

Original Paper

Establishment of Brinell Hardness Standard at NPL India for Providing Traceability in Brinell Scale

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Abstract

Hardness evaluation is one of the most important and commonly used methods for material or product testing. However, the hardness measurements done in the industry are of limited accuracy due to the non-availability of standard hardness blocks having very precise and accurately assigned hardness values traceable to national primary standard. National Physical Laboratory, India has recently established a primary standard for Brinell hardness scale (HBW), besides the existing Vickers (HV) and Rockwell hardness (HR) primary standards. The uncertainty associated with the Brinell hardness standard is found to be within ± 1.5 % for HBW1/1 to HBW1/30 and is determined to be within ± 1.0 % for other HBW scales, which is also validated through comparison with precision hardness standard blocks. Some of the salient features of the machine are described and the measurement results obtained on standard hardness blocks are reported.

Keywords

Brinell hardness – CMC – Dead weight force – Standard hardness blocks