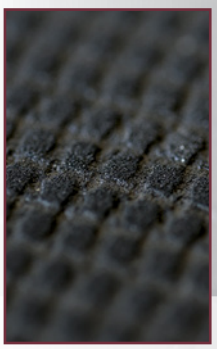
# material.

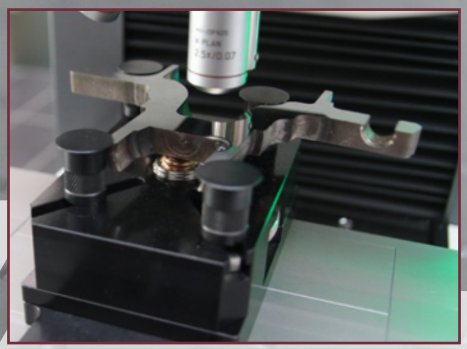
THE MAGAZINE WITH NEWS FROM ATM

9/2015











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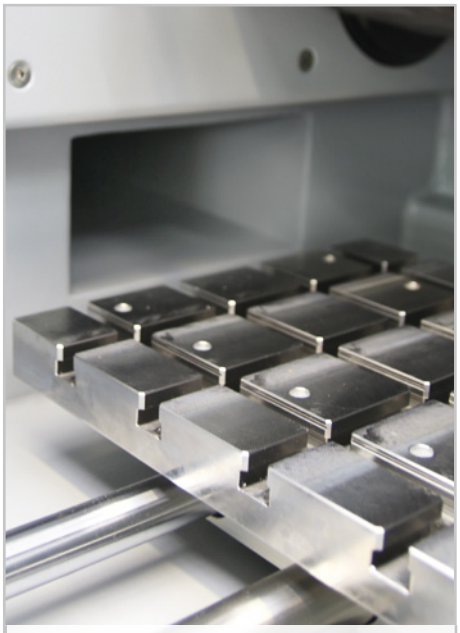
# more Brillant 250

Afterits revision, our customer favorite **Brillant 250** is more extensive, faster: The Universal cutting machine has more cutting space, more travel for all axes and a larger machine table.

The switch to smart touch screen controls allows intuitive operation and now offers all the functions of our program-based large room cutting machines, such as the MPP (Multi-Position Process). Different components can be positioned simultaneously and added in an automatic cutting process.

ENLARGED CUTTING CHAMBER

sale
**available from 03/16**



FEED-THROUGH ON BOTH SIDES

tech notes

| PRE | POST |
|---|---|
| DIAMETER CUT-OFF WHEEL | |
| Ø 250 – 300 mm | Ø 250 – 350 mm |
| CUTTING WHEEL MOVEMENT Y-AXIS | |
| 125 mm | 150 mm |
| TRAVEL X-AXIS | |
| 250 mm | 300 mm |
| CROSS FEED Z-AXIS | |
| 100 mm* | 150 mm |
| TABLE SIZE WxH | |
| 380x250 mm \| 300x250 mm* | 500x320 mm \| 420x320 mm* |
| WxHxD | |
| 830x670x670 mm | 975x780x855 mm |

* table with Z-axis

# special length

The **fast-lock vice 80** with an extra-long clamping width of 250 mm was realized on customer request.

For numerous clamping challenges we have already realized matching special solutions. Our brochure on individual clamping solutions can also be found in the download area of our website.



# automation at last

On top of the wish list of our customers, the Saphir 355 continues to impress with a lot of high-tech in the smallest space.
Fully integrated into the System Lab 2.0, it binds together several meters of standard equipment for grinding and polishing in one unit.
The process is automated by intuitive touch-screen controls. Grinding or polishing media is automatically changed and all parameters can be adjusted directly during the process.

TOUCHSCREEN CONTROL


INTEGRATION IN SYSTEM LAB

features

**Intuitive operation**

- Operation with touch function
- Programming and cal-up with visualized modularity
- Easy manual loosening and tightening of sample holder

**Stations**

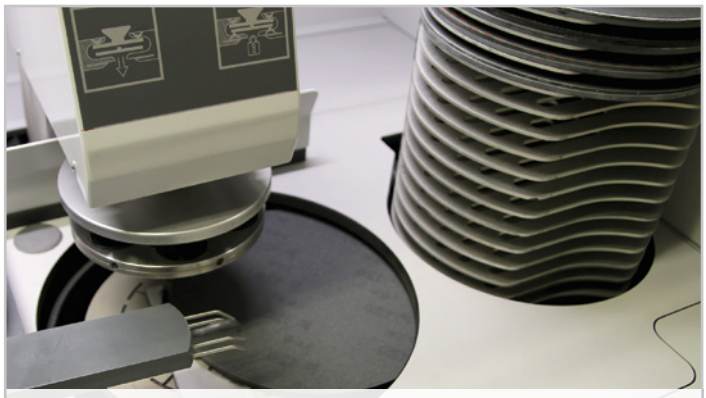
- Grinding and polishing station with vacu-jet-system, cooling function of working wheels/basin rinsing and extending splashing cover
- Integrated dosing unit with easy accessible, visible bottle depot
- Grinding and polishing head with central pressure and new system for manual loosening and tightening of sample holder
- Changer with stack for 16 grinding and polishing medias
- Ultrasonic-cleaning station
- Cleaning station with water and ethanol
- Integrated settling tank

