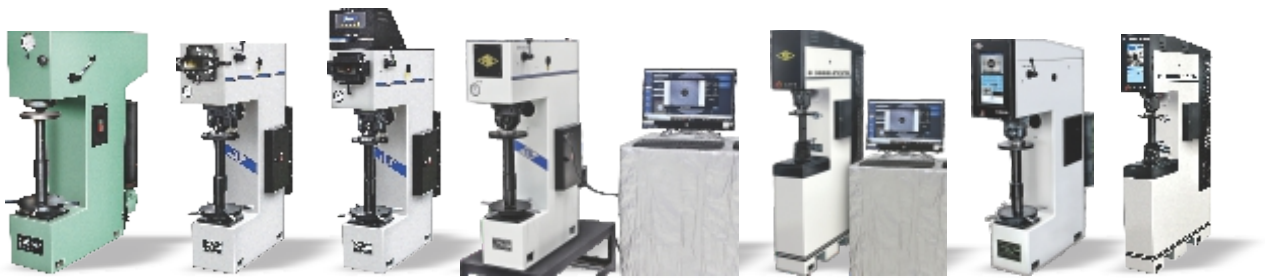
Over 70 years of consistent excellence

Brinell Hardness Testers

Accuracy Engineered for Industry



Stronger Standards, **Smarter** Solutions

Hydraulic Brinell Hardness Tester, Model : B-3000-H

FIE Model B-3000-H is a precision-engineered hydraulic Brinell hardness tester designed primarily for production testing. This semi-automatic machine is used to measure the hardness of castings, forgings, and other metallic components in various industries. The "H" in the model name indicates the presence of a hydraulic power pack that drives the loading and unloading cycles.

Key Features:

- **Effortless Operation:** Equipped with a hydraulic power pack and control circuit, making the loading and unloading process smooth and requiring minimal manual effort.
- **High Accuracy:** Designed to comply with international standards such as IS:1500-2, BS:10003-2, and ASTM E-10.
- **Durability:** Features a robust machine frame with a fully enclosed mechanism to protect internal parts from dust and industrial debris.
- **Versatility:** Capable of testing metals of all kinds (hard or soft) and various shapes (flat, round, or irregular).
- **Precision Measurement:** Includes a front-mounted dial gauge to measure the depth of ball penetration, facilitating fast production testing within set tolerance limits.

Optical Brinell Hardness Tester, Model : B-3000-O

The FIE Model B-3000-O is the "Optical" variant of the Brinell hardness tester. While it is as robust as the B-3000-H, its defining feature is a built-in optical device that allows immediate measurement of the indentation diameter without moving the workpiece or using an external microscope.

Key Features:

- **Integrated Optical System:** Built-in optical device with 14x magnification that projects the ball impression image directly onto a glass screen.
- **Swivelling Indenter:** After unloading, the indenter swivels out of the way and the optics automatically project the indentation, reducing testing time per piece.
- **Micrometer Measuring System:** Built-in micrometer with 0.01 mm least count for high-precision measurement of impression diameter.
- **Production Speed:** Faster than the "H" model since measurement is done directly on the machine.
- **Electromechanical Operation:** Motorized system for effortless loading and unloading, minimizing operator fatigue.
- **High Accuracy:** Designed to comply with international standards such as IS:1500-2, BS:10003-2, and ASTM E-10.

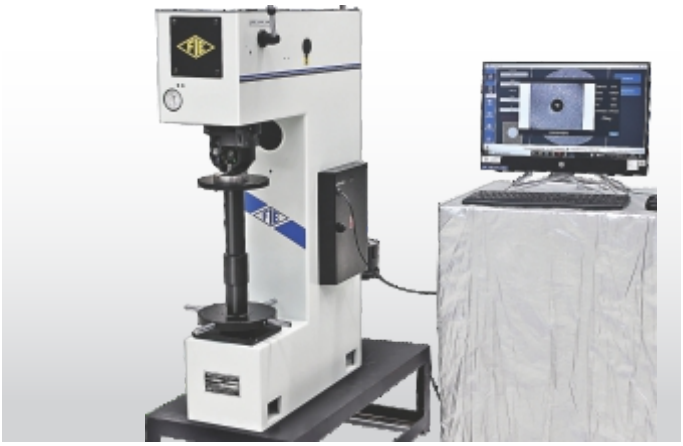
Digital Brinell Hardness Tester, Model : B-3000-E

This digital version of the Brinell hardness tester bridges the gap between optical and computerized models. It incorporates a digital readout system integrated with an optical assembly. Unlike the basic hydraulic model, the "E" variant enables digital measurement of indentation diameter, with results displayed on a screen.

