As part of the VERDER Group, the VERDER SCIENTIFIC division sets standards in the development, manufacture and distribution of high-tech laboratory and analysis equipment. The six companies of this division are active worldwide in the fields of:

**Materialography**
**Hardness Testing**
**Heat Treatment**
**Elemental Analysis**
**Milling & Sieving**
**Particle Analysis**

We are delighted to present our innovative new products in this brochure. Learn more about our solutions for quality control, research and development of solid matter.
SAPHIR 250 A1-ECO – Automatic Grinder & Polisher

The SAPHIR 250 A1-ECO is a single-wheel grinding and polishing machine for working wheels Ø 200/250 mm which is conveniently operated by a 4.3” touch screen. The new holder for the working wheel (single-disc design) enables operation without carrier disc without compromising performance.

The control software allows to edit and save up to 200 preparation methods, protected by a user account management. Pressure, speed and direction of rotation (head and working disc) are adjustable. The Cleaning Boost spin cycle function helps to spin dry the grinding and polishing medium at 750 rpm at the end of the preparation process within 3 seconds.

- Single wheel grinder/polisher
- Cleaning Boost spin cycle function
- 4.3” Touch-Screen with intuitive ATM user software
- 200 customized programs storable
- Easy cleaning/rinsing of bowl by lifting the working wheel (single-disc design)
- Variable speed of working wheel and polishing head
ATM INSPECT – Microscopy Evaluation Software

ATM INSPECT is characterized by intuitive and user-friendly design and provides an extensive toolbox for microscopic evaluation and documentation of results. The software basis comprises a wealth of features and is adaptable to customer-specific tasks. It is easily extendable with a variety of add-on modules.

With ATM INSPECT microscoping tasks are executed rapidly, easily and with utmost precision. It extends the range of functions of stereo microscopes and/or reflected light microscopes with interactive in-image-measurements and the generation of customized reports. Measurement and report templates help to make routine tasks more efficient.

- Interactive manual measurement using overlays
- Semi-automatic tools for coating thickness measurement and grain size analysis
- Report generator with template system for recurrent reporting tasks
- Extensibility with microstructure analysis add-ons
- Touch or mouse interoperability

Further Machines for Materialography

ATM provides tailor-made solutions for the materialographic laboratory. The machines for cutting, mounting, grinding, polishing and analysis set worldwide standards in quality and R&D and are characterized by user-friendly, innovative technology, longevity, and a clear and modular design.

WWW.ATM-M.COM
In the days of Industry 4.0, the objective of the Qness data interface Qconnect is to make data connections to hardness testers as easy as possible. The critical point is always the interface between the device and customer-specific database structures. The standard functions of the Qness hardness testers cover many simple data import and export settings. In addition to that, customers may actively implement data connections via the open XML interface or authorize Qness with the programming via the optional SW modules.

- Variety of connection options for all hardness testers with Qpix Control2 software
- Compatible with data management and ERP systems such as QDAS, SAP, Babtec, etc.
- Efficient and error-free result management in quality control, reliable and without operator influence
- Useful literature about the Qconnect interface supports the customer throughout all project phases
- Full access to the expertise of the Qness Team
QNESS, which is located in the province of Salzburg in Austria, is focused on the development and manufacturing of innovative high-end products for hardness testing. Based on modern developments, QNESS sets new standards for testing machines and re-defines the hardness testing segment. In addition to the wide range of versatile standard machines, QNESS is also specialized in the planning and realization of customer-specific solutions.

WWW.QNESS.COM

Further Hardness Testers from the QNESS Range

Rock and More – Qness Q150 Hardness Testers

The Rockwell hardness testers of the Q150 series are compact, robust and easy to operate. They are designed for routine tasks in the laboratory as well as for usage in production or hardening plants. The top models Q150A and Q150A+ now provide features like the innovative, automatic height control for sample holders or fully automatic feeding and unclamping sequences of the test head. The new protection housing ensures maximum operating safety.

