



NEMESIS 9100 SERIES

Universal hardness tester



NEMESIS 9100 series

Quick change anvil position



4K Full HD, 18 Megapixels,
color camera for excellent indent
and surface viewing

NEMESIS 9100 series

A Really Universal Hardness testing machine!

Featuring wide test loads, advanced software, choice of stages and anvils and unparalleled test speed...

The INNOVATEST® NEMESIS 9100 is the most revolutionary, advanced and powerful Universal Hardness Testing machine currently available.

Apart from Micro Vickers, Vickers, Knoop and a full range of Brinell scales, the standard configuration of the NEMESIS 9100 includes Regular and Superficial Rockwell scales, test forces for ISO 2039 (plastics) and HR for Carbon materials. For the more demanding users, the tester has the HBD (HBT) and HVD (HVT) and KiC (fracture toughness) parameters on board, too. In its ultimate configuration and most advanced version, the NEMESIS 9100 offers fully automatic advanced coordinate pattern, weld pattern and free style testing of metallic and plastic parts in any of the hardness scales. The CNC automatic X-Y stages carry test loads and workpieces up to 4000kg(f).

- **Rockwell**
- **Superficial Rockwell**
- **Micro Vickers**
- **Vickers**
- **Knoop**
- **KiC fracture toughness**
- **Brinell**
- **HVD (Vickers depth)**
- **HBD (Brinell depth)**
- **ISO 2039 1 & 2 for plastics**
- **HR for Carbon materials**

Stunning test force range

The servo driven force actuator allows test forces from **100gf up to 3000kgf**, currently unique on the world market.

Great efforts have been taken by INNOVATEST® in designing our own ultra-precise load cells and force control electronics. These are the foundation of this new product. The load/force actuator driven by top class servo technology, positions the test head at high speed and at sub-micron level accuracy, in any required position. Safe, due to a collision protection & retraction system.

Setting the GLOBAL standards for advanced high speed turrets

The NEMESIS 9100's high speed, 8 position turret, has the first in the industry, standard built in: laser positioning system.

- The 8 position turret also contains 2 HD, camera's, with auto focus and optical zoom system, allowing stage (over)viewing at indenter position. A ZOOM system. NO NEED for image stitching. Fast and reliable.
- Quick change stage & anvil post
- Ultra-fast, dedicated system controller with i7 processor and 2 large INTEL SSD hard drives.
- Advanced report generator with extended export functionality, including CSV files for MS Excel, Word etc. (Certified Q-DASS optional).

Quick Change stage & anvil post

Alternatively to the ultra-fast motorized CNC stages, there is the option to install larger T-slot stages, fixed stages and a variety of V and other anvils. To save time, exchanging the nearly unlimited choice of stage & anvil options, the tester has another unique feature: The "Quick Change" accessories post. It allows tester reconfiguration in just seconds!

Safety first / collision detection system

To ensure maximum safety for the user, and to protect the tester against user errors, all NEMESIS models have an advanced collision detection, warning & Z-axis/test head retraction system. This system is triggered by any uncommon force on the turret and will stop & retract the test head in milliseconds. Fingers, hands and work pieces are safe, but also damage to indenters, objectives and work pieces belong to the past.

Clamping device

An integrated clamping device will firmly hold the work piece against the anvil or test table while performing Rockwell or other depth measuring tests. (Optional)

NEMESIS 9100

Optional motorized CNC X-Y stage



Software features

Single tests, running an earlier stored test program, pattern testing, CHD, NHD etc., or complex testing tasks such as welding patterns, jominy quench end testing, are all part of the possible configuration of the IMPRESSIONS® software and work flow control.

2D/3D hardness chart

A newly developed tool for detailed screening of hardness distribution over the entire section of for instance heat treated samples. Welcomed in materials research, as well as testing of welded connections and last but not least to give visualization to damage analysis. (Optional)

Crack Length (fracture toughness) measurement

For those investigators requiring more in depth knowledge on materials behavior, and wish to study on fracture and fatigue crack growth, the crack growth can be predicted by using the KIC tester set up. KIC testing is part of the tester's standard configuration and measurement possibilities.

Ultra fast, dedicated system controller

The heart of the NEMESIS 9100 is an embedded ultra-fast system controller with i7 processor and 2 large INTEL SSD hard drives. Running on Windows 7 Embedded and protected against unwanted changes by "Deep Freeze" software for all machine settings.

Reporting

The advanced report generator allows report set up and output control or helps to easily export CSV files for use in Excel or other MS applications.

Connectivity

Connectivity is the magic word nowadays and this goes for the NEMESIS 9100 too. USB3, 5 Axis Stage drivers, RJ45 LAN connection and W-LAN are standard on board.

