

## Hardness test procedure

Measurement of hardness for hardened steel requires high quality test equipment and accurate preparation of the surface to ensure quality and to achieve accurate and correct measurements.

### 1. Select test piece

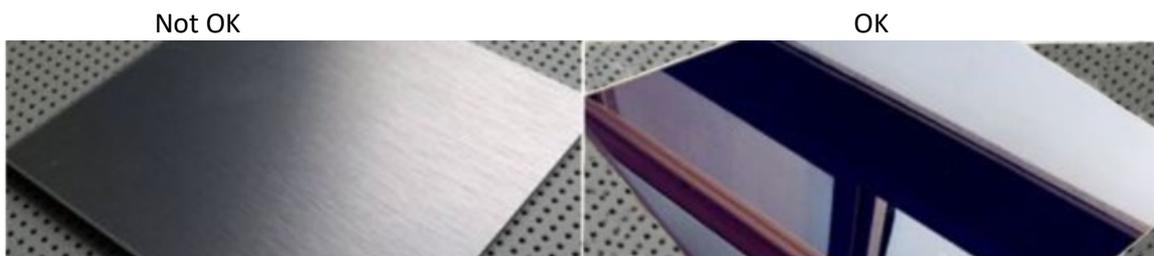
The test piece must be at least 8 times thicker than the impression depth.

### 2. Cut test piece

The test piece shall be cut with equipment that avoids heat impact on the test piece. If the test piece is heated above 160 °C / 320 °F the test result is considered invalid. Heat above the approved temperatures will affect the hardness of the steel.

### 3. Polish the test surface

The test surface must be polished and free from oxide before the test can commence. See example below of a correct prepared surface:



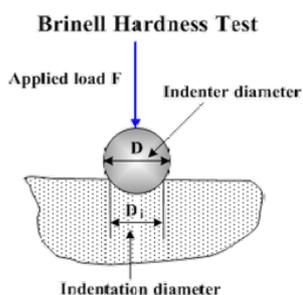
### 4. Select correct test equipment

The test equipment must be specifically made for testing of hardened steel. See examples below:



The test is performed by applying a specified sphere with force to the prepared surface. The width of indentation diameter specifies the hardness.

See example below:



The test shall be performed with a calibrated Brinell test equipment. A 10 mm hard metal ball is forced into the surface 0,5-1 mm below the surface of the steel piece, and with a force of 3 000 kg. The angle must be 90 degrees against the test surface.

**NOTE!!!**

Portable and manual test equipment is not accurate enough to get a trustworthy results and therefore not sufficient as measurement equipment.

See examples below:



## Straightness

The deviation from straightness (arrow height) is measured with the bar resting on the horizontal surface. Arrow height is measured in horizontal direction the length of the bar (L).

