Series

These bench-top mercury intrusion porosimeters rapidly and accurately determine the pore size distribution of meso- and macroporous materials. Simultaneous operation of low- and high-pressure stations maximizes sample throughput. With built-in safety features that significantly reduce exposure to mercury, the PoreMaster series is ideal for a wide range of applications such as catalysts, batteries, pharmaceuticals, and ceramics.



- Measures through-pore size ranges from 0.018 μm to 500 μm
- Sample flow rates of 0.01 L/min to 200 L/min
- Unique pressure sense line technology eliminates need for sample-specific calibrations
- Complies with ASTM E128, ASTM F316, ISO 14003
- 30-minute measurement results



- Single-point zeta potential determination in less than two minutes
- Automated detection of the isoelectric point
- Time-dependent recording of liquid-on-solid adsorption kinetics
- Modular setup
- Quick and easy measuring cell exchange



- Solutions for various sample geometries
- Easy and fast sample mounting
- Automatic recognition of the measuring cells by the software

**Capillary Flow Porometers:
Porometer 3G Series**

These instruments are compact and adaptable capillary flow porometers designed to deliver accurate and repeatable through-pore size distribution results in minutes. Measure specific air permeability and pore size characteristics of a wide range of membranes and other filtration media, including flat sheets, hollow fibers, and ceramic tubes, using the standard and optional sample holders. A liquid permeability accessory is also available.

**Electrokinetic Analyzer for Solid
Surface Analysis: SurPASS 3**

The SurPASS 3 electrokinetic analyzer is used in surface analysis to investigate the zeta potential of macroscopic solids based on streaming potential and streaming current measurements. The zeta potential provides information on the charging behavior of a surface in contact with an aqueous electrolyte solution. SurPASS 3 Eco is available for routine solid surface analysis.

**Measuring Cells for Solids of Various
Shapes: SurPASS 3**

SurPASS 3 provides information on surface charge and related properties, and detects small changes in the outermost material surface. Several different measuring cells accommodate a variety of sample geometries, including natural and technical fibers, porous ceramics, coarse particles, and samples with a planar surface. Surface charge analysis can also be performed on contact lenses, hollow fiber membranes, and flexible tubings.



- All in one: tension, torsion, bending, and compression
- Force range of 0.5 mN to 40 N
- Displacement range of 10 nm to 9.4 mm
- Temperature range of -160 $^{\circ}\text{C}$ to +1000 $^{\circ}\text{C}$

**Dynamic Mechanical Analyzer:
MCR 702e MultiDrive**

MCR 702e MultiDrive is a versatile platform for DMA in tension, torsion, bending, and compression as well as one that conducts rheological investigations and thermomechanical analysis (TMA). The modularity of the system allows the integration of a wide range of temperature devices, application-specific accessories, and measuring systems to cover the requirements of a variety of different applications.



- Toolmaster™ technology provides automatic tool recognition
- Measuring systems with temperature sensor included
- QuickConnect functionality for one-handed connection to the device
- Convection temperature devices based on Peltier elements or electrical heating
- Options for measurements in controlled relative humidity and immersion tests

DMA Accessories

Our specialized measuring systems cover the demands of DMA in bending, tension, torsion, and compression, and guarantee precise results and easy handling. The temperature sensors that are included ensure the highest reproducibility over the entire temperature range without manual positioning of the sensor. Further accessories include a low-temperature option that's based on liquid nitrogen or gas chiller, and a humidity option.



- Maximum normal load of 20 N or 60 N (optional)
- Maximum friction force of 20 N
- Friction force resolution of 0.06 mN
- Integrated temperature and humidity sensors
- Minimal thermal drift
- Easy user calibration
- Modelization software for contact mechanics simulation
- Complies with ASTM G99, ASTM G133, and DIN 50324

Pin-on-disk Tribometer: TRB³

TRB³ is the industry standard for the measurement of friction and wear in sliding contacts. Its flexible configuration and plug-in options enable a wide range of test parameters, contact geometries, and environmental conditions that simulate real-life conditions. The instrument comes with a reference sample kit, which lets users verify instrument performance at any time.



- Fast measurements in two to five minutes
- No sample preparation
- Accurate thickness results of both single- and multi-layers
- Suitable for flat and curved surfaces
- Software for coating thickness measurement
- Standard ball diameters: 10 mm, 15 mm, 20 mm, 25.4 mm, 30 mm
- Complies with ISO 1071-2, VDI 3198



- ASX autosampler automates up to 192 liquid samples
- Sample stages and holders for ambient and non-ambient studies
- Automated X-ray component and sample stage alignment
- Line and/or point collimation for all SWAXS applications



- Slidemaster moving detector technology provides SAXS and WAXS data in one go
- Powerful X-ray sources
- X-ray beam formation with very high spectral purity and flux
- Software packages for automated operation and data analysis
- Automated X-ray component and sample stage alignment

Calotest: CAT²

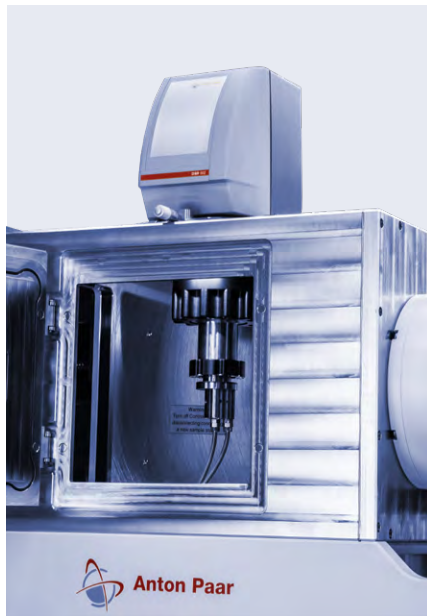
CAT² characterizes coating thicknesses between 0.1 μm and 50 μm on a wide range of materials. With the simple ball-cratering method, the thickness of any kind of single or multi-layered coating stack is accurately determined in a short time. CAT² complies with relevant international standards. Depending on the application, three different models are available: CAT²c, CAT²i, and CAT² combo.

High-Throughput Nanostructure Analysis: SAXSpace

SAXSpace is a modular small- and wide-angle X-ray scattering (SWAXS) system for characterizing nanostructured materials and samples. It offers a variety of precise sample stages and provides easy handling for smooth operation. SAXSpace is especially suited for high-throughput analysis of isotropic colloidal and biological samples (Bio-SAXS).

The Laboratory SAXS/WAXS/GISAXS System: SAXSpoint 5.0

The SAXSpoint 5.0 system is an innovative solution for SAXS, WAXS, GISAXS, USAXS, and RheoSAXS studies in the home laboratory. SAXSpoint 5.0 employs scatterless beam collimation and a moving detector feature with the latest detector technology. It integrates brilliant X-ray sources providing outstanding flux, such as the Primux 100 micro X-ray source, a high-performance microfocus X-ray source that delivers premium X-ray beam brilliance at low power.



RheoSAXS stage

- Combined, in situ measurements of SAXS and full rheological properties

GISAXS STAGE

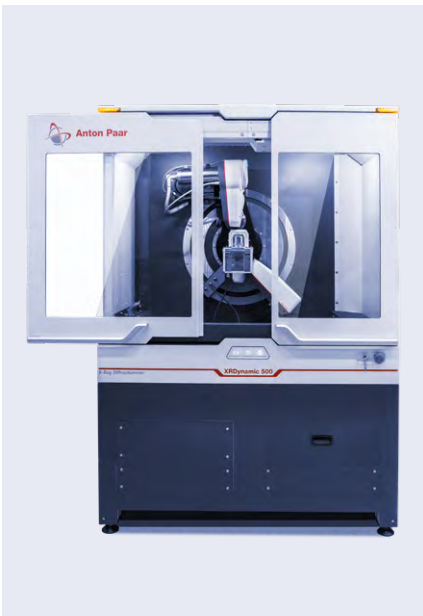
- Precision stage for GISAXS studies of nanostructured surfaces

USAXS stage

- USAXS measurements to resolve particle sizes of up to 2.5 μm

Low-volume autosamplers

- Sample volume down to 5 μL



- TruBeam™ concept for automation of beam geometries and all X-ray optics
- 20 % better measurement resolution than with conventional instruments due to larger measurement radius
- Evacuated beam path for top signal-to-noise ratio
- Automated instrument and sample alignment routines as well as component recognition



- Evacuated beam path to remove all parasitic air scattering
- Delivers high-quality XRD and SAXS data in reflection or transmission geometry
- Dedicated SAXS optics provide SAXS data comparable to a stand-alone SAXS system
- Measure without any restriction of the 2θ range

Versatile Sample Stages: Full Experimental Flexibility

Dedicated sample stages and holders for SAXSpoint 5.0 and SAXSpace provide limitless possibilities. The TCStages provide precise temperature control from -150 °C to +600 °C. The autosamplers enable automatic measurements of up to 192 liquid samples. Temperature-controlled samplers offer autosampling of solid, liquid, and paste-like samples. Other sample stages enable GISAXS studies of nanostructured surfaces, SWAXS studies under controlled tensile stress or controlled atmosphere, and RheoSAXS studies correlating structural changes with macroscopic properties.

Automated Multipurpose Powder X-Ray Diffractometer: XRDynamic 500

XRDynamic 500 offers top XRD data quality with maximum efficiency. It's a versatile platform that covers a wide variety of applications in powder XRD, non-ambient XRD, PDF analysis, SAXS, and much more. Intuitive to use with fully automated optics and alignment routines, collecting top-quality XRD data quickly while minimizing errors has never been easier.

XRDynamic 500 Accessories (EVAC Module)

The EVAC module for XRDynamic 500 provides a fully evacuated beam path for SAXS and XRD measurements to remove parasitic air scattering, which provides maximum beam intensity on the sample and an unbeatable signal-to-noise ratio. All XRD or SAXS sample holders can be used, and the module is suitable for high-resolution XRD studies in reflection or transmission.



- One-click instrument configuration changes (XRDrive)
- Automated data collection and alignment routines (XRDrive)
- Peak search and profile fitting (XRAnalysis)
- Search/match functionality for phase ID (XRAnalysis)
- Rietveld method for quantitative and crystal structure analysis (XRAnalysis)

BTS 150/500

- Temperature range: -10 °C to +150 °C (BTS 150)
- Temperature range: 25 °C to 500 °C (BTS 500)

TTK 600

- Temperature range: -190 °C to +600 °C

DCS 500

- Temperature range: -180 °C to +500 °C

CHC plus⁺

- Temperature range: -180 °C to +400 °C
- Relative humidity: 5 % to 95 %

TS 600

- Mechanical load: max. 600 N

XRK 900

- Temperature range: 25 °C to 900 °C, maximum pressure: 10 bar

HTK 1200N

- Temperature range: 25 °C to 1200 °C

HTK 16N/HTK 2000N

- Temperature range: 25 °C to 1600 °C (HTK 16N)
- Temperature range: 25 °C to 2300 °C (HTK 2000N)

DHS 1100

- Temperature range: 25 °C to 1100 °C

- Measuring range: 0 %v/v to 100 %v/v

Snap 41

- Accuracy of 0.2 %v/v at 5 °C to 30 °C

Snap 51

- Accuracy of 0.1 %v/v at 0 °C to 40 °C
- On-site measurements at distilleries and craft distilleries
- Sample identification via RFID tag
- Stores results and prints or exports to PC via Bluetooth
- PQP-S available

- Measures alcohol and extract of liqueurs at once
- Reduces time-consuming distillations
- Up to 400 predefined measurement settings
- Covering creamy and turbid liqueurs
- Automatic sample processing
- Complies with officially accepted methods
- Storage for 10,000 measurements

XRDynamic 500 Software

The XRDrive and XRAnalysis software packages help users collect and evaluate X-ray powder diffraction data. XRDrive automates instrument configurations, measurements, and instrument and sample alignments. XRAnalysis performs profile fitting, phase identification/quantification, and microstructure analysis for both ambient and non-ambient experiments.

