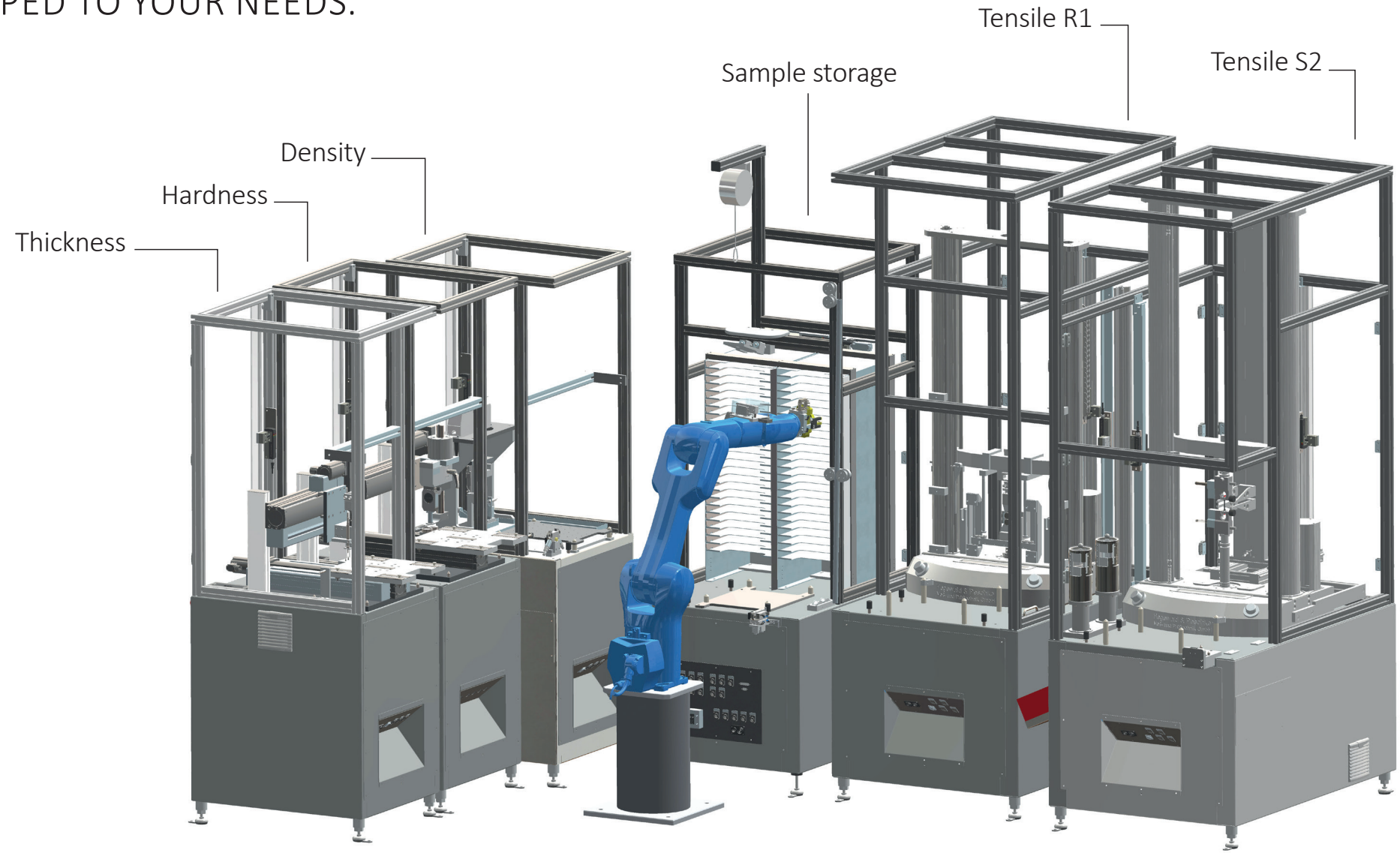
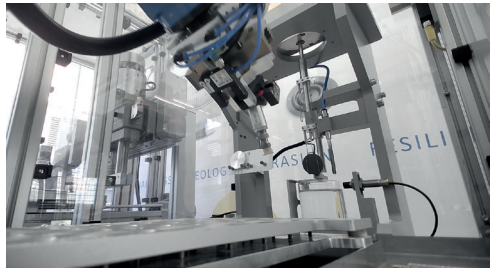
