



Hardness tests



- Hardness may be defined as the ability of a material to resist scratching, abrasion, cutting or penetration
- The hardness test is performed on a material to know its resistance against indentation and abrasion

Types of Hardness tests:

- Brinell hardness test
- Vickers hardness test
- Rockwell hardness test



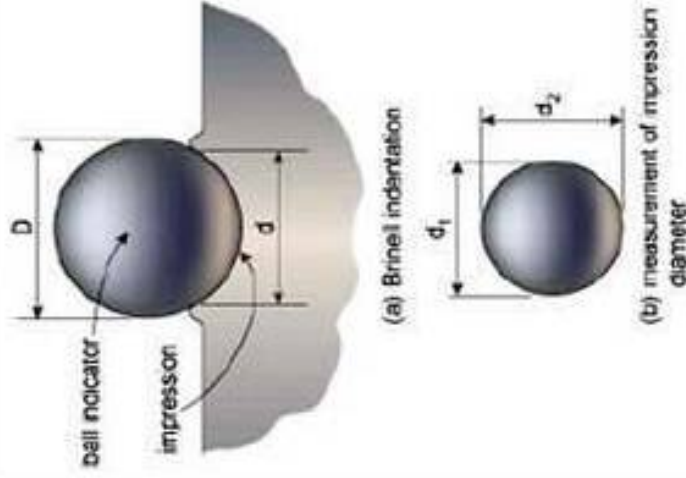
Hardness tests



- Generally an indenter is pressed into the surface of the material by a slowly applied known load and the extent of the resulting impression is measured mechanically.
- A large impression for a given load and indenter indicates a soft material and a small impression indicates a hard material.



Brinell Hardness



$$BHN = \frac{P}{\frac{\pi D}{2} [D - \sqrt{D^2 - d^2}]}$$

Where:

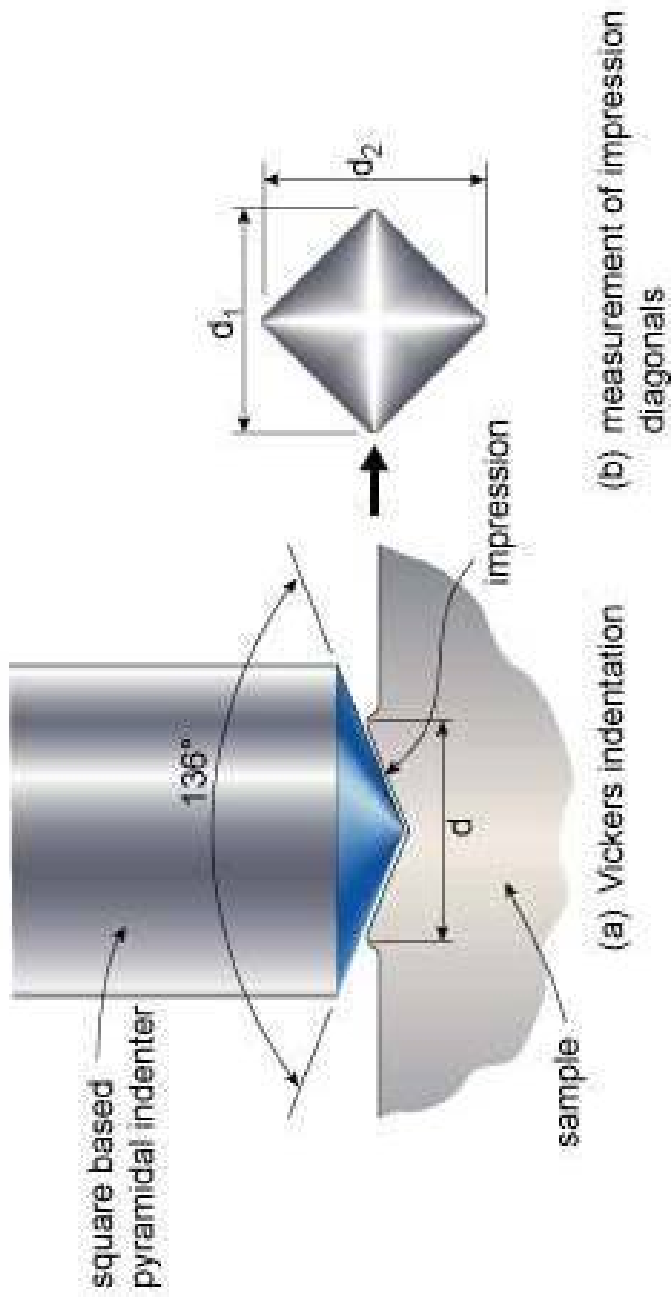
P is the test load [kg]

D is the diameter of the ball [mm]

d is the average impression diameter of indentation [mm]



Vickers Hardness





Rockwell Hardness

