

Measurement of: Hardness Values on Standard Blocks

Equipment: Hardness Standardizing Machine

Property Measured: Hardness

Photograph (small size)



Vickers Hardness Machine



Rockwell Hardness Machine

Basic Principle:

Principle behind Vickers/Rockwell Hardness

For performing Vickers / Rockwell hardness measurements, a suitable indenter in the defined form is forced into the surface of a test block and the diagonals of the indentation left in the surface/ permanent indentation depth created on the test block after removal of the test force, F , is measured as the case may be. The Vickers hardness is proportional to the ratio between the test force and the surface area of indentation which is expressed as

$HV = \text{Constant} \times (\text{Test force} / \text{Surface area of indentation})$,

For Rockwell hardness, the permanent indentation depth created on the test block is measured and expressed in unit of 0.002mm or 0.001mm which is defined as 'e' for Rockwell hardness. From the value of 'e', a number known as Rockwell hardness is derived.

Capabilities: $\pm 1\%$ in the HV5 scale and above, $\pm 1.5\%$ for below HV5 scale,

$\pm 0.3 \text{ HR (C\&A)} \pm 0.6 \text{ HRBW}$

Sample Requirement: Thickness 6mm, diameter $\geq 15\text{mm}$, well polished parallel surfaces (as per the respective requirements specified in the standard)