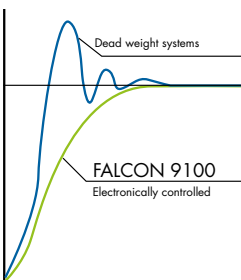
All components and software are designed, manufactured, and integrated by INNOVATEST®, or supplied by global leading manufacturers in their particular field of industry.

The NEMESIS 9100 is not only a state of the art product, it is also manufactured with great care, in The Netherlands, Europe, making use of the world's best quality optical, electronic and mechanic components.

Without a single doubt, ultimate precision is guaranteed.

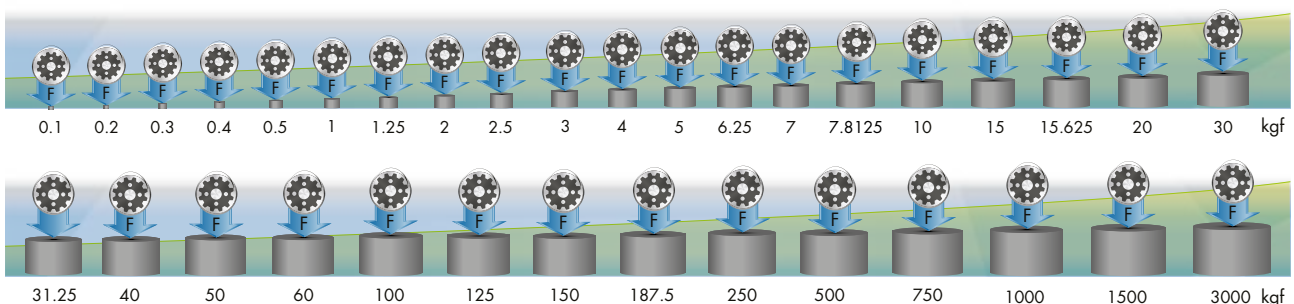
INNOVATEST® products are covered by 2 full years manufacturers guarantee, while software updates are guaranteed for 10 years. FREE OF CHARGE. All of this, just to offer you an additional feeling of "being certain".

Stunning force range



Stunning force range:
100gf up to 3000kgf over multi load cells, closed loop system.

Electronically controlled loads secure a quick and precise load application as well as a quick method change. A touch on the screen makes the correct setting and expedites automatic Z-axis positioning to the focus level, for any of the objectives or indenters chosen.



NEMESIS 9100

Extra large motorized CNC X-Y stage



Overview of extended test force configurations

Test force versus model number

100gf	9101	250kgf
200gf	9103	3000kgf

Note: See page 18 for order details and page 19 and 20 for optional configurations

Scales and testing methods, depending on force configuration

Vickers - DIN EN ISO 6507, ASTM E-384



HV0.1	HV0.2	HV0.3	HV0.5	HV1	HV2	HV2.5
HV3	HV4	HV5	HV10	HV20	HV25	HV30
HV40	HV50	HV60	HV100	HV120	HV125	HV150

* All test forces are also available for the HVD scales

Knoop - DIN EN ISO 4545, ASTM E-384



HK0.1	HK0.2	HK0.3	HK0.5	HK1	HK2	HK5
HK10	HK20	HK30	HK50			

Brinell - DIN EN ISO 6506, ASTM E-10



HB1/1kgf, HB1/2.5kgf, HB1/5kgf, HB1/10kgf, HB1/30kgf; HB2.5/6.25kgf, HB2.5/15.625kgf, HB2.5/31.25kgf, HB2.5/62.5kgf; HB5/25kgf, HB5/62.5kgf, HB5/125kgf, HB5/250kgf; HB10/100kgf, HB10/250kgf;

* All test forces are also available for the HBT scales

Rockwell - DIN EN ISO 6508, ASTM E-18



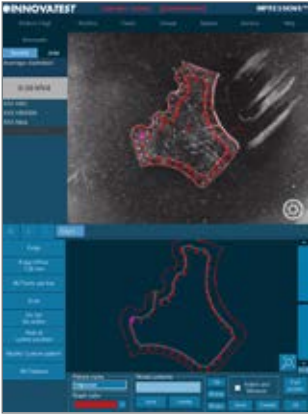
PRE LOAD 3kgf & 10kgf
MAIN LOAD 15kgf, 30kgf, 45kgf, 60kgf, 100kgf & 150kgf

ISO 2039 1/2 for plastics / Carbon

49,03 N, 132,9 N, 357,9 N, 961 N

HR 2,5/7, HR 5/7, HR 5/15, HR 5/20, HR 5/40, HR 5/60, HR 5/100, HR 5/150
HR 10/20, HR 10/40, HR 10/60, HR 10/100, HR 10/15

IMPRESSIONS™



Standard functionality

Intuitive operator interface IMPRESSIONS™

IMPRESSIONS™ V2 is the ultra-modern user interface of all Innovatest hardness testing machines. IMPRESSIONS™, advanced machine control, offers unparalleled simplicity in operation but yet, includes the most advanced functions such as pattern testing, automatic contour scanning, automatic weld testing and edge recognition.

