

Solutions in Materialography

Cutting | Mounting | Grinding, Polishing, Etching | Analysis





ATM – Machines Are Our Passion

Machines and equipment for the materialographic laboratory "made in Germany".

ATM is a world-leading manufacturer of machines for materialography (metallography) used in quality control processes. We not only supply suitable instruments but also complete laboratories and consumables.

Our cut-off machines, mounting presses, grinders/polishers/etchers as well as analysis systems are characterized by highest quality, flexibility and technical innovation. Thanks to the most advanced engineering technologies and manufacture of components in our own factory we are able to meet individual customer requirements and to customize the machines accordingly.

Our R&D department works in close cooperation with customers to continuously optimize our products. Customers in more than 30 countries appreciate our comprehensive sales and service network as well as direct communication with our experts.

To provide you with solutions of consistently high quality we rely on the expertise and creativity of our qualified, long-standing employees.

ATM offers:

- **Modern production engineering and high vertical integration:**
Optimum control of every single component of our machines guarantees unrivaled ATM product quality "made in Germany".
- **Application consultation and end-user seminars with individual focus:**
Our application experts ascertain parameters and instrument configurations best suited for preparation of your sample material.
- **In-house software and hardware development:**
ATM hosts the complete R&D process in-house making customer-specific solutions and adaptations to individual requirements our great strength.

www.atm-m.com

PREMIUM QUALITY



MADE IN GERMANY





Integrated Solutions

We see ourselves as solution providers. In addition to our extensive product portfolio we offer competent application support and technical service.

Application Consulting

For us professional customer service is about offering individual and specific advice, by phone or in our application laboratory. At your request, our lab experts prepare your samples free-of-charge and recommend a product or method most suitable for your individual requirements.

Visit your virtual lab!

Our PC-based 3D lab tool allows you to equip and visualize your future laboratory based on your ideas and inspiration. We are happy to make your visions real and develop a solution which is perfectly in line with your requirements. After your individual quotation is automatically generated, you will experience a scaled impression of your new work place.

Trainings and Workshops

The basic module "introduction to materialography" is a very successful and sought-after component of the ATM Academy. Our team of lab experts and lecturers offers individual as well as advanced seminars. An outstanding characteristic of our trainings and workshops is the combination of theory and practice.



1980

ATM is founded by Brigitte und Heinrich Müller in Wölmersen.



1996

Start of direct sales activities as solution provider for the metallographic laboratory.



1998

Innovation award for Brillant 260.



2006

Range of lab furniture and equipment "System Laboratory" is introduced.



2007

Acquisition of the premises in Mammelzen.



2008

The ATM Academy is launched offering trainings and workshops.



2009

The ATM Quality conferences based on lectures and presentation of product innovations are established.

2014

Market launch of Carat 930: Instrument and software for image analysis and hardness testing



2015

ATM becomes part of the VERDER Group.

part of **VERDER**
scientific



Wet Abrasive Cut-off Machines for All Requirements

The size and geometry of a work piece may require sectioning into smaller pieces for examination. Successful sample preparation starts with correct cutting.

To avoid deformation of the sample it is necessary to extract it as gently as possible from the material to be examined. Wet abrasive cut-off machines, adapted to requirements such as geometry or size of the work piece, guarantee low-contact cutting. The permanent stream of coolant as well as the use of different cutting modes help to avoid thermal damages and to remove cutting debris.

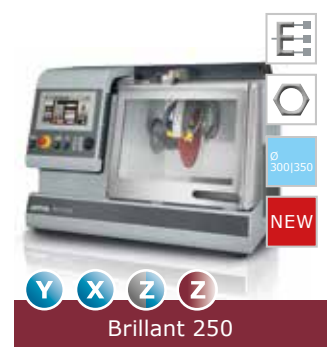
Precision Wet Abrasive Cut-Off Machines

Precision wet abrasive cutting requires highest positioning accuracy and is suitable for small pieces with different geometries and thin polished sections. Brillant 220 is a compact, accurate cut-off machine with up to three automatic axes and a variety of cutting modes, offering highest flexibility and optimum use of space.



