



# NEXTGEN MATERIAL TESTING

YOUR QUALITY TESTING CHOICE

## Advanced Touch Screen Digital Micro Vickers Hardness Testing System

### Description:

The NG-1000 - Micro Vickers and Knoop Hardness tester is the most advanced hardness tester for accurate measurements and ease of use. The NG-1000 - Micro Vickers and Knoop Hardness tester comes standard with a motorized turret and is available in three (3) different configurations to suit all requirements. The series includes the NG-1000 - Micro Vickers and Knoop Hardness tester AGEN - Analogue Vickers Hardness Tester, DGEN - Digital Vickers Hardness Tester and CCD - Digital Vickers Hardness Tester with CCD Optical Analysis Software.



**AGEN** - Analogue Micro Vickers and Knoop Hardness tester measurements are made through the eyepiece. The operator must first rotate the dial on the microscope to align the micrometers with the diagonals of the indentation. Once aligned, the user must manually read the lengths of the diagonals on the ruler visible through the eyepiece. You then enter the diagonal lengths into the tester through the numbered keypad and the tester will automatically convert the diagonal lengths to your hardness value and display it on the LCD screen.

**DGEN** - Digital Micro Vickers and Knoop Hardness tester measurements are made through the eyepiece. This system is equipped with an encoder. After using the micrometers to measure the diagonals, the system will transmit your readings from the eyepiece into the system through a single click of a button. The system will generate your hardness reading and display it on the LCD.

**CCD** - Micro Vickers and Knoop Hardness tester measurements are performed through a CCD Camera combined with an Analytical Software. The measurements can be made through the eyepiece or it can be done through the analysis software and CCD camera. The advanced accuracy of this Vickers hardness testing system, the Motorized Turret and the Built-in-Printer make this machine the top pick for quality control laboratories.

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## System Features:

1. Guided by **optical cross rails** to ensure the highest guiding accuracy
2. **Fast and smooth** force transmission can be achieved by using the secondary transmission force of the **rack and pinion**.
3. This machine is equipped with our most advanced high transmission ratio high precision **worm gear rod** which can achieve stable continuous lifting, and greatly improved the accuracy and repeatedly of the testing process. This update is in the improved working performance and working efficiency.
4. Equipped with **dual optical path**, one optical path for eyepiece system, another path for CCD camera, both paths can work at the same time without the need to switch the optical path rod. This greatly extend the service life of the optical system, and make the testing process much simpler.
5. High definition **8" touch screen** interface with menu structure and digital eyepiece with a built-in encoder. One-push encoder button provides the diagonal length of indentation D1, D2 and hardness value will display on touch screen directly for easiest and most optimal operation.
6. With **hardness conversion** function, the system can easily convert HV to HRA, HRB, HRC, HBW, and other scales.
7. Standard with **(HV & HK)** Vickers and Knoop hardness testing capabilities.
8. **OK/NG judgement** function.
9. **Includes (10X & 40X) lenses for measurement** suitable to test wide hardness range of materials from the softest to the hardest of materials.

## Software Features: Compatible with NG-1000-CCD Only

Hardness Tester

File Device Data Tools Configuration

HV 732.8 HRC 61.5

#	Hardness	Hardness Type	Qualified	D1(um)	D2(um)	Davg
1	742.4	HV	YES	50.047	49.909	49.978
2	740.5	HV	YES	49.665	50.418	50.042
3	744.6	HV	YES	49.772	50.039	49.906
4	757.0	HV	YES	49.771	49.220	49.496
5	732.8	HV	YES	49.879	50.733	50.306

Edit Delete Clear Statistics Report

Machine Control Statistics Info Album

Impress Turret

Force 1kgf Lightness 6

Objective 40X Load Time(s) 5

Hardness Level Middle

X: 997 Y: 508

System Status: Normal Camera Status: Off

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## Main Functions:

