

Newage B.O.S.S.®

Software User Manual



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Overview

Introduction

Welcome to the Newage® B.O.S.S.® (Brinell Optical Scanning System). An image acquisition and measurement software to enhance the capabilities of your hardness tester by automating the measurement of Brinell impressions.

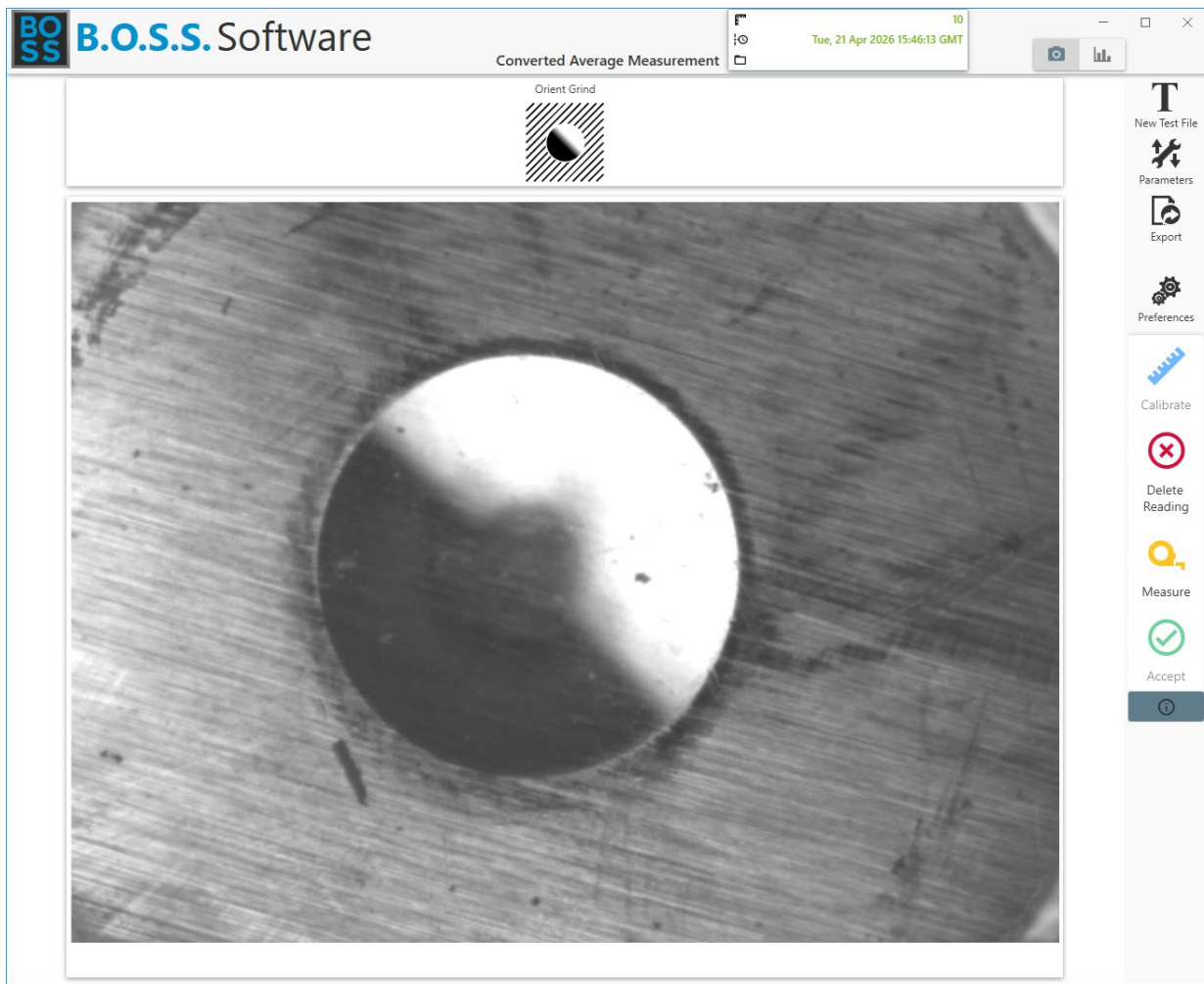
Requirements

- Lab Boss or Lab Small scan head
- Microsoft Windows 11
- One USB 3.0 port

Principles of Operation

B.O.S.S. uses a scan head attached to a computer to measure Brinell impression widths. It is for accurate impression measurement. It does not perform any tests by itself. Operation of the hardness tester remains as described in its own operation manual. Please refer to it for tester setup and operation.