**Safety concept**

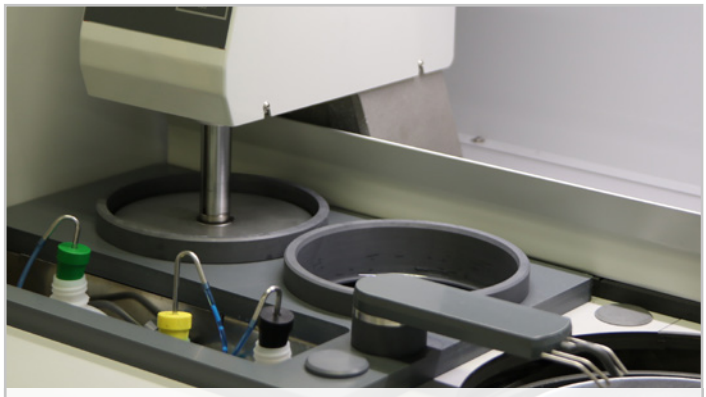
- Semi-covered working space with large front panel and exhaust ventilation
- Operation zone protected by light-barrier

sale

**Available from 03/16**

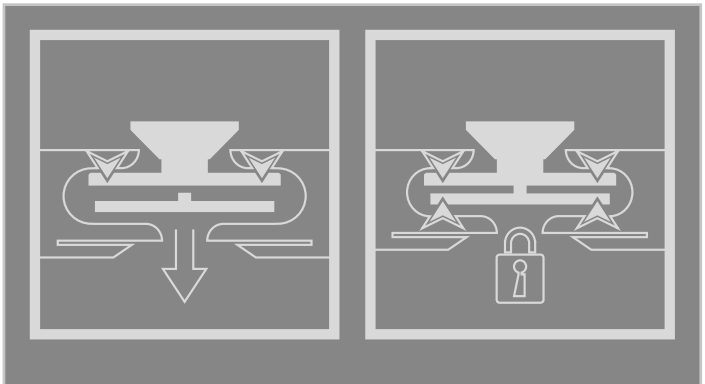


GRINDING AND POLISHING STATION WITH FOIL STACK



CLEANING AND ULTRASONIC STATION

SYSTEM SETTLING TANK



EASY FIXING AND LOOSENING OF SAMPLE HOLDER

EASY ACCESS TO DOSING BOTTLES

# rethought

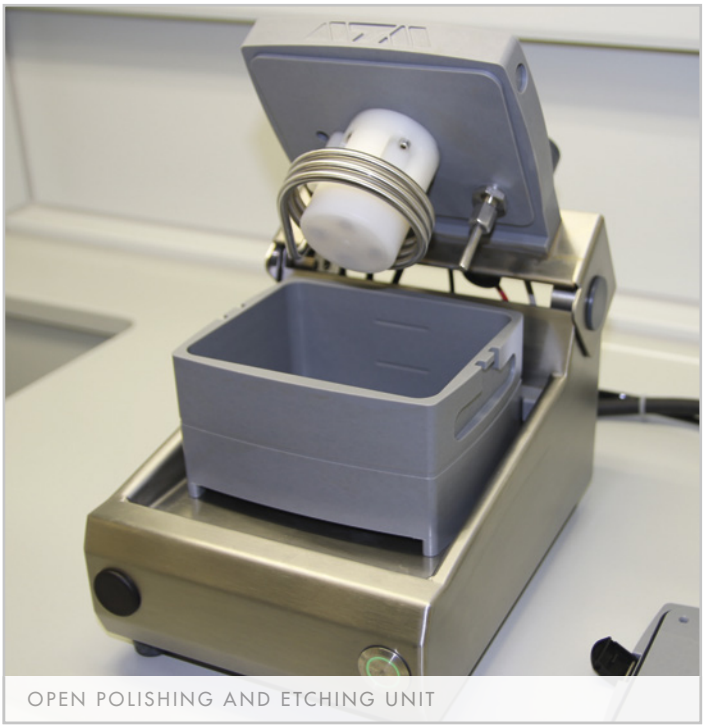
Sale
available from 01/16

The new design of the electrolytic polisher and etcher **Kristall 680** impresses with clear design and a completely rethought application for higher efficiency and safety standard.

The basic equipment with its touchscreen controls complies conveniently with operating standards. Up to 250 processes can be created intuitively, stored, retrieved and protected by password.
A scan function displays the current-voltage curve of a material.
The optimum values for a polishing or etching process can be transferred directly from this diagram or adjusted manually. During the process, while monitoring the electrolyte temperature, the voltage and current curve is displayed graphically at the same time.

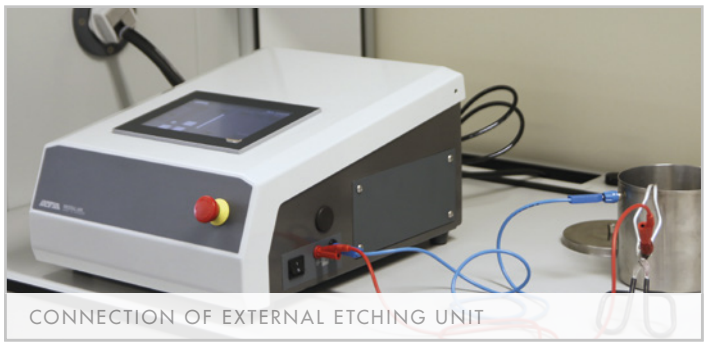
Operation of the basic device is possible even with gloves, and separation of the polishing and etching unit enables a space-saving use in lab fume cabinet.
Handling of the polishing and etching unit was facilitated significantly by the interchangeable 1Ltr. electrolytic tanks. Different electrolytes can be changed easily and stored closed with lid.
The unit is cleaned with water by a washing programme.