Low- to Medium-Temperature X-Ray Diffraction Attachments

Several attachments are available for non-ambient XRD under low-to-medium temperatures. The portfolio includes BTS 150/500 (a heating attachment for benchtop instruments), TTK 600 (a versatile sample stage for different measurement geometries), and DCS 500 (a cooling attachment for 4-circle goniometers).

Humidity and Mechanical Load X-Ray Diffraction Attachments

Relative humidity is an important parameter, for example in finding optimal storage conditions for pharmaceutical substances or food ingredients. In addition to temperature variations, CHC plus⁺ investigates the influence of humidity on powder samples. TS 600 measures the effect of mechanical load on the structure of fibers or thin foils.

High-Temperature and High-Pressure X-Ray Diffraction Attachments

These instruments extend the temperature range for XRD applications up to 2300 °C. XRK 900 allows investigation of the influence of pressure (up to 10 bar) and temperature on the properties of the sample. DHS 1100 is designed for high-temperature studies on 4-circle goniometers.

Portable Alcohol Meters for Distilled Spirits: Snap 41, Snap 51

The Snap 41 and Snap 51 portable alcohol meters measure the alcohol concentration of extract-free distilled spirits in all strengths, replacing all glass hydrometers in the distillery. They measure samples directly at the container in 30 seconds. Results are temperature-compensated and reported in %v/v or °Proof.

Liqueur Measuring System

The Liqueur Measuring System is a dedicated system for the simultaneous analysis of alcohol and extract content of all types of liqueurs. The basic modular setup consists of a density meter and a refractometer.



- Results in less than a minute
- 15+ key parameters for wine, must, and must in fermentation
- Guided workflows with automatic data analysis
- 5-year warranty on the measuring cell
- ± 0.03 °C temperature control accuracy
- Operates stand-alone, automated, or connected to your existing benchtop instruments

FTIR Wine Analyzer: Lyza 5000 Wine

With Lyza 5000 Wine's modern user interface, determining the grapes' maturity, monitoring the primary and secondary fermentation progress, or checking the quality of the final product has never been easier. Complex measurement routines are now only a tap away.



- Accuracy, alcohol:
 - Beer/wine: 0.2 %v/v
 - Spirits/liqueurs (extract between 100 g/L and 450 g/L): 0.4 %v/v
- Measuring range, alcohol:
 - Beer: 0.5 %v/v to 15 %v/v
 - Wine: 8 %v/v to 20 %v/v
 - Cider: 2 %v/v to 10 %v/v
 - Spirits/liqueurs: 10 %v/v to 47 %v/v
- Measures alcohol and extract
- Built-in peristaltic pump
- Visual fermentation monitoring

Alcohol and Extract Meter: Alex 500

Alex 500 is a compact alcohol and extract meter that can analyze beers, wines, spirits, and liqueurs. Besides alcohol and extract content, it determines related parameters such as calories or degree of fermentation. Whether juice, wort, or mash, Alex 500 accurately measures all types of samples in all production steps.



- Repeatability s.d.: 0.01 %v/v
- Up to five optional measuring modules
- Up to 10x faster than distillation
- Automatic check/calibration with built-in SOP
- Easy calibration and product-independent adjustment

Alcohol Meter: Alcolyzer M Series

Alcolyzer M models measure the alcohol content of almost all alcoholic beverages, such as wine, beer, spirits, or sake, using a unique NIR measuring method. Other sample constituents don't influence the alcohol analysis. When combined with a density meter, the system also determines the total extract of the sample. These parameters are provided after a typical measuring time of just three minutes.



- Repeatability s.d.:
 - 0.01 %v/v
- Measuring range:
 - Beer: 0 %v/v to 12 %v/v
 - Wine: 0 %v/v to 20 %v/v
 - Spirits: 35 %v/v to 65 %v/v
- Up to 30+ industry-specific parameters
- No reference analysis needed
- Automatic check/calibration with built-in SOP
- Automated filling
- AP Connect-compatible

Alcohol Analyzing System: Alcolyzer

With up to four measuring modules and 30+ industry-specific parameters, Alcolyzer conducts direct and selective alcohol determination. From mash to finished product, it can monitor your whole production process for all types of beer, cider, hard seltzer, kombucha, wine, and spirits.



- Craft beer quality verification after bottling, right from the final package
- Selective alcohol determination via Alcolyzer technology
- Ready for every type of beer: no product-specific calibration
- Selective CO₂ analysis: no need for sample preparation
- Detects performance issues at the filler in three minutes
- AP Connect-compatible

Packaged Beverage Analyzer for Craft Brewers: PBA 1001 Beer

PBA 1001 is a solution for the analysis of packed beverages for small and craft breweries. It can be complemented with a haze and a pH module, confirming a craft beer's final quality at a unique price/performance ratio.



- Repeatability s.d.:
 - Alcohol content: 0.01 %v/v
 - CO₂: 0.01 g/L (0.005 vol.)
 - Dissolved O₂ (optional): ± 2 ppb
- No sample preparation
- Results in three (beer) to four (wine) minutes
- Up to 9x faster than conventional methods
- Works on all closure types direct from the can or bottle
- Preconfigured, customizable setup
- AP Connect-compatible

Packaged Beverage Analyzer for Beer and Wine: PBA 5001 Beer/PBA 5001 Wine

The two PBA setups, PBA 5001 Beer and PBA 5001 Wine, determine all relevant quality parameters, such as alcohol content, extract, CO₂, O₂, pH, in all types of beers and wines, including kombucha and hard seltzer.



- Selective alcohol, headspace oxygen, and dissolved oxygen determination
- Obtain all data at the push of a button in a single data set
- Measure 50+ beer-specific parameters from a single package
- Fully automated cleaning and leak check

Packaged Beverage Analyzer with Included Total Package Oxygen Measurement

Experience the ultimate laboratory equipment for beer analysis by combining the advantages of a PBA setup with selective TPO measurement and headspace volume determination. With the powerful combination of the PBA 5001 Beer and TPO 5000, you can enjoy the most complete and comprehensive analysis of your beer.



- Complies with ASTM D6371, EN 116 and 16329, IP 309, and JIS K2288
- Simple and fast setup, intuitive operation, preset standard methods
- Quick start function
- Peltier technology for methanol-free cooling
- All test details are displayed during measurement

Cold Filter Plugging Point Tester: Callisto 100

Callisto 100 is an automated, stand-alone CFPP tester that determines the low-temperature operability of diesel fuel, biodiesel, diesel blends, and domestic heating fuels. The instrument comes with a state-of-the-art Peltier element concept, which allows a methanol-free cooling system to be connected.



- Complies with ASTM D5, ASTM D217, ASTM D1321, ASTM D1403, EU Pharmacopoeia 2.9.9., and US Pharmacopoeia 915
- The patented force sensor plunger (optional) detects the surface of semi-solid samples
- Automatic surface detection of any electrically conductive samples
- Storage for 200 results
- Measuring range up to 80 mm

Penetrometer: PNR 12

The PNR 12 penetrometer automatically measures the penetration depth of a material with suitable test bodies, such as needles, cones, rods, or discs. Various applications are supported by a large variety of test kits for bitumen, grease, wax, food, cosmetics samples, or pharmaceuticals.



- Complies with EN 12593, IP 80, and JIS K2207
- PC software BPACon
- Touchkey panel with large LC display
- Optional: calibration set, melting apparatus BPM 5

Fraass Breaking Point Tester: BPA 5

The automatic Fraass Breaking Point tester determines the brittle behavior of bitumen, resins, and polymers down to -45 °C. In combination with the BPACon software, the instrument provides customized user flexibility and serves as a research tool for different coatings.



- Highly accurate with a handcrafted precision glass measuring cell
- Smart device with in-app calculations for numerous measurement units
- Measurements from start to finish – before, during, and after fermentation
- Simple monitoring via mobile app, where results are stored, displayed, and managed

Smart Density Meter: EasyDens

EasyDens determines the extract content in beer wort, the sugar content in wine must and fruit juices, and the alcohol content in distilled sugar-free spirits. It shows results for density, specific gravity, °Plato, °Brix, or alcohol by volume/weight, offers automatic temperature compensation, and allows precise in-app fermentation process monitoring of beer and wine. In combination with the SmartRef, it's now possible to determine the alcohol content of finished beer, wine, and more with an accuracy of 0.5 %v/v.



- Accuracy of 0.001 g/cm³
- Lightweight and flat design helps with measuring hard-to-reach samples
- In-field quality checks
- One device replaces all of your glass hydrometers
- Only 2 mL of sample needed
- IP54 leakproof design
- Built-in hand pump

Portable Density Meter: DMA 35 Basic

DMA 35 Basic is the entry-level portable density meter which takes samples directly from the storage container with the help of the built-in pump and measures them on-site. Results are given as density or concentration, such as °Brix, %v/v alcohol, and %w/w H₂SO₄.

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- Accuracy of 0.001 g/cm³
- 1-second sample filling
- Only 2 mL of sample needed
- IP54 leakproof design
- Suitable for both left- and right-handed users
- Viscosity correction
- Wireless export of results via Bluetooth
- Intrinsic safety (EX & EX Petrol version):
 - ATEX: II 2G Ex ib IIB T4 Gb
 - IECEx: Ex ib IIB T4 Gb
- PQP-S available

Portable Density Meters: DMA 35 Standard, Ex and Ex Petrol, Ampere

DMA 35 is a portable density meter that identifies sampling points via RFID, and measures the sample within a few seconds on-site. Thanks to its integrated concentration tables, it replaces all hydrometers in the workspace and reduces time and effort spent on measurements. For beer and wine applications, it shows the fermentation curve and is therefore the perfect tool to monitor the process.

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- 3-digit accuracy
- Results in two minutes
- 1 mL of sample needed
- 7", glove-friendly touchscreen
- 60+ conversion tables
- Ready for pasty, inhomogeneous, and particle-containing samples
- Complies with 21 CFR Part 11 and Chinese pharmacopoeia (CN)
- Guided workflows
- PQP and PQP-S available
- AP Connect-compatible

Density Meter: DMA 501

DMA 501 is a compact and standalone 3-digit density meter. It easily fits into tight spaces in the production area, storage facilities, or in the lab. It's ready for operation at sites outside the traditional lab space. The instrument delivers stable density results even with challenging samples (e.g., creams, pastes, varnish, aerosol sprays).

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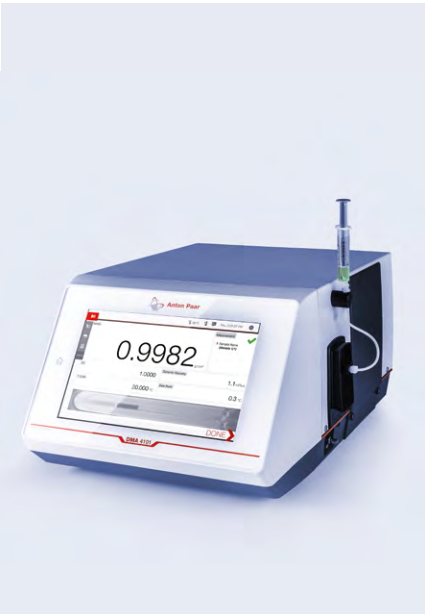


- 4-digit accuracy
- Repeatability of 0.00005 g/cm³
- Results in two minutes
- 1 mL of sample needed
- 7", glove-friendly touchscreen
- Splash-proof housing
- 60+ conversion tables
- Complies with ASTM D4052 and D5002, ISO 12185, 21 CFR Part 11, and pharmacopoeia (US, EU, JP, CN)
- PQP and PQP-S available
- AP Connect-compatible

Density Meter: DMA 1001

DMA 1001 offers 4-digit accuracy with comprehensive documentation of activities and user support. Anyone can use it with minimal training due to its range of support features, including its guided user workflow, customizable screen, and automatic bubble detection technology, FillingCheck™. The ventilation-free cooling unit enables operation in harsh environments.