The Brinell impression is measured in both axes and the value averaged and converted to a hardness value. The accuracy is affected by the surface condition of the test specimen. Too rough a surface will cause the tester to report the reading is not good due to the surface condition.



Quick Start

Use the steps below to start using the B.O.S.S. software. More details about the steps and functions of the B.O.S.S. software are described further in the manual.

1. Install the B.O.S.S. software.
2. Connect the B.O.S.S. scan head to the computer.
3. Open the B.O.S.S. software.
4. Create a new test file.
5. Place the scan head over the impression.
6. Take a measurement.

Taking a Measurement

The B.O.S.S. software supports two different methods for taking a measurement: automatic and manual. Newage recommends starting with automatic and only using the manual method with difficult impressions or for specialized applications. With either method, once a measurement is taken it must be accepted to be saved in the test file and included in the statistics.

Automatic Measurement

Use a Brinell tester to perform a test and create an impression. Move the B.O.S.S. scan head into position over the sample, so the impression is shown in the middle of image in the B.O.S.S. software. Click the yellow Measure button in the software or press the red button on the scan head. Eight indicators defining the impression edge will appear. Accept the measurement by clicking the green Accept button in the software.

Manual Measurement

Use a Brinell tester to perform a test and create an impression. Move the scan head into position over the sample, so the impression is shown in the middle of image in the software. Do not click the Measure button or press the red button on the scan head. Use the mouse to click on the right (3 o'clock) edge of the impression to place the first measurement line. Followed by measurement lines on the top (12 o'clock), the left (9 o'clock) and the right (6 o'clock) of the impression. After the first line has been placed, the image freezes to make it simpler to set the remaining measurement lines. Lines can be re-positioned with the mouse or by using the arrow keys on the keyboard. Accept the measurement by clicking the green Accept button in the software.

Measurements Window

Once the first measurement of a session is accepted, the Measurements windows will appear as a floating dialog above the B.O.S.S. software. The Measurements window shows all measurements, average results, and tolerance status for the current session. The measurements window is cleared when the B.O.S.S. software is closed or another test file is opened. Past measurements and results are available from Statistics screen.

Aligning Surface Grain

For the standard B.O.S.S. scan head (Lab Boss) it is important to orient the grain on the test sample to the scan head. The grain, if any, should run from lower left to upper right. This enables the scan head lighting to minimize the surface texture and read impressions on less-than-ideal surfaces more accurately. A diagram on the screen provides a reminder.

Functions and Features

New Test File

When the B.O.S.S. software is first opened or the New Test File button on the right-hand toolbar is pressed, the Create Test wizard will start. The wizard can be used to create a new test or open an existing test file.

New

Navigation of the Create Test wizard is done by clicking the Next or Back buttons or clicking on the tab titles at the top of the wizard dialog.

General / Test Information

Name: The name of the test file.

Work order/File comment: A description or other information about the test file. The comment provided will be available for the reports.

Company Name: The name of the customer or company. The name is shown on the report header.

Store images in data file: Enabling the storage of images will save an image of each accepted measurement. Enabling this option is required to be able to export images via the Export fly out.

Part Info

Custom fields which can be used in reporting and data analysis to identify details about a measurement. Fields created without the Prompt enabled are static. While fields with Prompt enabled will ask for input after a measurement is accepted. Values of static fields may be changed via the Parameters fly out at any time.

Scale

Choose a primary scale for the measurement in the test file in the Primary list. If measurement conversion is needed, enable the Calculate converted scale (in addition to the primary scale) option and choose a secondary scale in the Converted list.

Primary

- HBW - Brinell hardness scale
- DIA - Diameter of impression in millimeters
- INCH - Linear measurement in inches
- MM - Linear measurement in millimeters
- PIN - Scale for Newage Pin Brinell impressions

Converted

- HRC - Rockwell C hardness scale
- HV - Vickers hardness scale
- HK - Knoop hardness scale
- DIA - Diameter of impression in millimeters
- HRB - Rockwell B hardness scale
- HRA - Rockwell A hardness scale
- HR15N, HR30N, HR45N - Rockwell N hardness scales
- HR15T, HR30T, HR45T - Rockwell T hardness scales
- HRE - Rockwell E scales
- HRD - Rockwell D hardness scale

Note

The scale cannot be changed for a test file that has accepted measurements.

