

# BIOS™

Brinell Impression Optical Scanner

## BRINELL MEASUREMENT SYSTEM



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## Brinell Impression Optical Scanner

The BIOS Brinell optical scanner is a hand held device that can be connected to a standard laptop, tablet or any other device running a Windows 10 operating system. The software that comes with the unit is easy to install and provides an excellent way to measure Brinell indents in just a tenth of a second.

Different materials have different finish and for Brinell fast light adjustment is mandatory. Automatic light adjusting systems are too slow and often don't give the right result. The scroll wheel that is in thumb reach provides and ultra-fast way of experimenting with correct light setting, which is then stored for the current application.

### EASY SET UP

Software supports Windows PC's with Touch Screen, mouse & keyboard.  
Only a single USB cable runs from your laptop or tablet to the BIOS and provides both power for illumination, control and signal for live video.



### BEST IN CLASS OPTICAL SYSTEM

Most Brinell microscopes or imaging systems make use of standard lenses and optics. This results in to a number of limitations if it comes to sharpness, field of view and the possibility of meeting ISO|ASTM standards.

The BIOS™ has eliminated all such disadvantage as the camera and electronics are built around a TELECENTRIC objective with an adjustable direct LED light module that illuminates shadow area's around the indents. This results in to crisp high resolution image.

The ability to quickly perform repeatable, high accuracy measurements is critical to maximize the performance and efficiency of Brinell measurements. A telecentric lens allows the highest possible accuracy to be obtained.



# Experience the advantage of intuitive operation...

The settings in the software are just a few like ball diameter and force used, however for more advanced users there are plenty of features like min/max limitations, threshold, color settings, and even different video overlay settings for the measuring grid.

No special skills are required for operating the unit and making advantage of the efficiency of the entire system.

Designed to make daily testing of Brinell indents faster, more accurate and reliable.

It improves your quality control processes due to direct saving of results in a CSV file.

Therefore test results can easily be imported into MS applications such as Word and Excel for further statical processing or reporting.

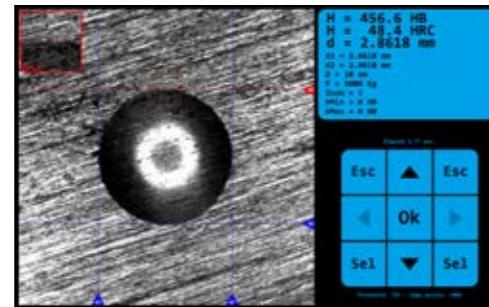
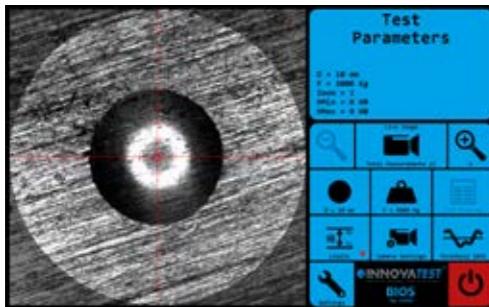
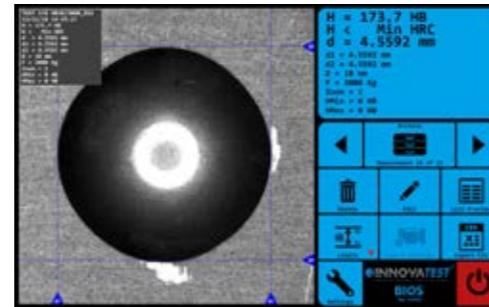
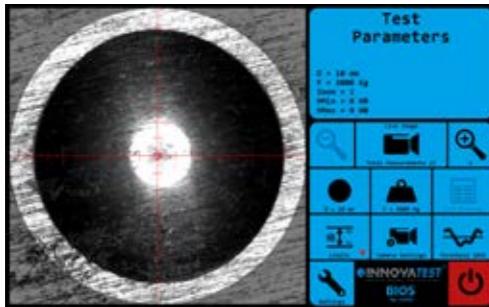
## CSV EXPORT FUNCTION

A	B	C	D	E	F	G	H	I	J	K
1	Bios 2 - Version 6.0.19									
2	Name	Method	d (mm)	d1 (mm)	d2 (mm)	D (mm)	F (Kg)	HB	HBMax	HBMin
3	TEST 1 #001	ASTM	0.597	0.596	0.598	1	10	32.2	215	205
4	TEST 2 #002	ASTM	0.61	0.61	0.61	1	10	30.7	215	205
5	TEST 3 #003	ASTM	0.597	0.598	0.597	1	10	32.1	215	205
6	TEST 4 #004	ASTM	0.25	0.254	0.247	1	10	199.8	215	205



# BRINELL MEASUREMENT SYSTEM

## BRINELL IMPRESSION OPTICAL SCANNER



2-IN-1

# MULTIFUNCTIONAL USE



SCROLL WHEEL

## EXCELLENT VERSATILITY

Suitable for Brinell indents of 10mm, 5mm, 2,5mm and 1mm balls. German Dakks certified (an ILAC member) ISO, JIS and ASTM standard compliant.

