Anton Paar

Mechanical surface characterization

Instrumented indentation testers
Scratch testers
Coating thickness testers

A new era
of precision

The third generation of Anton Paar's mechanical surface testers measure a wide range of mechanical properties of materials ranging from the hardest diamond-like carbon (DLC) coating to the softest hydrogel. The high-precision instruments measure what others estimate.

Anton Paar covers four of the most important test methods for mechanical surface characterization. Instrumented indentation testers provide mechanical properties of thin films, coatings, or substrates such as hardness and elastic modulus, creep, fatigue, stress-strain, elastic and plastic energies. Scratch testers are used to characterize film-substrate systems and to quantify parameters such as adhesive strength and friction force for determining coating adhesion, scratch resistance, and mar resistance for research and quality control. Tribometers allow you to study friction, wear, lubrication, and abrasion. Additionally, abrasion testers like Calotest provide quick, simple, and inexpensive determination of coating thicknesses.

We measure what others estimate

Anton Paar is the only company to provide high-resolution nanoindentation and nano scratch testers with a real force sensor. This means that the force is really measured continuously with a direct sensor and not estimated from a derivative coming from an actuator.

Instrument portfolio

The state-of-the-art design of Anton Paar's mechanical surface testers enables accurate and efficient testing solutions in a compact and modular format. In fact, different modules (scratch, indentation, microtribology) can be easily combined on one testing platform. Depending on your requirements and application, you can combine different testing modules on one platform or you can use a single test method with a stand-alone device – just choose whatever you need.

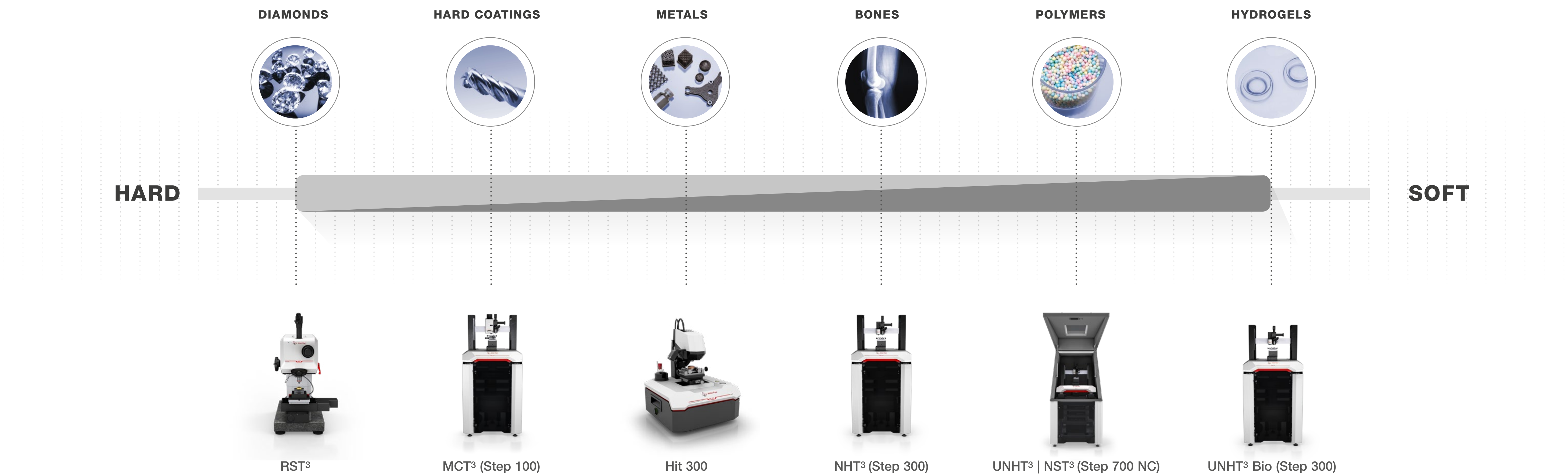
Applications & industries

High productivity and high throughput for both academic and industrial applications.

The materials tested come from a very wide range of industrial applications, e.g. the cutting tools, automotive, electronics, biomedical, semiconductor, polymer, optics, civil nuclear, MEMS, and watch industries.

These instruments are also used in various research areas:

- Viscoelastic properties
- Stress-strain curves
- Strain hardening
- Fracture toughness
- Surface mapping
- Depth profiling



Measuring parameters & standards

Scratch testing

Measuring parameters
Adhesive strength, friction force, coating adhesion, scratch, and mar resistance

Standards

ISO 20502
Fine ceramics – determination of adhesion of ceramic coatings by scratch testing

DIN EN1071
Advanced technical ceramics – methods of test for ceramic coatings

ASTM C1624
Standard test method for adhesion strength and mechanical failure modes of ceramic coatings by quantitative scratch testing

ASTM D7187
Scratch/Mar behavior of paint coatings by nanoscratching

ASTM G171
Scratch hardness of materials using a diamond stylus

ISO 27307:2015
Thermal spraying – evaluation of adhesion/cohesion of thermal sprayed ceramic coatings by transverse scratch testing

Indentation testing

Measuring parameters
Hardness and elastic modulus, creep compliance, relaxation, Hertz analysis, dynamic mechanical analysis (E', E'', tan delta), stress-strain curve, fatigue

Standards

ISO14577
Metallic materials — instrumented indentation test for hardness and materials parameters

ISO 6507
Metallic materials — Vickers hardness test

ISO19278
Instrumented microindentation test for hardness measurement of plastics materials

ISO 4516
Metallic and other inorganic coatings – Vickers and Knoop microhardness tests

ASTM E2546
Standard practice for instrumented indentation testing

ASTM C1327
Standard test method for Vickers indentation hardness of advanced ceramics

ASTM C1326
Standard test method for Knoop indentation hardness of advanced ceramics

ASTM B933
Standard test method for microindentation hardness of powder metallurgy (PM) materials