Measurement

Average

To use an average measurement as the result, increase the Group Size to more than one (1). The averaged result is used to generate the statistical charts in the Statistics screen. Enabling averaging offers further options to compute the average result.

- Keep All – The default setting. The average result is computed from all measurements.
- Eliminate Highest and Lowest Values – When the Group Size is three (3) or more, the highest and lowest measurements in the group are removed from the average calculation.
- Eliminate Furthest from Average – The average calculation removes the measurement that is furthest from the first average calculation and recalculates the average.
- Eliminate if Std. Deviation Exceeds – Enter a value for an allowable standard deviation. The average calculation will remove the measurement in the group that is outside the standard deviation. If all measurements are within the standard deviation, then none are removed.

Tolerance

Setting tolerances enables the B.O.S.S. software to determine if a measurement is within an acceptable range. The Tolerance Range is used to highlight measurements in green – within tolerance – or red – out of tolerance in the Measurements window and the Readings View in the Statistics screen. Additionally, the XBar/RChart in the Statistics screen will highlight measurements in green or red. The Warning Range will highlight measurements in grey when measurements are between the warning values and the tolerance values.

- Acknowledgment Required - Require acknowledgment when a measurement is out of tolerance.
- Detect Elliptical Impressions (exceeding deviation of width and height) - Enable the B.O.S.S. software to determine if an impression is out of roundness by 0.1 or 0.2 mm per ASTM recommendations.

Note

Setting tolerances values to zero (0), the default, disables tolerance status. All measurements will be assigned an OK (green) tolerance status.

Test Load

For primary scales other than PIN, select load and indenter size to be used to make the impression. For PIN scale, select the appropriate PIN designation.

Open

Selecting the Open tab will list all B.O.S.S. test files in the default test file folder. Select a test and press the Open button to open it or the Clone button to create a copy of an existing test file with the same parameters but a different name.

Note

Opening or cloning a test will save and close the current open test file.

Parameters

The Parameters fly-out is used to view the open test's settings and change the following settings if needed:

- Work order/File comment
- Company Name
- Part Info values
- Tolerances

The other settings cannot be changed once the first measurement is accepted.

Export

The Export fly out allows data from the test file to be previewed and exported in different file formats.

Report

The report templates included with the B.O.S.S. Software are available from the Report Template list. A report of the currently opened test file can be previewed using the Preview button or exported directly to the following file formats using the Export button: PDF, DOCX, RTF, Image, CSV, Text, XLS, XLSX, HTML, or MHT.

Advanced

Use the Advanced tab to edit or design a custom report template.

Image

If the Store images in data file option is enabled when creating a new test file, images from the test file can be exported for further analysis or reporting. It is possible to export an image of the last measurement, individual images of each measurement from a range of tests or all the tests in the test file. Images will be exported to the folder defined at the bottom of the Image Export Options group.

Preferences

Preferences are settings which apply to the B.O.S.S. software not the test files. There are four sections of preferences: General, View, Theme, and Users.

General

Locations

The default folder where test files are saved. This folder is the location of the Open test file list.

Demo Mode

Check the Demo Mode checkbox to enable the B.O.S.S. software demo mode. The demo mode shows a static image of an impression which can be used to evaluate and review the features of the software. A default image is available in the software, but a different image can be chosen using the Select demo image (optional) Open dialog. The image must be an 8-bit bitmap (.bmp).

View

Measurement Axes

The default is 2 Axis, and it should not be changed when measuring Brinell impressions. Horizontal and Vertical can be used when manually measuring inches (INCH) or millimeters (MM). When selected Horizontal and Vertical only allow two measurement lines.

Line

Set the color and width of the measurement lines. Assorted colors allow for best contrast against the background color of the parts being measured.

Lighting

Set the type of B.O.S.S. scan head you have. If multiple scan heads are used with the B.O.S.S. software, make sure to change Lighting setting when switching scan heads.

Zoom

Set the screen magnification to 0.5, 1, 1.5, or 2.0.

Number Format

The default setting is *Automatically determine the millimeter decimal places for diameter* and is the best setting in most circumstances. With that setting the B.O.S.S. Software will determine the precision of the diameter measurement based on the primary scale. If needed, the number of decimal places can be changed using the *Use specified millimeter decimal places for diameter* setting.

Themes

The B.O.S.S. Software can be used in light or dark mode with distinct colors for the section headers and selection highlights. Changing the theme has no effect on the operation or performance of the software.