INTUITIVE TOUCHSCREEN-CONTROL



OPEN POLISHING AND ETCHING UNIT

LOCKABLE ELEKTROLYTE TANK



CONNECTION OF EXTERNAL ETCHING UNIT

**Kristall 680 basic unit**

- Intuitive touchscreen control with current and voltage diagram (real time)
- More than 250 programs storable with password
- Scan function
- Output current 0 – 14 A / output voltage 0 – 90 V / power output 1 kW
- Connection for polishing and etching unit and external standard etching unit
- Contactless, magnetically coupled pump engine
- USB-interface (e-Lab-ready)

**Kristall 680 polishing and etching unit**

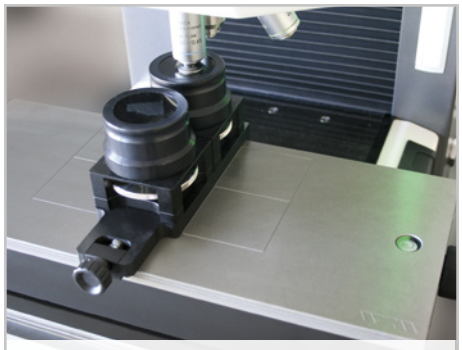
- Large polishing table (WxD 160x140 mm)
- Contactless, magnetically coupled pump-engine
- Sample height 50 mm (higher samples to be etched with external anode/magnetic or crocodile clip)
- Exchangeable electrolyte tank with lid (1 Ltr.) made of chemical-resistant plastic
- Automatic start button with LED-display function
- Stainless steel housing with drip tray
- Incl. connection for cooling at basic unit
- 6 masks (set) (blind mask/Ø8/Ø14/Ø30/12.5x12.5/20x25 mm²)

**Safety**

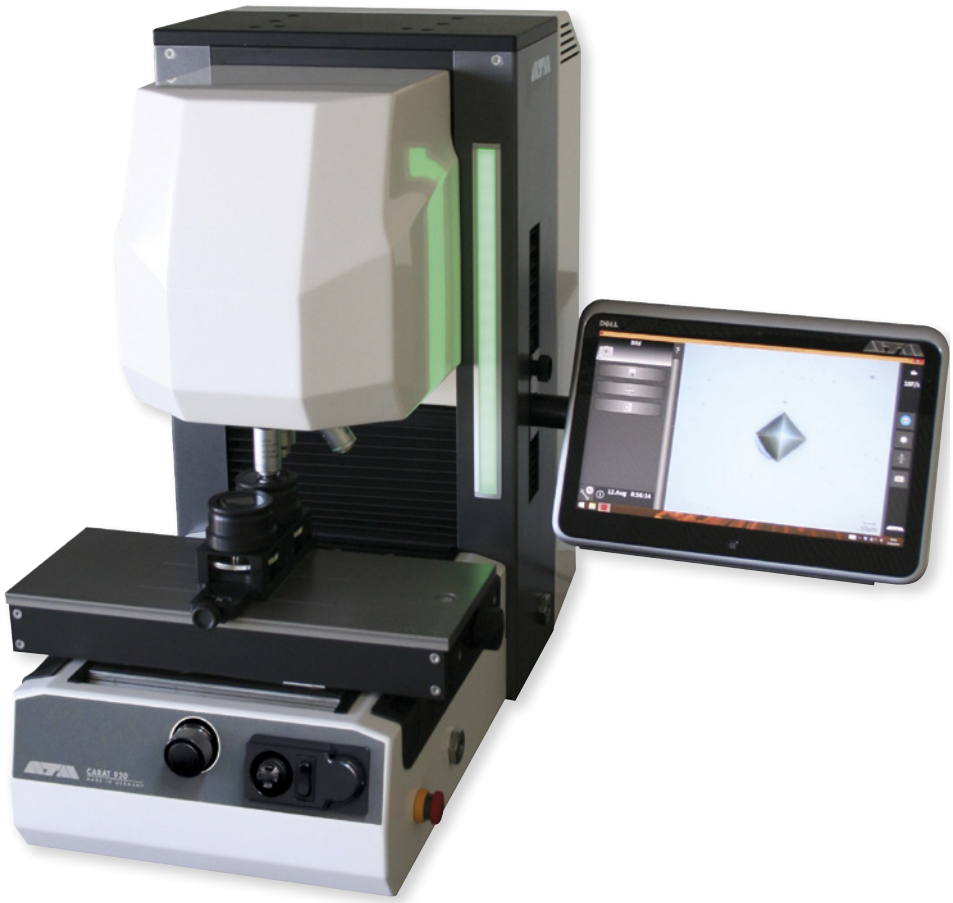
- Monitoring of the electrolyte temperature
- Protection against contact with live components
- Basic module with emergency stop button
- Made of stainless steel or chemical-resistant plastic

# by fascination in detail

Newest technologies and intuitive usage make the **Carat 930** an exceptional product for micro-hardness testing and optical analysis.
Measuring tasks are child's play and performed in a better and simple manner.
Our robust basic unit can be adapted optimally to your requirements with our software modules and the Carat sample clamping system.