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- 4-digit accuracy in 20 seconds
- 10.1" touchscreen
- Storage for 10,000 measurements
- Attachable: 7+ measuring modules, 7+ sample changers
- FillingCheck™, U-View™ for reliable sample filling
- Complies with ASTM D4052 and D5002, ISO 12185, 21 CFR Part 11, and pharmacopoeia (US, EU, JP, CN)
- PQP and PQP-S available
- AP Connect-compatible

Density Meter: DMA 4101

DMA 4101 is the fastest 4-digit density meter on the market, giving you results in 20 seconds. It incorporates 200+ conversion tables. A modular approach allows upgrades for additional measuring modules and enables integration of sample changers for the automation of quality assurance tasks. The Pulsed Excitation Method delivers the most stable density results based on comprehensive knowledge of oscillation characteristics.



- 5-digit accuracy in 30 seconds
- 10.1" touchscreen
- Storage for 10,000 measurements
- Attachable: 7+ measuring modules, 7+ sample changers
- FillingCheck™, U-View™ for reliable sample filling
- Complies with ASTM D4052 and D5002, ISO 12185, 21 CFR Part 11, and pharmacopoeia (US, EU, JP, CN)
- PQP and PQP-S available
- AP Connect-compatible

Density Meter: DMA 4501

Thousands of users around the world count on DMA 4501 density meters whenever reliable, accurate 5-digit density values are required. The density meters can be combined with other measuring modules for multiparameter setups for specific industries. They provide five industry-specific user profiles and 30+ guided user workflows.



- 6-digit accuracy
- 10.1" touchscreen
- Storage for 10,000 measurements
- Attachable: 7+ measuring modules, 7+ sample changers
- FillingCheck™, U-View™ for reliable sample filling
- Complies with ASTM D4052 and D5002, ISO 12185, 21 CFR Part 11, and pharmacopoeia (US, EU, JP, CN)
- PQP and PQP-S available
- AP Connect-compatible

Density Meter: DMA 5001

With its 6-digit accuracy, DMA 5001 is the most precise digital density meter on the market. It's ideal for high-end R&D applications, government authorities, and standards organizations. No other digital density meter is able to deliver comparably accurate results over the entire range. As for the whole density meter series, it compensates the influence of viscosity twice as effectively as ever before.

 Buy online
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- 6-digit density accuracy
- Repeatability up to 0.1 m/s for sound velocity
- Measures the whole concentration range of sulfuric acid and oleum as well as 3-component mixtures
- FillingCheck™ and U-View™ for reliable sample filling
- ThermoBalance™ technology ensures accurate measurements up to 100 °C
- AP Connect-compatible



- 4-digit accuracy
- Measurements from 0 bar to 500 bar and between -10 °C and +200 °C
- 10x faster analysis than with pycnometer methods
- Only 2 mL to 3 mL of sample required
- FillingCheck™ detects filling errors
- Complies with ASTM D4052 and ASTM D5002, ASTM D8188, ISO 12185
- AP Connect-compatible



- Heated injection adapters prevent sample freezing
- Supports easy filling of viscous samples at elevated temperature
- Temperature control from 40 °C to 90 °C
- Easily added to all DMA 4101/4501/5001 instruments

Density and Sound Velocity Meter: DSA 5000 M

DSA 5000 M is the only instrument that combines density and sound velocity measurements in one setup. It determines the concentration of two- and three-component solutions using the most accurate density results on the market. It determines the concentration of sulfuric acid over the whole concentration range. A low sample volume of 3.5 mL ensures operator safety.

Density Meter: DMA 4200 M

DMA 4200 M, the density meter for the heavy petroleum industry, measures the density and specific gravity of highly viscous samples, e.g., bitumen and asphalt, bunker oil and even LPG. With Temperfect™, it conducts immediate density measurements at any temperature between 0 °C and 150 °C at ambient pressure. The U-tube is made of Hastelloy C276 and is very resistant to chemicals, such as sour gas, hydrochloric acid, and hydrofluoric acid.

Heating Attachment

The heating attachment allows easy filling and removal of highly viscous samples into and from the measuring cell of the DMA 4101/4501/5001. It's quickly mounted, and heats the density meters' injection adapters to temperatures between 40 °C and 90 °C.



- 4-digit density accuracy
- Measurements up to 1400 bar and between temperatures of -10 °C to +200 °C
- Remote data reading with mPDS 5
- Storage for 999 results
- Oscillating U-tube made of Hastelloy C-276

External Measuring Cell: DMA HPM

The DMA HPM external density measuring cell measures density at high pressures and/or high temperatures. DMA HPM is commonly used in reservoir studies, either integrated into a pressure volume temperature (PVT) system or into a slim-tube apparatus for enhanced oil recovery (EOR) experiments, and in studies for determining the density for the equation of state.



- Measuring range CO₂: 0 g/L to 20 g/L (0 vol to 10 vol) <15 °C (59 °F)
- Fast detection: CO₂ in 55 sec or CO₂ and O₂ in 90 sec
- Correct results: guided CO₂ system check and FillingCheck™
- Selective CO₂ determination without influence of other dissolved gases
- At-line instruments: leakproof (IP 67), 11-hour battery life

Lab and At-Line CO₂ and O₂ Meters: CarboQC/CarboQC At-Line, CarboQC 1001, CarboQC ME, CboxQC/CboxQC At-Line

Whether at-line, directly at the production line, or in the lab, CarboQC measures the true amount of dissolved carbon dioxide in soft drinks, beer, wine, and sparkling water. The CarboQC ME measuring module is easily integrated into beverage analysis systems. CboxQC combines CO₂ and O₂ determination in one measuring cycle.



- Measuring range: 0 ppm to 4 ppm (Standard) or 0.015 ppm to 45 ppm (Wide Range)
- Results in 50 seconds
- Reliable O₂ results, even from small packages
- At-line instrument: leakproof (IP 67), 11-hour battery life

Lab and At-Line O₂ Meters: OxyQC/OxyQC Wide Range

OxyQC and OxyQC Wide Range are precise O₂ meters that analyze beer, wine, juices, soft drinks, and water. Unaffected by other dissolved gases, they can be used either as an at-line solution from process lines, tanks, kegs, and casks during the production process or as a stand-alone solution for the laboratory.



- Repeatability, TPO: ±8 ppb or ±6 %, whichever is greater
- Measures TPO selectively, head space oxygen, and dissolved oxygen, direct from the package
- Results in less than four minutes
- Self-cleaning function
- Rugged design for safe use in production areas
- 7" touchscreen
- Storage for 5,000 measurements
- Optional CO₂ measurements

**Total Package Oxygen Meter:
TPO 5000**

TPO 5000 selectively measures the total amount of oxygen in beverages directly out of cans, glass bottles, and PET bottles at the production line or in a laboratory. This is critical for the quality control of finished beer and soft drinks. It's available as a stand-alone option or can be combined with a CarboQC to determine O₂ and CO₂ from one vessel.



- Complies with ASTM D93, ISO 2719, IP 34, and other standard test methods
- Robust, long-lasting electric igniter
- Efficient cooling and easy cleaning for fast turnaround times between samples
- Modern, customizable user interface
- Status light and automated measuring head
- Built-in fire extinguisher
- AP Connect-compatible

**Pensky-Martens Flash Point Tester:
PMA 500 and PMA 300**

These Pensky-Martens closed-cup flash point testers are for automatic high-precision flash point testing. Among other samples, these are suitable for biodiesel and biodiesel-blended fuels, distillate fuels (e.g., diesel or kerosene), lubricants, bitumen, and edible oils. Their unique, electric igniter has a lifespan that's 10x longer than conventional igniters'. This reduces operational costs and maintenance times.



- Complies with ISO 13736, ISO 1516, ISO 1523, IP 170, IP 492, EN 924, IP 491, and more
- Electric igniter system offers 10x longer lifetime than the competition
- 2-in-1 cooling concept provides flexibility and a -35 °C to +130 °C temperature range
- Fail-safe fire detection and extinguishing system

**Abel Closed-Cup Flash Point Tester
Series: ABA 500 and ABA 300**

These comply with ISO 13736, ISO 1516, ISO 1523, and more. Innovative cooling options permit flash point testing across a temperature range from -35 °C to +130 °C. Both Abel flash point testers offer excellent heating control and a full feature set for accurate flash point results. The instrument design maximizes productivity and saves costs as the electric igniter has the longest lifetime on the market.



- Complies with ASTM D56, ASTM D3934, ASTM D3941, EN 924, ISO 1516, ISO 1523, IP 491, IP 492, and more
- Electric igniter system offers 10x longer lifetime than the competition
- 2-in-1 cooling concept provides flexibility and a -35 °C to +130 °C temperature range
- Fail-safe fire detection and extinguishing system

**TAG Closed-Cup Flash Point Tester
Series: TAG 500 and TAG 300**

Complies with ASTM D56, ASTM D3934, ASTM D3941, EN 924, ISO 1516, ISO 1523, IP 491, IP 492, and more. Innovative cooling options permit flash point testing across a temperature range from -35 °C to +130 °C. Both Abel flash point testers offer excellent heating control and a full feature set for accurate flash point results. The instrument design maximizes productivity and saves costs as the electric igniter has the longest lifetime on the market.



- Complies with ASTM D92, ISO 2592, and other standards
- Automatic test flame lighting and relighting
- Space for 1,000 tests, 20 operators, 100 sample names
- Predefined as well as up to 10 user-defined programs
- Skimmer and skin prevention set according to ASTM D8254 available
- Out-of-spec results notification

**Cleveland Flash and
Fire Point Tester: CLA 5**

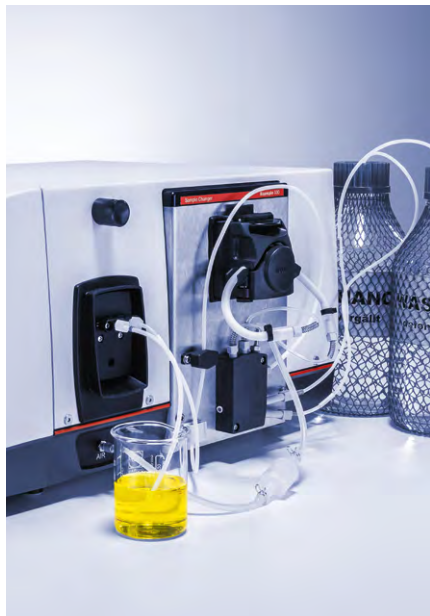
The CLA 5 is an automatic open-cup flash and fire point tester with a measurement range of up to 400 °C. It's suitable for lubricants and bituminous material.



- Real-time monitoring of test progress on PC
- Excel or LIMS export
- Traceable documentation, including all measurement-relevant parameters
- Manages test procedures for Pensky Martens, Cleveland, Abel, and Tag methods as well as user-defined ones

**Software for Automatic
Flash Point Testers: FPPNet**

The FPPNet software is an effective solution for reading and evaluating data and monitoring the automatic flash point testers CLA 5 as well as older models (PMA 5, ABA 4, TAG 4, PMA 4 SC, PMA 4, CLA 4). Self-explanatory menus make FPPNet intuitive and easy to operate.



