HARD FACTS

Solving Problems for Manufacturers

ASTM E384 & E92 to be Married

Wilson Hardness Revolutionizes Micro Indentation Testing

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- Keeping up with Hardness Testing http://http://www.wilsoninstruments.com/
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- http://www.instron.us/wa/product/Shore-Durometers.aspx?ref=http://www.google.com/
- QCI Joins ITS to support Wilson Hardness Products

Next Issue Topics

Micro hardness Image Analysis reducing costs for case studies

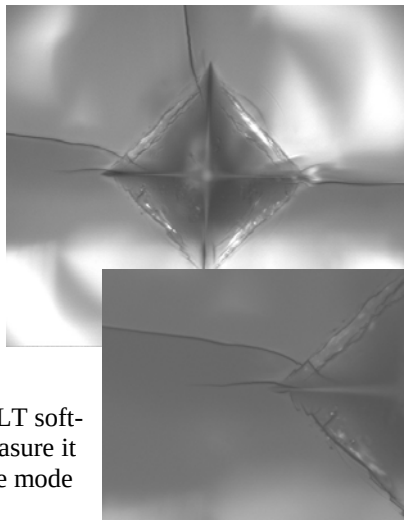
Digital Durometers finally get with the Program!

Calculating Fracture Toughness

Inside this issue:

Revolutionary, Unique, Unparalleled, Innovative, Unmatched, yes all of the above can be used to describe a technological breakthrough that will change the way everyone does micro-hardness testing in the future. We are not exaggerating. The latest Instron micro indentation tester brings optical quality, automation and flexibility that has never been seen in this type of instrument. Wilson's new 2500 fully complies with ASTM E384 and E92 including the newest E384 being completed in 2010. For more details see announcement below.

Instron has combined a unique load cell technology which has been used by NIST for micro hardness testing for over 8 years with a long anticipated optical package that boosts performance beyond anything available from the current market. The unique approach lets users configure their model 2500 tester with single or dual load cells with a combined load range of 10 gram to 50,000 grams for both micro and macro requirements. No other tester on the market provides load cell control of the loading with load sampling at 500 times per second, testing at 10 grams one moment and then 50kgf the next with load accuracy and repeatability that exceed the current ASTM requirements.



This is not the real revolutionary part of this tester. A unique optics package including an over view camera with 1x and .5x magnification range as part of up to 11 total magnification levels up to 2000 power, proprietary light source and microscope design let you measure small impressions on hard coatings, ceramics, carbides, glass and other materials that were always a struggle. Indents at 20 micron lengths are easily visualized at 1000 or 2000x.

Fracture Toughness calculations are standard with the ELT software so not only can you see the impression you can measure it as well as conduct R&D if necessary to determine failure mode when you are not using this tester for day to day meas-

Photos Courtesy of Wilson Hardness Hardness

ASTM NEWS

In actuality E 384 and E 92 are not to be married but E384-10 will absorb E92 which dealt with Macro Vickers testing. By Mid year ASTM E92 will be withdrawn. The ballot has to pass the members of E28 and the members of the COS committee. It has passed all the required ballots and is technically in effect, however it takes a time for the document to be revised by the ASTM editors and be reviewed by the task group chairman to make sure all of the changes have been made correctly. Stay tuned to the ASTM Web sites to be advised when the official release happens for micro and macro Vickers testing.

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Instron Revolutionizes Micro Continued.....

urements.
Combine this unique range of test loads with the flexibility to adjust the load rate and dwell times to custom values with a parameter of up to 999 seconds. Infinitely defined loads can be set up to expand the standard ASTM & DIN standards for flexibility.

