**The Hashemite University**
**Faculty Of Engineering**
**Mechanical Engineering Department**



# Hardness Test

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## Results and Analysis:

| Test / Setting | Brinell Hardness Test (HB) | Vickers Hardness Test (HV) | | Rockwell Hardness Test (HRC) | Rockwell Hardness Test (HRB) |
|---|---|---|---|---|---|
| | | 10 | 30 | | |
| Indenter | Steel ball 2.5 mm. | Diamond pyramid | Diamond pyramid | Diamond cone | Steel ball (1/16'') |
| Preload | 3 | 3 | 3 | 10 | 10 |
| Main load | 187.5 | 10 | 30 | 150 | 100 |

Experiment parameters

| Test / Materials | Brinell Hardness Test (HB) | Vickers Hardness Test (HV) | | Rockwell Hardness Test (HRC) | Rockwell Hardness Test (HRB) |
|---|---|---|---|---|---|
| | | 10 | 30 | | |
| Mild steel | 173 | 208 | X | X | 85.9 |
| High speed steel | X | X | 619 | 64.2 | X |
| Aluminum | 100 | 105 | X | X | 50.6 |
| Brass | 102 | 97 | X | X | 56.2 |

Experiment data and results

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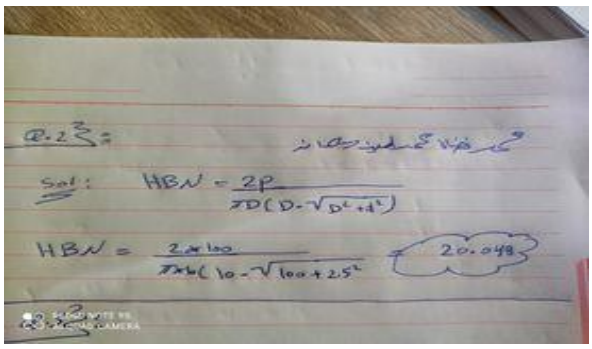
1-What is the reason or for using a minor load in the case of Rockwell hardness test method?

Answer : The test piece is placed to make full contact with the surface

2-A 10 mm diameter Brinell hardness indenter produced an indentation 2.5 mm in diameter in a steel alloy when a load of 100 kg was used. Compute the HBN of this material?




3- Find the Ultimate tensile strength for the mild steel based on the hardness test?