

Micro Hardness Tester



7005



Micro Hardness Tester with CCTV Camera and PC Interface having versatile measurement software for material hardness measurement.

FEATURES

- First ever Indian instrument (Import Substitute) designed in collaboration with the Central Scientific Instruments Organisation, Chandigarh.
- Low cost opto-mechanical instrument.
- Micro hardness measurement in vickers.
- Easy to operate
- Repeatability in results

DESCRIPTION

The instrument comprises of a microscope alongwith a Filar micrometer eye piece of 10X and objective of 40X. The instrument is mounted on a stand having loading and unloading mechanism attached to the microscope. A standard weight of 10 gms to 200 gms is loaded on the indenter assembly. An indentation, with the help of a diamond indenter, is caused on the material of the surface (whose hardness is to be measured). The system employs a high precision rotating specimen table (fitted with micro meter screw gauges) to turn the sample under the microscope along X and Y axis.

PRINCIPLE

The principle of operation of the instrument is based on pressing a diamond indenter (square based pyramid with an angle of 136°) into the specimen under test with a certain load in gms and consequently measuring linear value (d) of the diagonal of the indenter print obtained.

The hardness number (H) is calculated by dividing the load (P in Kg) by the surface area (S in sq mm) of the indenter print and is expressed as $H = P/S$ or $1.854 P/d^2$.

TECHNICAL SPECIFICATION

Micro hardness Measurement Range : 20 to 1500 vickers at different weights

Viewing System

Objective	: 40X
Filar Micrometer Eye piece	: 10X
Total Magnification	: 400X
Working Distance (approx)	: 1mm

Illumination System consists of

Lamp	: 6V, 20W halogen
Condenser	
Filter	
Iris Diaphragm	
Power Supply through Transformer	
From 230 volts, AC, 50Hz.	

Indentation System

Loading/Unloading Mechanism	: Manual
Weights	: 10 gms to 200gms
Indenter	: Diamond Pyramid

Specimen Table

Angle of turn	: 0 to 180°
Longitudinal travel	: 0 to 10mm
Crosswise travel	: 0 to 10mm
Micrometer feedscale	: 0.01mm/div
Least count of Microscope	: 0.000133 mm (approx.)
Accuracy	: ± 20 (for 100 to 1500 vickers)
	: ± 10 (for less than 100 vickers)
Total weight of the system	: 20Kgs. (Approx.)
Dimensions (approx.)	: 340x290x380mm

APPLICATIONS

- ✳ Measuring micro hardness in vickers of metals/alloys, various phases/micro-constituents present in metal matrix, thin wires & sheets, diffusion coatings and case depth of carburised / nitrided components etc.
- ✳ Micro hardness of ceramic materials like human tooth and jaw for anthropological studies.