ASTM E384
Standard test method for Knoop and Vickers hardness of materials

ASTM B578
Standard test method for microhardness of electroplated coatings

Coating thickness

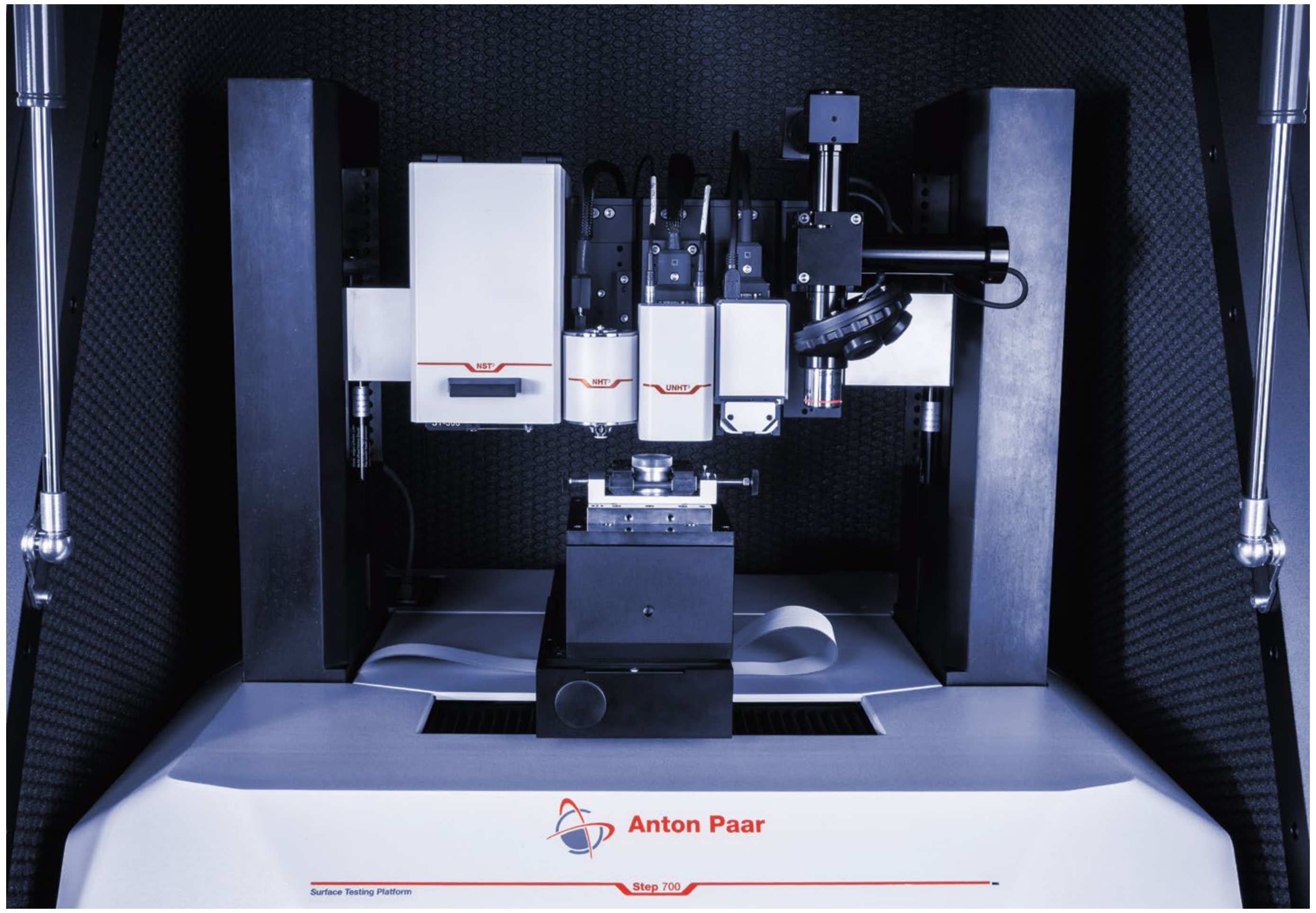
Measuring parameter
Coating thickness

Standards

ISO 26423:2009
Fine ceramics (advanced ceramics, advanced technical ceramics) – determination of coating thickness by crater-grinding method

ISO 1071-2
Test methods for ceramic coatings – determination of coating thickness by crater-grinding method

VDI 3198
Coating (CVD, PVD) of cold forging tools



Scratch testing: Features

Unique, patented synchronized panorama to be analyzed whenever and wherever

Anton Paar is the exclusive holder of the patents US 8261600 and EP 2065695. The scratch tester's panorama mode is the most important feature of the software. After the scratch, you have the option of recording the full panorama. When your panorama is recorded, you can re-analyze your results at any time.

True penetration depth measurements for advanced elastic recovery studies

The displacement sensor D_z monitors the surface profile of your sample before, during, and after a scratch. This means you can evaluate the penetration depth of the indenter during and after the scratch, for even more reliable insights into scratch and mar resistance. A unique feature of multi-post-scan with time is available for advanced studies on viscoelastic properties.

Active force feedback for full reproducibility

The system's active force feedback ensures reproducible scratch testing, even when you investigate more complex surface geometries like non-parallel, rough, or curved samples. Anton Paar's testers are the only commercially available systems that have active force feedback.

Automatic detection of critical loads to optimize the results

The scratch testers have auto-detection for the critical failures. Using the signal of friction force, penetration depth, or acoustic emission, an algorithm based on our experience is now able to automatically analyze the difference of signals and therefore define the critical loads.

