



Proper Indent Spacing

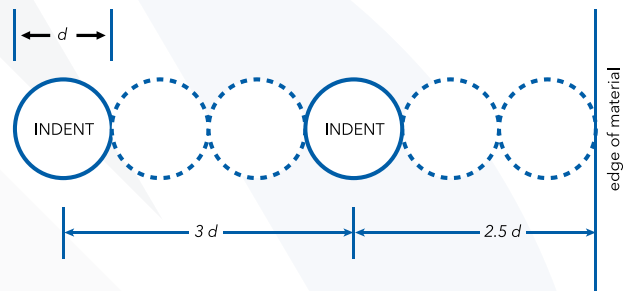
Proper Indent Spacing

When making indentations on a test block, the hardness of the material immediately surrounding an indentation will usually increase due to the residual stress and work hardening caused by the indentation process. If an indentation is made too close to the edge of a test piece, there may be insufficient material to constrain the deformation around the indentation. Both of these scenarios can lead to inaccurate hardness readings. To prevent incorrect readings, recommended spacing has been defined in the standards for each type of hardness test. To ensure proper spacing is followed, Buehler offers pattern engraving on the surface of test blocks.

Rockwell & Brinell

According to ASTM and ISO Standards: The distance between the centers of two adjacent indentations shall be at least three times the diameter (d) of the indentation.

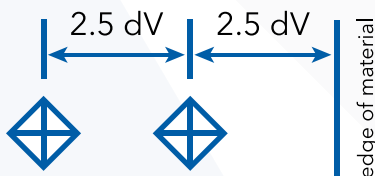
The distance from the center of any indentation to an edge of the test piece shall be at least two and a half times the diameter of the indentation.



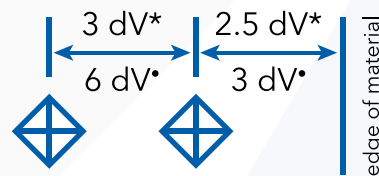
Vickers

According to ASTM Standards: The distance between two indents or an indent and the edge of the test piece shall be at least two and a half times the diagonal (dV) of the indentation.

According to ISO Standards: The distance between the centers of two indents shall be at least three times the diagonal (dV) of the indent for steel, copper and copper alloys, and at least six times for light metals, lead and tin and their alloys. The distance between the center of an indent and the edge of the test piece shall be at least two and a half times the diagonal (dV) for steel, copper and copper alloys, and at least three times for light metals, lead and tin and their alloys.



dV = Vickers Diagonal

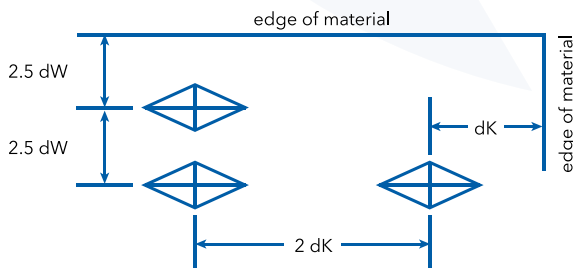


* For steel, copper and copper alloys
* For light metals, lead, tin and their alloys

Knoop

According to ASTM Standards: The distance between two indents shall be at least two times the diagonal (dK) of the indentation and two and a half times the width (dW) of the indentation. The distance between the center of an indentation and the edge of a test piece shall be at least one diagonal (dK) or two and a half times the width (dW) of the indentation.

According to ISO Standards: The distance between two indents shall be at least two times the diagonal (dK) of the indentation and three and a half times the width (dW) of the indentation. The distance between the center of an indentation and the edge of a test piece shall be at least one diagonal (dK) or three and a half times the width (dW) of the indentation.



dK = Knoop Long Diagonal
 dW = Knoop Short Diagonal