Wet Abrasive Cut-Off Machines – Benchtop Models

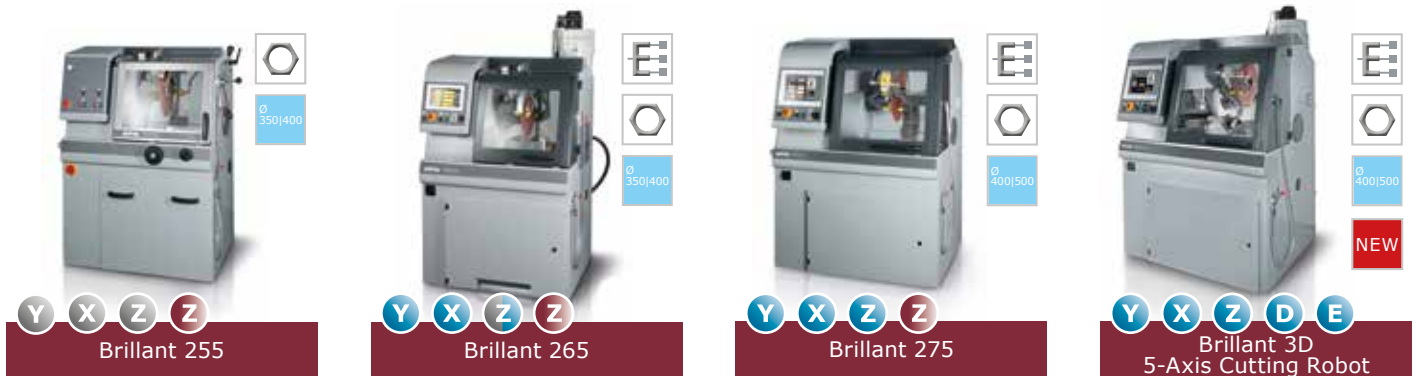
From Brillant 200 with easy manual operation and Brillant 230 for fine dynamic manual chop cuts in 3 axes to the powerful model Brillant 250 with electronic control, the benchtop models are used for a variety of applications.





Wet Abrasive Cut-Off Machines – Floor Models

The manual Brillant 255 and the automatic Brillant 265 are universal, robust and powerful wet abrasive cut-off machines used for complex work pieces. The larger Brillant 275 with its innovative operation and design concept meets the highest demands for available space and cutting possibilities. Equipped with electronic control with intuitive touchscreen operation it permits fully automated cutting processes. ATM's innovative Brillant 3D allows precise cutting operations in as many as 5 directions at various angles, without the need to reposition the specimen.



Wet Abrasive Cut-Off Machines – Large Scale Models

Thanks to high-tech components and maximum space the particularly robust and powerful wet abrasive cut-off machines Brillant 285 and 2000 are ideally suited for industrial applications.



At a Glance



PRODUCT SPECIFICATIONS
Cutting wheel diameter – in millimeters.



E-LAB
An e-Lab ready machine can be connected to a PC and thus with a network. This makes preparation procedures reproducible and interchangeable.



EASY NUT
The Easy nut is used for the quick and easy change of the cut-off wheel. For the large cut-off machines Brillant 275 to 2000 the nut is tensioned with less effort.



AXES
Y manual axis drive
Y manual or automatic axis drive
Y automatic axis drive
Z without Z axis



Easy Clamping System

The unique Easy clamping base is suitable for almost all ATM machines and makes changing the clamping elements a matter of seconds. It is placed on the machine table and fixed or released with a single screw in no time. The various Easy clamping modules greatly facilitate your everyday work. The reliable fast lock vise or the suitable Easy clamping modules allow for a great variety of clamping options.

Clamping Tools

Clamping tools and cutting equipment are used for a variety of tasks under different conditions. Our extensive range of clamping tools offers great flexibility and includes a selection of special tools and optional accessories (see page 14 for examples).