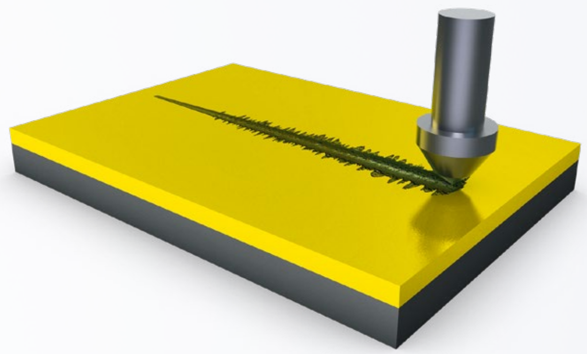
Measuring principles

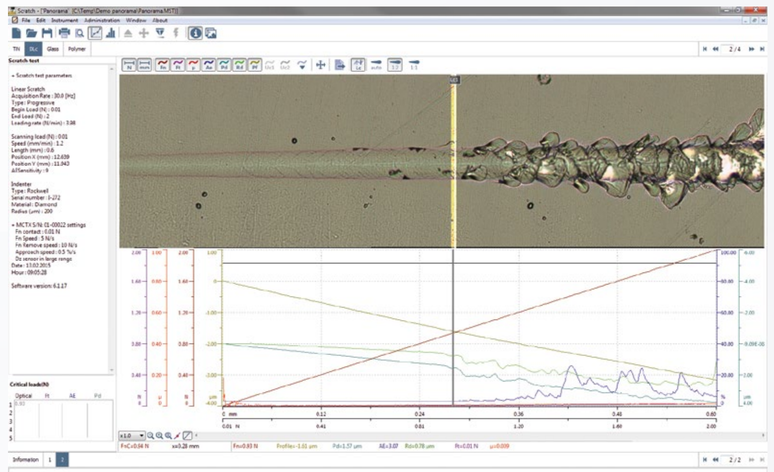
Scratch testing principles

Anton Paar scratch testers (previously from CSM instruments) are ideal for characterizing the mechanical surface properties of thin films and coatings, e.g. adhesion, fracture, and deformation.

The ability of the scratch tester to characterize the film-substrate system and to quantify parameters such as friction force and adhesive strength using a variety of complementary methods, makes it an invaluable tool for research, development, and quality control. The technique involves generating a controlled scratch with a diamond tip on the sample under test.

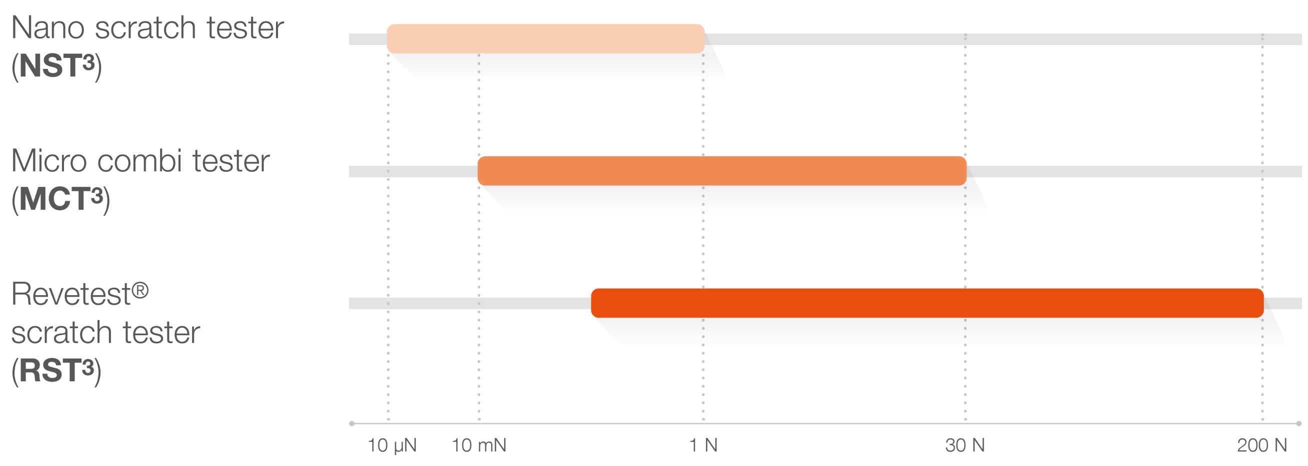
The tip is drawn across the coated surface under constant, incremental, or progressive load. At a certain load the coating will start to fail. Critical loads are very precisely detected by means of the tangential force, the penetration depth, and the acoustic emission sensors together with observations from a built-in optical microscope. The critical load data is used to quantify the adhesive properties of different film-substrate combinations by using different sensors (acoustic emission, penetration depth, friction force) and video microscope observations.





Scratch testing: Instruments

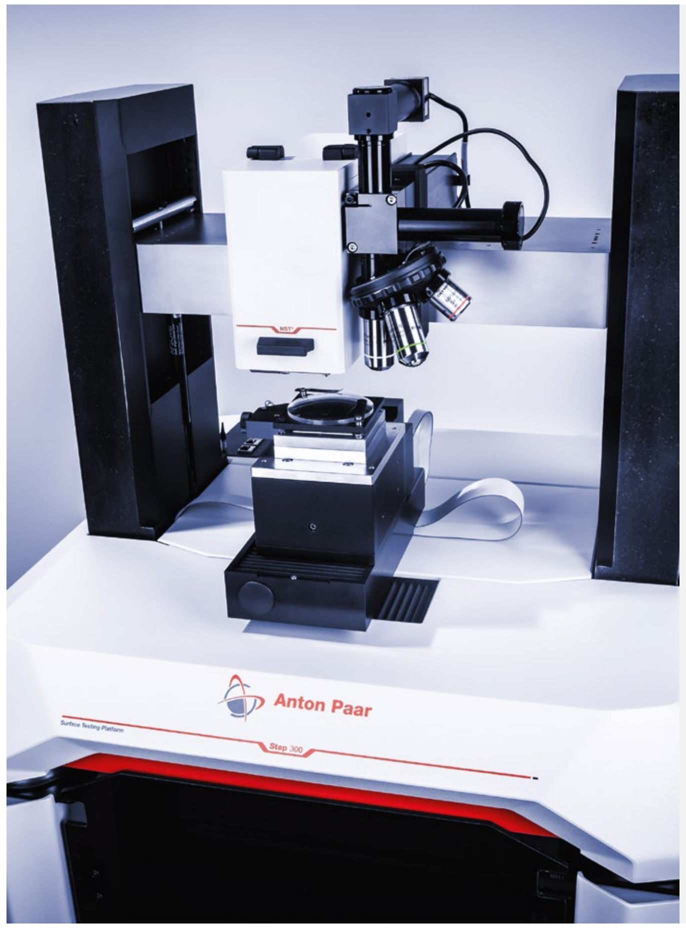
Measuring range of Anton Paar scratch testers



MCT³ micro combi tester

The only available high-quality combined microindentation and micro scratch tester

The micro scratch tester is widely used to measure adhesion and scratch resistance of coatings with a typical thickness below 5 µm.
Applications include thin and multilayer CVD, PVD, PECVD, photoresistant, lacquers, paints, and several other types of films. Research areas and industries utilize this instrument for characterization of microelectronics, optical coatings, protective and decorative surface coatings. Substrates may be soft or hard, including glass, semiconductors, refractive, and organic materials.