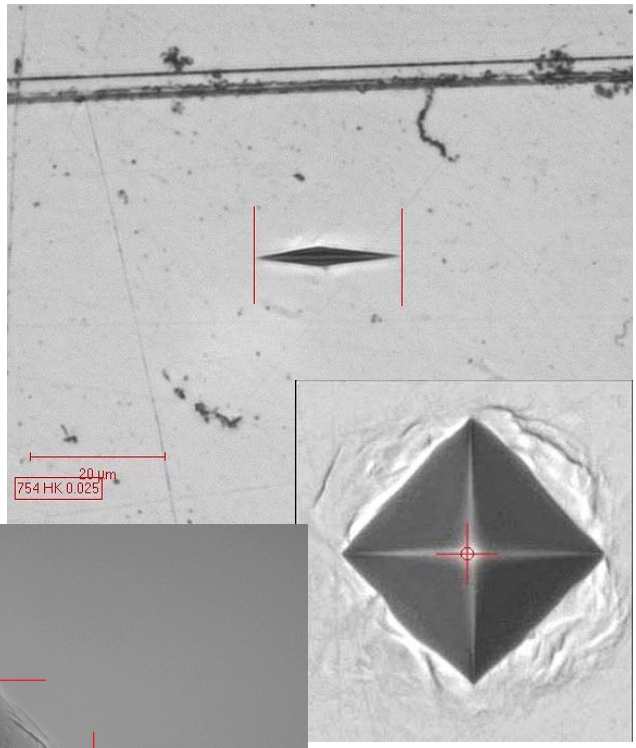
Add software that moves the sample on a stage with 5 micron accuracy with a simple program, mount multiple samples on the large travel stage and use image analysis algorithms to measure your indentations or measure manually using a large LCD screen and your mouse with reports prepared for each sample being tested. Network the unit, capture jpg images to attach to the reports and calculate process statistics.

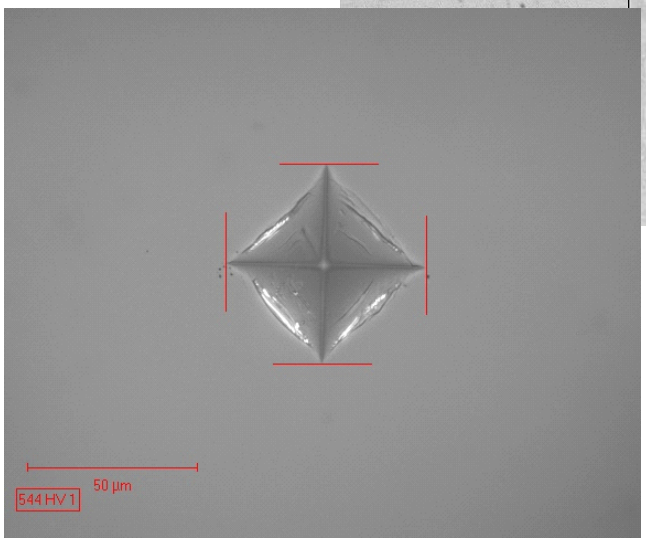
With an optics package never before available on any micro indentation tester, any where in the world, the 2500 is a tool with unprecedented flexibility, unsurpassed accuracy and automation that will provide the user with what seems like a whole team of lab technicians when running micros.

You have to see this unit in action to appreciate the tremendous value it brings to the met lab. **Faster results**, reduced subjectivity of readings, **higher flexibility** and **automation** whether on an indent of 20 micron or 300 microns with **unquestioned results**.

Best of all this new 2500 is designed and made, in the Instron factory in Norwood Mass.

Wilson Hardness is a division of the Instron Corporation, part of the ITW family of companies





Photos Courtesy of Wilson Hardness

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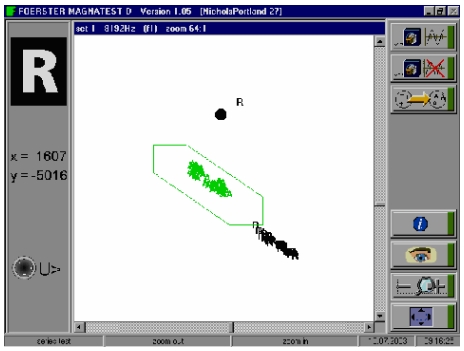
Coming in the next addition Fracture Toughness on Ceramics, Carbides, Powdered Metal, Glass and others.

ASTM Changes in the works (continued from page 1)

More news from ASTM comes as they consider changes in ASTM B 294 carbide Rockwell testing met with some road blocks so is still pending. More information as we receive news that these changes are approved.

