

C.A.M.S.

COMPUTER ASSISTED MEASUREMENT SYSTEM



UPGRADE YOUR
MICROHARDNESS
TESTER WITH A COMPUTER
FOR MORE ACCURACY
AND UTILITY.

NEWAGE
Testing Instruments, Inc.

▶ UPGRADE YOUR EXISTING TESTER: THE BASICS

Whether you are maintaining a decades-old tester or need a new instrument, the CAMS System is the most cost-effective means of obtaining the latest technology. CAMS will retrofit almost any functioning microhardness tester.

To install, a simple adapter is fitted to the eyepiece or camera port of your microhardness tester. The adapter holds a special video camera which is connected to a video card in the computer.

Your tester still makes indentations as before, but the image is sent to the computer monitor. The CAMS software enables this video image to be viewed, measured, and converted to Vickers or Knoop values.

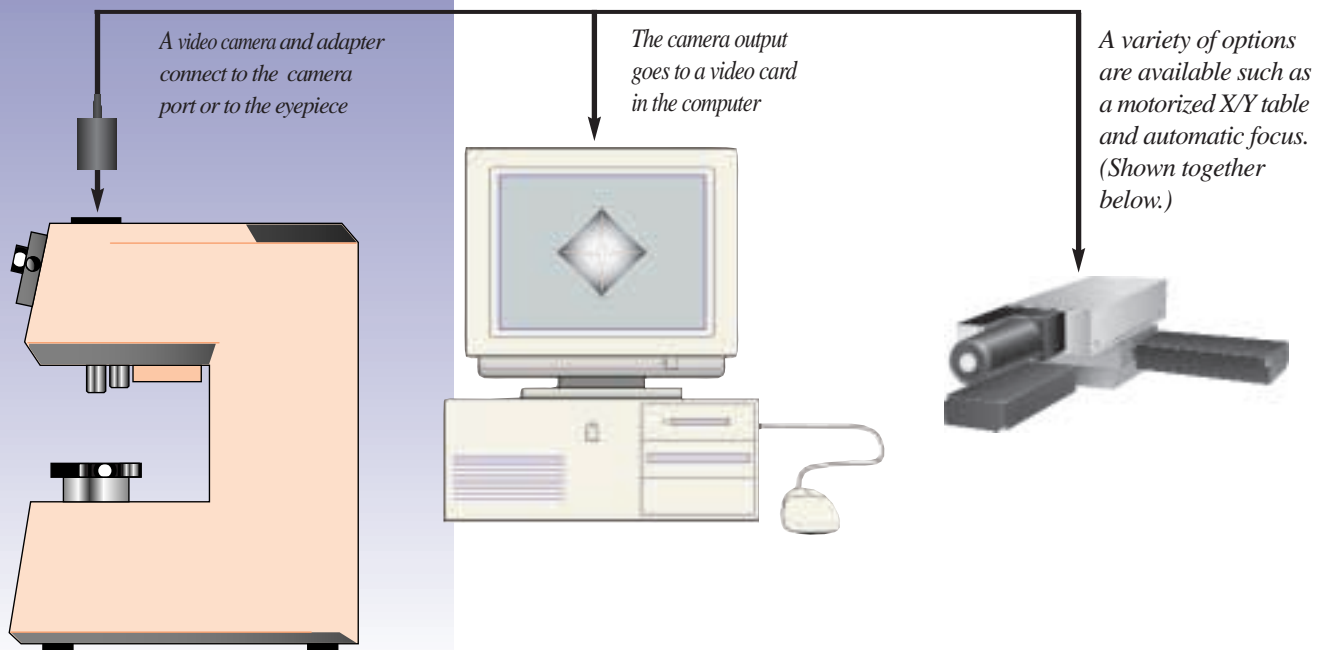
Many software and hardware options can be included with the original CAMS installation or installed at a later date.

Virtually any micro or macro Vickers or Knoop tester can be upgraded with CAMS. The only prerequisite is that the tester be in working order.

CAMS is designed to fit almost any model:

Leco ^{fi}	Clark
Buehler ^{fi}	ATS
Wilson ^{fi}	Shimadzu
Mitutoyo ^{fi}	and others.

Installation takes as little as one-half hour!



