

Reprint from

Woodworking review No. 1/1990

A smooth cut

Machining and regrinding diamond tools

Be it for moulding edges, trimming panels or finishing operations, diamond tools are the woodworker's assurance of high quality. Diamond tools have their peculiarities, however, as is soon discovered when they are reground by conventional means. A manufacturer of polycrystalline diamond tools has developed a special grinding process that has succeeded in eliminating the familiar drawbacks and which is said to guarantee a long-life diamond cutting edge.

Polycrystalline diamond tools and — for the past few years — equipment for machining such tools are the highlights of a range available from a German company ranking among the foremost manufacturers of polycrystalline diamond tools.

When the company first applied itself to machining polycrystalline diamond tools, it tested a variety of equipment and processes to work PCD tools faster, with higher precision and with greater service convenience. None of the processes on offer was available to convince the company, so it decided to strike out on its own.

Diamond tools become respectable

Thus the task facing Lach-Spezialwerkzeuge when set up exactly ten years ago was not just to introduce the diamond tool around the world; it was also forced to advance the technology and other essentials for diamond tool production. One of these essentials entailed devising a special grinding process and then developing the machinery to go with it.

With the new method of spark-erosion grinding, the thermal damage to the diamond customary in the conventional processes did not arise. Spark-erosion grinding also permitted optimal utilization of the available sharpening zone. The life of diamond tools sharpened by the new method was longer, including after regrinding.

Making the sharpening process available to the user

At the time of Ligna '87 it was decided to offer the company's sharpening tech-

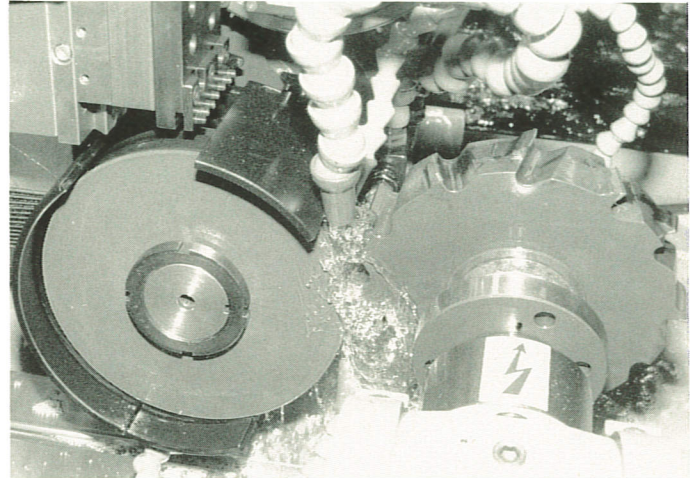


Fig. 1:
Grinding a diamond
jointing cutter on
a spark-erosion grinder

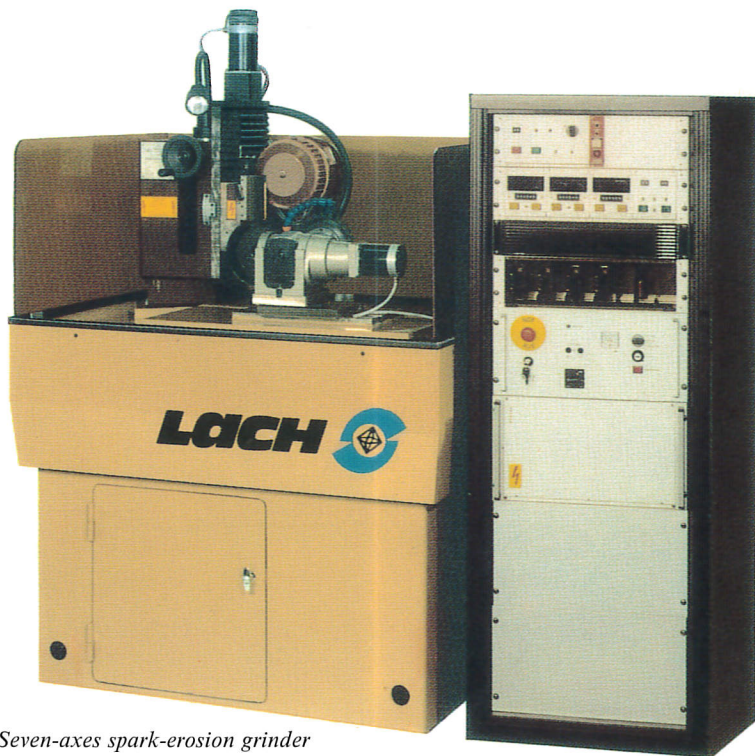


Fig. 2: Seven-axes spark-erosion grinder

(Works photos: Lach-Diamant)

nology to diamond tool users in the woodworking industry for their own use. The technology takes the form of a grinding machine with up to seven machining axes. After clamping the diamond tool in position and calling up the selectable work program, the grinding operation is executed automatically. The system can be used to machine tools with diameters up to 600 mm and with a cutting edge/profile width up to 120 mm.

Programs permanently stored in the program memory range from the simple straight-cut profile to complex angles of axis and saws with alternating teeth. To call up a program, you simply enter its number. The operator needs no knowledge of CNC.

According to the manufacturer, his spark-erosion grinder is ideal as a

universal grinding machine for the production and sharpening of diamond tools used to machine all wood materials and plastics. Grinding of PCB- or CBN-tipped reversible cutters for woodworking or metalworking can also be performed on the machine in automatic mode.

Four axes can be controlled electronically: the X-axis with a traversing range of 200 mm, the Y-axis with 210 mm, the Z-axis with 280 mm and the C-axis with 360°. The B-axis can be adjusted manually through $\pm 15^\circ$, the D-axis through 180° and the E-axis through 360°. The table clamping area measures 350 x 700 mm.