NST³ nano scratch tester

The most accurate nano scratch tester on the market

The nano scratch tester is particularly suited for characterizing the practical adhesion failure of thin films and coatings with a typical thickness below 1000 nm. The nano scratch tester can be used to analyze organic and inorganic coatings as well as soft and hard coatings. The unique design of the nano scratch measurement head includes two sensors for force and depth measurements associated with a state-of-the-art piezoelectric actuator. These unique features provide a fast response time (down to milliseconds), great accuracy, and great flexibility for all kinds of scratch measurements.

RST³ Revetest® scratch tester

The industry reference

The Revetest® scratch tester is a typical system designed for evaluating hard-coated material with a coating thickness of several microns. The coatings can be either organic or inorganic, which makes the instrument suitable for magnetic and decorative applications including CVD, PECVD, PVD, metallization and passivation layers, or friction-and-wear protective coatings. The substrates used can be refractive and include organic materials, minerals, glass, semiconductors, alloys, and metals.

The Revetest® scratch tester comes with an external data acquisition unit and acoustic emission detection. It also meets the requirements of ASTM C1624 and EN 1071 standards. Anton Paar has sold over 1500 Revetest® scratch testers all around the world.

Indentation testing: Features

A wide range of testing possibilities: Hardness, elastic modulus, viscoelastic properties, creep compliance, and stress-strain curve

The wide ranges of load and penetration depth enable you to measure the mechanical properties of a large variety of materials. Soft and hard materials as well as thin and thick coatings can be tested. Hardness, elastic modulus, and other properties such as viscoelasticity, creep compliance, and stress-strain curve can be determined with a single measurement.

Maximum stability due to unique top surface referencing

Top surface referencing protects the tip from collision and provides a high thermal stability and a high frame stiffness. The reference probes the surface position while the indentation tip is testing the material. As a result, our instruments do not require any thermal drift correction.

"Quick Matrix" indentation mode for highly precise results within a few minutes

Anton Paar's indentation testers achieve a high sample throughput by performing up to 600 measurements per hour with full instrumented indentation curves.

Accurate motorized tables for precise positioning

Motorized tables move the sample in every direction with an accuracy of 1 µm. The sample moves from the microscope to the indentation tester with just one click. Automated matrices and multisampling testing are also available.

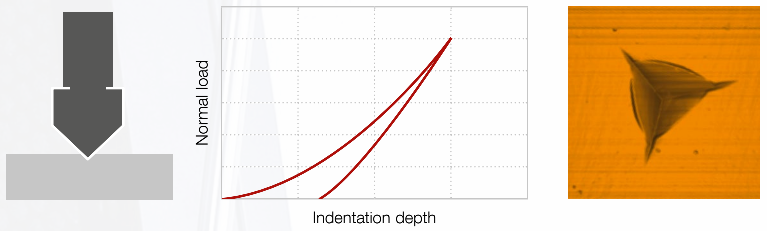
Multi-objective video microscope for a clear view of the sample

A high-quality multi-objective microscope provides a surface visualization before and after the indentation measurements. The turret holds up to 4 objectives. Visual matrices can additionally be defined under the microscope to run indentation measurements on areas of interest.

Measuring principles

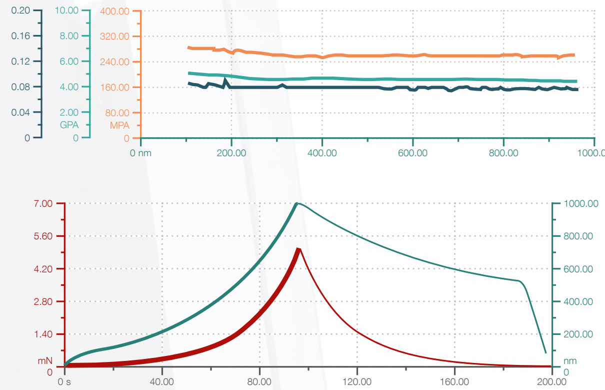
Measuring principles

The instrumented indentation technique (IIT) involves pressing an indenter of known geometry into the surface while both penetration depth and normal load are monitored. The indentation hardness (H_{IT}), elastic modulus (E_{IT}), and other mechanical properties are obtained from the force displacement curve. The analysis of this curve is done automatically according to the ISO 14577 standard. This is a great advantage compared to classical hardness measurements in which each imprint has to be precisely measured separately with an optical microscope.



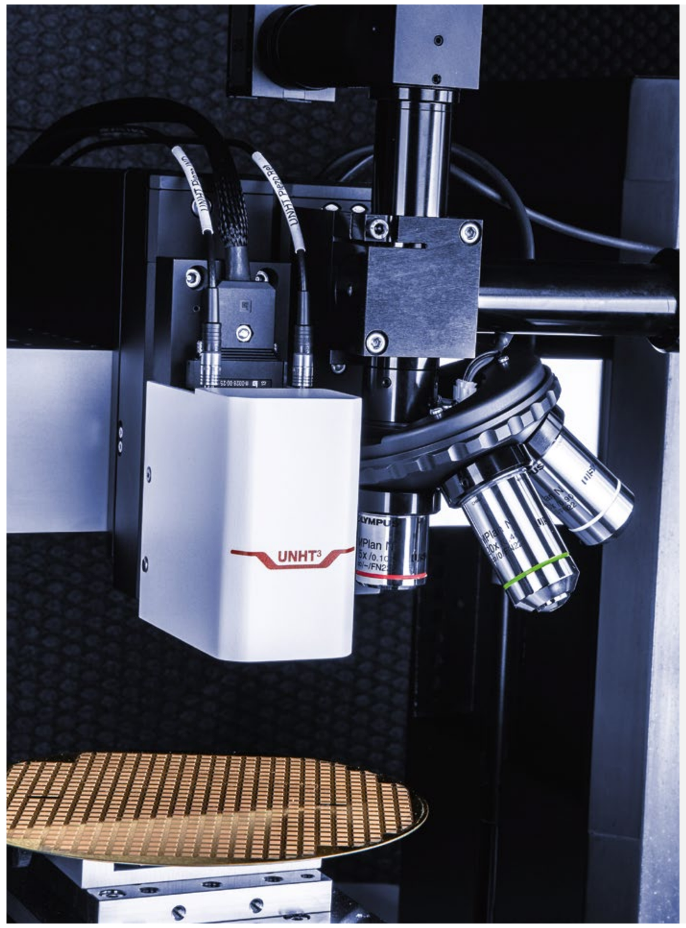
Dynamic mechanical analysis (sinus mode)