- Integrated, optical path measuring system in the test head for ultimate positioning precision
- Improved operating comfort and higher degree of automation
- No manual height scanning needed with Qness sample holders
- Automatic retraction at work pieces with interfering contours
- Tests on work pieces with different testing heights
- Approach of the loading position in XYZ axis possible
- Also possible with extended test height
HB Top Hat Furnace

The HB top hat furnace range features an automatically operated vertically moving hood for heat treatment in air. The moving hood permits access to the samples from three sides.

For debinding applications, e.g. technical ceramics, the HB can be optionally equipped with a hot air blower to improve temperature uniformity, and a catalytic afterburning.

- 1300°C, 1600°C, 1700°C & 1800°C maximum operating temperature in air
- Usable volume of 80, 160, 240, 332 and 514 L
- FeCrAl wire heating elements for 1300°C models
- High quality molybdenum disilicide heating elements for 1600°C, 1700°C and 1800°C models
- Advanced refractory interior, used in combination with energy efficient low thermal mass insulation
CC-T1 Touch Screen Controller

The CC-T1 touch screen controllers offer programmable controls in which 24 segments may be set as ramp, step or dwell and may also be configured to control relays. A touch screen interface gives intuitive access to a comprehensive menu including: selection and editing of program profiles; scheduling of programs at a defined date/time; data logging of setpoint and actual temperature; localization of language; user level security.

The CC-T1 series can also store and retrieve 10 unique program profiles. Data-logging is to a csv file which is accessed through the adjacent USB port. Ethernet communication is fitted as a standard feature. When specified with a 3-zone product the control method is user-selectable to be either retransmission of setpoint or independent control.

- 4.3” colour touch screen
- Real time clock
- Program status indication with estimate end time & date
- Event indication (2 events)
- User level security

Laboratory and Industrial Furnaces & Ovens up to 3000 °C

CARBOLITE GERO is a leading manufacturer of laboratory and industrial ovens and furnaces covering a temperature range from 30 °C to 3000 °C. In addition to the wide range of standard products, CARBOLITE GERO is an expert in the development of customized equipment for complex heat treatment processes including applications under vacuum, inert gas or reactive atmosphere.

WWW.CARBOLITE-GERO.COM
The ELEMENTRAC® ONH-p provides highest precision and improved reproducibility of measurement results thanks to the closed gas system ensuring that 100% of the released gas is lead to the detectors. The core of this new analyzer is a powerful impulse furnace with ELTRA’s optimized sample drop mechanism. The ELEMENTRAC® ONH-p is ideally suited to analyze samples of steel, alloys, metals and metal powders, ores, ceramics and many more.

- High precision and reduced gas consumption thanks to newly developed furnace
- Highly sensitive determination of hydrogen and nitrogen by thermal conductivity analyses
- Precise oxygen measurement from ppm level to percentage range
- Optional use of argon as carrier gas
The ELEMENTRAC® CS-i analyzer is equipped with an induction furnace and highly sensitive IR detectors for the measurement of carbon and sulfur. The new generation permits precise control of the combustion reaction and features an efficient automatic cleaning system.

The ELEMENTRAC® CS-i is suitable for analyzing samples of steel, alloys, metals, cement, ores, ceramics, minerals and many more.

- Control of induction performance provides precise analysis of low-melting metals
- Heated dust trap allows for improved sulfur detection
- Platinum-based catalyst reactor ensures accurate carbon detection
- Carrier gas flow optimized for dusty samples
- Software-based leakage test
- Optional vacuum system, also available with dust filter class H for potentially harmful samples

The[elementractm] analyzers are controlled with the user-friendly and powerful ELEMENTS software which features a number of diagnosis and analysis tools that greatly facilitate routine tasks.
Mixer Mill MM 500 – Pulverization Down to the Nanometer Range

The new MM 500 is a versatile bench-top unit for dry, wet and cryogenic grinding of small sample amounts. This powerful mill homogenizes and pulverizes powders and suspensions efficiently within seconds. The MM 500 is the first mixer mill with a frequency of 35 Hz which produces enough energy for efficient wet grinding of samples down to the nanometer range. The user-friendly clamping system facilitates safe operation. For intermittent sample extraction, the jars remain conveniently clamped.

