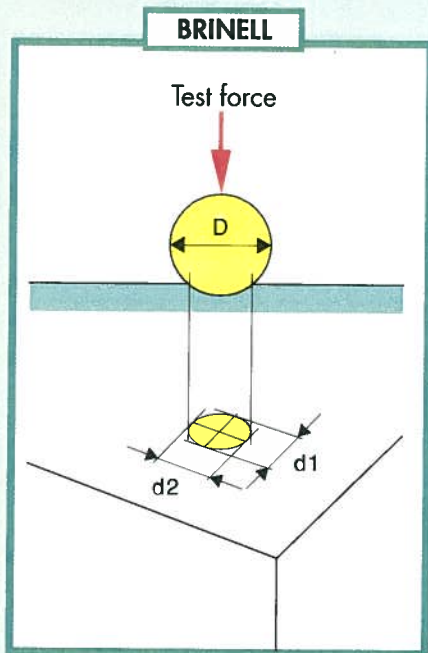


Hereafter a short overview about the most current measuring principles:

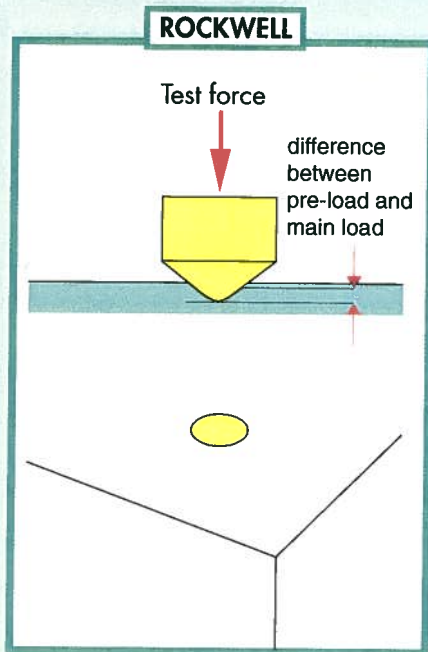


Brinell method (1900)

A loaded ball produces an indentation. The diameter of the indentation is measured and the surface of the spheric indentation computed.

The Brinell value HB is formed as follows:

$$HB = \frac{\text{test force}}{\text{surface of indentation}}$$



Rockwell method (1919)

This testing principle is somewhat more complicated:

With a pre-load a diamond cone penetrates 0.2 mm deep into the test piece. This is the zero point for the arbitrarily determined Rockwell scale. Afterwards the full load is applied and the variation in the penetration depth read-off the Rockwell scale.

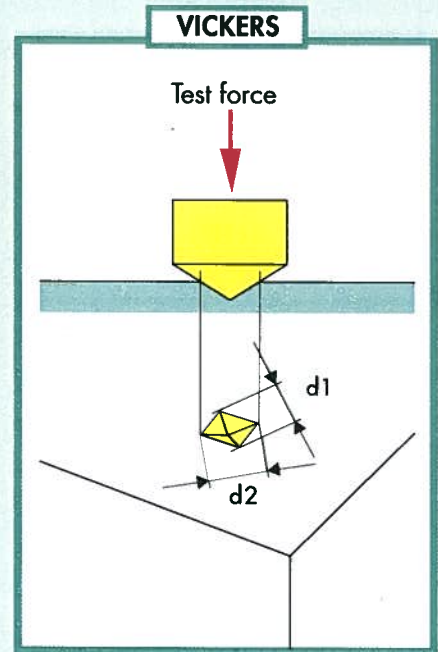
$$HRC = Z - \frac{\text{penetration difference}}{\text{scale reading}}$$

(Z is set individually for each HR procedure.)

Vickers method (1925)

The test body is a pyramid-shaped diamond. The two diagonals of the permanent indentation produced after loading are measured and the surface of the indentation computed:

$$HV = \frac{\text{test force}}{\text{surface of indentation}}$$



Shore method (1907)

In principle the Shore method measures the rebound of a body fitted with a diamond which one lets fall from a height of 10 inch (approx. 254 mm). The hardness scale is derived from the rebound value on "glasshard hardened" steel (= 100 SHORE).