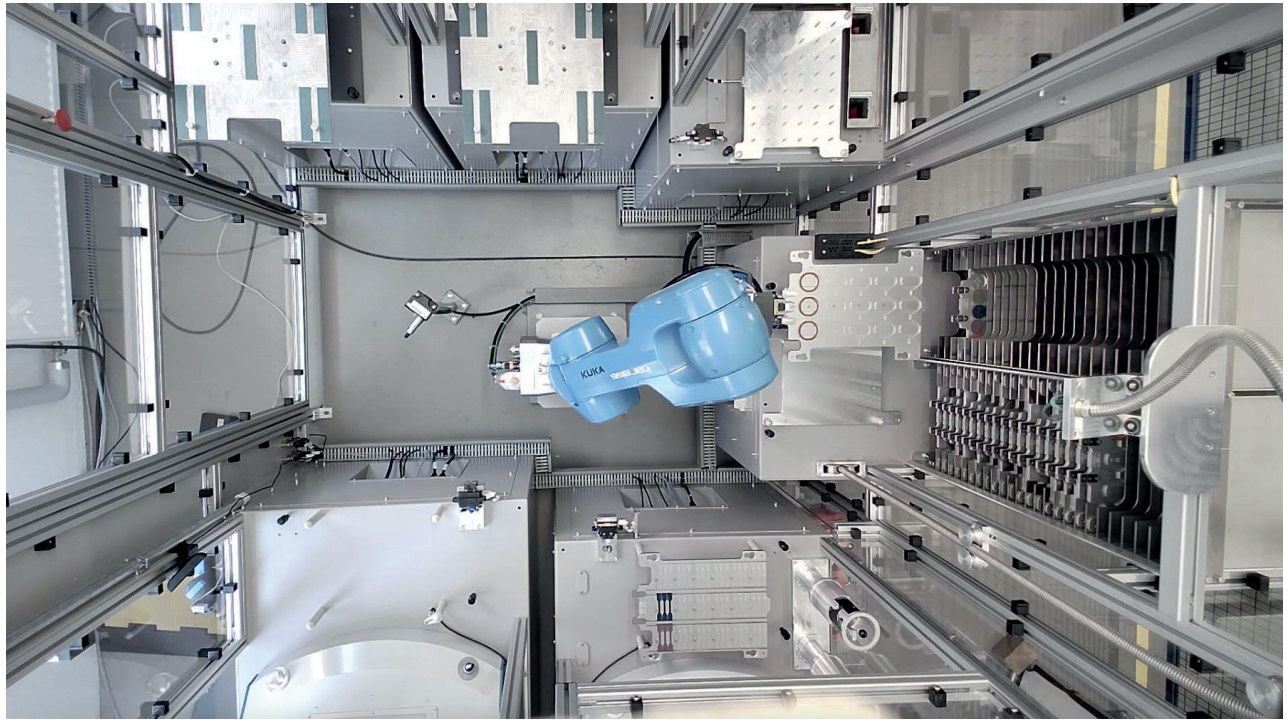
SmartLab