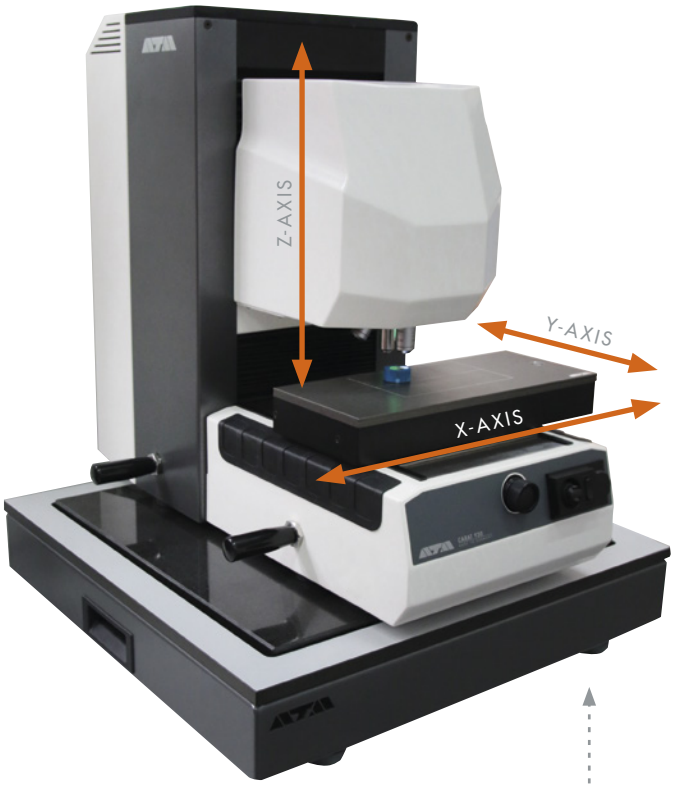
HIGHLY RESILIENT CARAT-STAGE



HAND WHEEL X-AXIS

Even if a micro-hardness tester operates in a rather small dimension, our **safety concept** offers more protection for the user. Examples are the yielding rubber bar below the stage and the Emergency Stop button.
The indenter is equipped with an automatic load control. The generous light strip displays the machine's status.

SAFETY CONCEPT FOR X-AXIS




VIBRATION-ABSORBING BASE

## features

**Fully automatic hardness testing**

- Vibration-absorbing cast Aluminium body
- Load cell with microprocessor-based force control
- 8-times objective revolver (LED lighting)
- Fine-dynamical scrolling wheel and high-speed button for Z-axis control
- Carat sample clamping system
- Automatic plane detection with fully automatic rapid focusing (option)
- Safety concept
- Integrated levelling and transport assistances
- e-lab-ready

HAND WHEEL Y-AXIS  JOYSTICK (X-/Y-AXIS)

CONTROL ELEMENTS FOR MANUAL OPERATION

HIGH-SPEED BUTTON Z-AXIS

FINE-FOCUSING (Z-AXIS)

## tech notes

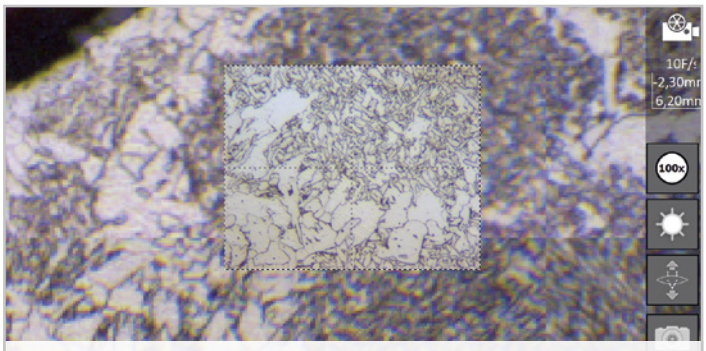
| | |
|---|---|
| X-AXIS (CARAT STAGE) | 160 mm \| ► 250 mm |
| Y-AXIS (CARAT STAGE) | 100 mm |
| MAX. TABLE LOAD | 60 kg |
| Z-AXIS | 150 mm |
| POWER SUPPLY | 110 - 220 V (50-60 Hz, 1 Ph) |
| WxHxD | 37.5 x 65 x 67 cm |
| WEIGHT | approx. 65 kg |

► CARAT-STAGE WITH EXTRA LONG X-AXIS (250 mm)

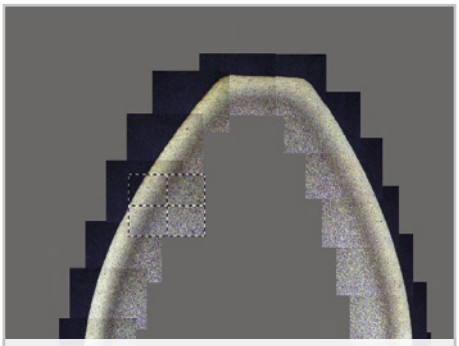
The standard Carat stage takes three **easy clamping plates** with up to six samples. The longer stage takes four clamping plates with eight samples. The easy clamping system is also suitable for fast-lock vice 50 and unmounted samples.

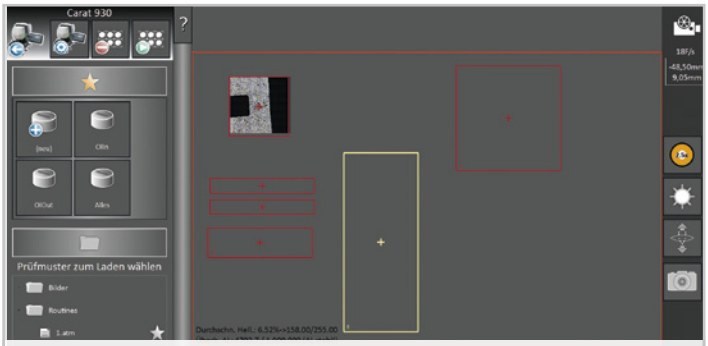
# very latest news

Many expansions in Carat software are inspired by our customers and so apparently small innovations have made our software modules even more efficient.
The intuitive control by touch or mouse forms the basis for modern image processing **(64-bit software (Win 7/8))**.