- Complies with ASTM D86, ASTM D850, ASTM D1078, ISO 3405, IP 123, IP 195, GOST 2177, JIS K2254
- Multi-plug with indestructible vapor temperature sensor (Diana 700)
- Smart user interface with condition monitoring
- Fast tempering enables measurements to start quickly
- Peltier cooling ensures low maintenance efforts
- AP Connect-compatible
- Centralized data management
- Automated execution of measurement tasks on instruments
- GMP compliance
- Validation documentation available
- Compatible with 60+ Anton Paar instruments as well as with instruments from other vendors
- Three editions tailored to your needs: Start, Standard, and Pharma
- Short filling times
- Automated cleaning
- Adjustable pump speed
- Quick sample replacement
- Filling viscosity: up to 3,000 mPa.s
- AP Connect-compatible

- Automated cleaning and drying
- Compatible with user's own syringes
- Temperatures up to 95 °C
- Unattended filling and measurements
- Maintenance-free operation
- Space for up to 96 samples in one magazine
- Automated filling, rinsing, and drying
- Up to three cleaning solvents
- Removable magazine handles 71 samples (12 mL vials) or 35 samples (20/40 mL vials)
- Automated air check
- Customized magazines

**Distillation Analyzer:
Diana 700, Diana 300**

Our distillation analyzer portfolio covers two instruments: Diana 700 and the entry-level Diana 300. They conduct automatic precision distillation range analysis at atmospheric pressure. Along with characterizing petrochemical product samples, Diana 700 is able to distill a wide range of volatile samples, including fuels and solvents. Diana 300 is an instrument optimized for fuels. Both come with safety features like a built-in fire extinguisher.

**AP Connect:
Lab Execution Software**

AP Connect is lab execution software that guarantees a straightforward data flow from instruments to an existing data management system. It stores data from all connected instruments in a central database. The software increases productivity, ensures quality of data in the laboratory, and provides automated or on-demand data transfer to IT systems (e.g., LIMS, ERP, or file storage).

**Single Sample Changers:
Xsample 320, Xsample 330,
Xsample 370**

These are sample changers for single samples. Once the parameters for them are set, the sample changers speed up operation, enable user-independent filling, and reduce handling errors. With automated cleaning, Xsample 330 is suitable for consecutive measurement of low-viscous samples with significantly different properties. Xsample 370 is suitable for automated measurements and operation of the Lyza 5000 Wine.

**Single Sample Changer:
Xsample 340, Xsample 610**

Xsample 340 and Xsample 610 are sample changers, for different types of syringes, which automatically fill Anton Paar instruments. Featuring two cleaning agents and adjustable filling speed, Xsample 340 and Xsample 610 ensure perfect measuring conditions regardless of operator and sample. Xsample 610 is a heated single sample changer operating at temperatures up to 95 °C.

**Multi-Sample Changer:
Xsample 520**

Xsample 520 is a sample changer for multiple samples. It ensures user-independent filling of numerous Anton Paar instruments with its stepless adjustability and smart pump lock. Equipped with a peristaltic pump, Xsample 520 fills the sample into the measuring cell without rinsing and drying, saving valuable time when sample recovery isn't necessary.

**Multi-Sample Changer:
Xsample 530**

The Xsample 530 sample changer handles liquids with a wide range of viscosities. Its automated filling, rinsing, and drying routines ensure perfect results without sample cross-contamination. Since it uses up to three cleaning liquids, Xsample 530 can measure multiple samples in one run. Its mechanical components and a resistance to chemicals lead to increased uptime of the system and low maintenance costs.



- Automated cleaning and drying
- Temperatures up to 95 °C
- Outstanding temperature stability
- Works with heated and non-heated samples at the same time
- Handles up to 56 samples (36 heated)
- Removable magazine
- Complies with ASTM standards

Multi-Sample Changer: Xsample 630

The improved heating performance of Xsample 630 leads to short heating periods and time savings. The sample changer features a removable magazine facilitating handling of hot samples. It acts as a two-in-one heated-and-unheated sample changer.



- Measures multiple parameters from one sample and one filling
- Guaranteed data integrity and traceability
- Complies with international pharmacopeia
- Automated sample changer
- PQP/PQP-S available

Multiparameter Measuring System: Pharma Measuring System

The Pharma Measuring System combines a density meter, a refractometer, and a rolling ball viscometer with a versatile sample changer, which means users can get more parameters from one sample filling. Comprehensive software features for the pharmaceutical industry eliminate measuring errors, track every instrument action, and keep data safe. The available PQP documents help you fulfill all the required specific qualifications and documentation from the pharmaceutical industry.



- Measures density and turbidity from single sample
- Only 5 mL of sample
- No glass cuvette maintenance
- Accurate temperature control
- Multisample changer with up to 96 samples
- Compliance features like user management, audit trail, and electronic signature
- PQP/PQP-S available

Multiparameter Measuring System: Turbidity Measuring System

The Turbidity Measuring System quickly measures specific gravity and turbidity for pharma applications from one sample filling. It offers various filling options as well as accurate temperature control to provide fast and accurate measurement results. Features like Filling Check™, U-View™, and the available PQP documents help you to fulfill all the required specific qualifications and documentation from the pharmaceutical industry.



- Combined measurement of density, refractive index and optical rotation
- 10 mL of sample required – perfect for precious samples
- Simplifies quality control with defined limit
- Automated filling, measurement, cleaning, and data transfer
- Saves costs due to sample recovery option after measurement

Multiparameter Measuring System: Flavors & Fragrances Measuring System

The Flavors & Fragrances Measuring System enables multiple measuring parameters. With a full automation option, it delivers all necessary information about substances in the flavors and fragrances industry with just one measurement. It's the best time- and cost-saving solution for quality control in a challenging industry.



- Results in five minutes
- Only 12.5 mL sample required
- Peltier temperature control
- No manual calculations
- Complies with international standards (ASTM D7042, ASTM D4052, ASTM D2270, ASTM D1218, ASTM D2501, ASTM D2502, ASTM D3238)

Multiparameter Measuring System: Oil Measuring System

The Oil Measuring System measures viscosity, density, and the refractive index, determines the viscosity index, and performs carbon-type analysis in a single setup with one measurement. It's an effective time saver for laboratories and companies dealing with quality control of lubricants.



- Only 12.5 mL of sample required
- Peltier temperature control
- Xsample 530 sample changer for automated measurements
- No need for manual calculations
- No counter-cooling for viscosity measurements down to -20 °C
- Complies with international standards (ASTM 1655, ASTM D7042, and bias-corrected D445, ASTM D4052, ASTM D1218)

Multiparameter Measuring System: Jet Fuel Measuring System

The Jet Fuel Measuring System is a versatile multiparameter fuel analysis solution for single-measurement determination of parameters such as viscosity, density, cloud point, freezing point, and refractive index. It's an effective time saver for laboratories and companies performing fuel testing and quality control.



- Measures 15+ key parameters in one filling and one measurement
- Analyzes a sample with spectroscopy and physical methods in one run
- Automated filling and measurement for up to 24 samples
- Guided workflows combined with automatic data processing
- No distillation required

Multiparameter Measuring System: Wine Spectroscopy Measuring System

The Wine Spectroscopy Measuring System helps analyze samples from various points in the wine production process. By integrating an FTIR analyzer, density meter, and alcohol meter into the same automated system, users get accurate measurement results of alcohol content and density as well as detailed acid and sugar profiles.



- Automatic measurements up to 8x faster than other accelerated aging methods
- Broad application range with flexible method design
- Less than five minutes for setup and cleaning
- No sample preparation needed
- Many investigation possibilities with OxyLogger 100 software
- Highest safety standards
- Compact size

Oxidation Stability Tester: RapidOxy 100

RapidOxy 100, a Rapid Small-Scale Oxidation Test (RSSOT) instrument, simulates the aging process in an accelerated procedure with increased temperature and an excess of oxygen. Preset test programs for various sample types ensure perfect results and standards compliance (e.g., with ASTM D8206). There are many applications with food samples, flavors, and fragrances, as well as cosmetics and pharmaceutical formulations.



- Complies with ASTM D7525, D7545, EN 16091, IP 595
- Fastest fuel test on the market
- Fully automatic
- Quick setup and cleaning
- Highest safety standards
- Only 5 mL sample required
- Compact size

Oxidation Stability Tester: RapidOxy 100 Fuel

RapidOxy 100 Fuel delivers precise results for spark ignition fuels, diesel fuels (B0 to B100), and heating oils – all with one instrument. Its Rapid Small-Scale Oxidation Test (RSSOT) procedure ensures that the measuring time for liquid fuels is only a fraction of that associated with conventional oxidation stability methods. The test is, for example, 20x faster than the alternative method included in the diesel specification EN 590.



- Complies with ASTM D381, ISO 6246, DIN 51784, IP 131, IP 540, JIS K 2261, and FTM 791-3302
- Measures five samples simultaneously
- Draining system, thermal protection shield, and overheating protection
- Operates at up to 260 °C (with air and steam supply) or 246 °C (with air supply)

Gum Content Tester: GUM

GUM helps to detect non-volatile residues and to prevent induction system difficulties by measuring the unevaporated residue of fuel that may lead to deposits and sticking of intake valves. It's suitable for aircraft fuels, motor gasoline, and other volatile distillates. Its multifunction head for simultaneous positioning of all five sample tubes increases accuracy, safety, and throughput.



- Complies with 21 CFR Part 11, EU GMP Annex 11 (MCP 150), and international pharmacopoeias
- Electronic signature (MCP 150)
- Built-in Peltier temperature control for short cycle times
- Automatic, wireless accessory identification for quartz control plates and sample cells
- Guided check and adjustment processes
- Analysis at 589 nm

Modular Compact Polarimeters: MCP 100, MCP 150

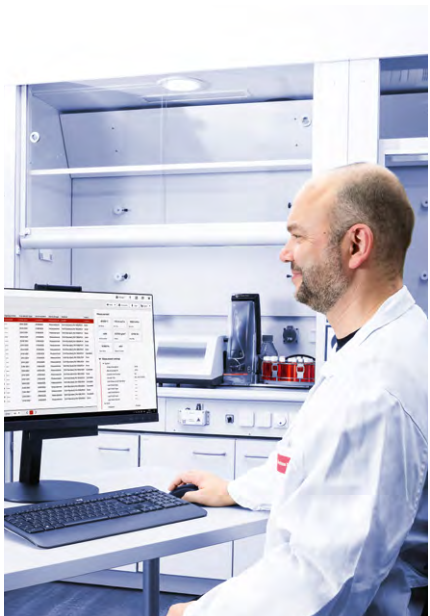
The MCP 100/150 polarimeters provide proven technology packed into a compact and easy-to-use instrument. They fit into every laboratory and are ideal for multi-parameter measuring systems due to their small dimensions.



- Fast temperature control for short cycle times
- Customizable wavelengths (365 nm to 880 nm)
- Built-in camera for error-free measurements
- Complies with 21 CFR Part 11, EU GMP Annex 11, and international pharmacopoeia
- Guided check and adjustment workflows
- Comprehensive pharma qualification documentation
- AP Connect-compatible

High-Performing Polarimeter Series: MCP 4100, MCP 5X00

Measure. Comply. Perform. MCP 4100/5X00 is an audit-proven solution complying with 21 CFR Part 11 and EU GMP Annex 11. It eliminates errors before they occur, bringing you maximum efficiency, reduced costs, zero errors, and full compliance. Results are ready in seconds. It is the right choice for analysis in the pharmaceutical, cosmetics, food, and chemical industries as well as for R&D and medical applications



Instrument software

- Straightforward data management for a few samples per day
- No IT effort needed

Desktop software

- Many samples per day
- Instrument control, data storage, and system administration on PC
- SQL database

AP Connect

- Central data management
- Server-client solution
- SQL database
- Data signing on server

- Small size to fit into pockets
- Results in seconds for rapid at-site decisions
- Pre-installed reference libraries
- 3.5" screen
- Range of accessories to suit sample type
- IP67 waterproof
- Ready for conditions from -20 °C to +40 °C

- Laser class 1 for safe measurement within sample compartment. No further precautions needed.
- Autofocus for straightforward, reproducible analysis
- Guided workflows
- Small footprint
- Battery option for mobile operation
- Tailored accessories to suit every sample
- Fiber probe for measuring outside the instrument

- Autofocus for user-independent measurement
- Versioned and electronically signed reference libraries and library entries
- Operator only allowed to use approved methods
- Complies with 21 CFR Part 11 and EU GMP Annex 11
- Guided workflows
- Secure SQL database
- Laser class 1

- Real-time, in situ molecular changes monitoring
- Quick and easy setup
- Measuring wavelengths 532, 785 or 1064 nm (rheological measurements) and 785 nm (microwave synthesis measurements)
- Operating temperature of up to 200 °C
- Triggering of Raman measurement with rheometer / Anton Paar Monowave
- Possibility to operate as stand-alone devices
- Live onscreen analysis of spectra

- Measures hundreds of sample types with one instrument
- Modular cell concept, compatible with a variety of ATR and transmission cells
- Fast pass/fail spectral analysis helps optimize quality and efficiency
- Easily handles complex measurement routines
- Powerful embedded software that works right out of the box

MCP Data Integrity Solutions: Desktop Software and AP Connect

For every level of data volume and IT policies, there is a compliant data management solution: the instrument's embedded software, the desktop software, and Anton Paar Connect as a data management hub. It complies with 21 CFR Part 11 and EU GMP Annex 11.