Easy clamping base

Brilliant	M	L	XL
200	-	●	-
220	●	-	-
230/250	●	●	-
255/265	-	●	-
275	-	●	●
285	-	●	●
2000	-	●	●



Easy clamping modules

Clamping module	M	L	XL
rotating table (base of head pieces 1-4, vacuum-, dual sample holder)	●	●	-
system-height adapter 50	-	●	-
v-block plate 40	-	●	-
guide bar with sliding carriage and v-groove block	-	●	-
vertical vise	●	●	-
guide bar 400	-	-	●
universal power clamping system 100/380 + 540	-	-	●

Selection guide clamping tools

	Easy clamping system			Base	direct adaption									
	M	L	XL		200	220	230	240	250	255	265	275	285	2000
Fast lock vices														
Fast lock vice 50	●	●	-	direct, M/L head piece 2, swivel unit	-	●	-	-	-	-	-	-	-	-
Fast lock vice 60	●	●	-	L head piece 4, swivel unit	-	●	●	●	●	●	●	-	-	-
Fast lock vice 80	●	●	-	L height adapter 50	●	-	●	●	●	●	●	●	●	●
Rotating plate	-	-	-	-	-	-	-	-	-	-	●	●	●	●
Cross vices/expansion clamping device														
Cross vice 50/100	-	-	-	-	●	-	●	●	●	●	●	-	-	-
Cross vice 80/100	-	-	-	-	-	-	-	-	-	●	●	●	●	●
Cross vice 80/150	-	-	-	-	-	-	-	-	-	-	-	●	●	●
Expansion clamping device	-	-	-	-	-	-	-	-	-	●	●	●	●	●
Angle vices														
Angle vice 60	-	-	-	-	-	-	●	●	●	●	●	●	●	●
Angle vice 80	-	-	-	-	-	-	-	-	-	●	●	●	●	●
Rotating vice 60	-	-	-	-	-	-	●	●	●	●	●	●	●	●
Clamping systems														
Universal power clamping system LC 90	-	-	-	-	-	-	-	-	-	●	●	●	●	●
Clamping system x-clamp 100	-	-	-	LC 90	-	-	-	-	-	●	●	●	●	●
Clamping system x-clamp 3858	●	-	-	-	●	●	●	●	●	-	-	-	-	-
Universal vices														
Piccolo 54 100	-	●	-	L hight adapter 50	●	●	●	●	●	-	-	-	-	-
Mono 61	-	●	-	v-block plate 40	●	-	●	●	●	●	●	●	●	●
Mono 132	-	●	●	L hight adapter 50	●	-	●	●	●	●	●	●	●	●
Duo	-	-	●	v-block plate 40	●	-	●	●	●	●	●	●	●	●
Chain clamping vice	-	-	●	L hight 50, v-block 40	●	-	●	●	●	●	●	●	●	●
				XL guide bar 400	●	-	●	●	●	●	●	●	●	●
				XL guide bar 400	●	-	●	●	●	●	●	●	●	●

- suitable
- on request
- not suitable



Hot Mounting Presses

The Opal series of hot mounting presses is fully hydraulic with water cooling for optimum sample mounting. Practically gapless mounting is achieved through different processes.

Hot Mounting Presses

The process sequence in water-cooled hot mounting presses runs fully automatically. Opal 460 and 480 feature an innovative slide closure which allows for quick and easy opening and closing of the mould assembly for maximum user convenience. Rectangular moulds can also be produced.



Opal 410



Opal 460



Opal 480



Sliding Closure

Modular Hot Mounting Presses

The hot mounting press Opal X-Press was developed for fast, simultaneous mounting of several materialographic specimens which may differ in size and material. The modular design allows for individual configuration of each mounting process. Up to 4 mounts can be done simultaneously from each other.



Opal X-Press Basic Unit



Opal X-Press 4



At a Glance



PRODUCT SPECIFICATIONS
Mould size – in millimeters.



ECO FUNCTION
The device features an Eco function, for example to reduce water consumption.



E-LAB
An e-Lab ready machine can be connected to a PC and thus with a network. This makes preparation procedures reproducible and interchangeable.



Optimum Sample Preparation

Grinding and polishing is the most important stage in the sample preparation process. The ultimate objective is to produce a deformation-free, scratch-free and highly reflective surface revealing the microstructure of the sample material. This is a precondition for a meaningful and reliable evaluation under the microscope. Often only after etching contrasts become visible.