Users

Create and manage users of the B.O.S.S. software. Using this feature requires running the B.O.S.S. Software with elevated privileges. Once a user is created in either the Manager or Operator role, the software will prompt for a user ID and password at startup. To change users, the software must be restarted.

Statistics Screen

The Statistics screen is available by clicking on the bar graph icon. Clicking the camera icon or pressing the red button on the B.O.S.S. scan head will switch the B.O.S.S. Software back to the measurement screen.

Readings View

The Reading View lists all measurements available in the open test file. It includes a sequence number, the date and time, the measurement value, the tolerance status, notes and part info for each measurement. Additionally, each row may have a hardness conversion value and the measurements making up each average hardness based on the parameters of the test file. Rows will be shown in green, red or yellow depending on their tolerance status. More information can be added to the Note column after measurements are completed.

XBar/RChart

The XBar/RChart is a running chart of the measurements in the test file. The measurements will be shown in green, red or yellow depending on their tolerance status. Control limits are calculated by the B.O.S.S. software.

Histogram

The Histogram is a running chart of the measurements in the test file. Control limits are calculated by the BOSS software.

Measurement Functions

Calibrate

Calibrating the B.O.S.S. scan head ensures accurate measurements and must be completed when a scan head is returned from repair or when installing a scan head on new computer.

To prevent calibrations from being done incorrectly or changing an existing calibration, operators or technicians can be prevented from using the calibration function by creating users in the Preference fly out. Users in the Manager role cannot perform calibrations while users in the Operators roles cannot.

If a calibration file is provided, select the Use calibration file option in the Calibrate dialog and browse to the provided file. Otherwise, calibration can be performed in two different ways: known impression or stage micrometer.

Known Impression

Take a measurement, automatic or manual, of a known impression, press the Calibrate button, select the Supply corrected measurement option, and press the OK button.

Stage Micrometer

Take a manual measurement of a stage micrometer, press the Calibrate button, select the Supply corrected measurement option, enter the actual size of stage micrometer measured in the Correct Measurement (mm) field, and press the OK button.

Clear / Delete Reading

Before a measurement is accepted the red Clear button removes any measurement and indicators taken automatically or manually. After a measurement is accepted, the button changes to a red Delete Reading. Clicking Delete Reading will remove the last measurement from the test file after a conformation prompt. It does not remove the measurement from the Measurements window.

Measure

The yellow Measure button takes a measurement automatically. Clicking Measure matches the functionality of pressing the red button on the B.O.S.S. scan head. The Measure button does not save a measurement to the test file. The Accept button must be clicked to save the measurement.

Accept

Clicking the green Accept button saves the measurement to the test file.

Support

No Image or Poor Clarity

- Verify that the BOSS scan head is connected to the computer.
- Verify that the BOSS scan head drivers are installed and Windows recognizes the device.
- Hold the scan head without moving during measurement.

Inaccurate Measurements

Calibrate the B.O.S.S. scan head.

Checks to Make Before Calling Service

- Reboot the computer.
- Check the calibration of the B.O.S.S. scan head.

Service

Please complete the Return Repair Form on www.hardnesstesters.com. It will generate an authorization number and provide return instructions.

Contact Us

Newage Testing Instruments, Inc.
8600 Somerset Drive
Largo, FL 33773
USA
Tel: 727 538 6127
www.hardnesstesters.com

B.O.S.S. Scan Head Warranty

ONE YEAR LIMITED WARRANTY

Should Newage Testing Instruments, Inc. (NTI) equipment require service, we will repair or replace, at our option, any part or product which upon examination by a NTI service technician, shows to be defective in material or workmanship.

This warranty is extended to the original purchaser only, for a period of one year (12 months) from owner's date of purchase. Excluded from this warranty are any parts that are to be replaced as part of normal product operation, such as but not limited to indenters, test blocks, indenter shrouds, and Etching Pen writing points.

This warranty IS NOT VALID IF THE INSTRUMENT HAS BEEN MODIFIED, MISUSED OR DAMAGED in any way, except by a factory-authorized NTI representative. Where required, products should be set up and training provided by a factory-authorized representative. Damage caused by improper set up, disassembly, or service by any person other than an authorized NTI service technician is not covered under this warranty.

Please read the operation manual supplied with the instrument prior to operation. This warranty applies only to instruments sold by Newage Testing Instruments, Inc. and its authorized distributors.

Newage Testing Instruments, Inc. is not responsible in any way for losses, damage, or other forms of consequential damage resulting from equipment failure or improper use.

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8600 Somerset Drive, Largo, Florida 33773