When Indentation Testing May Not Be Acceptable



Eddy-Current Sorting Hard from soft Parts

Not all hardness requirements can be satisfied with indentation methods. There are Non-destructive methods being used by major manufacturers successfully to sort acceptable from unacceptable parts as they relate to hardness and case depth using eddy current technology. Though this method is not for every application, it is another valuable tool that lets the manufacturer quickly verify hardened and quenched conditions without making an indentation in the material. We have to speak of the limitation of this test because there are numerous issues that have to be considered, such as part geometry and mass, chemistry, part orientation and hardness specification range required. After all it really is not a Rockwell Test is it! For more information on unusual hardness sorting applications contact us.

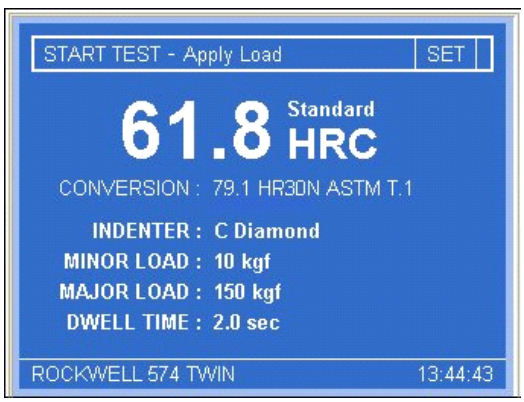
QCI Joins ITS, Providing Inspection Solutions

QCI, located in the Pittsburgh PA. area has joined ITS to provide more than 50 years of expertise in hardness testing solutions covering the Ohio, Pennsylvania and New Jersey areas. Pat Lockhart, Owner of QCI, is providing exclusive representation of Wilson Hardness products as well as lab services for Product Evaluation Systems for customers who need that special lab testing service that they do not have in house. Pat's experiences bridge more than 25 years in the field of hardness testing with special experiences in Carbides and heat treat applications as well as exotic material testing. You can contact QCI vial e mail at

NEW ROCKWELL IS INTRODUCED BY WILSON

2009 brought new innovations in basic Rockwell testing with the 574 model from the Wilson Division of Instron. The 574 is a new series of digital Rockwell hardness testers that is designed and manufactured by Instron Corp. The 574 incorporates the latest in bench model Rockwell testers with an new intuitive operator display that allows easy scale selection, industry leading repeatability, data printouts and data storage to common memory stick for use with programs like Excel and standard statistics for process control. Simple for daily use but with data storage to help document the tests and process.

Features like statistics and cylindrical correction are standard as well as conversions to other hardness scales make this tester easy to use, robust. Supported by more than one hundred factory trained service technicians this tester will support your business needs for decades of trouble free service.



Screen shots Courtesy of Wilson Hardness Testing

HARD FACTS
SOLVING PROBLEMS FOR MANUFACTURERS

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Q&A

Q. We are often asked about the proper spacing when making indentations with a Rockwell tester.
A. Recommendations are that your spacing be a minimum of 2 1/2 diameters away from edges and 3 diameters from other indentations. This is due to the fact the indentation has some effect on the surrounding area and as such the reading of a second indent placed too close will be less than accurate.

Warning: We see it all the time. DO NOT make indentations on both sides of your test block or part. The raised area around the indent will compress if you test opposite it may give inaccurate readings.

The information contained in this news letter is deemed accurate but as with any publication of this type, mistakes happen from time to time. ITS assumes no responsibility for mistakes or information that it presents herein that is later proven to be inaccurate. Some of the information presented is the opinion of the writers. ITS advises always to request complete documentation and technical specifications from the OEM or ASTM when you have any questions.

Process Documentation Continued...

ISO17025 Measurement Uncertainty Alert

NOTE: If you are certified to ISO17025 you need to make sure you're capable of meeting the requirements for measurement Uncertainty. Your hardness testers may need to be quantified also. Wilson offers the RB2000 series tester a Industry leading GR&R guarantee of =/< 5% on every new tester. No other tester today is shipped with this type of gage repeatability and reproducibility statement. For more information on this unique tester contact your local Wilson Hardness representative.

Tools That Solve Problems for Manufacturers

Hardness Testing, Non-Destructive crack & Hardness Inspection, Dimensional Gaging solutions and hand gages, Vibration monitoring and Evaluation solutions, Balancing Equipment , Special Tool Holding and Work Holding