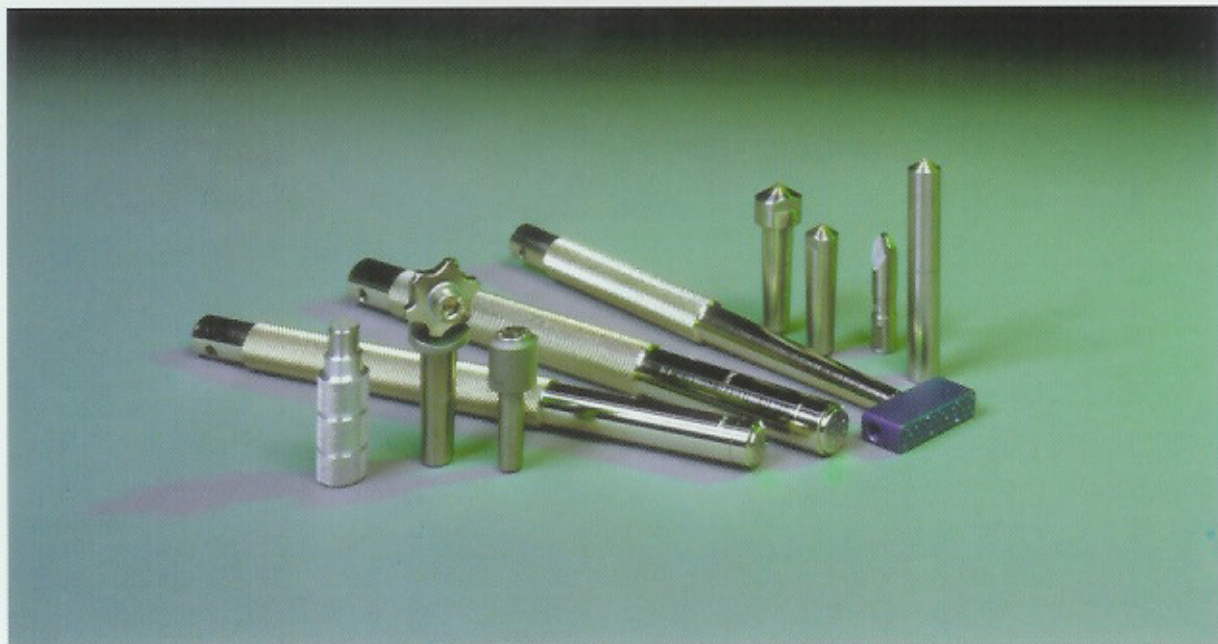


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Diamond dressing tools

Technodiamant tools used for setting and profiling grinding wheels can be supplied in various configurations.

In principle, each type of diamond tool has its own application.

If the wrong choice of tools is made, problems can occur when dressing grinding wheels, particularly when a high quality surface finish is required. Diamond tools not shown in this catalogue can be supplied upon request.

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Instructions for the use of single point diamond tools

Setting

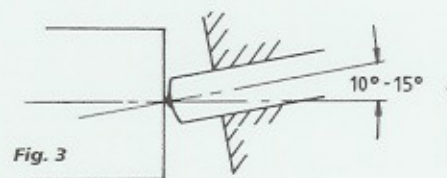
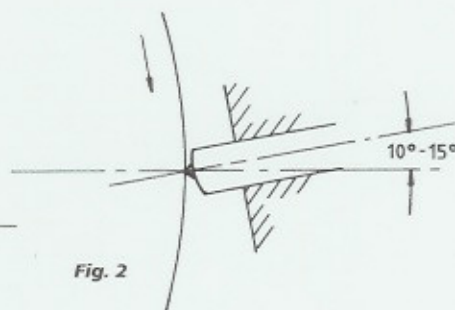
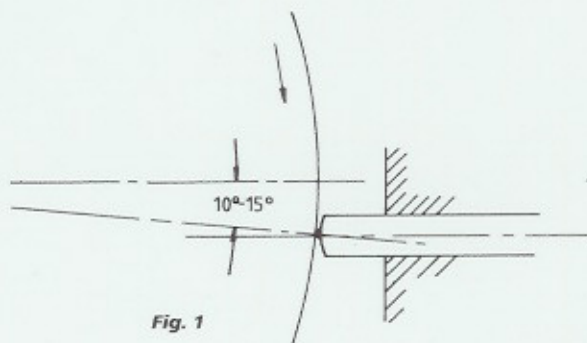
Since diamonds are sensitive to shock loading, this can cause fractures. Shocks and vibration must therefore be avoided, since they can have a significant effect on the life of the diamond tool.

It is important that the diamond tool is clamped short and securely and that the machine and grinding wheel run without vibration. It is advisable to ensure that the diamond dressing tool is positioned below the center line of the grinding wheel such that the diamond "drags" by 10° - 15° (Figs. 1 and 3). The same result can be achieved by placing the diamond tool at an angle relative to the center line of the grinding wheel (Fig. 2). If the diamond is kept in the same position for too long, an excessively wide flat is created.

Not only does the grinding wheel become too smooth, but the pressure on the diamond also becomes too great and the diamond will overheat - in spite of proper cooling - and finally crack and break up. In order to prevent this from occurring, each time a flat of about 1mm appears on the diamond, the holder must be rotated 20° - 40° around its axis, such that new points and facets are constantly formed.

Cutting depth and feed

When dressing a grinding wheel the cutting depth must be small (maximum 0.02 - 0.03 mm). For very fine grinding wheels it is better to use a cutting depth of 0.005 - 0.01 mm. Excessive depth of cut causes the diamond to overheat.



Following these instructions the diamond can be kept sharp.

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Coolant

Proper cooling is of the utmost importance for the service life of a diamond. The cooling must be abundant and directed at the diamond itself and not elsewhere on the grinding wheel, since the diamond cannot be cooled by a wet wheel and irregular cooling can cause cracks in the diamond. For the same reason the cooling must be in place before the diamond touches the grinding wheel. It is less damaging to the diamond if the grinding wheel is dressed entirely dry with the least possible cutting depth than with inadequate cooling.

Resetting the diamond

Once the diamond has worn down almost to the holder, it must be reset, such that another point is exposed. Further use may lead to damage or a complete break up of the diamond. With Diasuper, Diaprime and Diabona, it is possible to reset the diamonds once or more. The diamonds are held in a sintered metal alloy selected for optimum heat dissipation from the diamond to the holder.

Diamond size

Apart from the correct method of use, the size of the diamond is also of importance for a diamond tool. Establishing the size of the diamond takes account first of all of the size of the grinding wheel, as well as the grit size, hardness and type of grinding wheel. The peripheral speed to be used is also important when dressing. The amount of heat generated when dressing is proportional to the path followed by the diamond over the grinding wheel, hence to the product of wheel diameter and width. In selecting the size of diamond, account should therefore be taken of the following factors:

- a. Type of grinding wheel
- b. Hardness
- c. Grit size
- d. Peripheral speed