The classical central pressure mode permits grinding and polishing of mounted, unmounted and oversized samples. In combination with a removal measurement it is possible to automatically grind a defined removal amount. With single pressure, up to six samples of different sizes can be placed in a sample holder and each sample is pressed to the grinding surface by its own piston.

Electrolytic polishing and etching involve light microscopic contrasting of phase boundaries through electrochemical processes.

Pre-Grinding Machines

The first grinding step is to remove irregularities like embedded edges and to produce the required planar surface. The Belt Grinder Jade 700 is ideally suited for manual deburring and pre-grinding. The Saphir 375 model is an automated stone grinder with touchscreen operation and precise measurement of the removed layers.



Jade 700



Saphir 375



Grinding Stone with stone dressing feature

Manual Grinding and Polishing Machines

Their strong speed-controlled drive makes these machines suitable for applications of every process step. The shock-resistant plastic basin and high technical standard of the instrument ensure very smooth operation and form the basis for models equipped with polishing and grinding head Rubin.



Ø 200-250



Ø 200-300



Saphir 320 | 330



Saphir 350 | 360



Manual Preparation



Automatic Grinding and Polishing Machines

These machines have an integrated grinding and polishing head with sample holder securing a perfectly uniform and planar movement of the sample over the grinding wheel or the polishing cloth. The use of the sample holder allows simultaneous preparation of several samples. The machines provide reproducible results and configuration of numerous parameters. The grinding and polishing head Rubin 500 is very easy to operate whereas Rubin 520 meets the highest standards with its innovative touchscreen operation and modern safety concept. Single and central pressure is a standard option for both machines.



Ø
200-250
(Ø 40)

Saphir 520 with Rubin 500



Ø
200-250
(Ø 40)

Saphir 530 with Rubin 500



Ø
200-300
(Ø 50)

Saphir 550 with Rubin 520



Ø
200-300
(Ø 50)

Saphir 560 with Rubin 520

Appliances and Accessories

The vibratory polishing device Saphir Vibro and the specimen-mover Rubin 540 present an alternative to conventional grinding/polishing machines due to a more gentle treatment of the specimen. The downward pressure is applied only by the specimen's own weight and by the sample holder, which is ideal for pressure-sensitive specimens. The preparation of specimens using central load needs previous levelling alignment with the ATM levelling device, which permits easy plane-parallel arrangement and fixing of specimens inside the holder. The specimens can be safely removed from the holder with the preparation surface upwards.



NEW

Saphir Vibro



Ø
200-300

Saphir 550 with Rubin 540



Levelling device



Easy clamping system

Sample Holder

ATM offers sample holders for both single and central pressure suitable for a variety of sample diameters and rectangular shapes.

The Easy clamping sample holder (central pressure) permits clamping and releasing of samples with minimum force. We also design and manufacture custom-made solutions for special dimensions and geometries.



At a Glance

Ø
200-300
(Ø 50)

PRODUCT SPECIFICATIONS

Working wheel diameter, max. sample diameter single pressure in brackets - in millimeters.



E-LAB

An e-Lab ready machine can be connected to a PC and thus with a network. This makes preparation procedures reproducible and interchangeable.



SYSTEM LAB

This machine is integrated into our lab furniture program.



System Integration

Thanks to the modular design of the System Lab numerous combinations of grinding and polishing options are possible. For example, a sink and a cleaning station may be added and sedimentation or disposal units may be integrated into the cabinets. It is possible to equip the drawers with storage compartments for grinding discs, foils or papers. All connections are hidden in the system cabinet; the electronics are accessible from the front through a drawer.



System Combinations



Retractable sedimentation tank



Disc storage

Compact Grinding and Polishing Robot

The compact automated unit Saphir X-Change combines grinding and polishing station, ultrasonic cleaning station, media changer, dosing system and an integrated sedimentation tank in one machine and is seamlessly integrated into the System Lab. Easy operation via touchscreen and a newly developed system for fixing and releasing the sample holder allow for quick results. Saphir X-Change provides ultimate convenience and safety.