1. **Auto hardness measurement:** With a single click of a button, the software automatically measures the diagonals of the indentation, calculates the hardness value and the statistics (also support manual measurement);
2. **Hardness curve:** With the depths of test points by user input, the software automatically plots the hardness curve(s). User may save and load the depths in a depth template file for later testing for convenience;
3. **Hardness Conversion:** Converts HV to other hardness scales (HRA, HRB, HRC, HBW, HK, and others).
4. **Data memory / Store function:** All data in the process of measurement will be saved in the right bottom sheet.
5. **Statistics:** Automatically updates the statistical values such as average, min and max, standard deviation.
6. **Test report:** Automatically generates WORD report with customizable template;
7. **Data archiving:** Measurement data and images can be saved in one file for later retrieval;
8. **Knoop Scale:** Can be configured for Knoop Scale measurement.
9. **Other Functions:** Includes the basic functions of imaging system such as image capture, camera calibration, image processing, etc.
10. **Inbuilt camera design,** the Software can do indentation image Measure and analysis work; THVS-A software can control Machine turret and adjust lightness.

## Main Application Purpose:

1. Steel, nonferrous metals, tinsel, cemented carbide, sheet metal, metallographic structure.
2. Carburization, nitriding and decarburization layer, surface hardening layer, galvanized coating, coating.
3. Glass, chip and ceramic material.

## Technical Specifications:

Model		NG-1000 DGEN and CCD
Turret	Automatic Turret	
Objective	10X (measure); 40X (measure); 50X measure for optional	
Eyepiece	10X digital eyepiece with built-in encoder	
Total Magnification	100X (measure); 400X (measure)	
Testing force	10g (0.098N), 25g (0.245N), 50g (0.49N), 100g (0.98N), 200g (1.96N), 300g (2.94N), 500g (4.9N), 1000g (9.8N)	
Hardness scale	HV0.01, HV0.025, HV0.05, HV0.1, HV0.2, HV0.3, HV0.5, HV1	
Loading speed	≤50μm/sec	
Indenter	Standard Rectangular pyramid diamond indenter (136°±0.5°)	





<b>Min. measuring unit</b>	0.01μm
<b>Hardness value rang</b>	8HV-2900HV
<b>Hardness Value of Reading</b>	8 inch LCD touch screen
<b>Loading method</b>	Automatically (Load, dwell and unload the testing force)
<b>Duration time</b>	1-99s (each step is 1 second)
<b>Objective lens center and indenter center</b>	Coincidence accuracy error < 1um (objective lens center position can be adjusted)
<b>X-Y Testing Table</b>	Dimensions: 4x4" (100×100 mm), Max. Travel Range: 1x1" (25×25mm), Moving Resolution Ratio: 0.01mm
<b>Test space</b>	Maximum height: 4" (100mm) (vertical); Throat depth: 5.11" (130mm) (horizontal)
<b>Light Source</b>	LED Cold light source (can be continuous use for 24 hours, no heat generate ensure stable working, servicing life can reach 100,000 hours)
<b>Instrument size and Net weight</b>	21.25x10.24x25.6" (540x260x650mm) 110lbs (50kg)
<b>Packing size and Gross weight</b>	28x16.5x24.7" (710x420x627mm) 150lbs (68kg)
<b>Power Supply</b>	220V ± 5%, 50/60 Hz (110V is available)
<b>Executed Standard</b>	ASTM E384 & E92, EN-ISO 6507, JIS B-7734, GB/T4340,

### 8-Inch Touch Scree within the Menu Structure for Ease of Operation:

2018-11-27 16:34:15 TUE

Operator:

Sample:

Range 0.0 To 1000.0

Load(kg) 0.2 Dwell Time(S) 10

Turret 10X Indenter 40X

Brightness 5

Start

D1 29.47 D2 30.52

HV 412.0

Conversion HRA 71.5

Reset Data Setting

Main interface (8P)

DATA

NO.	Hardness-S	Hardness-V	Conversion-S	Conversion-V
1	HV02	4500	HRA	733
2	HV02	4405	HRA	728
3	HV02	4120	HRA	71.5

Last Next Clean Statistical

MAX	MIN	AVE	VAR
450.0	412.0	434.1	260.7

Print

Empty Return

Data storage (8P)