In dynamic mechanical analysis (DMA), sine wave loading or a sine in pause at maximum force are used to obtain a more complete analysis of coated, functionally graded or viscoelastic materials.
This method allows for a continuous acquisition of hardness, elastic modulus, storage modulus, and loss modulus data as functions of indentation depth, and the results can be advantageously used for the characterization of coated materials or polymers where one can obtain viscoelastic properties at constant depths.



An example of sinus mode (dynamic mechanical analysis, DMA) performed by a nanoindentation tester.

Indentation testing: Instruments



UNHT^3 ultra nanoindentation tester

The ultimate high-resolution, high-stability nanoindenter

The ultra nanoindentation tester with real force sensors examines the mechanical properties of a material at the nanoscale. The UNHT^3 eliminates the effect of thermal drift and compliance due to its unique and patented active surface referencing system (EP 1828744 and US 7685868). Therefore, it is perfectly suited for long-term measurements on all types of materials, from polymers to hard coatings.

The UNHT^3 includes advanced indentation modes such as sinus mode, load/depth control, constant strain rate, advanced matrix, and more. Its “Quick Matrix” indentation mode allows up to 600 measurements per hour with full nanoindentation curves. Its unique and active top referencing system is patented (EP 1828744 and US 7685868) and provides the highest thermal stability (raw drift rate down to 0.0008 nm/s) on the market.

MCT^3 micro combi tester

The only available high-quality combined microindentation and micro scratch tester.

The micro combi tester directly measures the hardness and elastic modulus using high loads (instrumented indentation testing up to 10 N and conventional hardness testing up to 30 N). In comparison to conventional hardness testers, instrumented indentation testers are faster, more precise and flexible, meaning several different properties can be obtained. It is applicable to many materials from bulk samples with rough surfaces to thin coatings.

NHT^3 nanoindentation tester

The most versatile and user-friendly nanoindenter on the market

The nanoindentation tester has a range from low loads (0.1 mN) to high loads (500 mN) and from shallow depths (less than 20 nm) to greater depths (up to 200 µm). It is not only robust but also fast and easy to use for multiple advanced indentation modes: continuous multi cycles (CMC), user-defined sequences, sinus mode, advanced matrix, and multi-sample protocols.

NHT^3 is compatible with liquid testing. Its “Quick Matrix” indentation mode allows up to 600 measurements per hour with full nanoindentation curves. Its high load frame stiffness (10^7 N/m) and high thermal stability (raw drift rate down to 0.003 nm/s) result in high accuracy.

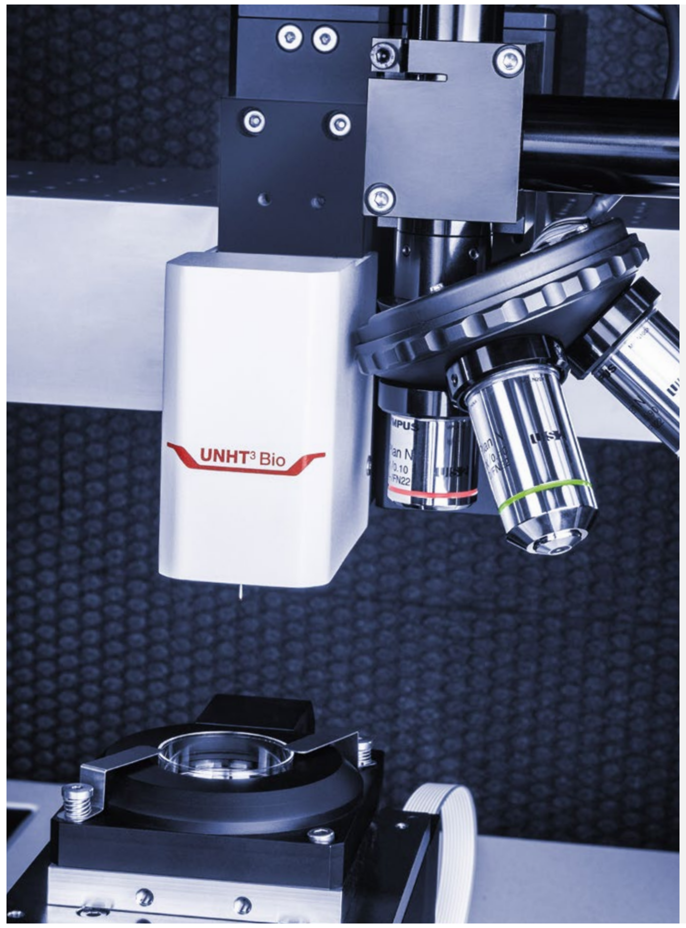
Hit 300

The simplest-to-use, most robust nanoindentation instrument on the market

Hit 300 is a premium yet highly affordable nanoindentation instrument that comes with a simplified and self-explanatory interface. The integrated active anti-vibration damping and a unique 2-laser targeting system make it accurate to <1 mm in all environments. Start-up takes 15 min, and within 1 hour, every user is able to go from training straight to results.
Hit 300 offers by default the two most popular indentation modes: quasi static mode with different types of loading segments (linear, constant strain rate, and quadratic), and a dynamic mode (Sinus mode) also known as “Continuous Stiffness Measurement.”
Hit 300 is a stand-alone instrument and not part of the Step platform concept.

Hit 300 – a delightful fusion of simplicity and power.

Indentation testing: Instruments



UNHT³ Bio bioindenter

The bioindenter is a unique device for measuring local mechanical properties of soft and biological samples. It combines instrumented indentation with the requirements for testing of soft samples, samples immersed in liquid, and biological samples. The concept of UNHT³ Bio is based on the successful ultra nanoindentation technology with extended travel range, improved force resolution, and full compatibility of testing in fluids.
Easy characterization of time-dependent properties such as creep, flow properties, or poroelasticity are possible.