PICTURE-IN-PICTURE-FUNCTION: LIVE IMAGE OF OVERVIEW SCAN


SEMI-AUTOMATIC CONTOUR CAPTURE



STAGE MENU: FREELY-CONFIGURABLE SAMPLE PLACE

## software

CARAT-COLLECT

**Image capturing with dynamic live image**

- Objective-independent picture-in-picture function
- Freeze live image (e.g. during vibrations)
- Automatic brightness control
- Autofocus
- Sharpness reconstruction by plane scanning
- Scanning of surrounding area for overview images with integrated live image
- Overview scan with semi-automatic contour capture
- Live-image capture (save/clipboard/export in common image formats)
- Brightness correction of partial images of the overview scan
- Save configurations of a sample for reproduction and load them by shortcut (favorites) from the stage menu
- Freely configurable sample places (size, amount, position) in stage menu with large overview image

**Carat-Collect**
*included in basic module*

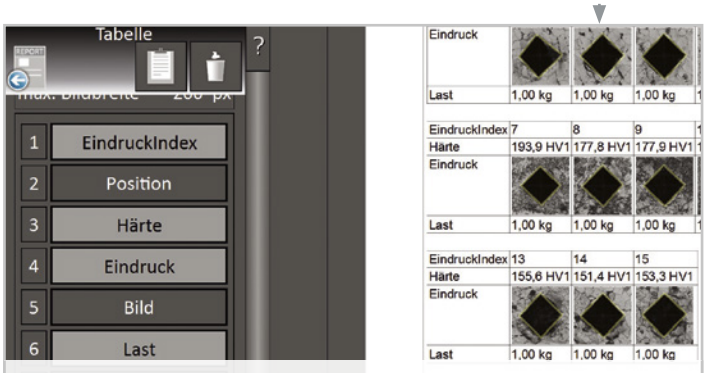
"COLLECT" AND MANAGE IMAGES

**Carat-Select**

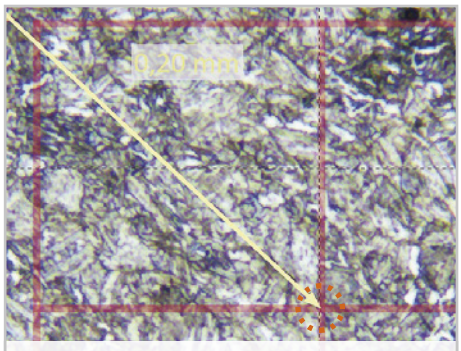
"SELECT" AND MARK FACTS

**Carat-Connect**

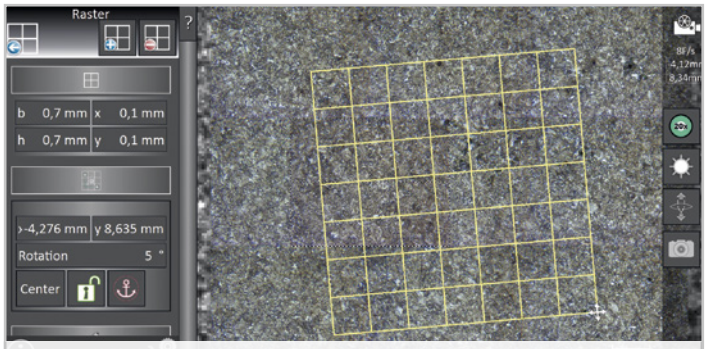
"CONNECT" RESULTS



INTUITIVE CONTROL UP TO ANALYSIS




SNAP/CAPTURE FUNCTION




MEASURING OBJECT: GRID

software

CARAT-SELECT

**Measuring module**

- Measuring functions: distances, angles, areas, circles and polygons with dimensioning
- Define grids
- Lock single measuring objects
- Keep selection of measuring object
- Magnetic reference points and lines
- Define zero position of coordinate system
- Align measuring elements by coordinate input
- Repeat moving coordinates by Enter
- Edit colour and font of measuring objekts

software

CARAT-CONNECT

**Report generator**

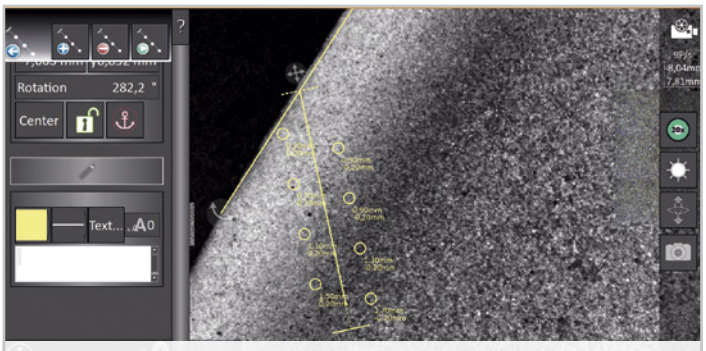
- Output overview images, value tables, diagrams
- Dynamic overview image, for example when changing the live image view
- Update of all elements in the report if there are changes in program
- Selection of parameters of a table and varying composition for multiple tables in a report
- Templates for hardness testing
- Reports according to DIN EN ISO 6507 und ASTM E-384
- Insert drawing elements such as rectangles and lines
- Define form fields
- Assign barcode scans
- Output formats: PDF, CSV and clipboard
- Optional interface modules: QDAS, ODBC/SQL
- Place existing forms into the background