Handheld Raman Spectrometer: Cora 100

Cora 100 identifies unknown substances quickly. It helps government authorities assess potentially hazardous materials and provides on-the-spot identification of narcotics, listed substances, explosives, and chemicals. It's also ideal for verification measurements on incoming goods in industrial applications.

Raman Spectrometer: Cora 5001

Cora 5001 is a Raman analyzer that identifies substances based on their chemical fingerprint or monitors chemical changes. A Fiber model offers flexible analysis outside the instrument via a probe, while the Direct model analyzes samples in a closed compartment. The small footprint and battery option make these benchtop Raman instruments versatile tools for analytical tasks in-house or in the field.

Raman Spectrometer: Cora 5001 for Pharma

Cora 5001 for Pharma features the Anton Paar Spectroscopy Suite software to ensure data integrity and compliance. It provides rigorous versioning and signing procedures for methods, reference data, and results. Guided workflows and clearly defined user privileges avoid errors before they can occur.

In Situ Reaction Monitoring: Rheo-Raman and Monowave-Raman Combination

Cora 5001 Raman spectrometers and MCR series rheometers can be easily combined. The combination gives both viscoelastic and molecular real-time information. The combination contributes to better understanding the relationship between macroscopic properties and microscopic molecular changes. Combining the Cora 5001 with a synthesis Microwave (Monowave 400R) enables the user to monitor chemical changes during a synthesis live and in situ.

FTIR Spectrometer: Lyza 7000

Lyza 7000 can measure hundreds of sample types. Solid, liquid, or gaseous, Lyza 7000 measures them all. It's the most reliable, user-friendly FTIR spectrometer on the market. The software combines measurement, processing, and spectral analysis in an automated method with a customizable measuring report. This makes working with Lyza 7000 as easy as 1-2-3.



- Equipped with 40+ measurement units
- Accuracy of 0.2 °Brix with a measuring range of 0 °Brix to 85 °Brix
- Smart device with in-app calculations and automatic temperature compensation
- Simple handling with quick zero adjustment and easy cleaning
- Waterproof with an IP66 rating and a stainless-steel sample well

- Measurements within seconds
- Minimal operation costs and maintenance-free
- 200+ methods for a broad range of applications
- Small lab footprint

- Accuracy from ± 0.0001 nD to ± 0.00002 nD
- Complies with 21 CFR Part 11 and EU GMP Annex 11
- Graphic pass/fail display for QC
- On-site temperature calibration and adjustment
- Connects to other Anton Paar instruments for multiparameter measurements
- Wide range of accessories to meet every measuring task
- AP Connect-compatible

- Accuracy from ± 0.0001 nD to ± 0.00002 nD
- Rugged, waterproof housing (IP68) for operation in harsh environments
- Temperature control range of 4 °C to 125 °C
- Flow-through option to automate continuous measurements
- High chemical resistance (e.g., against HF or NaOH)
- Complies with 12 CFR Part 11 and EU GMP Annex 11
- AP Connect-compatible

- Up to eight different wavelengths to determine optical properties
- Built-in temperature control for fast and accurate results
- Measuring range of 1.30 nD to 1.70 nD
- Accuracy of ± 0.00004 nD

Instrument software

- Straightforward data management for a few samples per day
- No IT effort needed

Desktop software

- Many samples per day
- Instrument control, data storage, and system administration on PC
- SQL database

AP Connect

- Central data management
- Client-server solution
- SQL data base
- Data signing on server

Digital Pocket Refractometer: SmartRef

The SmartRef digital refractometer determines the salinity in saltwater aquariums, the extract content of beer wort, the sweetness of fruits and vegetables, the moisture of honey, total dissolved solids in coffee, the cutting oil concentration, and the blend ratio of heat transfer fluids. With a mobile app, the smart refractometer provides highly accurate results with intelligent guidance during measurement. Combined with the EasyDens, it's now possible to determine the alcohol content of finished beer, wine, and more with an accuracy of 0.5 %v/v.

Compact Refractometers: Abbemat 3X00

Reliable, precise, and economic: Abbemat 3X00 refractometers combine technical expertise and user-friendly operation for refractive index, Brix, and concentration measurements. The Abbemat 3X00 series ensures highly efficient quality control and confidence in results.

Performance Line (Plus) Refractometers: Abbemat 300/500 and Abbemat 350/550

The Abbemat performance line series consists of four instruments that are ideal for R&D, routine analysis, and quality control. The high-end series (350/550) is audit-proof even under strict pharma regulation interpretations and IT policies. All four can be combined with DMA density meters, MCP polarimeters, and SVM viscometers.

Heavy-Duty Refractometers: Abbemat 450, Abbemat 650

The Abbemat 450 and Abbemat 650 heavy-duty refractometers combine robustness with high precision for stable results at-line or in harsh environments. Via remote operation, the instruments can be used in production, in fume hoods, or in gloveboxes. To investigate the product quality, vertical positioning enables reliable results for samples containing particles or pulp.

Multi-Wavelengths Refractometer: Abbemat MW

Abbemat MW is the refractometer to investigate product quality at different measuring wavelengths. From this measurement, optical properties, like Abbe number or dispersion, can be determined. Abbemat MW can be equipped with up to eight different wavelengths in the visible range from 436 nm to 656 nm, making it a versatile instrument for investigating liquids, polymers, and glasses.

Abbemat Data Integrity Solutions: Desktop Software and AP Connect

For every level of data volume and IT policies, there is a compliant data management solution: the instrument's embedded software, the desktop software, and Anton Paar Connect as a data management hub. Complies with 21 CFR Part 11 and EU GMP Annex 11.



- No manual forced inversion required
- Viscosity correction
- Printable reports, standardized layouts
- Automated measurements
- Sugar content and HFCS measurement in one instrument
- Modular approach allowing integration in comprehensive soft drink analyzing systems

- Production monitoring from (diet) syrup to finished beverages
- Simultaneous determination of %Diet, °Brix, and pH
- 6x quicker results than with conventional methods
- Automated measurement eliminates operator influence
- Guided diet adjustments let anyone manage QC of diet products
- AP Connect-compatible

- Determines °Brix, %Diet and CO₂ in one go in three to six minutes
- Reduce your diet reference analysis time by 75 %
- Follow built-in wizards that guide measuring and adjustment steps
- Upgrade and increase system efficiency with modular extensions to measure dissolved O₂ and pH
- AP Connect-compatible

Soft Drink Analyzer M

Soft Drink Analyzer M determines the concentration of fresh, current, and fully inverted sugar as well as the degree of inversion in syrups and finished regular soft drinks to ensure correct production limits. Its sound velocity cell withstands pressures up to 8 bar so users can analyze all samples from syrups to carbonated drinks with one instrument.

Analyzing system: Soft Drink Measuring System 3001

The Soft Drink Measuring System 3001 monitors the production of regular and diet drinks from syrup to the finished product. The analyzing system determines °Brix and %Diet concentration and can be upgraded with different types of sample changers for automated filling and cleaning. It provides precise results for exact dilution ratio setting, tracks and eliminates variations in production, and helps users achieve consistency in every batch.

Packaged Beverage Analyzer: PBA 5001 Soft Drink

The Packaged Beverage Analyzers combine up to four instruments to determine all quality parameters for regular, mid-calorie, and diet soft drinks as well as (diet) energy drinks and carbonated bottled water in one go. There's zero prior preparation or intermittent cleaning, which saves you up to two hours a day. This fast quality control for soft drinks helps you optimize your blending process, ensures ideal carbonation levels, and guarantees confidence in the final bottled product.



- Accuracy from 0.01 °Z to 0.006 °Z
- VIS (589 nm) and NIR (880 nm) wavelengths
- Straightforward operation
- LED light with 100,000-hour lifetime
- Rugged, maintenance-free optical setup
- Complies with ICUMSA methods
- Peltier temperature control (optional)
- AP Connect-compatible

Saccharimeters: MCP 5300, MCP 5500 Sucromat

The MCP Sucromat series determines sugar content (Pol, °Z) with an accuracy of up to 0.006 °Z across the entire measuring range of ±259°. These instruments measure at 589 nm (equal to Sodium D-line). The optional 880 nm NIR wavelength is ideal for analyzing lead-free clarified solutions. Both wavelengths are generated by maintenance-free LEDs.



- Automatic and efficient purity analysis of sugar products
- Multiparameter measurement in one go, boosting lab efficiency
- Peltier temperature control for fast and homogeneous temperature control
- Long-lasting LED light sources
- AP Connect compatible

Sugar Measuring System

The sugar measuring system substantially increases sugar factory performance. It conducts automatic, efficient purity analyses of raw, intermediate, and final sugar products. It delivers temperature-compensated analysis of °Brix and °Z at up to 120 measurements per hour. The instrument complies with ICUMSA methods and other national and international standards (e.g., OIML, Australian Standard K157).



- Accepted for the analysis of recoverable sugar content by farmer associations and factories
- Complies with the applicable ICUMSA methods
- Throughput of 120 samples per hour
- Proven in 24/7 operation for more than 50 years
- Easy to operate and calibrate
- Qualified service at site

Determination of Sugar Beet Quality: Betalyser

The Betalyser system analyzes sugar content, sodium, potassium, and α-amino nitrogen content in 30 seconds. From this, the expected sugar yield and sugar molasses loss are calculated automatically. It can be used as a stand-alone operation or integrated into automated beet reception stations (tare house). It also offers seamless data exchange with process control systems.



- Temperature measuring range: 0 °C to +100 °C (MKT 10); -260 °C to +962 °C (MKT 50)
- Measuring accuracy of 0.01 °C (MKT 10) or 0.001 °C (MKT 50)
- Lightweight and portable
- Battery-operated
- Ethernet interface connects to other Anton Paar instruments
- Sensors: ITS 90, EN 60751, and ASTM E1137 (MKT 50)

- Complies with ISO 17025 and even ISO 17034
- Density standards from 0.75 g/cm³ to 1.25 g/cm³ on hand
- Online certificate with lifetime reference values guarantee
- Safety glass ampoule for zero contamination

- Density and temperature calibration of density meters:
 - Range: 650 kg/m³ to 1550 kg/m³ and 15 °C to 50 °C
 - Smallest achievable uncertainty: 0.02 kg/m³ | 15 mK
- Temperature calibration of resistance thermometers:
 - Range: 0 °C to 200 °C
 - Smallest achievable uncertainty: 10 mK
- ISO 17025 calibration experts on hand

Millikelvin Thermometer: MKT 10, MKT 50

Millikelvin thermometers can be used for lab, at-line, and mobile measurements. The MKT 50 Millikelvin thermometer is designed for the most accurate temperature measurements, comparison calibrations, and fixed-point calibrations.