- Powerful grinding down to the nanometer range with up to 35 Hz
- Grinding jar volumes 50 ml, 80 ml, 125 ml, jars pressure-tight up to 5 bar
- New jar design allows full use of volume, also for wet grinding
- Suitable for long-term grinding up to 99 h
- Memory for 12 SOPs and 4 program cycles
- Can be controlled via the optional RETSCH App

The new RETSCH App

As the leading solution provider for sample preparation equipment, RETSCH has taken operating convenience to the next level and created the new RETSCH App. This tool makes working with your RETSCH mill easy and convenient:

- Operate your devices via your smart phone or tablet
- Control your devices on the basis of your own application routines
- Access information from the RETSCH database
- Get in touch with the RETSCH service team via the app
Knife Mill GRINDOMIX GM 200 – Perfect Homogenization

The Knife Mill GM 200 is designed for perfect homogenization of up to 700 ml sample material with high water, oil, sugar or fat content. This model has been completely revised and upgraded. Thanks to new features like the powerful 1000 W drive, the mill can homogenize even difficult samples like tough meat with skin or fibrous plants very quickly and efficiently without blockages or the need for more than two grinding steps. The innovative Boost function allows for a temporary speed increase to 14,000 rpm, providing extra power for the homogenization of difficult samples in a very short time.

- Convenient operation via 4.3” touch display
- Powerful 1000 W drive
- Boost function with 14,000 rpm
- Memory for 8 Standard Operating Procedures and 4 program sequences
- Can be controlled via the optional RETSCH App

Laboratory Mills and Sieve Shakers for Sample Preparation and Characterization of Solids

- Jaw Crusher BB 500
- Cutting Mill SM 400
- Ultra Centrifugal Mill ZM 200
- Rotor Beater Mill SR 300
- Vibratory Sieve Shakers AS 200 & AS 300
- High Energy Ball Mill Emax
- CryoMill
- Planetary Ball Mill PM 200

RET SCH is the worldwide leading solution provider for neutral-to-analysis sample preparation and characterization of solids. The product range includes innovative size reduction tools and analytical sieve shakers characterized by excellent performance, operating convenience, safety and a long lifetime.

WWW.RETSCH.COM
RETSCH TECHNOLOGY launches the new CAMSIZER M1 as the latest addition to their powerful range of optical particle analyzers. The measuring principle of static image analysis (ISO 13322-1) allows for the precise characterization of particle size and particle shape of fine powders and suspensions down to the low micron range.

Thanks to high-quality optical components the CAMSIZER M1 guarantees pin-sharp images and optimal analysis conditions. The precisely controllable and fully automatic sample stage may be equipped with various inserts for the evaluation of an area corresponding to eight standard object slides.

The optional M-jet dispersion unit provides reliable sample preparation of powdery materials.

- Measurement range: 0.5 µm – 1500 µm
- Five or six objective lenses from 1,25 x to 100 x magnification
- 18.1 Megapixel color camera
- Maximum digital resolution: 35 nm

CAMSIZER® M1 – Fully Automated Image Analysis
RETesch technology offers innovative optical particle measurement systems for particle characterization with Dynamic Image Analysis. The instruments cover a measuring range from 0.8 μm to 30 mm and are used for measuring powders, granules, bulk materials and suspensions.

**New Particle X-Plorer for Detailed Evaluation**

The intuitive control and evaluation software of the CAMSIZER M1 guarantees fully automatic measurement routines and provides all relevant measurement data at a glance. The new Particle X-Plorer enables the subsequent evaluation and presentation of each individual particle. Various options for particle filtering allow for characterization of the sample material based on specific criteria. Thanks to the stitching function, it is possible to analyze particles which extend over several image frames, e.g. fibers.

- Fully automated measurement and focusing
- Efficient sample preparation
- Stitching algorithm and focus stacking
- Versatile evaluation options
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