details

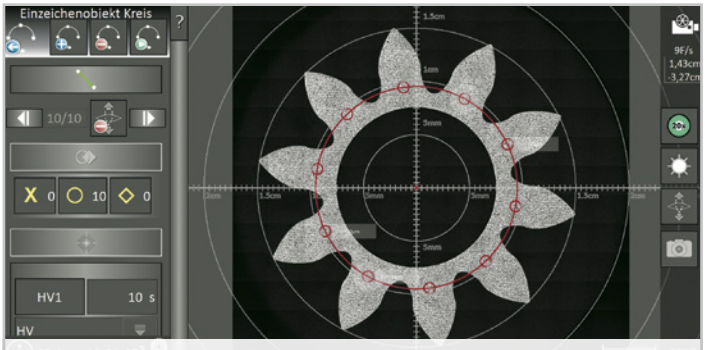
**Dynamic generation of a report** means images and data can be modified at any time and be updated when the report generator is open. With a single click on the overview image you return to the live image directly. Also tables, curves and graphs can be corrected at any time by the program.

For **editing** the individualized report form, you can use standard forms which contain date elements, hardness testing tables and other exemplary elements.
Personalized form templates can be generated. Logos, background images and drawing elements complement the appearance of the report generator.

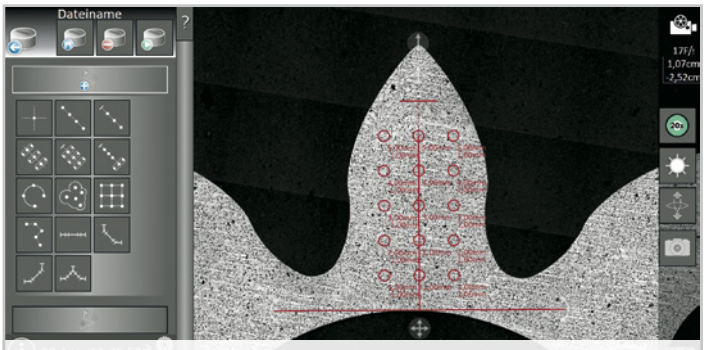
For **further processing**, tables can be copied into Word by clipboard. To use the statistical functions of excel, a CSV export is possible.
Interface modules can connect to existing data bases.



ANGLE DRAG POINTS CHD



CIRCLE WITH CONSTRUCTION LINES



SINTER TEST SERIES

# from practice

Efficiency and reproducibility of different applications characterize our software module.
And additionally, welding module and grid for an area scan have been added at up to 6000 test points.
The opportunity to present hardness values in colours, especially here supports visual expressiveness. The colour values can be exported to Excel or even converted into a 3D representation.

software

HARDNESS TESTING MODULE

**Fully automatic and manual image analysis and hardness calculation**

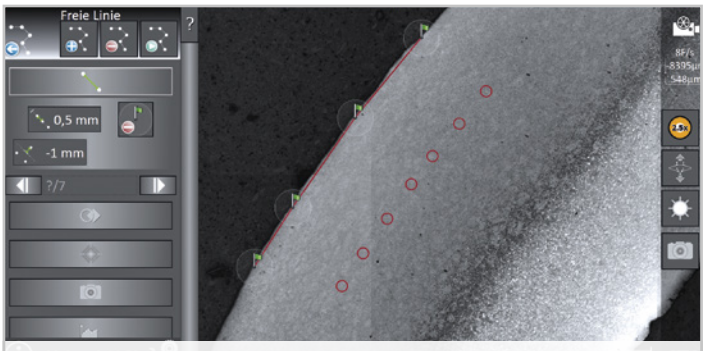
- Create single test points and series
- Align testing objects visually or parametrically
- Angle drag points for easy rotation of CHD or NHD test series
- Define the angle between border and test series (standard 90°)
- Assign different indentation states (planned, completed, incorrect indentation)
- Save and reload sets of test series for reproduction
- Misalignment of a sample surface can be compensated by pre-focusing testing positions
- CHD test series: define offset for a single or multiple rows
- Sinter test series
- Define tolerance band for hardness or CHD curve
- Circle or circle segment with concentric auxiliary circle lines
- Test point group
- Mark hardness values in colour

tech notes

- Force transducer with microprocessor-controlled force control
- Electronically controlled load application

| TEST LOAD | |
|---|---|
| FOR LOAD RANGE* | 0.49 – 294.2 N |
| TEST METHOD* | HV 0.05 – HV 30 |
| TOTAL TEST RAGE | 1 g – 30 kg |

* according to Vickers (DIN EN ISO 6507, ASTM E-384)



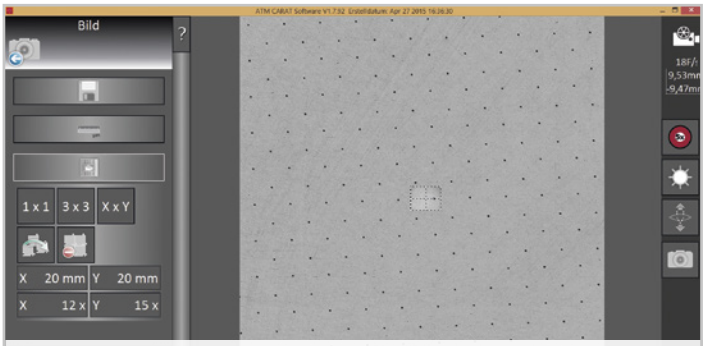

FREELY CONFIGURING OF POLYGON LINE

software+

FREE LINE TEST SERIES

**Polygon line**

- Choose amount of points and angle between segments freely
- Set offset, for example at sample border
- Re-align single points individually, add or delete