With only a minimum of operator skills required, IMPRESSIONS™ leads you through the set up process, in just seconds, not even minutes. Standard features, complex tasks and advanced work flow at your fingertips.

Typical examples are:

Scale setting, Test methods setting, Limits, Conversion to other hardness scales, Graphics, File saving, Test program saving, Zoom function, Full screen, Test pattern, CNC stage control, Focus control, Z-Axis control.

All standardized hardness testing methods have been programmed in the software and can be selected at any time.

Fully automatic image evaluation



IMPRESSIONS™ tester control evaluates sharpness and brightness of all camera images and measures the indentation independently of the operator.

The automatic adjustment of the picture parameters ensures reproducible test results, even for different materials and difficult, scratched or damaged test surfaces.

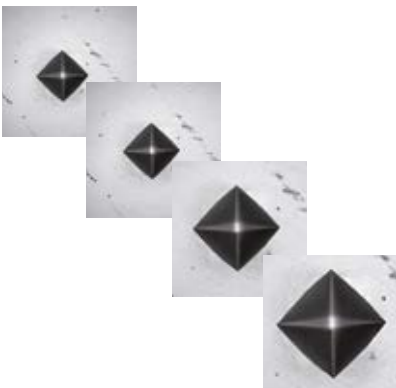


The standard fast auto-focus technology guarantees a sharp image of the indentation, in just a few seconds.

UNIQUE FEATURE

The software recognizes surface flatness and surface finish and implements automatically adapted algorithms that eliminate error caused by irregular surface conditions.

Indent zoom magnification



Calibrated stepless zoom of the indent image provided by the objective, while maintaining the same high standard of image quality.

This unique zoom system is a standard feature on the entire NEMESIS range.

Combined with the 3 objectives installed on the 8 position turret, and a 10MP camera, the zoom system allows a further magnification of the indentation, even up to 2500X and more.

OVERVIEW CAMERA:

The overview camera system has a unique OPTICAL ZOOM system. This eliminates the need of time consuming image stitching. Full specimen overview due to image ZOOM capacity.

More standard functionality...

Dynamic Z-Axis height adjustment



Intelligent Precision positioning of the work piece is a standard feature on the NEMESIS series.

The 2 button control system allows ultra-fast pre-positioning, while the scroll wheel provides a pulse by pulse control on the actual fine adjustment on the focus position. (If used in manual mode) A dynamic system, as the speed depends on the selected magnification of the vertical microscope and camera system. Speed varies further by the velocity of the scroll wheel and is therefore in perfect harmony with the displacement feeling feedback to the operator.

* All NEMESIS 9100 models have a standard auto-focus system!

User defined programs



Save/load/delete work piece tester settings.

Set up your tester as required for your work piece, save the settings with a specific name or number. This function reduces the tester setup efforts for the operator and significantly increases safety and efficiency.

All user-specific settings for the particular work piece such as; test method, objective, pattern settings etc., are stored on the testers dual SSD drives, RAID system.

Report generator



The IMPRESSIONS™ system incorporates a very advanced report generator. The report generator allows you to publish all testing results and graphics, including pictures of the indentations in an easy to edit and easy to customize file size. You can add your company details and change the reporting lay-out to your requirements.

All reports can be printed on a connected (optional) standard printer without the need of a personal computer or any interface.

Reports can be exported to Excel or Word or simply stored as PDF on the system's hard disks.

Overview camera & pattern testing

Advanced measuring methodes

Standard overview ZOOM camera

Perfect "live" stage or workpiece overview. Make any fixed pattern or design custom patterns. Multi pattern testing on multi- samples, based on live overview and macro viewing technology. Copy test patterns, modify or "drag & drop" patterns from one test sample to the other test sample. Live vision technique over zoom and macro camera's, no image stitching required. Edge recognition (Optional) allows to make a test pattern following the test sample surface line.



Single measurement

This function allows you to set individual test points wherever you like. The test measurement can be started using the surface view or the overview.



