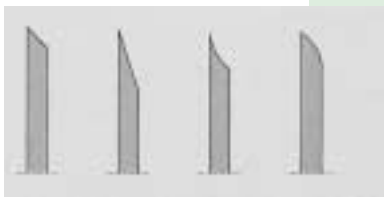
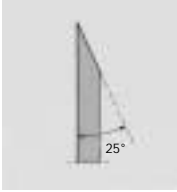
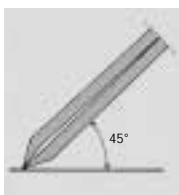
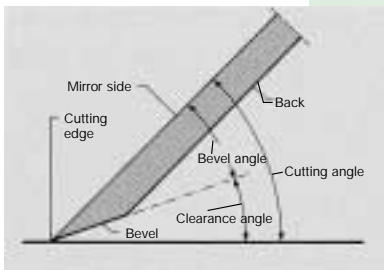


Correct grinding angle

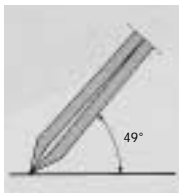


Angle too blunt Angle too acute Concave ground Convex ground

Plane iron engagement (Cutting angle) and chip passage



Scrub plane
Bench plane
Jointer plane
Jack plane



Short jointer plane
Smoothing plane
Reform smoothing plane
Smoothing and reform smoothing plane
Rabbit plane

Correct treatment of plane irons is essential to the achievement of an excellent cut and perfect work results. Those who take the trouble to sharpen their iron correctly will be making their own job easier and cutting down on wastage and complaints.

To sharpen plane irons, it is possible to use either a rotating cylindrical honing stone or, better still, a special plane iron grinding machine with flared cup wheel and a grinding support with precision feed.

A difference is drawn between natural sandstone, emery blocks and carborundum stones. When using artificial stones, pay attention to use a uniform, fine and sharp grain with a bond which is neither too soft nor too hard. Carborundum stones are the preferred option over conventional emery blocks due to their substantially greater sharpening power.

The once widely popular method of using a prismatic sandstone in a water trough requires a certain degree of skill, and is only rarely used nowadays. This involves pushing the plane iron backwards and forwards on the stone with its bevelled face downwards. For the skilled expert, its plane parallel surfaces ensures the plane iron a flat ground bevel from the start.

A cylindrical sharpening stone should have a diameter of at least 500 mm, to ensure that the bevel of the plane iron is ground with as little "dishing" effect as possible. The sharpening stone must be perfectly concentric and will require periodical trueing, as otherwise it will not be possible to achieve a straight sharpened edge over the whole width. The plane iron is held in a mount which is previously set to the required sharpening angle. To ensure that the sharpening stone wears evenly over its whole width, the plane iron must be moved from side to side during the grinding process.

The friction produced during grinding generates a high level of heat in the plane iron which can result in slight burn effects. This is what causes the cutting edge to sometimes turn blue. To avoid this happening, ideally water cooling should be used. This can be dispensed with when using sharpening equipment which permits extremely sensitive and precise regulation of the grinding wheel engagement. The grinding wheel always moves against the plane iron.

The bevel or sharpening angle is around 25° on average, whereby the length of the bevel corresponds to around twice the iron thickness. The bevel should be flat or concave only in as far as necessitated by the diameter of the grinding wheel, which should be selected as large as possible.

The iron should continue to be ground until a fine burr is created on the cutting edge. The edge should never under any circumstances be allowed to turn blue or yellow, as this will compromise the hardness of the material and the cutting ability of the plain iron.

Man-made or natural stones are used for sharpening. Natural stones include Belgian blocks and Arkansas oilstones. When using Belgian blocks, sharpening takes place exclusively with the application of water, while with Arkansas stones an oil mixture is used. Initially the iron is sharpened flat against the bevel surface, then the smooth front side is sharpened. This process is continued in alternation until the generated grinding burr has been removed. The quality of the cutting edge can then be carefully tested against a thumb.

In the case of plane irons made of special steel for planing plastic edges, the bevel or sharpening angle amounts to 42°. This type of plane iron can only be sharpened wet.