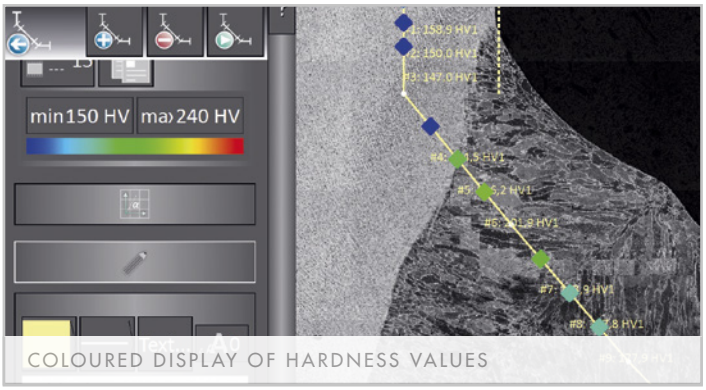

HARDNESS PROFILE OF AREA BY GRID

software+

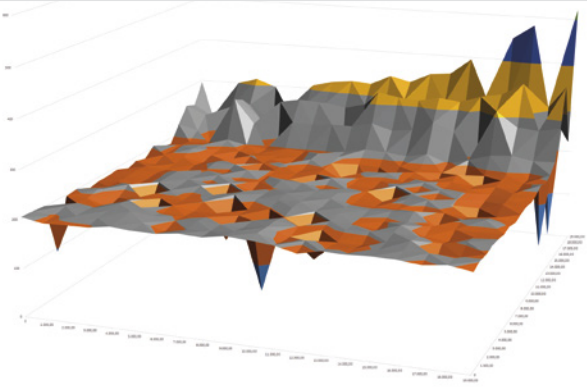
GRID

**for area scan**

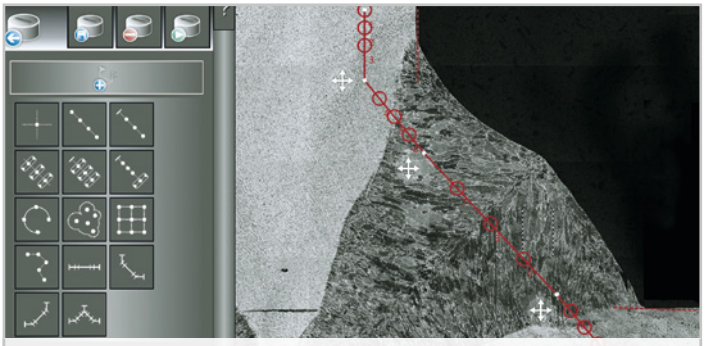
- Surface testing with definable grid with up to 6000 testing points
- Define number and distance of test points
- Acceleration of the test process by calculations in the background




COLOURED DISPLAY OF HARDNESS VALUES



3D VIEW OF SURFACE SCAN IN EXCEL



FILLET WELD TOOL WITH ADJUSTABLE OUTER ANGLES

software+

WELD MODULE

**for butt weld, (double) fillet weld**

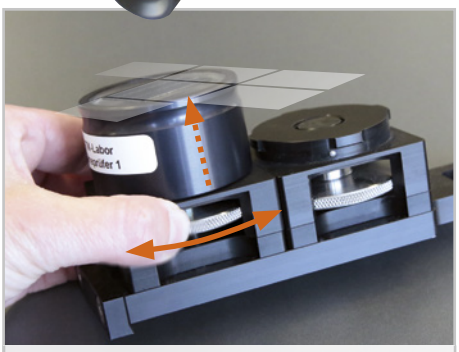
- Set up 5 zones of the test series: amount of points, distance and alignment in each zone (left, right, centred)
- Show std. tolerance borders to keep the required distance to sample border
- Change the exterior angle at the fillet weld
- Put out results labelled with zone names in report

# for good reasons

Our **Easy-clamping system** has prevailed successfully in the cutting sector so we have adapted it for the Carat system. The Carat clamping plate is placed on the stage and fixed plane-parallel with a manual screw.
In addition to the fast-lock vice 50 for unmounted samples, the Carat sample holder is the base for mounted samples from Ø 25-50 mm. Alternatively, there is also an Easy clamping system for sample diameters from 50-70 mm.

The Carat-sample holder fixes the sample against the clamping ring from below. This ensures a flat test plane of all clamped samples and thereby provides a rapid change of view by the software.

The **universal clamping system** for Carat clamping plate 50-70 fixes coplanarly a wide variety of sample geometries. The easy-clamping function provides quick and easy change of the clamping vice (also fast-lock vice 50).



FLATNESS EXAMINATION OF ALL TEST PLANES


UNIVERSAL CLAMPING SYSTEM CARAT


CLAMPING EXAMPLE

## samples

- unmounted samples
- rectangular samples (15x27 – 48x75 mm)
- round samples (Ø 35 – 95 mm)
- max. sample height 21 mm

With our 64-bit software, we use the latest **computer and screen technology** such as the touch tablet PC, which can be latched in an adjustable holder on the machine.
Our free-standing system is equipped with touch-LED-TFT and an amazingly small Micro PC.

# comfort and function

The latest version of our **system lab 2.0** is now finally completed with many innovative details in design, functionality and unlimited combinations.
The screw-together system with Aluminum body provides storage space in shelves and wall units with its vibration-free column construction. Media is easily accessible in the columns. Furthermore, the supply cables are concealed and can be layed out over the length in the rear cabinet.
Small details such as LED workplace lighting and drawer inserts complement the flexible module system. Functional elements and equipment installations line up seamlessly.