C.A.M.S.[®] COMPUTER-ASSISTED MICROHARDNESS TESTER

Recent advances in computer technology have made CAMS possible. Now there is no need for a technician to spend half a day hunched over an eyepiece or to purchase a new microhardness tester at a high cost to get advanced features. CAMS is easier to use and less expensive to purchase.

Any operator who can use a computer mouse can achieve accurate and consistent results with CAMS simple Windows driven software. The basic system provides point-and-click measurement of the test impression on the computer screen. Viewing the impression and positive positioning of the filars is easier than it is through an eyepiece. When the automatic measurement option is used, it eliminates all operator influence and is even easier to operate. Other features like autofocus and motorized x/y tables add even more utility for users.



Above is the Shimadzu HMV-2000 model with the CAMS system upgrade, automatic X/Y table, and automatic focus. Optional features provide capabilities from basic micro testing to completely automated hardness traverse profiles.

THE CAMS ADVANTAGE

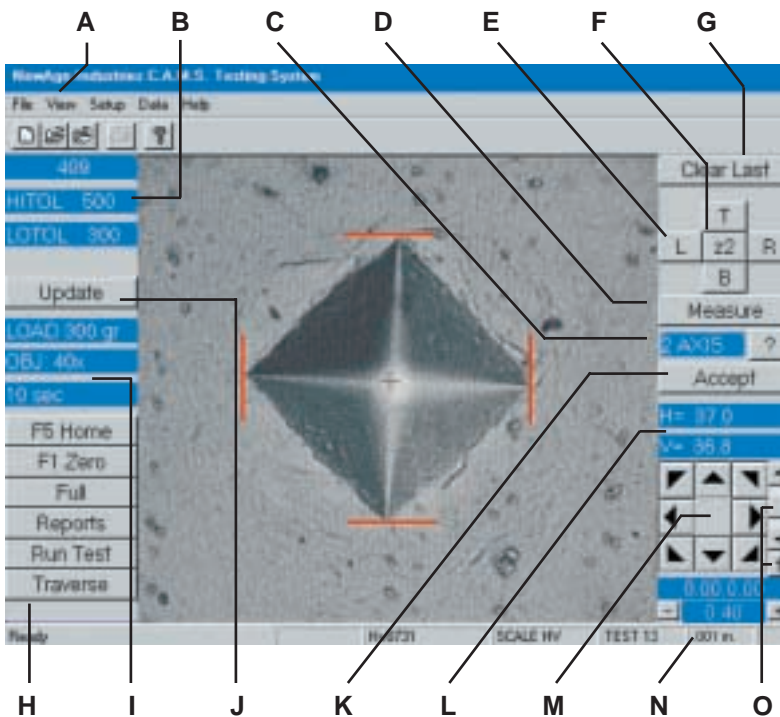
- Fast and easy on-screen measurement of Vickers and Knoop impressions up to HV/HK 4000. Measurement is either automatic or semi-automatic.
- Improved accuracy and repeatability. Different operators can reproduce results.
- Greatly reduced eyestrain and improved ergonomics.
- Automatic and error-free data collection, charting, and retrieval.
- Measure coating thickness and other metallographic structures.
- A range of options from semi-automatic testing to totally automatic traverse testing.
- Lower cost than buying a new tester.
- Rapid payback from dramatically higher levels of productivity.



*[Before CAMS]
A metallurgist spending hours hunched over a microhardness tester.*



[After CAMS] Viewing automatically generated test results on a computer monitor linked to a microhardness tester with the CAMS upgrade.



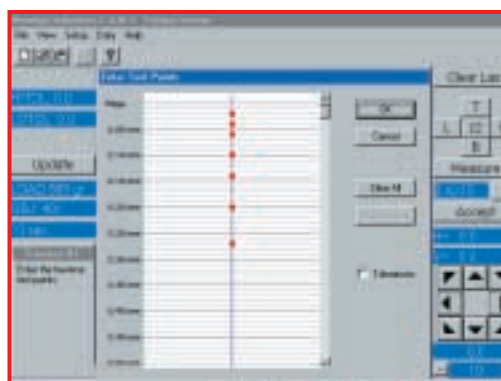
Main Screen Functions - Full Traverse Software

