

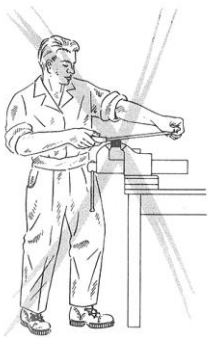
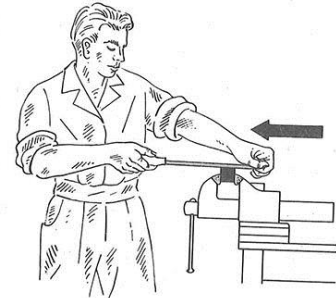
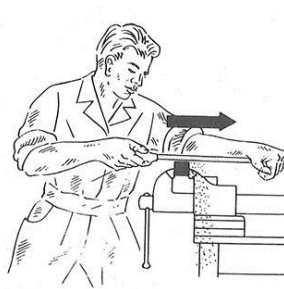
# Filing

Filing is a metal-removing operation. The workpiece is clamped in a clamping tool and shaped with a file. A file has many sharp cutting edges, or teeth.

You move the file back and forth over the workpiece manually, exerting pressure during the forward stroke, away from you. During the return stroke, the file remains in contact with the workpiece, but hardly any pressure is exerted on the material.

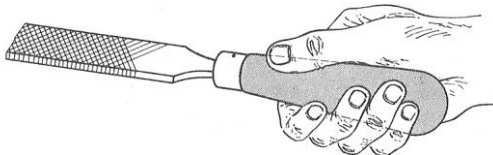
During the forward stroke, the teeth of the file grip the material, thus removing material from the workpiece in the form of chips, which you will see falling off the file in front of the workpiece.

During the return stroke, friction causes the remaining chips to break from the teeth, leaving the space between the teeth of the file clear and ready for the next forward stroke. You will see these chips falling off the workpiece at the side where you are standing.



The effectiveness of your filing technique depends largely on your posture.

Ideally, you should stand with your feet slightly wider than shoulder width. You apply pressure on the file with the hand at the front of the file, using the hand on the handle to guide the file. In order to file evenly, your forearm and the file should be in line. The height of the vice holding the material to be filed should preferably be adjusted to suit your height.



If you hold the file as shown in the drawing, you will not get cramp in your fingers while filing.

## File characteristics

### The cut of the file

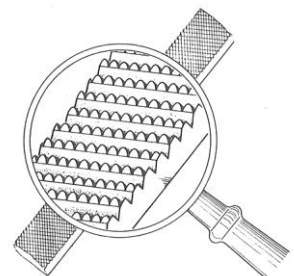
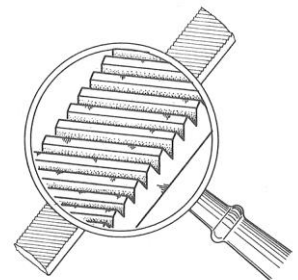
High-quality files have teeth that are machine cut on the surface of the file. The types of teeth and the way in which they are applied to the file are known as the file's cut.

A distinction is made between files with a single or a double cut.

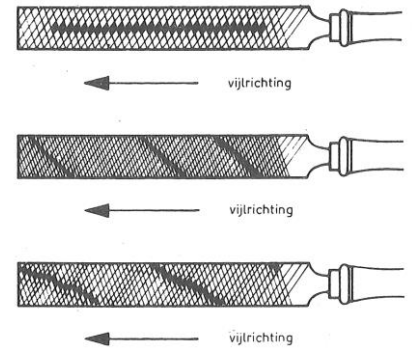
Single-cut files have many teeth cut at an angle in one direction, and are suitable for cutting soft materials. The filings easily fall off between the teeth.

Sometimes, files with a cutter guard are used. These are sharper than the single-cut files, and the soft material is removed more easily.

Double-cut files have criss-crossed rows of teeth. This is the most commonly used cut for files. These files are more suitable for hard materials due to the large number of teeth. If double-cut files are used on soft materials, the spaces between the teeth will soon clog up due to the criss-cross cut, and the chips cannot easily be removed during the return stroke.



With double-cut files, the positioning of the teeth is also important. If the teeth are directly behind each other, they will make longitudinal grooves in the material after just a few strokes. The teeth are therefore usually placed behind each other diagonally. High-quality files have teeth that are cut into the surface in a waved shape so that it is almost impossible to make grooves in the material.