Key Features:

- **Digital Measurement System:** Combines an optical device with a digital micrometer. Uses membrane keys for digital diameter measurement.
- **Direct Reading:** Automatically calculates and displays Brinell Hardness (HBW) on the digital screen after diameter measurement.
- **Motorized Cycle:** Motorized loading and unloading ensure consistent dwell times and reduce manual effort.
- **Swivelling Indenter:** Indenter swivels away post-load, allowing optics to instantly project the indentation onto the glass screen.
- **Production Ready:** Immediate digital results make it ideal for high-speed production testing.
- **High Accuracy:** Designed to comply with international standards such as IS:1500-2, BS:10003-2, and ASTM E-10.

Computerized Brinell Hardness Tester
Model : B-3000-PC



Computerized Brinell Hardness Tester
Model : B-3000-TS

FIE Model : B-3000-PC & B-3000-TS

These are high-end computerized Brinell hardness testers that use image processing technology to automate measurement. While both models share the same mechanical foundation and internal software ("brain"), they differ in user interaction and workspace integration.

Description:

Both machines are designed for precise, rapid measurement of Brinell hardness across a wide range of metals—from soft alloys to hardened steel. They feature:

Shared Features:

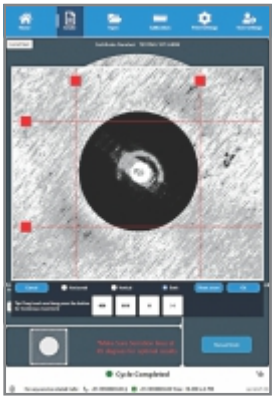
- **Automatic Hardness Calculation:** Software detects indentation diameter and instantly displays the hardness value.
- **Statistical Analysis:** Generates mean, median, standard deviation, and histograms automatically.
- **Data Management:** Supports batch processing, stores thousands of test results, and exports detailed PDF reports.
- **Electromechanical Operation:** Motorized loading and unloading cycles reduce operator fatigue and ensure consistency.

The differentiating features are :

Feature	Model : B-3000-PC	Model : B-3000-TS
User interface	External Desktop PC	In-built touch screen Industrial PC
set-up type	Separate station (Machine+ PC table)	All-in-one (Industrial PC built-in)
Display Location	PC Monitor on a nearby desk	Front panel screen on the machine itself.
Space requirement	Requires more space to accommodate complete table	Requires less space as the computer is built

Latest GUI features :

- User Friendly software with windows features.
- Indentation setting & focusing on front touch screen display.
- Advanced image processing algorithms ensure precise hardness calculation across all specimen ranges.
- Option for data storage & reports generation.
- Statistical Evaluation : Software for calculating standard deviation, mean, median, histogram etc.
- Wide options in calibration mode - calibration/verification on PC makes easier to operate.
- Future-ready for advanced image analysis.
- USB port for printer interface with result & graph print out.
- Manual, Semi- automatic & Automatic Modes.
- Facility to export result/data in PDF format.



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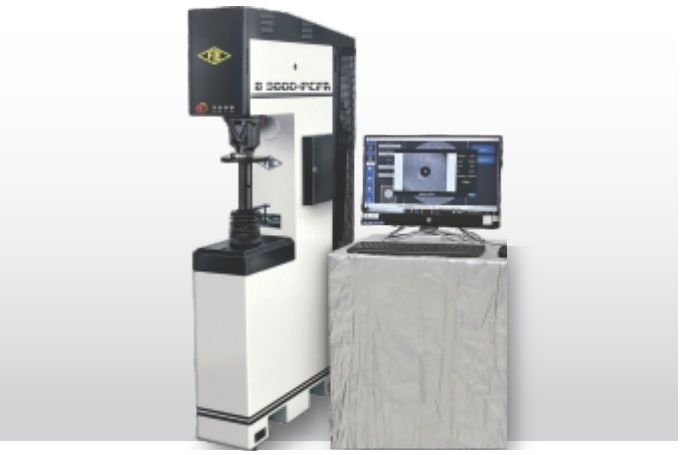
Brinell Hardness Testers