- A** Main Windows^{ff} menu commands for file operations, test setup and complete onscreen help options.
- B** Test result and tolerances.
- C** Controls selection for Vickers or Knoop orientation.
- D** Automatic measurement button.
- E** Forces screen quadrant for filar location.
- F** Full-screen view mode for easy viewing, positioning or measuring larger areas. (see next page, bottom left)
- G** Clear last test from file
- H** Traverse operation controls.
- I** Microhardness tester specifications.
- J** Controls calibration and preferences.
- K** Confirms measurement and places in data file.
- L** Impression horizontal and vertical measurements.
- M** Controls X/Y table motion and increments.
- N** Scale name and file parameters.
- O** Focus Controls

COMPUTER SOFTWARE ADVANTAGES

CAMS software complements the advanced video and computer hardware with a complete range of capabilities from basic microhardness measurements through advanced case depth profiling. The system operates with Windows (3.1x, 95, NT) or DOS operating systems. Each test part can have its own datafile with its own test parameters and descriptive information. Other functions like system calibration and sophisticated reports are standard. Options are available for manual or automatic traverses, statistical capabilities, and measurement of metallurgical structures. Customized capabilities like image capture and storage or test block verification programs can be incorporated.

(At right.) The graphic oriented Windows-based software makes it easy to create a traverse setup. Even a staggered traverse test pattern can be created in seconds.



OPTIONS:

START WITH...

MS-250 CAMS Computer Assisted Measurement System: The basic system consists of a CCD camera linked to a PC with our standard point-and-click measurement and data storage software. Software available for DOS or versions of Windows 3.1x or higher.

Camera Adapter: Newage has camera adapters for all common microhardness testers.

AND ADD ANY OF THE FOLLOWING:

MS-255 Automatic Measurement Software:

Features Newage Instruments Edge Finder technology.

With the impression viewable on the screen, a press of a button automatically scans the impression, places the measuring points at the corners, and displays the resulting hardness value. This Auto Measure feature can quickly and accurately measure both Vickers and Knoop impressions. The measuring points can be fine tuned by the operator before accepting the reading to compensate for less than desirable testing conditions.

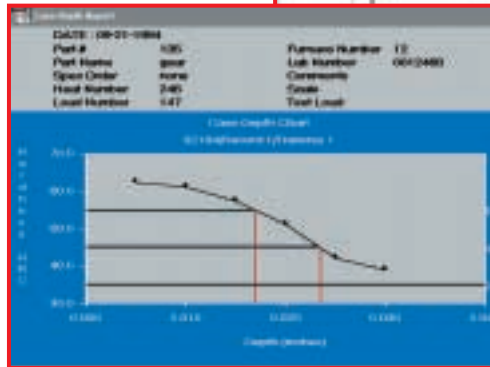
MS-253 Advanced Statistics:

Provides real-time SPC, including Xbar-R chart, test result history, histogram, averaging, standard deviation, and Cpk for viewing on screen or printouts.



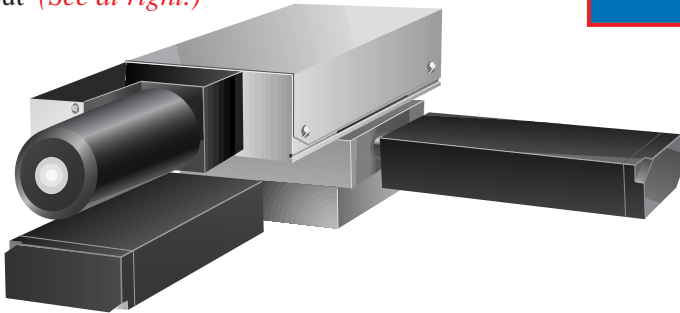
MS-260 Manual Effective Case Depth Software:

Provides automatic calculation of effective case depth when used with systems having manual X/Y stages. The software provides operator prompts for properly moving the X/Y stage based upon user programmed traverse sequences. As tests are performed, test results are entered directly into the effective case formula. Case-depth values and graphs can be viewed on the screen or printed out (See at right.)