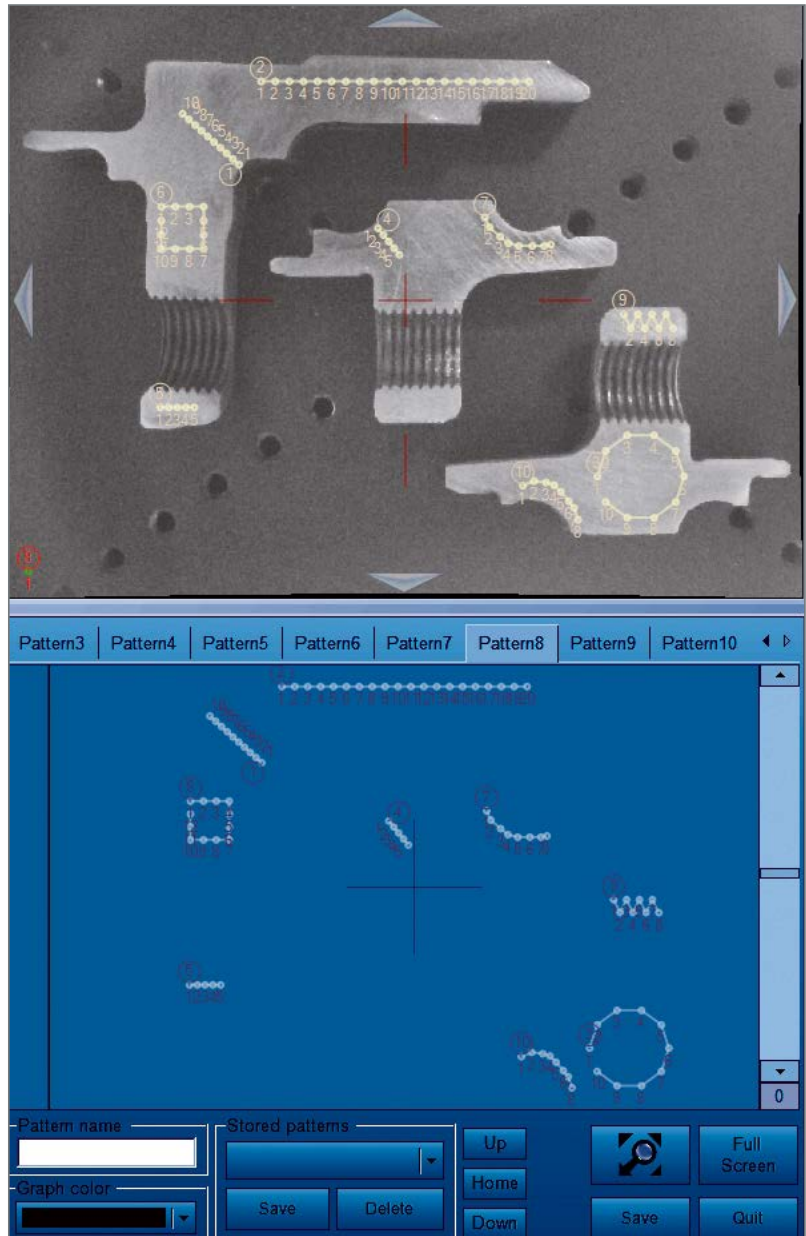
Serial measurement

One or more test rows with positioning coordinates can be recorded. The measuring process can be started in the surface view or the overview.



CHD/NHD/SHD measurement

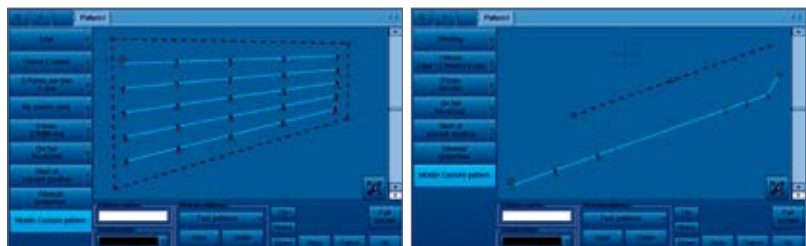
For the performance of test series for CHD/NHD/SHD data of specimen according to standard. The test can be started directly from the surface view or from the overview. Additional core points of hardness can be defined separately for NHD measurements.



2D/3D hardness chart

Weld inspection & edge detection

ISO setup for testing of the heat affected zone's of welded samples.



What NEMESIS 9100 offers more...

Overview & full view zoom cameras



Dual Surface illumination **Laser Positioning** **Overview Camera**



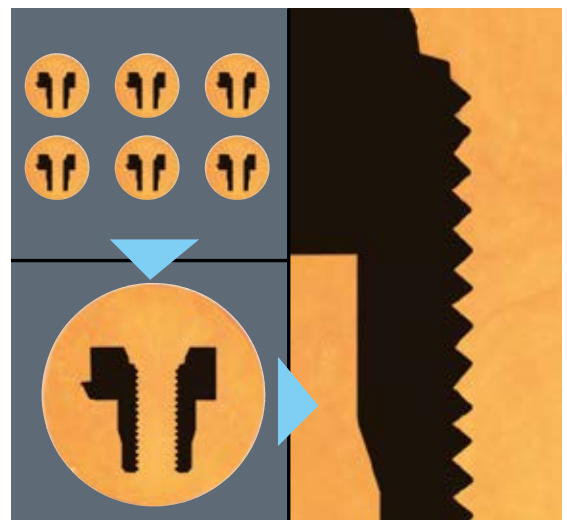
Collision detection system **Tool protection skirt**

The standard overview / full view autofocus zoom cameras with additional surface illumination, ensure a perfect overview or full view on your sample or samples.