Saphir X-Change
Grinding & Polishing Robot



Working station with media changer



Perfect integration into System Lab line

Full Automation

ATM's unique compact system unit was designed for fully automatic grinding and polishing including the cleaning and drying process. The visualized program control records every process for documentation and, hence, perfect repeatability. 4 to 8 stations may be combined according to requirements.



System automat
with 5 stations



System automat
with 7 stations



Automatic feed from
sample holder magazine



Materialography On Site

Saphir 300 is a simple tool for manual preparation of indestructible samples. Kristall 650 is an electrolytical polishing and etching unit which is easy to transport and which operates independently of the mains. It is ideal for usage outside the lab. The instrument offers a unique combination of easy operation and high functionality.



Saphir 300



Kristall 650



Materialographer on site

Electrolytic Polisher and Etcher

Kristall 680 is a fully automatic electrolytic polisher and etcher with intuitive touchscreen operation. Polishing and etching unit and control unit are separated so that Kristall 680 can be operated in the lab fume cabinet. A scan function displays the current voltage curve of a material and quickly provides polishing results without structural changes. The electrolyte vessel is stored with a lid and can be exchanged.



Kristall 680



Etching unit



Separate units



At a Glance

NEW**NEW PRODUCT**

This icon marks products which appear in the ATM catalog for the first time.

**E-LAB**

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**SYSTEM LAB**

This machine is integrated into our lab furniture program.



Convenient Evaluation

High precision and optical quality are essential for light microscopic analysis of prepared sample surfaces. Further requirements include the possibility to archive and retrace results by digital image processing. ATM microscopes meet all these requirements thus ensuring state-of-the-art materialographic analyses.

Automated evaluation drastically reduces analysis time, for example for micro-hardness testing. From the impression made by a standardized diamond in the sample the hardness, or the hardness distribution, may be concluded - a simple principle with high demands on precise optical analysis.



Image Capture, Analysis and Hardness Testing

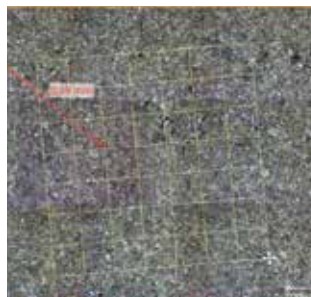
Carat 930/950 is a comprehensive basic module used for automatic optical analysis. The combination of innovative technology and 64-bit software, Koehler illumination and a 3-axes-bench make Carat 930/950 exceptionally suitable for micro hardness testing and optical analysis. The successful and quick Easy clamping system has been adapted to suit the Carat bench. Plane-parallel mounting of the sample is achieved with the Carat sample holder.



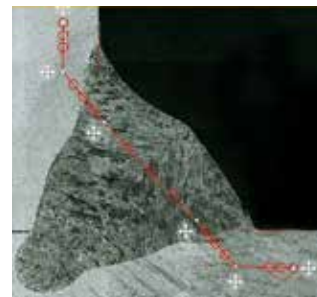
Carat 930



8-times objective revolver



Live image with
measurement functions



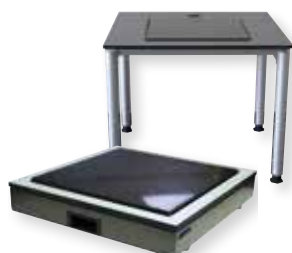
Carat weld
software module

Accessories

Light microscopes from Leica provide suitable light and filter procedures. Shock-sensitive measuring and testing instruments require a specific environment. The new elastically suspended hard rock plate reduces the influence of external vibrations on the measuring results. The Carat clamping system fixes the samples for analysis with a wide range of clamping rings in different diameters and a sample holder for unmounted and rectangular samples.



Leica light microscope



Hard rock plate



Carat clamping system



Unmounted sample



Fully Equipped Laboratories

From a single instrument to a fully equipped laboratory – ATM offers tailor-made solutions for your requirements. All components are designed to ensure environmentally-friendly material recycling.

The Lab Furniture System combines tried & tested ATM quality with a flexible modular system. Starting with the basic module in aluminum, each cabinet element can be fitted individually with drawers, doors, inserts and upper structures.