The integrated true force sensor is able to apply a maximum load of up to 20 mN adapted for soft materials. The displacement sensor allows a large travel range of 100 µm.

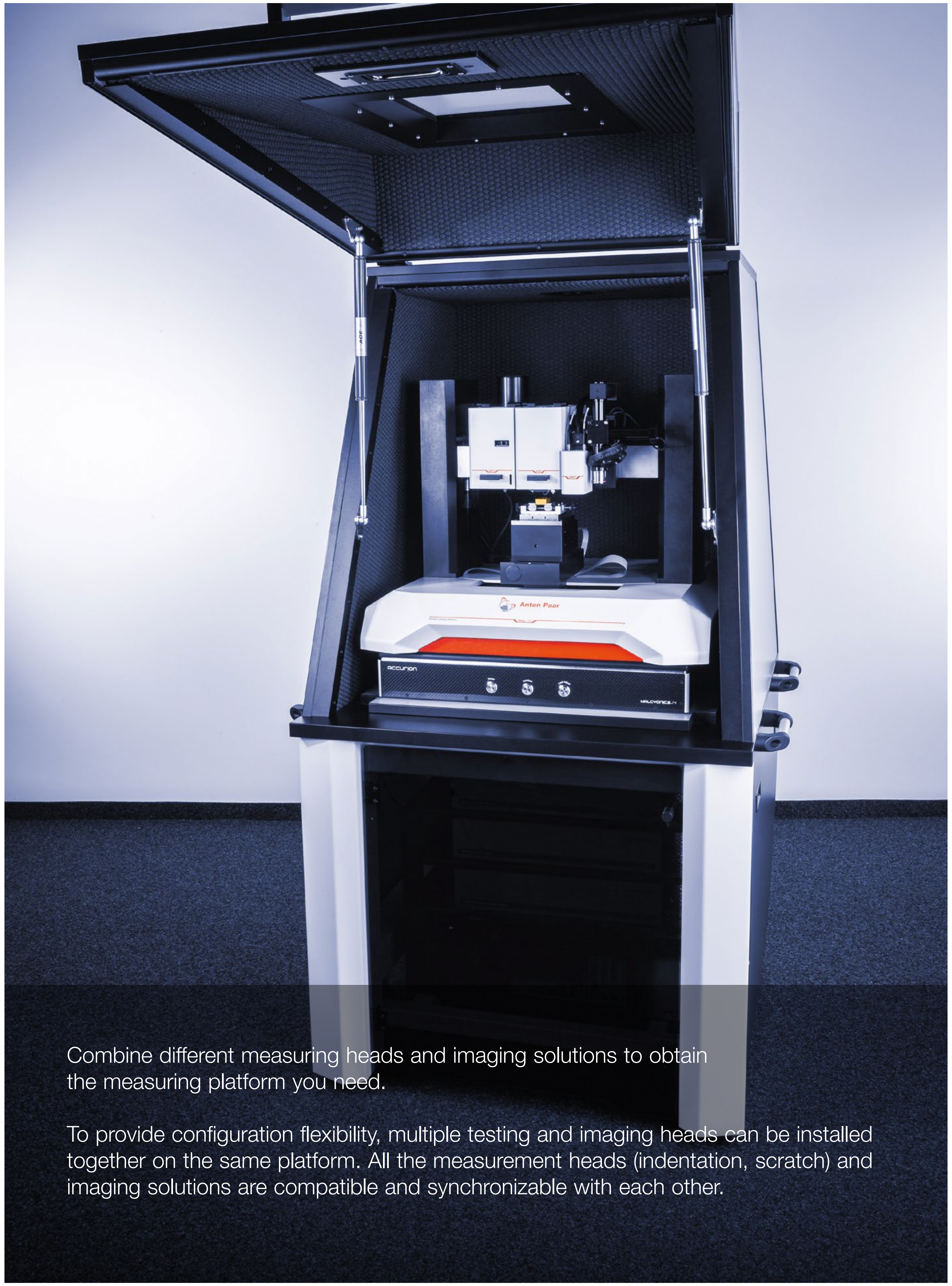
The elastic modulus can also be calculated from the loading part of the indentation curve using Hertz's model, which is more appropriate for biological materials.

A wide range of indenters are available for the Anton Paar Bioindenter.

UNHT³ HTV high-temperature ultra nanoindentation

Anton Paar is a pioneer in environmentally controlled, high-temperature instrumented indentation with various solutions for temperatures of up to +800 °C and down to -150 °C. The actuating system is based on the patented technology (patent US 7685868 and EP 1828744) of the ultra nanoindentation tester (UNHT³) with two independent depth and load sensors combined with high-resolution capacitive sensors. Thermal barriers, water circulation, and reflective mirrors prevent the head from heating, resulting in unmatched stability.
In addition, a high-vacuum chamber minimizes oxidation as well as heat loss from convection. The lowest thermal drift at ambient conditions and over the entire temperature range ensures a high reliability of measurements.

Choose your perfect combination



Combine different measuring heads and imaging solutions to obtain the measuring platform you need.

To provide configuration flexibility, multiple testing and imaging heads can be installed together on the same platform. All the measurement heads (indentation, scratch) and imaging solutions are compatible and synchronizable with each other.