IMPRESSIONS™ “click and go” functionality allows random test point selection on the screen, while the high speed motorized CNC X-Y stage perfectly positions the selected test point under the indenter and measuring objective.

Setting the GLOBAL standard for advanced high speed turrets. The NEMESIS 9100's high speed, 8 position turret, has the first in the industry, standard built in: Laser Positioning System.

Picture: Embedded sample(s), Top left multi sample overview by zoom overview camera, Down left zoom on one sample, Right zoom on segment of one sample.



Ultra precise & safe...

UNIQUE machine structure

Depth reading accuracy

The high precision force actuator guarantees ultimate precisions on depth reading and fast focusing.

The 8 position turret is directly connected to the linear actuator, and therefore there are no other linear moving parts influencing the depth reading. Every sub-micron the indenter moves into the surface of the tested part, the actuator moves as well, 100% 1-on-1 without any hysteresis.

The linear displacement is measured by a high-end Heidenhain® linear glass scale, which covers the entire test height.

This displacement is recorded with 0,01 micron accuracy (standard) or 0,02 micron accuracy (enhanced version for standardizing machines). This design offers unparalleled repeatability and system accuracy for any depth measurement and also allows, in combination with the gear head servo drive to apply ultra-low and maximum high forces.

A force mechanism that is built to last for decades and is proven to sustain more than 2.5 million tests.

Speed

The electronic closed loop system controls the servo drive within Nano seconds. Not only is force applied with high speed, but also with the touch of a feather, so that force overshoot (as seen with traditional hardness testers) simply cannot happen.

Crash safe / Collision protection

In order to protect your fingers and hands, the valuable turret and turret tooling such as objectives, indenters, camera's & surface illumination, the entire turret and its accessories are protected against operator failure, collisions with work pieces or accidental high speed operation that could damage the testers integrity.



High precision motorized CNC X-Y stages & traditional anvils

The NEMESIS 9100 can be equipped with a number of high speed, ultra-precise motorized CNC X-Y stages (repeatability 2 micron). Besides that, the tester has a quick change system for all stages, test tables and anvils. Test anvils for the NEMESIS series are all hardened to 56HRC and polished to the highest degree.

NEMESIS 9100

Large test table



Stage solutions NEMESIS 9100 series



NEMESIS 9100
STANDARD MOTORIZED CNC X-Y STAGE



NEMESIS 9100
EXTRA LARGE MOTORIZED CNC X-Y STAGE



NEMESIS 9100
QUICK CHANGE ANVIL POSITION
INTERCHANGEABLE ROUND/V-ANVILS



NEMESIS 9100
LARGE TEST TABLE

NEMESIS 9100

Standard features



High performance
SERVO drive

Advanced modern design

High precision
linear actuator

IMPRESSIONS™ user friendly
operator interface & workflow
control (One or more screens)

8 position high speed turret
4K, 18 MP, Full HD camera
5 MP overview camera
Overview illumination
Position laser