ISO 17034 Density Standards

The quality of density measurements determines the quality of final products. Regular calibration of a density meter ensures that measurements are always accurate and traceable to the International System of Units (SI). Our density standards are measured with hydrostatic weighing, which guarantees the highest possible accuracy.

ISO 17025 Calibration of Density Meters and Thermometers

We offer traceable calibrations of density meters and thermometers according to ISO 17025. With the traceability according to the International SI units and to the International Temperature Scale 1990, the calibrated instrument provides absolutely accurate and internationally comparable results.



- Automated kinematic viscosity (15 °C to 100 °C)
- Up to 150 % higher throughput than manual capillary viscometers
- Minimum of 1.5 mL of sample required
- Integrated ASTM bias correction for D445 results
- Direct filling of samples through Simple Fill funnel
- One unbreakable cell instead of 12 glass capillaries

- ASTM D4052- and ISO 12185-compliant density measurement, in combination with fast viscosity results
- Easy filling with the Simple Fill Funnel
- 2-minute operator time per measurement
- 6.5 kg, and optional battery
- Temperature range of 15 °C to 100 °C
- Integrated API functions

- 5-minute operator time per measurement
- Kinematic viscosity at any temperature between 15 °C and 100 °C
- Complies with ASTM D396, D975, D3699, D6158, D6823, D7467, and other standards
- An unbreakable, metal measuring cell reduces capillary costs
- AP Connect-compatible

Kinematic Viscometers: SVM 1001, SVM 1001 Simple Fill

SVM 1001 and SVM 1001 Simple Fill are entry tickets into the world of digital automated kinematic viscometry. The wide-range cell lets users measure samples from diesel to lubricants. No stopwatch, liquid temperature bath, or several glass capillaries are needed. ASTM-compliant results are available in both D7042 and D445. SVM 1001 Simple Fill makes direct filling of samples possible without the need for pipettes or syringes.

Kinematic Viscometer: SVM 1101 Simple Fill

The SVM 1101 Simple Fill viscometer combines viscosity and density analysis to offer unmatched precision and value. Say goodbye to syringes or pipettes. At only 6.5 kg, SVM 1101 Simple Fill is a real portable viscometer, running on an optional battery with low power consumption of only 75 W. SVM 1101 Simple Fill redefines possibilities in analysis, delivering simplicity, accuracy, and portability.

Kinematic Viscometer: SVM 2001

SVM 2001 is our multiparameter kinematic viscometer with a full automation option that conducts easy and fast viscosity measurements for every type of sample from diesel fuels and lube blends to used oils. It lets users cover the full viscosity range without changing capillaries or having to worry about glass breakage. Density and Viscosity Index (VI) according to ASTM D4052 and D2270 are available as an option.



- Wide temperature range: -60 °C to +135 °C
- No external cooling required down to -20 °C
- Fast heating and cooling rates of up to 20 °C/min
- Complies with ISO 23581, EN 16896, ASTM D396, D975, D7666, and other standards
- Reports results in both D7042 and D445 (ASTM bias corrected)
- AP Connect-compatible

- Temperature range of -60 °C to +100 °C
- Viscosity borderline temperature (temperature at 12 cSt)
- Quick temperature scans for jet fuel pumpability
- Sub-zero temperature cleaning and drying
- Complies with ASTM D1655, D2880, D7566, D975, D7467, DEFSTAN 91-91, and JIG AFQRJOS
- AP Connect-compatible

- Fast viscosity index (VI) complies with ASTM D2270
- Only 2.5 mL of sample needed
- Two viscosity and density cells for simultaneous measurements at any two temperatures between 15 °C and 100 °C
- Integrated viscosity-temperature extrapolation
- AP Connect-compatible

Kinematic Viscometer: SVM 3001

SVM 3001 is a multitasking viscometer that delivers kinematic and dynamic viscosity as well as density and viscosity index (VI) of a wide variety of samples, from jet fuel to wax, in compliance with international standards. Users can cover the full viscosity range without needing to change capillaries or having to worry about glass breakage. A quick temperature scan delivers information about the temperature behavior of samples. ASTM D4052 Density is included. With its support for AP Connect, going fully paperless is possible.

Kinematic Viscometer: SVM 3001 Cold Properties

SVM 3001 Cold Properties is the 5-in-1 solution for low-temperature applications. Along with conducting kinematic viscosity measurements on a variety of samples, it delivers dynamic viscosity, density, cloud, and freezing point from one test. Users can cover the full viscosity range without changing capillaries or having to worry about glass breakage. Measurements down to -20 °C can even be done without counter-cooling.

Kinematic Viscometer: SVM 4001

Thanks to its double-cell design, SVM 4001 is suited for fast viscosity index determination. It measures viscosity and density simultaneously at any two temperatures between 15 °C and 100 °C and provides results within minutes. The small sample and solvent volume (minimum 2.5 mL) and the low energy consumption make SVM 4001 highly cost-effective. A variety of sample changers can be connected to enhance productivity.



- Minimum of 100 µL of sample required
- High chemical resistance: borosilicate glass or breakproof PCTFE capillaries
- Temperature range of -30 °C (with counter cooling) to +100 °C
- Flow-through filling for high sample throughput
- Sample changer for automatic filling
- Referenced in American and European Pharmacopeia
- AP Connect-compatible

Rolling-Ball Viscometer: Lovis 2000 M/ME

The Lovis 2000 M/ME rolling-ball microviscometer determines the dynamic, kinematic, relative, and intrinsic viscosity of liquids with high precision. With the integrated polymer software, sample molar mass can automatically be determined. Flow-through filling enables easy handling and high throughput. The instrument can also be combined with Anton Paar density meters, sample changers, or Abbemat refractometers.



- For single point dynamic viscosity tests
- 3.5" display
- Automatic spindle recognition (Toolmaster™)
- Magnetic coupling included
- Digital leveling and constant status monitoring included
- Free V-Collect PC data storage software

Rotational Viscometer: ViscoQC 100

ViscoQC 100 is a rotational viscometer for measuring liquid and semi-solid samples. It conducts single-point measurements with a viscosity range from 0.2 mPa.s to 320 M mPa.s depending on the measuring system and torque model. Measuring capabilities can be easily extended with optional accessories for helical movement, cone-plate measurement, and temperature control.



- For multipoint dynamic viscosity tests
- 7" touch display
- Automatic spindle recognition (Toolmaster™)
- Magnetic coupling included
- Digital leveling and constant status monitoring included
- Software upgrade: V-Curve for flow curve and analysis, V-Comply for compliance to 21 CFR Part 11
- AP Connect-compatible

Rotational Viscometer: ViscoQC 300

ViscoQC 300 is a rotational viscometer for multipoint measuring of liquids and semi-solids from 0.2 mPa.s to 320 M mPa.s depending on the measuring system and torque model. The capability of this future-proof instrument can be easily extended with optional accessories for helical movement, cone-plate measurement, and temperature control. It can also be upgraded with extra software packages for extended analysis and pharma compliance.



- Fast and accurate temperature control
- No extra bench space needed
- Full control via ViscoQC display
- 9.4 K/min (heating) and 2.3 K/min (cooling) rates with PTD 175
- Built-in Pt100 sensor for precise sample temperature monitoring

Peltier Temperature Devices for ViscoQC: PTD 80, PTD 175, PTD 100 Cone-Plate

The PTDs are accessories for fast and maintenance-free, air-cooled temperature control. PTD 80 supports DIN/SSA measuring systems, while PTD 175 is also suitable for UL/ASTM measuring systems. PTD 100 Cone-Plate is used for testing small sample volumes down to 0.5 mL. Temperature ranges are: 15 °C to 80 °C (PTD 80), -45 °C to +175 °C (PTD 175), and 0 °C to 100 °C (PTD 100 Cone-Plate).

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- Full control via ViscoQC display
- No extra bench space needed
- Fast and accurate temperature control
- Built-in Pt100 sensor for precise sample temperature monitoring
- Automated ASTM D4402 method
- Automated ASTM D2983 and D5133 (with PTD 175)

Electrical Temperature Device for ViscoQC: ETD 300

The ETD 300 is an accessory for dynamic viscosity measurements of bitumen, hot melts, wax, and polymers at elevated temperatures, covering a temperature range from 25 °C to 300 °C. ETD 300 supports SSA/ DIN measuring systems, available as standard or as solid shaft versions. The cups used are available as reusable stainless steel or as disposable aluminum versions.

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- Full control via ViscoQC display
- Set points digitally defined
- Create methods with individual set points to maximize repeatability
- Manual control as comfort stand possible
- Motorized stand instead of manual height adjustment in normal operation

Motorized Stand for ViscoQC: Heli-Plus

The Heli-Plus is an accessory that facilitates an automated helical movement of the spindle between set points that can be digitally set via the ViscoQC display. The Heli-Plus supports T-Bar spindles specifically designed for measurements of non-flowing samples, preventing the channeling problem that might occur with standard spindles.

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- Fully automated, 24/7 operation
- Storage capacity of up to 54 samples
- Measurements of up to 250 samples per day
- Wide range of features (e.g., pH station, cooled rack)
- One company, one measuring system, seamless instrument compatibility

The Automated Benchtop Rheometer: HTR 3000

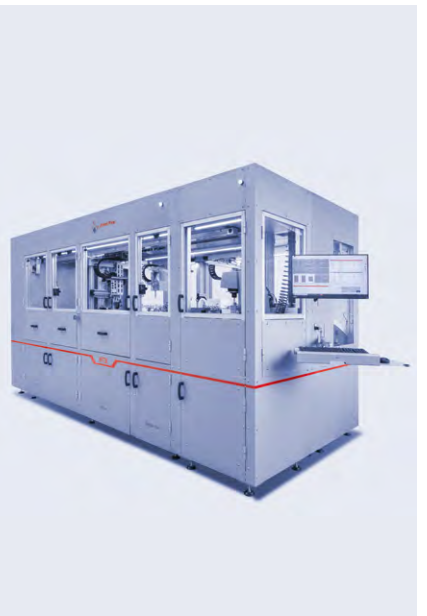
HTR 3000 conducts automated rheological measurements with Anton Paar's MCR 102e or MCR 302e rheometers. It's ideal for concentric cylinder and other relative measuring geometries, and can be used in a production facility or in a lab. Automated measurements guarantee highly accurate, reproducible results.



- Fully automated, 24/7 operation
- Walkaway time up to 48 hours
- Automated sample preparation
- Automated trimming tool for highest reproducibility (patented)
- Connects to LIMS
- One company, one measuring system, seamless instrument compatibility

The Automated High-Throughput Rheometer: HTR 7000

The HTR 7000 offers an optimized analysis workflow for rheological investigations. With its integrated rheometer MCR 702e, HTR 7000 can perform all types of rheological measurements with common measurement geometries (e.g., CC, CP, PP) to cover the needs of various industries. Its range of features (e.g., a dispensing system, code reader, decapper, cleaning unit) and built-in flexibility make it the ideal solution for high-throughput R&D or QC work.



- Fully automated, 24/7 operation
- Automated sample preparation and sub-sampling
- Automated weighing, diluting, and pipetting features for low-viscous samples
- Connects to LIMS
- Compatible with density meters, rheometers, polarimeters, refractometers, and particle size analyzers
- One company, one measuring system, seamless instrument compatibility

The Customized Automated Lab: HTX

Our HTX system is a platform that can handle customized workflows for sample conditioning, preparation, and measurement. With the HTX, miscellaneous parameters can be measured with only one sample. Since all of the instruments come from Anton Paar, the whole measuring system and instruments are seamlessly integrated into one powerful analysis platform.