Choose your configuration

The perfect instrument for all your measuring requirements in mechanical surface characterization

	Measuring heads						Imaging solution
	Indentation testing				Scratch testing		
	 **NHT^3** nanoindentation tester Max. load: 500 mN	 **UNHT^3** ultra nanoindentation tester Max. load: 100 mN	 **UNHT^3 Bio** bioindenter Max. load: 20 mN	 **MCT^3** micro combi tester Max. load: 30 N	 **NST^3** nano scratch tester Max. load: 1000 mN	 **AFM** atomic force microscope	 **VID** optical video microscope
Step 100				✓			optional
Step 300	✓		✓	✓	✓		included
Step 500	✓		✓	✓	✓		included
Step 700 Noise-Control	✓	✓	✓	✓	✓	✓	included

✓ available configuration

Step platforms (Step 100, 300, 500, 700 Noise-Control)

- High-positioning accuracy over a great length (smaller than 1 µm)
- One-click synchronization of position from video microscope to indenter tip
- High modularity with multiple measuring heads on one platform
- Customized synthetic granite for enhanced vibration damping
- Customized platforms for glove box, vacuum chamber, and humidity chamber available

100

One head can be mounted, choose from

MCT^3

- No anti-vibration table available
- Optical video microscope can be ordered as an option (incl. objective x5)
- Motorized x (75 mm), y (75 mm), z (30 mm) table included

300

One head can be mounted, choose from

MCT^3 | NHT^3 | NST^3 | UNHT^3 Bio

- Anti-vibration table included
- Optical video microscope included (incl. objective x5)
- Motorized x (75 mm), y (75 mm), z (30 mm) table included

500

Up to three heads can be mounted, choose from

MCT^3 | NHT^3 | NST^3 | UNHT^3 Bio

- Anti-vibration table included
- Optical video microscope included (incl. objective x5)
- Motorized x (215 mm), y (75 mm), z (30 mm) table included

700 Noise-Control

Up to three heads can be mounted, choose from

MCT^3 | NHT^3 | NST^3 | UNHT^3 | UNHT^3 Bio

- Acoustic enclosure included
- Active anti-vibration table included
- Optical video microscope included (incl. objective x5)
- Atomic force microscope can be ordered as an option
- Motorized x (215 mm), y (75 mm), z (30 mm) table included

Coating thickness: Features

Quick and simple determination of coating thickness

The Calotest instruments from Anton Paar provide quick, simple, and inexpensive determination of coating thickness. Employing a simple ball-cratering method, the thickness of any kind of single or multilayered coating stack is accurately checked in a short time, in full compliance with relevant international standards.

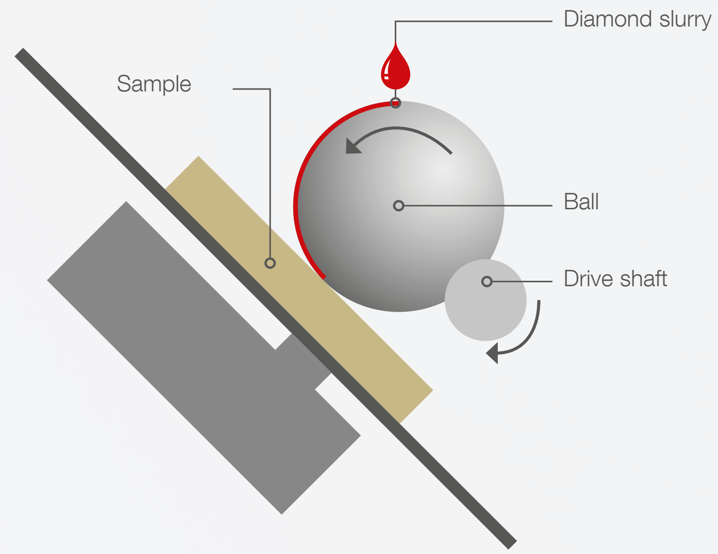
Easy and accurate evaluation of results

The video module in the form of a USB color camera with two types of objectives (5x and 10x magnification) supplies the software with the crater picture. Based on the pictures, line measurements, and the contact geometry, the software can calculate the coating thickness of the sample. In this way, single and multilayer analysis in accordance with ISO 1071-4 can be performed. Automatically generated user-defined reports provide complete documentation.

Measuring principles

Spherical abrasion test method

A small crater is ground into a coating with a ball of known geometry, providing a tapered cross-section of the film when viewed under an optical microscope. In this way Calotest instruments measure the thickness of coatings in a very short time of just 1 to 2 minutes.



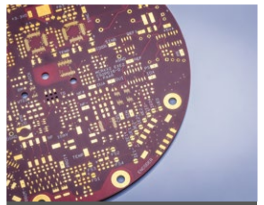
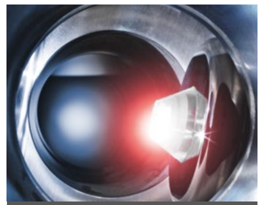
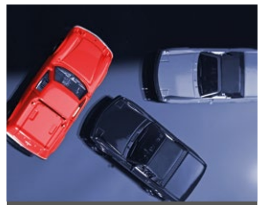
CATc

The CATc is widely used for analyzing coatings with thicknesses between 0.1 µm and 50 µm. Typically measured materials include CVD, PVD, plasma spray coatings, anodic oxidation layers, chemical and galvanic deposits, polymers, paints, and lacquers. Flat, spherical, or cylindrical samples can be fixed in the sample holder.

CATi

The CATi measures the thickness of coatings typically within 2 to 5 minutes. In this industrial version, the motor is fixed on a hydraulic arm, allowing you to target samples of unlimited size. It is the ideal instrument for quick and precise determination of coating thickness on common industrially coated components.

Applications & industries

	Hard coatings	Semiconductors	Biomaterials	Optical and glass	Decoratives	Automotive	Ceramics	Metallurgy	Civil engineering	General engineering
										