Fully automatic
Computerized Brinell Hardness Tester
Model : B-3000-PCFA



Fully automatic
Computerized Brinell Hardness Tester
Model : B-3000-TSFA

FIE Model : B-3000-PCFA & B-3000-TSFA

These fully automatic machines are designed for high-volume production environments, aiming to reduce dependency on human skill while maximizing speed and repeatability. They automate the entire testing sequence: clamping the job, applying the load, dwelling, unloading, and measuring the indentation - all without manual intervention.

Shared Features:

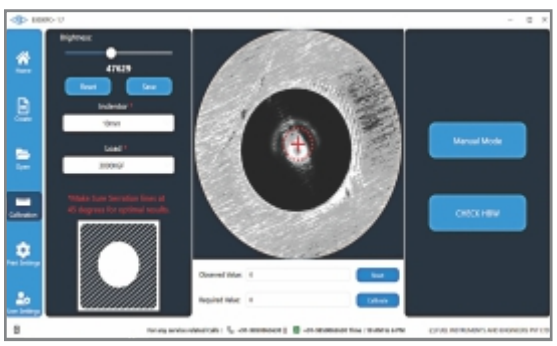
- **Fully Automatic Operation:** The machine runs the complete cycle with a single press of the start button.
- **Automatic Hardness Calculation:** Software detects the indentation diameter and instantly displays the hardness value.
- **Statistical Analysis:** Automatically generates mean, median, standard deviation, and histograms.
- **Data Management:** Supports batch processing, stores thousands of test results, and exports detailed PDF reports.

The differentiating features are :

Feature	Model : B-3000-PCFA	Model : B-3000-TSFA
User interface	External Desktop PC	In-built touch screen Industrial PC
set-up type	Separate station (Machine+ PC table)	All-in-one (Industrial PC built-in)
Display Location	PC Monitor on a nearby desk	Front panel screen on the machine itself.
Space requirement	Requires more space to accommodate complete table	Requires less space as the computer is built

Latest GUI features :

- User Friendly software with windows features.
- Indentation setting & focusing on front touch screen display.
- Advanced image processing algorithms ensure precise hardness calculation across all specimen ranges.
- Option for data storage & reports generation.
- Statistical Evaluation : Software for calculating standard deviation, mean, median, histogram etc.
- Wide options in calibration mode - calibration/verification on PC makes easier to operate.
- Future-ready for advanced image analysis.
- USB port for printer interface with result & graph print out.
- Manual, Semi- automatic & Automatic Modes.
- Facility to export result/data in PDF format.