MS-252 Automatic Effective Case Depth Software:

This package greatly improves the accuracy of your case depth studies by removing all operator influence from the positioning of the test piece. Single or multiple straight line and staggered traverse patterns can be pre-programmed. Upon locating the edge or starting position on a sample to be tested, the traverse tests are carried out automatically. The operator may then select to have the table return to each impression automatically for measurement and automatically calculate the effective case depth. Case depth values and graphs can be viewed on the screen or printed out. Other reports such as X-Bar & R charts are also available. MS-252 requires the MS-251 Motorized X/Y Table. MS-254 is suggested



MS-251 Motorized X/Y Table

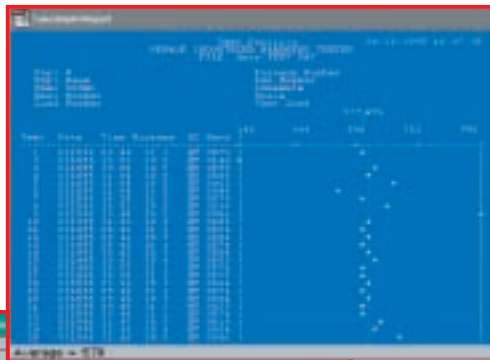
(Shown with the MS-254 Automatic Focus table mounted on X/Y tables.) Provides a precision motorized table and software for computer-controlled movement and positioning of samples affixed to the stage. Includes motor control driver and all connecting cables. Requires MS-250. MS-254 may be added.

MS-254 & MS254B Automatic Focus:

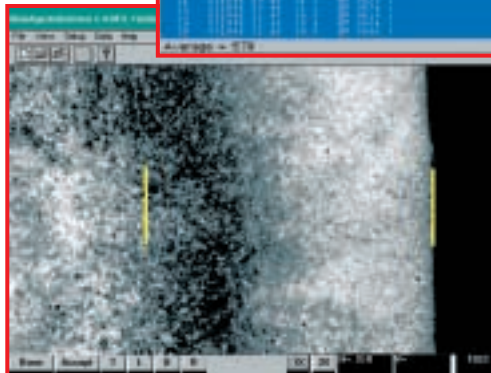
Automatically raises and lowers the anvil stage for optimum camera focus. The operator also can control the focus with onscreen controls. Autofocus speeds up traverse or single test applications. MS-254 is used with automatic X/Y tables. MS-254B is used without automatic X/Y tables.

MS-256 Automatic Cycle Start

Initiates the test cycle. Used in most testers that do not accept an RS-232 start signal.



reports such as X-Bar & R charts are also available. MS-252 requires the MS-251 Motorized X/Y Table. MS-254 is suggested



MS-270 Inch/Millimeter Scale Measurement

Measure any visually discernable characteristic of a sample such as crack length, coating thickness, or visual case depth. The image is shown with the full screen view.

Please call our Technical Sales Team at (215) 657-6040 if you need more information or assistance in placing an order.

SALES AND SERVICE SUPPORT

Your first interest is to maximize the life of your tester. Our goal is to surpass your expectations. If you have a question or a concern with a Newage tester, or any other brand, give us a call. We want to help. If you require calibration, verification, or service, the nearest Newage Instruments field service representative will promptly respond to your needs. Each service agent is trained on all makes and models of hardness testers and can often handle all of your needs in one visit. We carry a wide range of parts on the truck for immediate repairs.

Here s some of what you will receive with the Newage Testing Instruments Service Network:

- For emergency service calls, you ll receive a fast, on-site response by a qualified technician.
- Standardized operating procedures with detailed documentation that will pass your internal and external audits. Compliance certification available to ANSI/NCSL-Z540-1-1994 and all applicable ASTM test methods.
- Verification, calibration, preventive maintenance, and repairs on many different types of hardness testing systems, regardless of make and model.
- All vehicles and service personnel are fully insured for liability to perform on-site service at your facility.



Newage Testing Instruments, Inc.
147 James Way, Southampton, PA 18966, U.S.A.
Tel: 800-806-3924 • Fax 215/657-1697

Email: info@newageinstruments.com Website: www.newageinstruments.com

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BENCH MODEL

INDENTRON[®]
BENCH MODEL

ME-2
BENCH MODEL

ROCKMATE[®]
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ROCKMAN
FULL LOAD - PORTABLE

MICROHARDNESS

MT-90
500gr to 7kg - BENCH MODEL

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COMPUTER ASSISTED MEASURING SYSTEM
UPGRADE FOR BENCH MODELS

HMV-2000 & TYPE M
5gr to 2kg - BENCH MODEL

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