Ergonomic design, high quality cable connectors, aluminum shockproof housing, adjustable integrated power LED ring light. The BIOS is designed in such a way that it survives shocks and harsh environment.

The base has an adapter and supports the installation of different type of support rings like:

- Small diameter magnetic
- Small diameter non-magnetic
- Large diameter



MAGNETIC    NON-MAGNETIC    NON-MAGNETIC XL

## PARALLAX ERROR ELIMINATION; THE HIGHEST POSSIBLE PERFORMANCE

Conventional lenses have angular fields of view such that as the distance between the lens and object increases, the magnification decreases. This is how the human vision behaves, and contributes to our depth perception. This angular field of view results in parallax, also known as perspective error, which decreases accuracy, as the observed measurement of the vision system will change if the object is moved (even when remaining within the depth of field) due to the magnification change. Telecentric Lenses eliminate the parallax error characteristic of standard lenses by having a **constant, non-angular field of view**; at any distance from the lens, a Telecentric Lens will always have the same field of view.

### CONVENTIONAL LENS

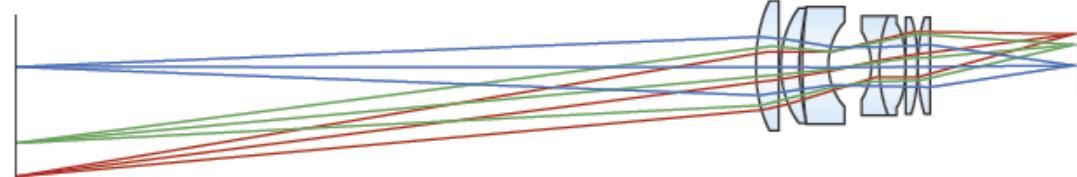


Figure A: Conventional BRINELL optical scanners and microscopes

### TELECENTRIC LENS

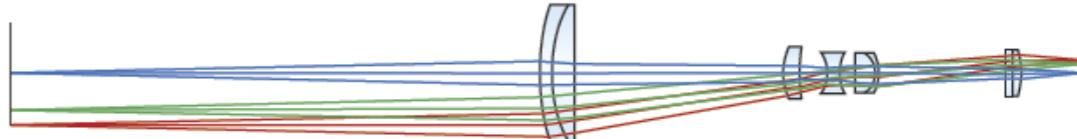


Figure B: INNOVATEST BIOS™ telecentric system

This technology results in creating the most accurate image of the indent on the CCD camera and therefore guarantees "true image" measuring results.

INNOVATEST, innovations that make you to BE CERTAIN!

### ERGONOMIC DESIGN

The construction and shape of the BIOS make it possible to conduct measurements in all kind of circumstances and locations. The unit is small and it has a built "endless" scroll wheel to adjust the illumination setting all with one hand.

### SIMPLE PROCEDURE

Position the BIOS on top of the Brinell indentation and center the image of the indent as close as possible. Then push the camera button below your fingertips. In a fraction of a second the BIOS captures the image of the Brinell indentation and starts the automatic image evaluation, just a second later the actual measured value appears on the screen, with indicator lines in yellow or red clearly positioned around the indent impression. Below the surface, the statistics and values in CSV file are updated with the new measuring data.

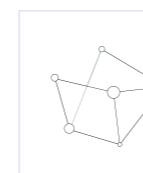
# ORDER DETAILS

## BIOS™



Brinell Impression Optical Scanner for 1mm, 2.5mm, 5mm & 10mm ball indentation according to ISO/ASTM standards. Integrated power ringlight with diffuser	BIOSSCAN-1	
Connection cable USB-2	BE-99-0033	<b>STANDARD</b>
USB cable for BIOS	BE-99-0044	
BIOS Scan software	BIOSSOFT-V1	<b>STANDARD</b>
Magnetic supporting ring, ø 22mm	SA-12-0007	<b>STANDARD</b>
Non-Magnetic supporting ring, ø 22mm	SA-12-0006	<b>STANDARD</b>
Non-Magnetic XL supporting ring, ø 35mm (mounted)	SA-12-0008	<b>STANDARD</b>
Packing box (suitable for ±13.3" screen)	SA-09-0020	<b>STANDARD</b>
Calibration certificate in compliance with ISO & ASTM, NADCAP	CALCEFRDW/1B	<b>STANDARD</b>

## SYSTEM



<b>Electronic system</b>	High performance embedded controller, i7, MS Windows® 10 operated
<b>Screen(s)</b>	Landscape mode capacitive touch screen
<b>Display resolution</b>	0.1 HBW
<b>Hardness conversion</b>	HRC
<b>Software</b>	Integrated database, Measurement for 1mm - 10mm balls with one lens only, Measurement resolution 1µm/step, Precise digital zoom function 1x - 8x, Fast measurement reaction time, Measurements can be edited after storage
<b>Data output</b>	CSV, MS Solutions Excel, Word, etc.
<b>Connectivity</b>	USB-2