- Real-time, at-line measurement results of important QC parameters
- No manual sample preparation
- Fully automated, 24/7 operation
- Designed to perform in rough production environments
- One company, one measuring system, seamless instrument compatibility

The Automated Lab for the Beverage Industry: ALAB 5000 Analytic

Designed for filling lines and analysis labs, the ALAB 5000 series provides quick, at-line quality control for various beverages, including beer, soft drinks, and sake. With ALAB 5000 Analytic, measure the most relevant parameters on one sample. Combined with our total package oxygen meter TPO 5000 and our Packaged Beverage Analyzer (PBA) system, parameters like density, alcohol concentration, and extract can be determined.



- Measurement of opening torque and ring crack torque in 30 seconds
- Minimizes human interaction for higher efficiency and safer operation
- Fully automated, 24/7 operation
- Designed to perform in rough production environments
- Can be integrated into new or existing filling lines or used as a stand-alone solution

An Extension for the Automated Lab: ALAB 5000 Torque

ALAB 5000 Torque measures the opening torque and ring crack torque of twist-off caps and crowns for bottles. Various bottles with a cap diameter ranging from 25 mm to 40 mm can be analyzed with it. It also comes with our gold-bottle torque verification, which means measurement results are always reliable.



- 24/7, fully automated operation
- Automated weighing, diluting, and pipetting features for low-viscous samples
- Connects to LIMS

The Automated Sample Preparation System: MSP

Our MSP conducts sample preparation for a wide range of industries. It carries out automatic dosing, blending, sub-sampling, and transferring of liquids prior to analysis.



- Holds up to 28 vials
- Operating parameters up to 300 °C and 199 bar
- Temperature and pressure control of all vials
- Pressure-sealed glass, quartz, or PTFE-TFM vials available
- Plug-on caps for easy closing of vials
- GS and ETL safety-certified
- Pharma qualification documents
- Customized application support

Microwave Digestion System: Multiwave 7301

Multiwave 7301, with its Pressurized Digestion Cavity (PDC), allows acid digestion at temperatures up to 300 °C. This high temperature ensures the complete digestion of any sample type (e.g., food, environmental, polymer, cosmetic, pharmaceutical, geological, chemical, alloy, and petrochemical samples) even in one run with the same method. An integrated cooling system ensures short cycle times for increased sample throughput.



- Holds up to 64 samples
- Operating parameters up to 300 °C and 80 bar
- Temperature and pressure control in all positions (rotor-dependent)
- 600+ pre-installed methods
- Tool-free vessel handling
- GS and ETL safety-certified
- Pharma qualification documents
- Customized application support

Microwave Reaction System: Multiwave 5000

Multiwave 5000 is a microwave reaction system for the digestion of a wide range of samples (varying in difficulty or volume), evaporation, acid leaching, and extraction. Thanks to the flexible platform concept, Multiwave 5000 can be configured to match specific applications.



- HVT rotors**
 - For routine samples
 - 50 mL, 56 mL, 80 mL available, up to 41 samples
- SVT rotor**
 - Demanding samples
 - Up to 20 samples in one run
- 8N high-end rotor**
 - Highly reactive samples
 - Simultaneous, wireless pressure control in all vessels
- 64MG5 microsample rotor**
 - For less than 20 mg of sample

Microwave Reaction System: Rotors for Multiwave 5000

Thanks to SmartVent technology employed in all HVT and SVT vessels, our rotors are robust, lightweight, and accommodate more samples on a smaller footprint. Made for fast, safe, tool-free operation, our vessels provide a new level of performance and convenience for the sample preparation laboratory. Their practical design impacts all steps of operation: from sample weighing and reagent addition to closing, opening, and cleaning.



- HVT closing station is ideal for high-throughput laboratories for reproducible closing of all HVT vessels
- Magnetic stirrer device for enhancing the process of leaching, extraction, and acid digestion of floating samples
- Accessories for extraction, evaporation, oxygen combustion, hydrolysis, and drying available



- Holds up to 12 vessels
- Operating parameters up to 250 °C and 45 bar
- Temperature and pressure control in all positions
- Single vessel mode
- Integrated cooling
- Compact size
- GS and ETL safety-certified
- Pharma qualification documents



- Holds up to 48 vessels
- Operating temperature up to 180 °C
- 50 mL digestion vials with Class A specification
- External control unit with interactive touchscreen

Microwave Reaction System: Accessories for Multiwave 5000

A variety of accessories are available for Multiwave 5000 that make sample preparation more comfortable than ever. The simple handling and durable setup complement the HVT vessel concept used with Multiwave 5000 or Multiwave GO Plus. Different racks are available to adequately store the various vessel types and liners.

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Microwave Digestion System: Multiwave GO Plus

Multiwave GO Plus, with its revolutionary Directed Multimode Cavity (DMC), combines monomode and multimode microwaves. The TURBO cooling process enables the shortest cooling times on the market. With its SmartVent vessel technology, Multiwave GO Plus is the most convenient microwave digestion option today.

Hot Block Digestion System: Multicube 48

Multicube 48 is a laboratory hot block for open-vessel acid digestion, evaporation, and concentration of samples as well as other applications requiring elevated temperatures. The PFA-coated graphite block in its corrosion-resistant FEP-coated housing is designed for reliable, trouble-free preparation of large batches of a wide range of samples. Precise temperature control of ± 1 °C guarantees constantly high digestion quality in every single vessel.

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- Reaction volumes between 0.5 mL and 20 mL available
- Operating parameters up to 300 °C and 30 bar
- Ruby thermometer
- Silicon carbide vessels
- Integrated camera
- Unattended, automatic processing of 24 vessels
- Magnetic stirrer with variable speed
- Compliant with 21 CFR Part 11

Microwave Synthesis: Monowave 200, Monowave 400, Monowave 450

Monowave 200, Monowave 400, and Monowave 450 are high-performance monomode microwave reactors designed for small- to medium-scale chemical synthesis of nanomaterials, organic, and inorganic compounds. These are useful choices for any kind of microwave synthesis in academic and industrial R&D.



- Real-time, in situ reaction monitoring
- Attachable 785 nm Raman probe
- No cleaning, sample preparation, or cross-contamination
- Operating parameters up to 300 °C and 30 bar
- Protective interlock connection for a safe Laser Class 1 setup

In Situ Reaction Monitoring: Monowave 400 R

Monowave 400 R combines precise temperature profiles with real-time information about the chemical composition of a reaction mixture to provide better understanding of reaction mechanisms and kinetics. When coupled with Anton Paar's Cora 5001 Raman spectrometer, it offers flawless in situ reaction monitoring of microwave reactions.



- Outstanding accuracy of up to 5×10^{-5} g/cm³
- Modular system – easy to integrate
- Many different materials, applicable in all industries
- No maintenance, no consumables
- Large database of concentration formulas
- Transmitter version with many communication options
- Explosion-proof version available

Density Sensors: L-Dens 7000 Series

The L-Dens 7000 series combines high accuracy and a compact design, making it the best in its class for precise density and concentration measurements. Thanks to the modular system and the wide range of accessories, these sensors can easily be integrated into a measuring system or production plant.



- Cost-effective, entry-level model with 1 kg/m³ accuracy
- Stand-alone sensor, especially for low flow rates
- Many concentration formulas are already stored in the sensor
- Optional HMI
- Wetted material made of stainless steel and borosilicate glass for non-corrosive and corrosive liquids

Density Sensor: L-Dens 3300

The L-Dens 3300 density sensor is a powerful, flexible, and budget-friendly instrument for process density and concentration measurement at three-digit accuracy. It's designed as a stand-alone sensor, so there's no additional integration expenses. The sensor is best suited for lab reactors, pilot plants, or production plants.



- OEM process density sensors, especially for low flow rates
- Continuously measures the density with 1 kg/m³ accuracy
- Very little room required – can be installed even in tight spaces
- Wetted material made of stainless steel and borosilicate glass for non-corrosive and corrosive liquids

Density Sensor: L-Dens 2300

L-Dens 2300 density sensors are very small and flexible OEM modules that can be easily integrated into measuring systems. They measure the density of liquids with an accuracy of 1 kg/m³, especially at low flow rates. These sensors are used for a wide range of applications, from fuel density measurement to dialysis concentrate measurement



- Highly accurate, all-in-one density and sound velocity sensor
- Ideal for measuring 3-component mixtures
- Modular system – easy to integrate
- No maintenance, no consumables
- Transmitter version with many communication options
- Explosion-proof version available

Combined Density and Sound Velocity Sensor: L-Com 5500

L-Com 5500 is our density and sound velocity sensor combination for measuring 3-component mixtures, such as beers (alcohol, extract, and water), with one instrument. It provides the highest accuracy on the market and is ideal for the production control of beverages or chemicals like formaldehyde-methanol-water mixtures.



- Highly precise (repeatability up to 0.005 m/s)
- Flowrate >0 m/s to 6 m/s
- Maintenance-free
- Easy, quick integration and installation
- Most cost-effective solution
- No bypass, pumps, or valves needed
- Insensitive to bubbles
- Wetted parts for even the toughest situations
- Explosion-proof version available
- EHEDG-certified

Sound Velocity Sensors: L-Sonic 5100/6100

The L-Sonic sound velocity sensors are high-tech sensors with an outstanding repeatability of up to 0.005 m/s. They can be installed directly in the main line or in a tank. With wetted parts for the toughest situations and cost-efficient installation options, the L-Sonic sensors are a maintenance-free and bubble-resistant solution. They're ready for inline concentration measurements, interface detection, quality control, or OCR determination.



- Maintenance-free
- Inline and highly accurate up to ±0.0001 nD (equivalent to ±0.05 % mass)
- Easy, quick integration and installation
- Standard and custom-specific concentration formulas
- Optional HMI and various fieldbus interfaces
- CIP/SIP up to 145 °C for 30 minutes
- EHEDG-certified

Inline Refractometers: L-Rix 4100/5100/5200

L-Rix 4100/5100/5200 are durable, maintenance-free inline refractometers for real-time concentration measurements and production control of raw, intermediate, and final products. All L-Rix models are suitable for hygienic applications such as measurements of pharmaceuticals, milk, sugar solutions, syrups, fruit juices, and foods and beverages containing pulp.



- Extract and original extract monitoring at lauter tun, brewing kettle, wort cooler, or final beer
- Main line or tank installation
- Maintenance-free
- Optional HMI and various fieldbus interfaces

Extract/Original Extract/Plato Monitor

These analyzers monitor extract concentration in hot and cold wort (based on density, sound velocity, or refractive index) and determine the original extract of beer (based on sound velocity).



- Highly accurate inline sugar concentration measurements with up to ± 0.02 °Brix
- For soft drinks, fruit juices, and syrups
- Maintenance-free
- Optional HMI and various fieldbus interfaces

Brix Monitor

The Brix Monitor enables highly accurate inline sugar concentration measurements. It continuously determines the °Brix value of soft drinks, fruit juice, and syrup using density, sound velocity, or refractive index. Maintenance-free operation and direct installation in the line with optional HMI result in cost-optimized monitoring and control.



- Continuously tracks the progress and determines the endpoint of fermentation
- Maintenance-free
- Optional HMI and various fieldbus interfaces
- EHEDG-certified

Fermentation Monitor 5100

The Fermentation Monitor 5100 covers the full range of fermentation parameters, such as apparent extract density, alcohol and real degree of fermentation. It continuously monitors the alcoholic fermentation during the production of beer, wine, or spirits based on an inline refractive index measurement.



- Highest accuracy for standard carbonated soft drinks of ± 0.02 °Brix and diets of ± 1 %
- Optical or volume expansion method for dissolved CO₂ measurement with accuracy of ± 0.05 g/L
- Standard housing with signal lamp and 8.4" touch panel
- Bypass or inline version
- Various fieldbus interfaces

Inline Beverage Analyzers: Cobrix 5500/5600

Cobrix 5500/5600 analyzers are ideal for the beverage analysis of soft drinks, beer, wine, cider, FABs, juice, diet drinks, tea, and other beverages. Users can count on the continuous, accurate, and safe measurement of essential quality parameters, such as °Brix, %Diet concentration, CO₂, alcohol, sugar inversion, and extract, throughout their production process.