Calibration

Magnification:

Load(Kg):

Pulses: X  Y

Scale  Scale calibration

Hardness

Save

Return




Calibration



### Standard Configurations:

Item	QTY	Item	QTY
Weights shaft	1	Weights	6
X-Y Cross clamping testing table	1	Level adjustment screw	4
Gradienter	1	Objective 10X, 40X	1 of Each
Micro Vickers hardness block	2	Eyepiece 10X	1
Dust-proof cover	1	Screw driver	2
Power cable	1	Fuse (2A)	2
Software	1 set	Camera	1
Manual	1	Product Certificate	1

### Spare Parts and Consumables

Part Number	Description of Part #
<b>NG-VKI</b>	<b>Dual Indenter Motorized Turret for Knoop and Vickers Testing Upgrade</b>
	The addition of a 4 <sup>th</sup> position on the motorized turret for a Knoop indenter. This allows the user to test either Vickers or Knoop without having to change any indenters.
<b>NG-VDI</b>	<b>NIST Certified Vickers Diamond Indenter according to ISO 17025</b>
<b>NG-KI</b>	<b>NIST Certified Knoop Indenter according to ISO 17025</b>
<b>NG-860</b>	<b>NIST Certified Micro-Vickers Test Block according to ISO 17025</b>
	Certified and NIST traceable. All loads and ranges available.
<b>NG-860</b>	<b>NIST Certified Knoop Test Block according to ISO 17025</b>
	Certified and NIST traceable. All loads and ranges available.
<b>NG-XY-MICRO</b>	<b>XY Stage with Digital Micrometer Upgrade</b>
	
<b>NG-FLS2000</b>	<b>Universal Leveling Fixture for Sample to Help Meet Parallelism Requirements for Hardness Testing</b>
	 



<b>NG-Fixture1000</b>	<b>Full Set of Fixtures for your NG-1000DGEN Model</b> Includes: <ul style="list-style-type: none"><li>• Flat clamping test table</li><li>• Thin specimen test table</li><li>• Filament clamping test table</li></ul>
<b>NG-AutoSoft</b>	<b>Automatic Software (to be purchased with NG-1000CCD)</b> – Software automatically measures indentation
<b>NG-USB-1000DGEN</b>	<b>Upgrade your NG-1000DGEN model to a USB Interface instead of built-in-printer</b> USB interface instead allows to store hundreds of results. The data will be saved in the U-flash in Excell format. This way you can save thousands of readings without the need for printer.
<b>NG-2kgf</b>	<b>Add 2kgf Load to your NG-1000 Series Vickers Hardness Tester</b>

### Lead Time

3-8 Weeks Depending on when the PO is placed

### Price

Model	Description
<b>NG-1000AGEN</b>	<b>Digital Display Micro Knoop Tester 1kgf with Automatic Turret and Built-In Printer according to ASTM E384 &amp; E92, EN-ISO 6507, JIS B-7734 and GB/T4340</b>
	<b>NOTE:</b> System is not compatible with CCD Camera and Optical Analysis Software
<b>NG-1000DGEN</b>	<b>Advanced Micro Vickers Hardness Tester with Intuitive 8" Touch Screen Panel 1kgf, Motorized Turret and Built-in-Printer according to ASTM E384 &amp; E92, EN-ISO 6507, JIS B-7734 and GB/T4340</b>
	<b>NOTE:</b> System is not Supplied with CCD Camera and Optical Analysis Software
<b>NG-1000CCD</b>	<b>Advanced Micro Vickers Hardness Tester with Intuitive 8" Touch Screen Panel 1kgf with CCD Camera, Analytical Automated Software, Motorized Turret and Built-in-Printer according to ASTM E384 &amp; E92, EN-ISO 6507, JIS B-7734 and GB/T4340</b>
	<b>NOTE:</b> System Supplied with CCD Camera and Automatic Optical Analysis Software

\* Request a [formal quotation](#) or send an e-mail to [sales@nextgentest.com](mailto:sales@nextgentest.com) for the most up-to-date pricing and applicable discounts and incentives