Optional
motorized CNC
X-Y stage

Integrated system controller,
i7, MS Windows®,
Dual SSD drive

Shock resistant
ABS machine
covers

15" HD industrial touch screen,
with height adjustment

Dynamic test head control

High end aluminum panels

Technical specifications

NEMESIS 9100

Hardness scales	Micro/Macro Vickers, Knoop, Brinell, Rockwell, Superficial Rockwell, HVD, HBD, Plastic ISO 2039 1/2, Carbon
Load application	Load cell, force feedback, closed loop system, fully automatic, servo motor driven
Load range	100gf - 250kgf, Nemesis 9101 200gf - 3000kgf, Nemesis 9103
Motorized turret	8 positions; 3 indenter positions, 3 objectives positions, overview camera, laser position indicator, multi load cell system
Optical system	4K, Full HD, 18 Megapixels, Machine vision system
Objectives	0.7x, 2.5x, 5x, 10x, 20x
Overview camera Cam 2	5MP optical ZOOM camera, variable field of view 50 x 37mm / 200 x 160mm
Class 2 laser	Laser positioning system
Electronic system	High performance embedded micro system controller, MS Windows® 15" full color industrial touch screen, automatic and manual measurement, Dual Vision. Multi Screen solution (optional).
Software	IMPRESSIONS™ V2, work flow system & tester control
Test loads	100gf, 200gf, 300gf, 500gf, 1kgf, 1.25kgf, 2kgf, 2.5kgf, 3kgf, 4kgf, 5kgf, 6.25kgf, 7kgf, 7.8125kgf, 10kgf, 15kgf, 15.625kgf, 20kgf, 30kgf, 31.25kgf, 40kgf, 50kgf, 60kgf, 62.5kgf, 80kgf, 100kgf, 120kgf, 125kgf, 150kgf, 187.5kgf, 250kgf, 500kgf, 750kgf, 1000kgf, 1500kgf, 3000kgf
Vickers	HV0.1, HV0.2, HV0.3, HV0.5, HV1, HV2, HV2.5, HV3, HV4, HV5, HV10, HV20, HV25, HV30, HV40, HV50, HV60, HV100, HV120, HV125, HV150; all available for the HVD scale
Knoop	HK0.1, HK0.2, HK0.3, HK0.5, HK1, HK2, HK5, HK10, HK20, HK30, HK50
Rockwell & Superficial Rockwell	Pre Load 3kgf & 10kgf Main Load 15kgf, 30kgf, 45kgf, 60kgf, 100kgf & 150kgf
Brinell	HB1/1kgf, HB1/2.5kgf, HB1/5kgf, HB1/10kgf, HB1/30kgf; HB2.5/6.25kgf, HB2.5/15.625kgf, HB2.5/31.25kgf, HB2.5/62.5kgf; HB5/25kgf, HB5/62.5kgf, HB5/125kgf HB5/250kgf; HB10/100kgf, HB10/250kgf, HB10/750kgf, HB10/1000kgf, HB10/1500kgf, HB10/3000kgf, *All test forces are also available for the HBD scales
ISO 2039 1/2 for plastics	49,03 N, 132,9 N, 357,9 N, 961 N
Carbon	HR 2,5/7, HR 5/7, HR 5/15, HR 5/20, HR 5/40, HR 5/60, HR 5/100, HR 5/150 HR 10/20, HR 10/40, HR 10/60, HR 10/100, HR 10/150
Indenters	Certified indenters (ISO / ASTM) available at choice
Test cycles	Fully automatic, automatic and manual
Standards	Complies to or exceeds, ISO, ASTM, JIS (Nadcap) standards
Test force tolerance	<0.5% for test force 200gr to 3000kgf
Display resolution	0.1 HV, HK, 0.5 HB, 0.01HR
Hardness conversion	Rockwell, Rockwell Superficial, Brinell, Vickers, Leeb & Tensile, material depending
Statistics	Total test, max, min, average, range, standard deviation, all in real time after each test
Data storage capacity	Dual SSD 120gb, RAID system
Connectivity	USB, RJ45 LAN, W-LAN, HDMI, 5 axis; stage, rotary table, rotary head connector
Dwell time setting	Default 10 seconds, user defined 1 to 999 seconds (1 sec increments)
Printer	A4, A3 full color laser printer (optional)
Motorized CNC X-Y stage dimensions	Several models available, choice of fixtures for special applications
Operating temperature	10°C to 35°C, non-condensing
Humidity	10% to 90% non-condensing
Machine dimensions	695mm x 425mm x 1100mm
Machine weight	280kg
Power consumption	100W
Power supply	100VAC to 240VAC, 50/60Hz, single phase

Connectivity & order details

Advanced connectivity



The powerful embedded micro controller running MS Windows® provides an almost unlimited connectivity to the outside world, wired, or not. Multiple USB ports, RJ45 LAN, W-LAN, BlueTooth, RS-232, HDMI & VgA are available on all NEMESIS models.

Stage, embedded sample holders



Embedded sample holders

Any small parts or parts that required a particular surface finish or surface treatment are usually cut, mounted in a resin by a warm or cold pressing method and finished by a polishing machine. Innovatest has designed single, and multiple sample holders. A sample does not need to be flat but can have unparallel surfaces. The swivel stands can hold any sample perfectly in position while releasing an equal pressure to the sample bottom.

The unique base body (1, 4 or 6 samples) can hold any sample diameter such as 30mm, 40mm, 50mm & 60mm. A smart system with interchangeable inserts makes the sample holders "universal". One basis can hold any diameter of the above range or a mix of sample diameters.

The bases body is developed in such a way that multiple units can be placed on a single stage, depending on the stage dimensions and travel distance.

The base bodies are locked to the X-Y stage with standard supplied clamping materials, which include a one hand operation quick release method. Positioning of the sample holders on the stage is done by "smart locks" that guarantee that replacing the base body by another one or just the same one with new to be tested samples is always positioned at the exact same position.

