

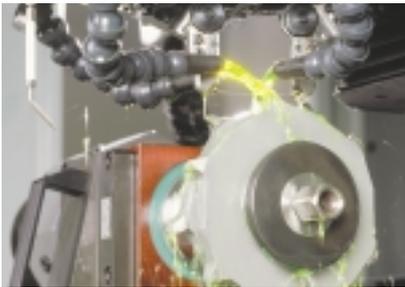
QWD 750

The new wire erosion machine designed specifically for tools used in the woodworking industry. For precision erosion results.



Erosion machine for diamond-tipped tools. Engineering excellence ensuring pin-point precision.

Precision erosion results with wire electrode on the QWD 750.



The demands imposed on the quality of PCD tools in the woodworking industry are growing more rigorous all the time. This type of tool is being developed at breakneck speed, with high expectations in terms of cutting edge geometry, configuration and precision.

The QWD 750 wire erosion machine complies with these demands, having been developed in close cooperation with users on the basis of our extensive expertise in the field of diamond tool machining.

A machine concept which allows tools to be measured and eroded in a single clamping operation is the ideal basis for outstanding results. Not only does it save time, it also prevents the occurrence of transfer errors. All the cutting edges are measured and machined in a single sequence. Set-up time is also reduced due to increased traversing speed of the CNC axes.

Around 50 standard programs for the measurement and erosion processes are already stored for accessing as required. These standard programs are adjusted to customer-specific dimensions and tool configurations. For data storage and management, memory cards can be used in addition to the internal storage capacity. In addition, the erosion machine can be linked, via DNC, into an in-house data network.

This machine concept is based on state-of-the-art technical research. Polymer concrete is used in the machine's construction to provide a particularly stable structure with good damping characteristics. Five axes come with simultaneous-path CNC control. The E axis always cuts the point at the profile cutting edge which is currently being machined. This allows the lateral clearance angle to be created with maximum precision at any point of the profile.

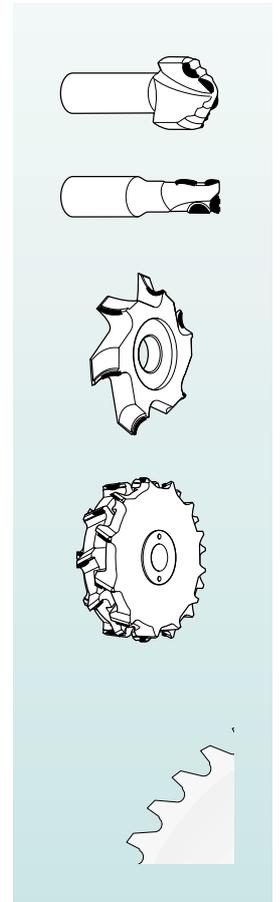
The working height remains the same for every clamped tool. The tools are always positioned at eye level, so enabling easy inspection of the machining process. A further benefit is that another workpiece can be programmed whilst the machining process is in progress. A series of additional monitoring functions ensures trouble-free operation. The new erosion generator

was developed by Vollmer specifically to address these requirements, and complies with the most rigorous performance criteria. This means greater accuracy, higher output and improved surface finish.

A major aspect of the machine concept is its own CAD-CAM workstation with software programs developed especially for tools used in the woodworking industry; another essential requirement for high stock removal coupled with optimum cutting edge quality.

All work processes are controlled by the Vollmer PMC multiprocessor system, which regulates and monitors the automatic erosion sequence and takes care of optimum stock removal, working speed and machining precision. The individual modules are all state of the art technology.





Comprehensive customer support.

For over ten years, we have been developing new ideas and solutions for diamond tool machining in close co-operation with users. Other partners include external research institutes, technology centres and universities.

Within the framework of this comprehensive support, we are able to help our customers worldwide to achieve the best methods of tool machining.

We are pleased to pass on our many years of experience in the manufacture and servicing of diamond tools.

Heavy investment in research and development enables us to provide solutions to complex user-specific tasks.

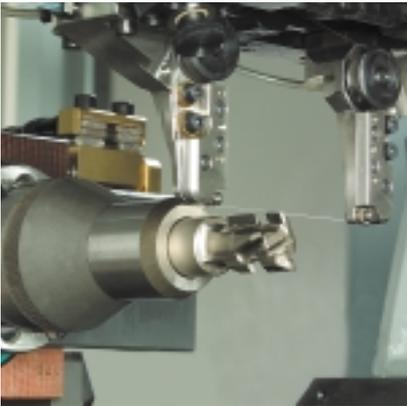
What we understand by customer support is not only an in-depth exchange of experience but also detailed demonstrations on the machine together with our specialists, coupled with extensive training; a solid backing of support right through to application of the tool on the customer's premises.

For a wide variety of tools, to the highest standard of quality.



The QWD 750 erosion machine creates the perfect opportunity for the automatic machining of widely differing tools such as profile tools, cylindrical and discoid tools; machined in a single setting operation; for both manufacturing and servicing.