Specifications

Model	B-3000-H	B-3000-O	B-3000-E	B-3000-PC	B-3000-TS	B-3000-PCFA	B-3000-TSFA
Complying Standards	IS 1500, ASTM E-10	IS 1500, ASTM E-10	IS 1500, ASTM E-10	IS 1500, ASTM E-10	IS 1500, ASTM E-10	IS 1500, ASTM E-10	IS 1500, ASTM E-10
Major Load N(Kgf.)	250 Kg to 3000 Kg.	250 Kg to 3000 Kg.	250 Kg to 3000 Kg.	250 Kg to 3000 Kg.	250 Kg to 3000 Kg.	250 Kg to 3000 Kg.	250 Kg to 3000 Kg.
Max test Height, mm	410	380	380	380	380	310	310
Depth of throat, mm	200	200	200	200	200	200	200
Net weight approx. Kg.	450	500	500	500	500	600	650
Indentation measurement with	External Microscope	Inbuilt Optical Screen	Optical Screen with Digital readout	Computerized Software	Computerized Software	Computerized Software	Computerized Software
Loading Mechanism	Hydraulic	Electro-Mechanical	Electro-Mechanical	Electro-Mechanical	Electro-Mechanical	Electro-Mechanical	Electro-Mechanical
Scale least count	0.01mm	0.01mm	0.01mm	0.002mm	0.002mm	0.002mm	0.002mm
Hardness Range	96 HBW tp 676 HBW	96 HBW tp 676 HBW	96 HBW tp 676 HBW	96 HBW tp 676 HBW	96 HBW tp 676 HBW	96 HBW tp 676 HBW	96 HBW tp 676 HBW
Test Cycle	Manual	Manual	Manual	Manual	Manual	Automatic	Automatic
Weight Selection	Manual weight change	Manual weight change	Manual weight change	Manual weight change	Manual weight change	Manual weight change	Manual weight change
Job Up/Down	Manual	Manual	Manual	Manual	Manual	Automatic	Automatic
Input Method	NA	NA	Membrance key	Keyboard & Mouse	Touch Input	Keyboard & Mouse	Touch Input
Computer	NA	NA	NA	Customer Scope	Inbuilt IPC	Customer Scope	Inbuilt IPC
Data Storage	NA	NA	NA	IN Computer	IN Computer	IN Computer	IN Computer
USB Data Transfer	NA	NA	NA	Available	Available	Available	Available
Printer compatibility	NA	NA	NA	Available	Available	Available	Available
Computer Software	NA	NA	NA	Available	Available	Available	Available
Power Supply	3Ph. 415V	1Ph. 230V	1Ph. 230V	1Ph. 230V	1Ph. 230V	1Ph. 230V	1Ph. 230V
Model	**B-3000-H**	**B-3000-O**	**B-3000-E**	**B-3000-PC**	**B-3000-TS**	**B-3000-PCFA**	**B-3000-TSFA**
	Standard Accessories						
Testing table 200mm dia.	1	1	1	1	1	1	1
Testing table 70mm Dia with 'V' groove for round jobs 10 to 80mm Dia.	1	1	1	1	1	1	1
Ball Indenter 5mm	1	1	1	1	1	1	1
Ball Indenter 10mm	1	1	1	1	1	1	1
Test Block HB 5/750	1	1	1	1	1	1	1
Test Block HB 10/3000	1	1	1	1	1	1	1
Tool kit	1 Set	1 Set	1 Set	1 Set	1 Set	1 Set	1 Set
Weights	1 Set	1 Set	1 Set	1 Set	1 Set	1 Set	1 Set
Brinell Microscope	1 Nos.	NA	NA	NA	NA	NA	NA
Telescopic cover for elevating screw	1 Set	1 Set	1 Set	1 Set	1 Set	1 Bellow	1 Bellow
Wooden box for std. accessories	1 Nos.	1 Nos.	1 Nos.	1 Nos.	1 Nos.	1 Nos.	1 Nos.
Software	NA	NA	NA	Provided	Provided	Provided	Provided
Power Cord	NA	1	1	1	1	1	1
Instruction Manual	1 Set	1 Set	1 Set	1 Set	1 Set	1 Set	1 Set
Total M/c weight (approx.)	500 kg.	400 kg.	400 kg.	400 kg.	400 kg.	600 kg.	600 kg.
Packing size LxWxH	54"x32"x53"	54"x33"x55"	54"x32"x53"	54"x33"x55"	54"x33"x55"	60"x33"x75"	60"x33"x75"

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Optional Accessories

** Laptop is not a part of standard supply.*

Portable Brinell Optical System & Software (BOSS):

- Automated measurement ensures consistent and repeatable results, avoiding human error.
- Simple “place and click” workflow with automatic indentation measurement and Brinell value calculation.
- Measures indentation diameters from 1 mm to 6 mm with 0.01 mm resolution.
- Unlimited batch creation with customizable parameters (test load, indenter size, party details, limits, etc.), plus reopening and editing of previous batches.
- Generates frequency distribution, variation graphs, and certificates for reporting and printing.
- Integrated tools for calibration and verification to eliminate system errors.
- Supports both Automatic and Manual measurement modes for flexibility.
- Handy, easy to transport, avoids operator eye strain, and ensures better repeat accuracy compared to traditional Brinell microscopes.
- Available in 2.5/5 mm and 5/10 mm range

Standard Test Blocks

TC Ball Indenters

Flat Anvil

‘V’ Anvil

Fuel Instruments & Engineers Pvt. Ltd.

Plot No. 68 & 89, Parvati Co-op Industrial Estate, YADRAV-416 145 (Ichalkaranji),
Tal : Shirol, Dist : Kolhapur, Maharashtra State, INDIA.

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