- Multiparameter measurement for a wide variety of beers and wines
- Highest accuracy for alcohol of ± 0.02 %w/w and real extract of ± 0.02 °Plato
- Optical or volume expansion method for dissolved CO₂ measurement with accuracy of ± 0.05 g/L
- Evaluation unit with 8.4" touch panel
- Various fieldbus interfaces

Beer Monitor 5500/5600 & Wine Monitor 5500/5600

Beer Monitor 5500/5600 continuously monitors the alcohol content, apparent and real extract, original extract, degree of fermentation, density, CO₂, and temperature. The system accommodates a wide range of beer styles, as well as non-alcoholic beers, hard seltzers, FMBs/FABs, ciders, and shandies. Wine Monitor 5500/5600 determines the alcohol, extract, and CO₂ content of wine.



- Measuring range from 0 g/L to 20 g/L (0 vol to 10 vol)
- Volume expansion method with accuracy of ± 0.05 g/L
- CIP/SIP up to 121 °C for 30 minutes
- Measuring interval of 15 seconds
- Self-diagnosis according to NAMUR NE 10
- Optional HMI and various fieldbus interfaces

Process CO₂ Sensor: Carbo 5100

Carbo 5100 provides a good balance between high accuracy, speed, and price. With a single volume expansion and a measurement cycle of 15 seconds, Carbo 5100 is fast enough to be used for a closed-loop control of carbonators. Carbo 5100 can also be used as a stand-alone solution with or without HMI or with a mPDS 5 evaluation unit. Supported communication via analog, PROFIBUS DP, PROFINET, Ethernet/IP, Modbus TCP, and DeviceNet.



- Measuring range from 0 g/L to 12 g/L (0 vol to 6 vol)
- Maintenance-free
- Optical absorption method with accuracy of ± 0.05 g/L
- CIP/SIP up to 95 °C for four hours or 121 °C for 30 minutes
- Measuring interval of four seconds
- Optional HMI and various fieldbus interfaces
- EHEDG-certified

Optical Inline Dissolved CO₂ Sensors: Carbo 6100/6300

An optical measurement system that provides drift-free results. The basis of this breakthrough is a cutting-edge optical measuring principle called ATR (attenuated total reflection), an Anton Paar-patented technology (AT512291B1, AT512375B1).



- Hassle-free, predictable cap exchange
- Sensor caps ready for harsh process solutions
- Quick return to operational status after hot CIP/SIP
- Self-diagnosis according to NAMUR NE 10
- Optional HMI and various fieldbus interfaces
- EHEDG-certified



- Inline color measurement for all kinds of beverages
- Broad measuring range from 0 AU to 3 AU
- Tailor-made wavelength configurations with up to three channels
- High-resolution optical measurement with a resolution of 0.001 AU
- EBC/MEBAK®/ASCB-compliant
- Seamless integration with beverage analyzers



- Configurable 8.4" color touchscreen
- Out-of-spec production alert
- Flexibly configurable graphic and numeric display fields
- Preinstalled user programs
- Data logging
- Customer-specific polynomials and special programs
- Flexible connectivity with USB, Ethernet (LAN), analog, and fieldbus outputs

**Inline Oxygen Sensor:
Oxy 5100**

The Oxy 5100 inline oxygen sensor measures dissolved oxygen in real-time and at the production line. It provides accurate, drift-free measurements during the entire production process. The built-in Toolmaster™ automatically identifies the sensor cap and transfers all setup parameters to the sensor. It can be used as a stand-alone device with a (remote) operating terminal or with an mPDS 5 evaluation unit.

**Color Sensor for Beverages:
L-Col 6100**

L-Col 6100 offers MEBAK®-compliant inline color measurement with optional turbidity compensation. The L-Col 6100 inline color sensor can be integrated into all Anton Paar beverage analyzers based on mPDS 5.

**Evaluation Unit:
mPDS 5**

The mPDS 5 evaluation unit continuously converts the raw values from the process sensors into application-specific concentration results. Numerous user programs are preconfigured, and creating new concentration polynomials and special programs is easy. Available fieldbus interfaces include PROFIBUS DP, PROFINET IO, EtherNet/IP, Modbus TCP, and DeviceNet.



- User-friendly calibration
- Records up to 50 different measurements
- Automated calibration and adjustment
- Remote control and remote diagnosis
- SQL database technology
- Out-of-spec production notification
- Automated reports
- Third-party system data interface

**PC Software:
Davis 5**

Davis 5 is a comprehensive data acquisition and visualization software. It can be connected via Ethernet to any personal computer throughout an organization to analyze the key performance indicators of the production in real-time. As Davis 5 connects lab analyzing systems directly to Anton Paar's inline beverage analyzers, calibration and adjustments are automated. It calculates mean values, standard deviations, production times and stops, and Cp and Cpk values.



- Viscosity monitoring
- Quality monitoring and interlock function
- Fieldbus connection via control unit
- Operation in hazardous environment
- PLC and 7" touchscreen

**Industrial Beverage Production:
Flex-Blend 7000 Series**

The Flex-Blend series is a modular, inline blending, carbonating, and dosing solution that consists of autonomous, skid-mounted process modules. Based on user requirements, these modules can be integrated into production lines.



- Top price-performance ratio
- Tried-and-tested specific solutions and quick commissioning
- Small volumes, compact footprints
- Simple, powerful multiproduct management
- Quality assurance and tracking

**Tailored for craft producers:
Flex-Blend 3000 Series**

The Flex-Blend 3000 series delivers fast and precise alcohol, OE, and CO₂ control in an all-in-one package. It offers recipe-specific calibration for optimized management of an unlimited number of product types, which reduces product loss and ensures minimum changeover time. Combined with unique predelivery testing of the entire specifications range, it covers all future product and dosing requirements.



- Monitoring of whichever quality parameter
- Drift-free results even during filler stops
- Maintenance-free sensors
- Additional sensor integration available
- In-skid construction or pipe assembly
- mPDS 5 evaluation unit

**Modular Beer Measuring System:
Animo 5100**

Animo 5100 is a modular measuring system that delivers all critical quality control parameters from the beer filling line. Integrating the high-quality online sensors, analyzers, and mechanical components needed for precise and safe operation, it measures alcohol, real extract, original extract, dissolved CO₂ and O₂, conductivity, and (optionally) color.



- Ready-to-go quality control system
- Compact, modular and portable
- High-quality, inline sensors
- Drift-free results
- Maintenance-free sensors

Animo 3100 Mobile

Animo 3100 is a mobile and modular measuring system designed for craft brewers. Integrating high-quality online sensors, it delivers all critical quality control parameters, e.g., for alcohol, real/original extract, original extract, and dissolved CO₂ and O₂.



- Monitoring of critical parameters
- Accurate measurements under all process conditions, independent of media properties
- Measuring unit, dosing unit, and control unit
- Online evaluation of data for quick analysis with Davis 5
- Basic automation functions (machine interlock, dosing control)
- Traceability guaranteed

**Process Monitoring and
Dosing Control**

With a wide variety of sensor technologies, we're able to develop solutions for quality parameter monitoring, dosing and controlling in liquid products in almost any kind of industry and application. For extended functionality, such as automatic interlock or basic dosing control, a process monitor with a control unit can be delivered.



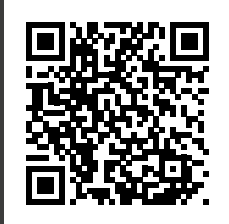
- Viscosity monitoring
- Quality monitoring and interlock function
- Fieldbus connection via control unit
- Operation in hazardous environment
- PLC and 7" touchscreen

**Example: Sanitary Ceramic
Dosing System**

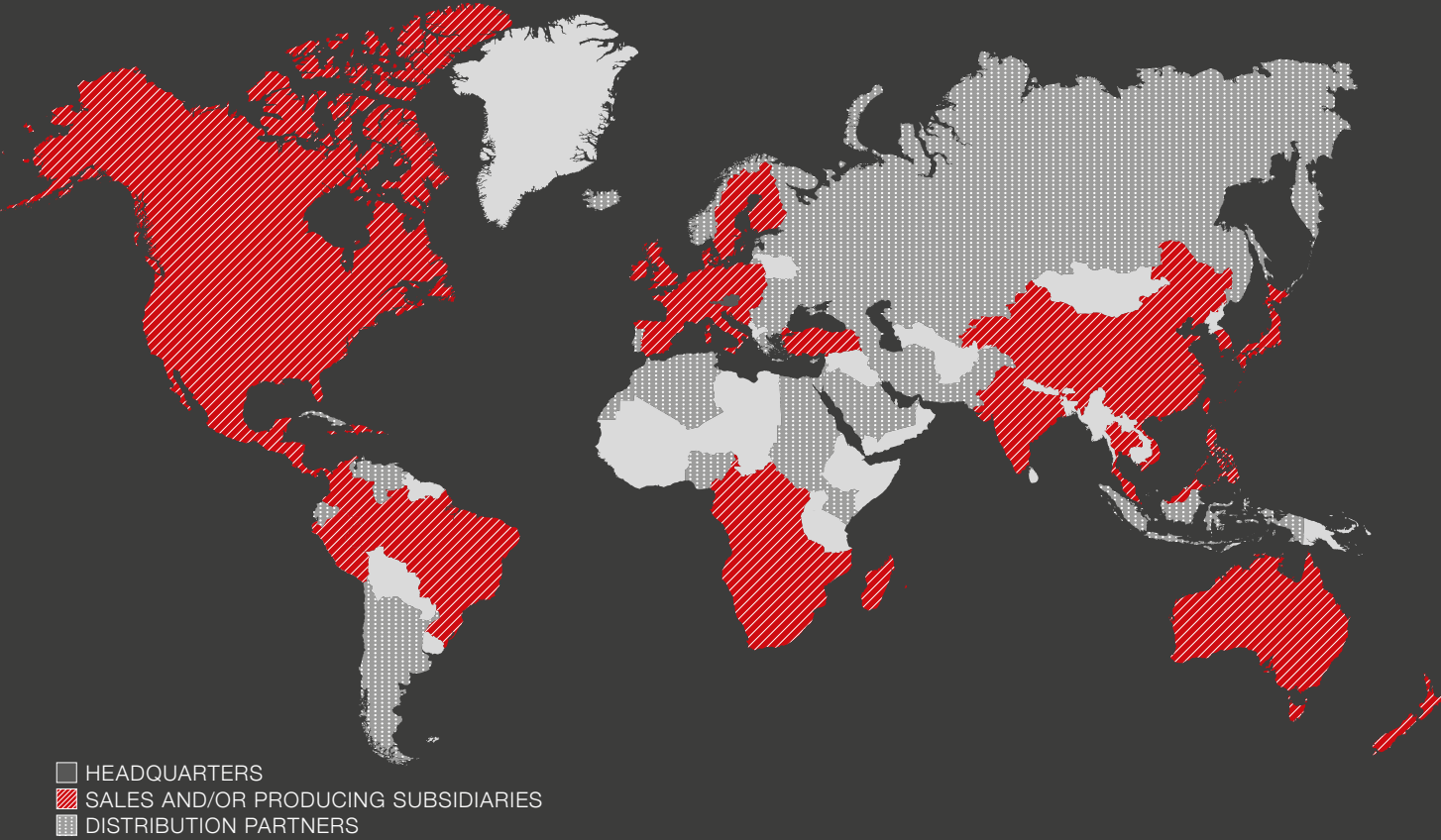
This best-in-class sensor for viscosity measurement is a compact measuring system adapted to the environment and infrastructure of a facility. It measures inline and highly accurately – real-time viscosity where it matters the most.

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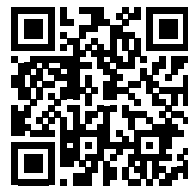
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