The size of the teeth determines the amount of material that is removed at each stroke of the file. Here, we distinguish between:

- **Bastard files**, these are files with large teeth. A lot of material is removed at a time, and these files are suitable for pre-shaping materials.
- **Smoothing files**; these are files with fine teeth so not much material is removed at a time, and a smoother surface is obtained. These files are used for dressing and finer operations.

Between these two tooth sizes, we distinguish between intermediate types. There are generally four gradations of files.

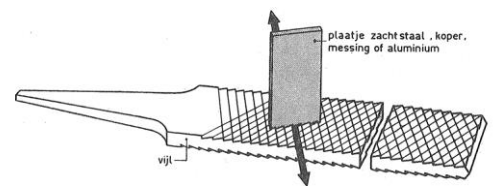
File size is indicated by the inch ("). Files have a fixed width according to their length, regardless of the shape. A file can have various shapes, most commonly rectangular, square, round, triangular, knife-shaped and half-round.

**overzicht Vijlen**

(de gegevens in elke kolom kunnen worden verwisseld)

lengte	vorm	kap	fijnheid
4"	□	enkele kap	basterd
6"	□	gekruste of dubbele	halfzoet
8"	△	kap	zoet
10"	∩	gefreesde kap	dubbelzoet
12"	○	raspkap	enz.
14"	▽	enz.	
enz.	enz.		

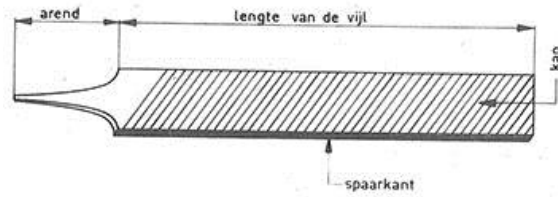
Files need to be cleaned regularly because many chips will remain in the file, even if used properly. Files may be cleaned with a file brush, a brush with steel or brass 'bristles', or with a thin brass plate pushed widthwise along the line of the teeth, for example.



## Parts of a file

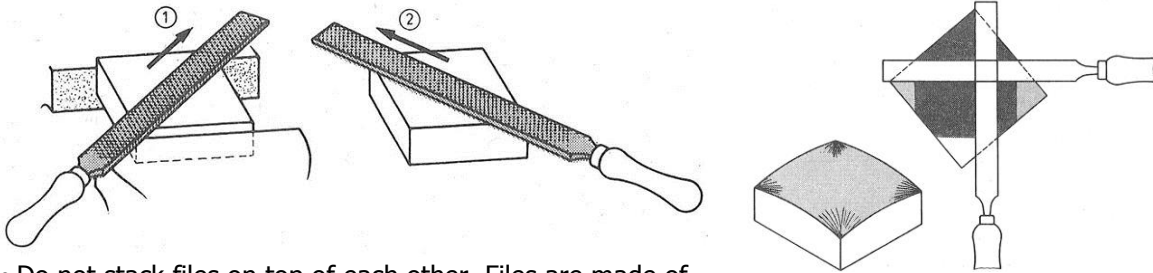
A file consists of:

- The cut, the flat part of the file where the cutting teeth are. With most rectangular files, one side has single-cut teeth, which are used to remove the mill skin of the material to be filed, e.g. when filing with the flat edge.
- The smooth edge of the file, where there are no teeth. This side is left smooth so that if it comes into contact with the material, when filing in a tight corner for example, it will not damage any adjacent surface.
- The tang, this is the pointed end of the file where a handle can be fixed.



## Filing tips:

- When using round and half-round files, apply a rotating forward motion so that the entire surface of the file is used.
- When using flat files, apply a cross-wise movement so that you can always see where you are removing material. By filing cross-wise, you can even get a convex surface entirely flat. To do so, you should use a file that is roughly twice as long as the workpiece, so that you can easily flatten the surface using long, flat, horizontal strokes.



- Do not stack files on top of each other. Files are made of hardened material and teeth can easily break off the file.
- Vice jaws are hardened. Never clamp a file into a vice.
- Do not drop a file or use it as a hammer as it may break.
- Never use a round file as a torque wrench because hardened files will break.
- Use a sharp file on soft materials.
- Keep files well away from measuring equipment, as this may be damaged by files.
- Grease and oil will cause a file to slide over the material and the file will then cut less effectively.
- You cannot file hardened materials, as this will damage the file.