bareiss®

MODULAR, SCALABLE TEST LABORATORY DEVELOPED TO YOUR NEEDS.







The core requirements for an automated testing laboratory are very similar, but the implementation is often individual, as the testing methods and spatial conditions vary. We have considered standardization and individuality in the design of our SmartLab and have therefore developed a fully automatic physical laboratory based on a modular principle.

SmartLab intelligently combines the individual requirements of our customers. Various sample geometries can be introduced into the machine, exactly as needed for the testing application. The industrial-grade 6-axis robot distributes the samples within the machine automatically, thanks to the self-developed software, and with its unique gripper system, it can transport entire sample trays as well as use different secondary grippers to separate the numerous samples of a tray and introduce them into the respective testing stations. A significant part of the development was devoted to error handling – the machine can free itself from almost any situation and provides the user with helpful action recommendations.

Our first SmartLab was delivered with a hardness test, a station for determining density, a thickness measurement, and two tensile testing machines for different sample geometries (S2 rods and R1 rings).

THE MODULAR SYSTEM AND ITS COMPONENTS

The testing system is built on a solid steel welded frame and features a standardized electronics and hardware interface for „SmartLab.“

HARDNESS TESTING CUBE

The globally proven hardness testing system „digi test II“ is used for all available hardness testing methods, with corresponding automation for standard-compliant measurement of the specimen at various points. The number and spacing of the tests can be individually adjusted.

DIN ISO 48-4, ASTM D 2240

TENSILE TESTING CUBE FOR R1 RINGS

For tensile testing, a commercially available standard product is used – this is not a product from the Bareiss portfolio. The evaluation of suitable devices was carried out as part of a preliminary trial. Participants were selected to include as many different tensile testing machine manufacturers as possible.

The thickness measurement required for tensile testing on the R1 ring is performed at an additional station.

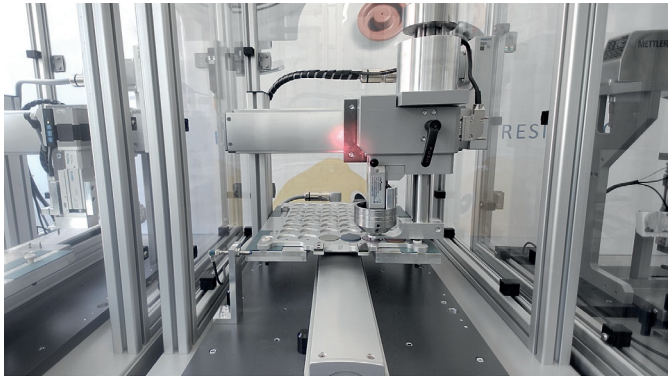
DIN 53504

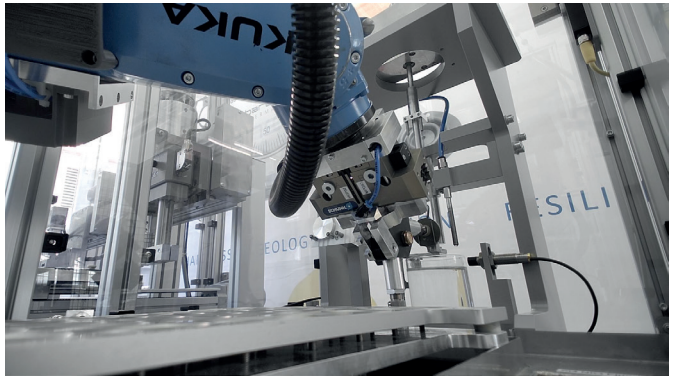
TENSILE TESTING CUBE FOR S2 RODS

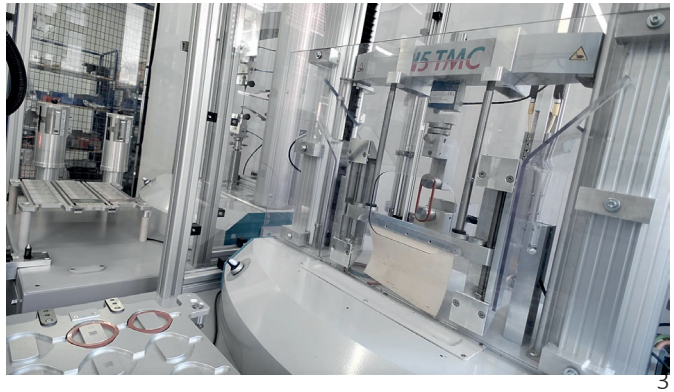
For tensile testing, a commercially available standard product is used – this is not a product from the Bareiss portfolio. The evaluation of suitable devices was carried out as part of a preliminary trial. Participants were selected to include as many different tensile testing machine manufacturers and different extensometers as possible.

The thickness measurement required for tensile testing on the S2 rod is performed at an additional station.

DIN 53504







THE MODULAR SYSTEM AND ITS COMPONENTS

DENSITY MEASUREMENT CUBE

The density measurement is based on the buoyancy method. This means the mass of the sample bodies is measured once in air and multiple times in a beaker filled with liquid. During the development phase, comparative measurements were conducted with other devices available on the market and relevant accredited laboratories. The result is a concept for automated density testing that has been further developed over the years.

The robot is equipped with a dual gripper system, allowing the separation of wet and dry samples (during the density measurement).