Functional Lab Cabinets

The heavy duty shelves and cabinets are particularly suitable for storing heavy samples and clamping elements. Chemicals must be stored in a closed room with exhaust air system. The fume cupboard for working with chemicals complies with the safety standard DIN EN 14175.



Heavy duty shelves
and cabinets



Cabinet for acids and bases



Lab fume cupboard



Customized combinations

System Lab Furniture

This furniture system can either stand freely or be combined in many different ways. Conduits are discreetly hidden inside the cabinet combination. Shelf pillars and wall units provide possibilities for integrating a range of different connections. With the ATM 3D Lab software we can equip your laboratory according to your requirements for a virtual tour.



At a Glance



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SYSTEM LAB

This machine is integrated into our lab furniture program.



Clamping Tools and Additional Features for Brilliant

The design of our machines allows for customized features to meet specific requirements. We develop individual solutions in close cooperation with the customer.



Fast lock vise 80 with prism jaw for centric longitudinal cuts



Clamping device for sample preparation of curved ceramic bodies



Fast lock vise 80 with Easy plate 90°



Rotating device with quick changing system

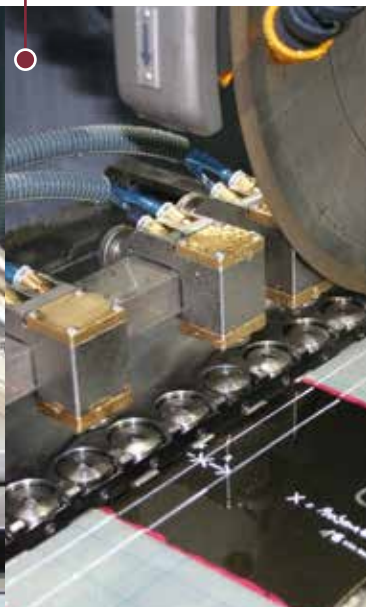


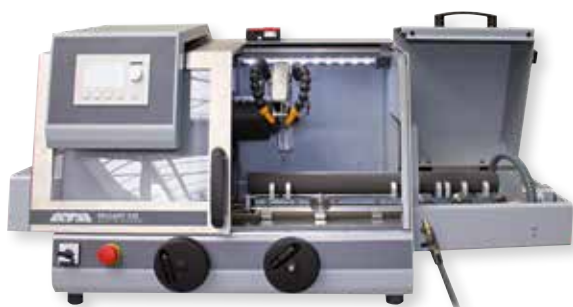
Special clamping device for clutch case

Pulsed clamping system for automatic parallel cutting of GFK and CFK plates

Cutting device for fish ear bones

Clamping system for serial cuts of ball heads





Brilliant 250 with special Z axis for cutting drilling cores



Brilliant 265 with fully automatic rod feed

Brilliant 2000 with automatic feed extension for serial cuts



The Full Scope

We have the consumables you need for your preparation process. The offering is perfectly in line with our range of products.

- Corundum cut-off wheels
- Diamond cut-off wheels
- CBN cut-off wheels
- Pot wheels
- Coolants and anticorrosives
- Filter material



- Hot mounting material
- Cold mounting material
- Infiltration
- Pressure appliance
- Cold mounting moulds



- Grinding stones
- Diamond grinding foils
- Zirconium aluminum oxide grinding papers
- Galaxy diamond grinding discs
- Galaxy grinding and polishing discs
- SiC wet grinding papers
- Grinding belts
- Grinding papers for Saphir 300
- Diamond suspensions
- Alumina, polishing suspensions
- Polishing cloths
- Carrier discs, adhesive/magnetic foils
- Electrolytes
- Etchants



- Plasticine
- Microscopy slides
- Literature
- Iron-carbon diagram



- Cleaning agents
- Safety equipment
- Adhesive and replication set



Science for Solids

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

As part of the VERDER Group, the business division VERDER SCIENTIFIC sets standards in the development, manufacture and sales of laboratory and analytical equipment. The instruments are used in the areas of quality control, research and development for sample preparation and analysis of solids.

www.verder-scientific.com