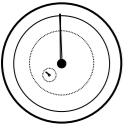
## ACCESSORIES

DAKKS Calibration certificate for BIOSSCAN-1	BSCANDKS	
Laptop with touch screen (details on request)	UN-LAPTOP1	
Tablet with separate keyboard (details on request)	UN-TABLET1	
Calibration certificate traceable to ISO & ASTM	CALCEFRDW/2B	

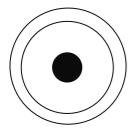
## TECHNICAL REQUIREMENTS FOR LAPTOP & TABLET

<b>CPU</b>	Intel Core i5 8th generation (i5-8250U) (or higher)
<b>Memory</b>	8 GB (or larger)
<b>Screen resolution</b>	1920 x 1080 pixels (or better), touchscreen preferred
<b>Graphics card</b>	Intel UHD Graphics 620 (or better)
<b>Storage</b>	64 GB (or larger)

## HARDNESS SCALES

	<b>BRINELL</b>  ISO 6506, ASTM E10 JIS Z 2243	HBW1/1   HBW1/1.25   HBW1/2.5   HBW1/5   HBW1/10   HBW1/30 HBW2.5/6.25   HBW2.5/7.8125   HBW2.5/15.625   HBW2.5/31.25   HBW2.5/62.5 HBW2.5/187.5   HBW5/25   HBW5/31.25   HBW5/62.5 HBW5/125   HBW5/187.5   HBW5/250   HBW5/750   HBW10/100   HBW10/125 HBW10/250   HBW10/500   HBW10/750   HBW10/1000   HBW10/1500   HBW10/3000
	<b>CONVERSIONS</b>	Conversion to HRC.

## MICROSCOPE

	<b>Microscope</b> Brinell Impression Optical Scanner
	<b>Camera</b> 5 Megapixel
	<b>Lens</b> Telecentric 0.6x
	<b>Field of view</b> Max. 9,50 x 7,12mm
	<b>Dimensions</b> 160mm x Ø45mm
	<b>Weight</b> 527 gr
	<b>Power supply</b> USB-2



# CERTIFICATE

The BIOS Brinell Impression Optical Scanner is certified according to ISO/ASTM standards.  
As an option a certificate can be provided.

akkreditiert durch die / accredited by the

**Deutsche Akkreditierungsstelle GmbH**



als Kalibrierlaboratorium im / as calibration laboratory in the

**Deutschen Kalibrierdienst**



Kalibrierschein  
Calibration certificate

Kalibrierzeichen  
Calibration mark

B1029
D-K-
17344-01-00
2018-10

Gegenstand  
Object      **Measuring microscope  
for Brinell evaluation**

Dieser Kalibrierschein dokumentiert die Rück-  
führung auf nationale Normale zur Darstellung  
der Einheiten in Übereinstimmung mit dem  
Internationalen Einheitensystem (SI).

Hersteller  
Manufacturer      **INNOVATEST**

Die DAkkS ist Unterzeichner der multilateralen  
Übereinkommen der European co-operation for  
Accreditation (EA) und der International Laboratory  
Accreditation Cooperation (ILAC) zur ge-  
genseitigen Anerkennung der Kalibrierscheine.

Typ  
Type      **BIOS**

Für die Einhaltung einer angemessenen Frist zur  
Wiederholung der Kalibrierung ist der Benutzer  
verantwortlich.

Fabrikat/Serien-Nr.  
Serial number      **0001**

*This calibration certificate documents the  
traceability to national standards, which realize  
the units of measurement according to the  
International System of Units (SI).*

Auftraggeber  
Customer      **INNOVATEST Europe BV**  
**Borgharenweg 140**  
**6222 AA Maastricht**  
**The Netherlands**

*The DAkkS is signatory to the multilateral  
agreements of the European co-operation for  
Accreditation (EA) and of the International  
Laboratory Accreditation Cooperation (ILAC) for  
the mutual recognition of calibration certifi-  
cates.*

Auftragsnummer  
Order No.      **62496**

*The user is obliged to have the object recal-  
ibrated at appropriate intervals.*

Anzahl der Seiten des Kalibrierscheines  
Number of pages of the certificate      **7**

Datum der Kalibrierung  
Date of calibration      **2018-10-29**

Dieser Kalibrierschein darf nur vollständig und unverändert weiterverbreitet werden. Auszüge oder Änderungen bedürfen der Genehmigung  
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*This calibration certificate may not be reproduced other than in full except with the permission of both the Deutsche Akkreditierungsstelle GmbH  
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Date      Leiter des Kalibrierlaboratoriums  
Head of the calibration laboratory

Bearbeiter  
Person in charge

05.11.2018

H. Hauck

B. Häuck

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Brochure B18BIOS/07/EN

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