ISO 2781, DIN EN ISO 1183-1, ASTM D 1817

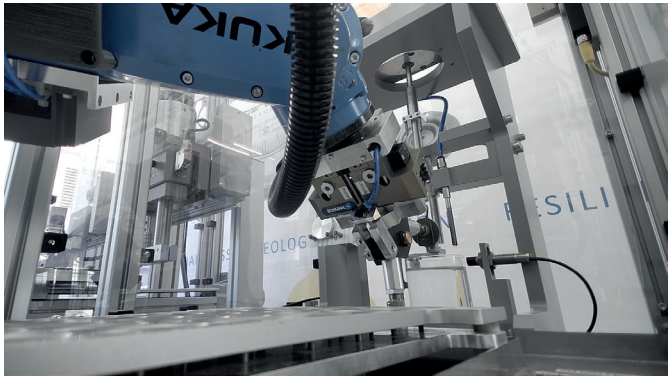
ROBOT MODULE

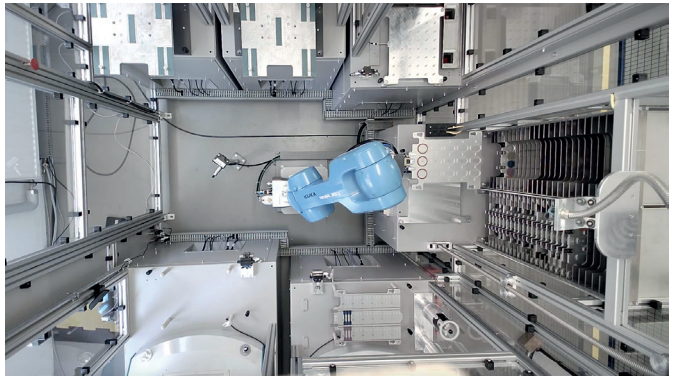
An industrial-grade 6-axis robot is used. The handling system is also equipped with a camera to ensure clear identification of the samples. Additionally, the robot, thanks to the self-programmed software, can independently connect and use other handling systems (secondary grippers).

If different grippers are necessary for secure handling of the process, an exchange station can be provided.

SAMPLE FEED CUBE

Another cube is designed as a sample magazine. The respective sample type is placed on a tray and put into a Poka Yoke-coded sample rack – this is where the interface between human and machine is located. The samples are provided already separated.





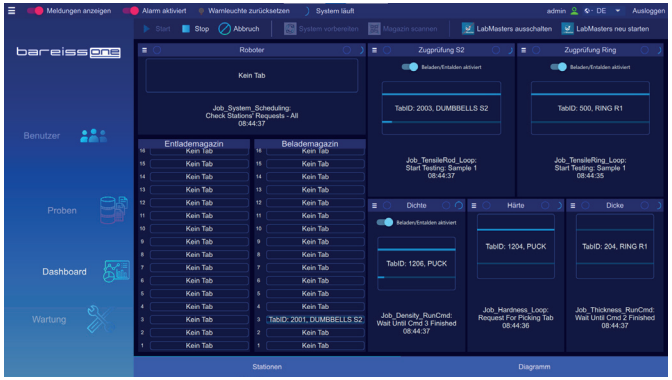
SmartLab

SOFTWARE

SOFTWARE “BAREISSONE SL“

The self-programmed software is used for recording and managing measurement data. Additionally, the software controls the measurement processes and the machine. It offers the following features:

- Creating user levels
- Creating material data (labels can be user-specific and renamed)
- Administering individual modules (toolbox available for each device)
- Graphical display of current measurement data (all devices can be shown side by side in a live plot)
- Saving data in a database
- Analysis tool (e.g., displaying all (historical) measurement values for a batch – identifying trends and new tolerances)
- Interface for data exchange (XML, ASCII, SQLDB; Oracle, etc.)



EXPANDABILITY

Another advantage of „SmartLab“ is its customer-specific expandability. Please feel free to contact us directly.

bareiss®

HARDNESS

VISION

REBOUND | ABRASION

RHEOLOGY

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ilac-MRA DAkkS Deutsche Akkreditierungsstelle D-K-15206-01-00

Laboratory accredited by DAkkS according to DIN EN ISO/IEC 17025:2018. The accreditation is only valid for the scope of accreditation mentioned in the document annex D-K-15206-01-00.

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