With our 3D design software, we can present a virtual image of a lab tailored to your needs and space.

IMAGE 1

IMAGE 2

IMAGE 2

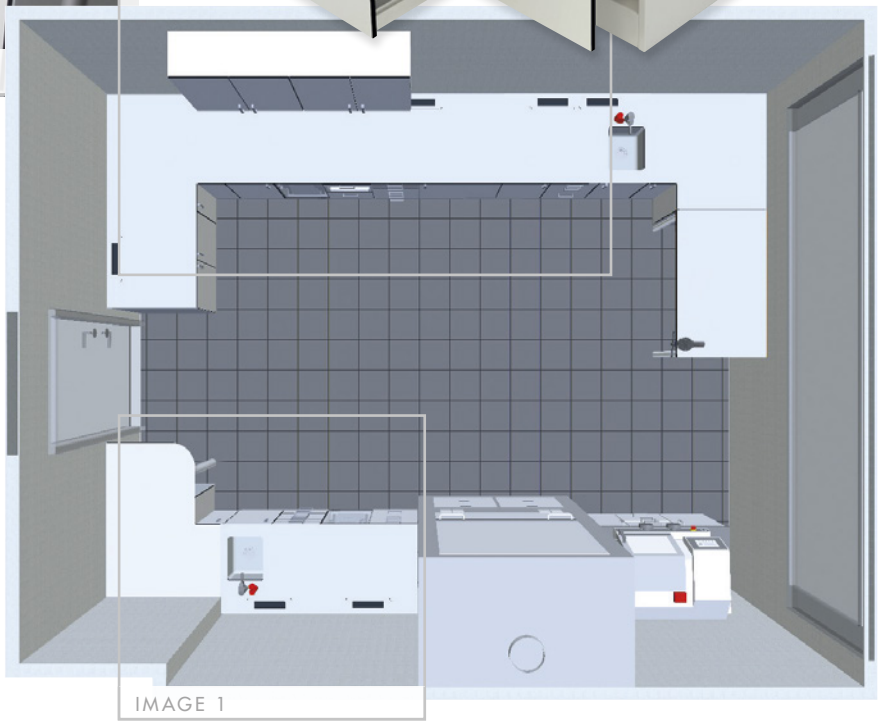
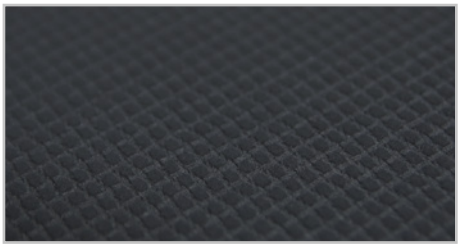


IMAGE 1

# more structure



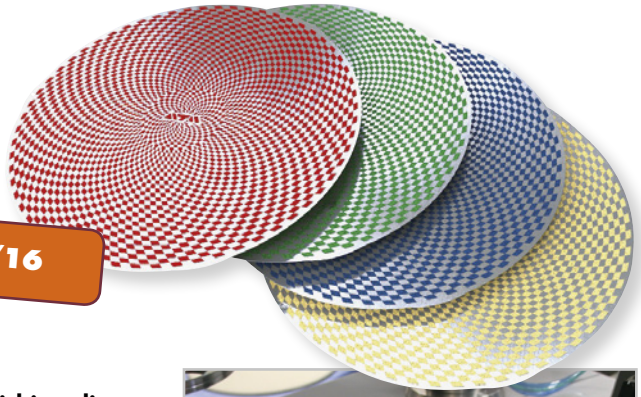
final polishing

oxide suspensions

alumina

The new polishing cloth **Lambda** with its special surface structure is a universal synthetic cloth for final polishing.
The checked pattern prevents large specimens from easily being sucked onto the cloth and the highly liquid suspension will stay longer on the surface.

| | Ø 200 mm | Ø 250 mm | Ø 300 mm |
|---|---|---|---|
| SELF-ADHESIVE | 95003597 | 95003598 | 92003599 |
| MAGNETIC | 9503600 | 95003601 | 95003611 |

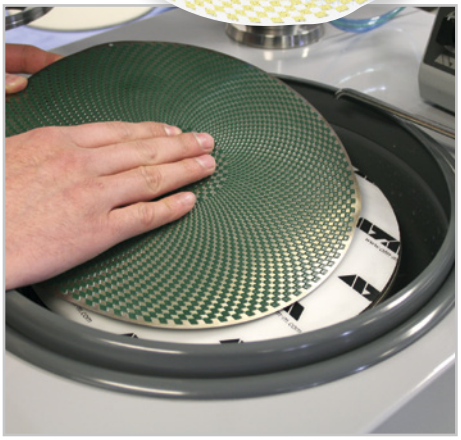


prices **available from 01/16**

# price advantage

Modernizing of our production process of the **Galaxy-grinding and polishing discs** enables us to bring out a worthwhile price advantage.

Tips for optimal handling of the Galaxy-disks can be found on our website, or *www.youtube.com/watch?v=d872x1s6Ttk*



| µm | 125 | | 46 | | | 26 | | | | 15 |
|---|---|---|---|---|---|---|---|---|---|---|
| FEPA | 80 | 120 | 180 | 240 | 320 | 400 | 500 | 600 | 800 | 1000 |
| Galaxy | RED | | GREEN | | | BLUE | | | YELLOW | |
| | 120 | | 30 | | | | | | | |
| Ra* µm | 1 | | 0.3 | | | 0.07 | | | 0.05 | |

* approx. achieveable surface roughness by using water