Order details

NEMESIS 9100 series

NEMESIS 9101	1kgf – 250kgf	All scales, with laser positioning system (optional: force application from 200gf)	250kgf
NEMESIS 9103	5kgf – 3000kgf	All scales, with laser positioning system (optional: force application from 1kgf or 200gf)	3000kgf

STANDARD configuration, features & accessories

Standard features on all models

- Multi load cell, closed loop, force feed back control
- IMPRESSIONS™ operator workflow control & advanced report generator
- Auto Brightness, Contrast, Sharpness, Auto surface quality detection
- Auto Focus
- Automatic indent measurement
- Anti-collision system for objectives, indenters & illumination
- Calibrated stepless Indent ZOOM system
- Auto save, program setup, data storage and many more
- Motorized Z-axis
- Z-axis intelli control
- Built in 5 axis CNC controller (stages, rotary tables, etc...)
- Laser position system
- Best in class optical system
- 18 MP HD indent viewing camera
- Powerfull Embedded Micro Controller;
- MS Windows™,
- Large dual SSD data storage Drives with RAID system
- keyboard & mouse
- 15" portrait mode, HD industrial touch screen
- Connectivity; USB, RJ45 LAN, W-LAN & HDMI



Standard configuration & accessories

- 3 Indenter positions installed
- Turret skirt
- Class 2 Laser position system
- Standard objectives supplied 0,7X, 5X and 10X
- Small flat anvil 80mm
- Large testing table 200mm
- Wireless mouse and keyboard
- 4 Vibration dampers
- Installation & Operator manual
- Power cable
- Spare fuse
- Certificate of direct & indirect calibration



OPTIONAL configuration, features & accessories

Optional features (software)

- Advanced pattern testing
- ISO weld pattern testing
- CHD/SHD/NHD
- Automatic edge detection
- Force depth diagram
- Automatic product recognition
- Bar code reading
- 2D/3D hardness scanning chart
- Ammunition testing & reporting system
- Advanced communication protocol
- 5th Axis accessory control

Ask our Sales department for new software options

Optional configuration & accessories

- Enhanced load range 100gf - 1kgf (9101)
- Enhanced load range 1kgf – 5kgf (9103)
- Enhanced load range 200gf -5kgf (9103)
- Certified indenters (UkAS, DkD, ASTM)
- Certified reference hardness blocks (UKAS, DKD, ASTM)
- Motorized CNC precision, ultra-fast positioning X-Y stages
- Motorized CNC rotary table
- Motorized CNC dividing head
- 5MP overview ZOOM camera, field of view 50 x 37mm / 200 x 160mm
- Zoom Overview & auto focus
- Quick change anvil base
- Flat anvil 80mm
- Flat testing table round 200mm
- V-anvil 80mm, 3.3-20mm
- V-anvil 80mm, 12-80mm
- V-anvil 80mm, 20-140mm
- Anvil 80mm swivel ball
- Irregular parts table support 150mm
- Spot anvil 10mm
- Jominy fixtures
- Objective 2,5X
- Objective 5X
- Objective 10X
- Objective 20X
- Precision vice 42mm
- Precision vice 75mm
- Precision vice 100mm
- Single sample holder 30-40-50mm
- 4 Sample holder 30-40-50mm
- 6 Sample holder 30-40-50mm
- Round 3-jaw chuck 80mm
- Vibration free table for low force testing
- Vibration free table top, for low force testing
- Full colour laser printer (A4, A3)
- Manual X-Y stage 150x150mm, travel 25x25mm
- 1 or 2 axis digital micrometer head for manual X-Y stage