Type of analysis	- Hardness - Elastic modulus - Coating adhesion - Wear resistance of high-speed machining coatings - Coating thickness - High-temperature hardness of coatings	- Hardness of thin films - Elastic modulus - Coating adhesion of thin films - Wear resistance and friction coefficient	- Scratch resistance of stents - Wear resistance and friction coefficient of prosthesis - Hardness of tablets - Hardness of bones - Modulus of corneas - Friction coefficient of contact lenses	- Scratch resistance of optical components - Hardness of optical polymer coatings - Elastic modulus of optical polymer coatings	- Scratch resistance of surfaces - Hardness of surfaces - Hardness of wear-resistant coatings	- Adhesion testing of coatings - Wear resistance of coatings - Friction coefficient of grease - Elastic modulus of tires	- Scratch resistance of bulk materials	- Hardness of the microstructure of alloys - Stress-strain research studies of surfaces	- Mechanical properties of cement with humidity	- Friction coefficient of fibers and hairs - Friction coefficient of lubricants - Scratch resistance of printing components - Friction properties of cheese
How	- Nanoindentation - Micro scratch and macro scratch - High-temperature tribometer - Calotest - High-temperature ultra nanoindentation	- Ultra nanoindentation - Nano scratch	- Nano scratch - Tribometer - Microindentation - Nanoindentation - Bioindenter	- Nano scratch - Ultra nanoindentation	- Nano scratch - Ultra nanoindentation - Microindentation	- Micro scratch or Revetest scratch - High-temperature tribometer - Tribometer - Ultra nanoindentation	- Micro scratch	- Nanoindentation	- Ultra nanoindentation	- Tribometer
Example industries	- Cutting tools - Machines - Automotive - Aerospace	- Semiconductors - Automotive - Printing	- Biomedical - Pharmaceutical - Polymers	- Optical, glass - Watches - Semiconductors	- Watches - Home appliances	- Metallurgy - Polymers - Optical, glass - Automotive - Machines	- Ceramics	- Metallurgy	- Civil engineering	- Textiles - Cosmetics - Petroleum - Aerospace - Wood - Printing - Machines - Food
Example fields of use	- R&D characterization of new coatings - Quality control of DLC coating injectors - Mechanical properties of coatings at high temperatures	- R&D characterization of new wafers - Hard disk characterization - Quality control in wafer manufacturing - Quality control of low K dielectrics	- Wear of prosthetics and implants - Resistance of arterial implants (stents) - Hardness of tablets and pills - Studies of osteoporosis - Cornea elasticity - Contact lens friction	- Resistance of eyeglass lenses - Control of optical components for photography - Characterization of optical coatings	- Scratch tests on home appliance components - High-temperature indentation on frying pans	- Quality control of DLC coating injectors - Brake pad wear resistance - Pistons, engine valves - Elasticity of tires	- Scratch resistance of tiles	- Mechanical properties of metallic components	- Nanoindentation on cement and concrete for buildings	- Friction of textile parts - Evaluation of friction in cosmetics (chemical products) - Lubricant properties in friction - Mechanical properties in aerospace components
Samples	- TiN, TiC, CrN, AlTiCN - DLC coatings - PVD (ceramic coating) - CVD (ceramic coating) - Thermal/plasma spray (ceramic coating)	- Wafers and sensors - Hard disks - MEMS - Electrical/ electronics components	- Bones, tissue - Adhesives - Gels - Hair	- Polymeric coatings - Mineral glasses	- Smartphones - Evaporated metal coatings - Jewelry and watches	- Coatings & paints - Varnish (coatings, lacquers) - Plastic, resin, rubber - Metal, alloys - Lubricant oil & grease	- Ceramics	- Metal, alloys	- Cement, concrete	- Polymers - Wood - Organic components - Metal, alloys - Composites

Specifications

Scratch testing

	NST^{3}	MCT^{3}	RST^{3}
Maximum load [N]	1	30	200
Load resolution [µN]	0.01	10	100
Load noise floor [rms] [µN]*	0.1	100	1000
Loading rate [N/min]	up to 100	up to 300	up to 300
Depth range [µm]	600	1000	1000
Depth resolution [nm]	0.1	0.05	0.05
Depth noise floor [rms] [nm]*	1.5	1.5	2.5
Data acquisition rate [kHz]	192	192	192
Scratch speed [mm/min]	0.1 to 600	0.1 to 600	0.4 to 600
Options			
Heating stage up to 200 °C		✓	✓
Heating stage up to 450 °C		✓	✓
Liquid testing	✓	✓	✓

Indentation testing

	UNHT^{3}	NHT^{3}	Hit 300	MCT^{3}	UNHT^{3} Bio	UNHT^{3} HTV
Maximum indentation load [mN]	100	500	500	30,000	20	100
Load resolution [µN]	0.003	0.02	0.02	6	0.001	0.006
Load noise floor [rms] [µN]*	<0.05	<0.5	<1	<100	0.1	0.5
Maximum indentation depth [µm]	100	200	200	1000	100	100
Depth resolution [nm]	0.003	0.01	0.01	0.03	0.006	0.006
Depth noise floor [rms] [nm]*	<0.03	<0.15	<0.3	<1.5	0.25	0.15
Data acquisition rate [kHz]	192	192	192	192	192	192
Options						
Sinus mode	✓	✓	✓		✓	✓
Liquid testing	✓	✓		✓	✓	
Heating stage up to 200 °C	✓			✓		
Heating stage up to 450 °C				✓		
Heating stage up to 800 °C						✓
Petri dish holder					✓	

Additional options and accessories are available on specific request: Electrical contact resistance (ECR), cooling for low temperatures (-150 °C in vacuum), wafer holder, multiple sample holder, ...
*Noise floor value specified under ideal laboratory conditions and using an anti-vibration table.

✓ available option

Coating thickness testing

	Calotest Compact (CATc) | Calotest Industrial (CATi) | Calotest Combo (CATcombo)
Shaft speed [rpm]	10 to 3,000
Abrasion time ranges [seconds]	1 to 10,000
Standard ball diameters [mm]	10, 15, 20, 25.4, 30

Anton Paar
Certified Service

"We are confident in the high quality of our instruments. That's why we provide **full warranty for three years**."

All new instruments* include repair for 3 years.
You avoid unforeseen costs and can always rely on your instrument.
Alongside the warranty we offer a wide range of additional services and maintenance options.

*Due to the technology they use, some instruments require maintenance according to a maintenance schedule. Complying with the maintenance schedule is a prerequisite for the 3-year warranty.

Service and support directly from the manufacturer
Our comprehensive service provides you with the best individual coverage for your investment so that maximum uptime is ensured.

SAFEGUARDING YOUR INVESTMENT
Regardless of how intensively you use your instrument, we help you keep your device in good shape and safeguard your investment – including a 3-year warranty.

THE SHORTEST RESPONSE TIMES
We know that sometimes it's urgent. That's why we provide a response to your inquiry within 24 hours. We give you straightforward help from real people, not from bots.

CERTIFIED SERVICE ENGINEERS
The seamless and thorough training of our technical experts is the foundation of our excellent service provision. Training and certification are carried out at our own facilities.

OUR SERVICE IS GLOBAL
Our large service network for customers spans 86 locations with a total of 350 certified service engineers. Wherever you are located, there is always an Anton Paar service engineer nearby.

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