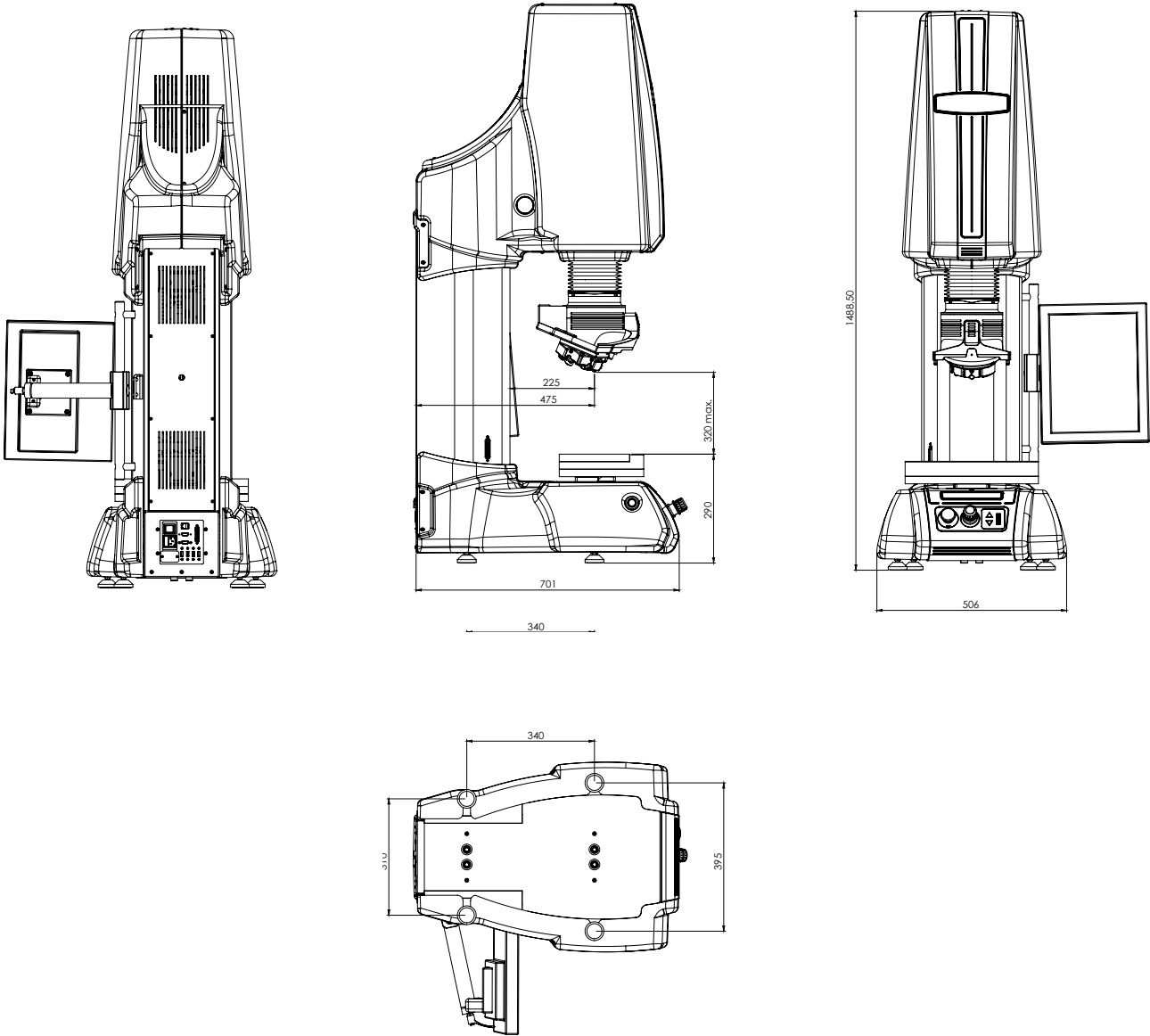
Motorized CNC X-Y stages

Article code	Surface	Travel	Models
• UN-XY902015	390 x 260mm	200 x 150mm	9101
• UN-XY904015	630 x 260mm	400 x 150mm	9101
• UN-XY932015	390 x 260mm	200 x 150mm	9103
• UN-XY934015	630 x 260mm	400 x 150mm	9103



Technical drawing NEMESIS 9100

All dimensions are in mm



- 320 mm anvil & T-slot tables
- 200 mm CNC X-Y stage



NEMESIS 9100 working table

Features

Low stand: 710mm x 750mm x 700mm (UN-STAND/950), suitable for larger testers such as 3000, 3200, 7000, 7501, 9000RS, 9000 & 9100 series

- 100% retractable drawer, bearing guidance, max 100kg load.
Rubber anti slip bottom
- Big drawer, 360mm high
- Adjustable feet, (+/- 50mm height adjustable to reach ergonomic working position)
- Made of corrosion resistant zinc plated steel with RAL powder coating
- Carrying capacity of 1500kg
- Top surface made of 40mm Plywood with 1.5mm chemical resistant plastic plating, edges made of shock resistant 3mm ABS side liner
- Industrial quality, for workshop or laboratory
- Designed for hardness testing instruments, painted in INNOVATEST® RAL colors that match with the testers.

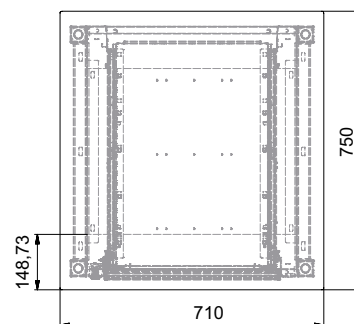
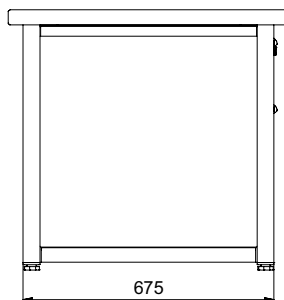
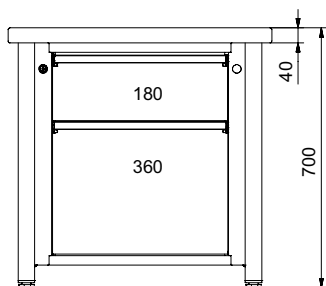
Technical specifications

Dimensions	710mm x 750mm x 700mm (UN-STAND/950)
Drawer	150mm
Cabinet	300mm high (lockable)

- Steel frame with table top
- 100% retractable drawer with anti-slip
- Lockable cabinet
- Adjustable feet



All dimensions are in mm



Represented by :



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