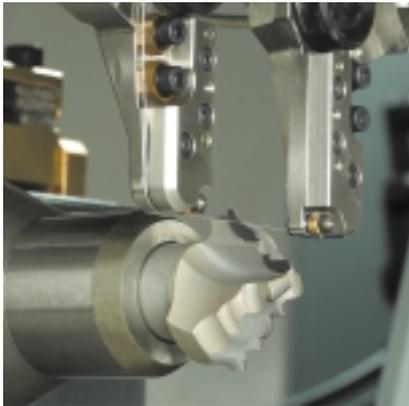
Due to the generous configuration of the individual traversing paths, this erosion machine enables universal utilization; for absolute top quality tools.



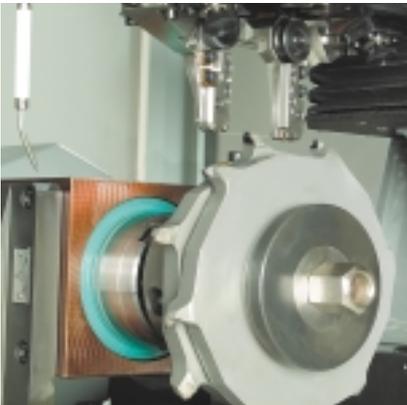
End mill cutter



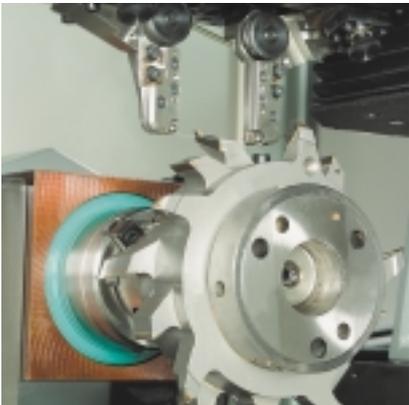
Joining cutter



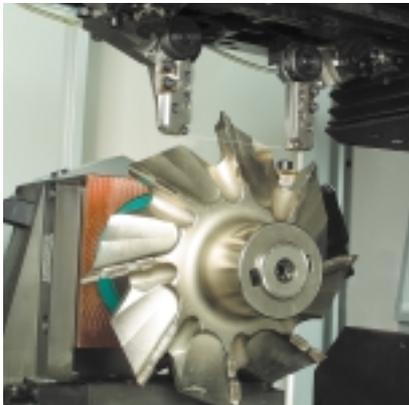
Profile end mill cutter



Profile cutter

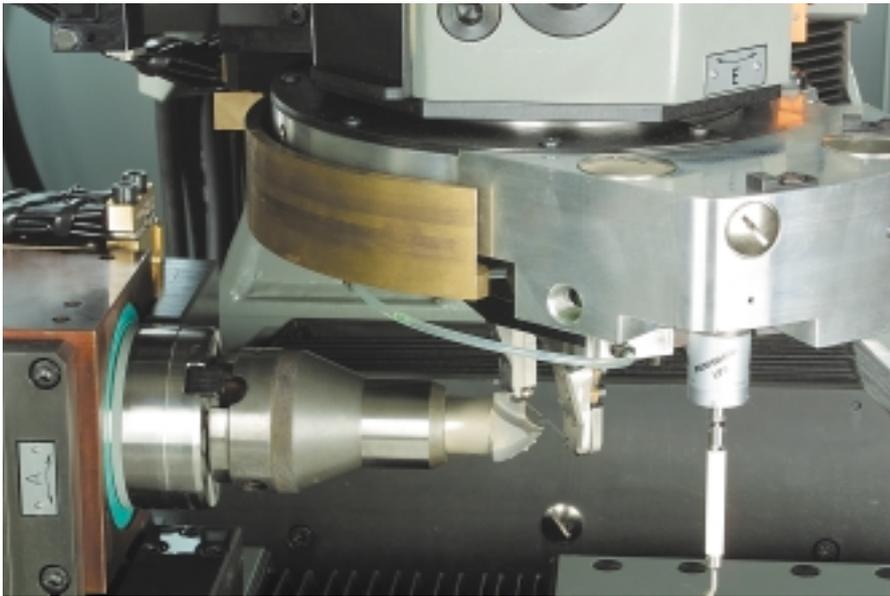


Profile cutter



Finishing tool

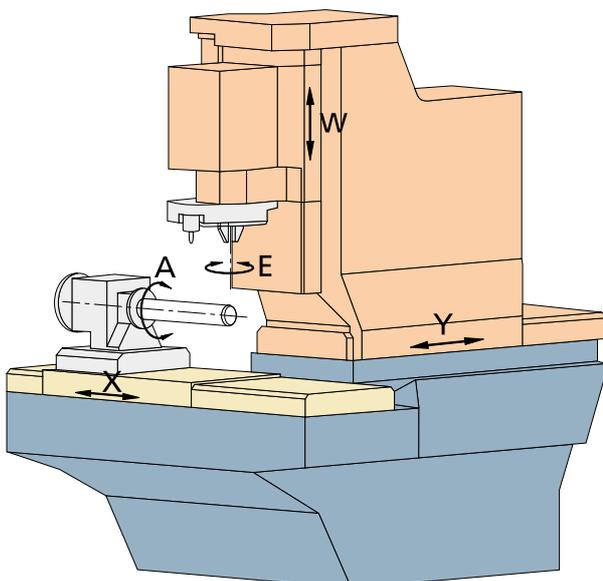
Pin-point precision for profile tools.



Outstanding potential using the CNC-controlled E axis.

Five axes of the QWD 750 erosion machine are fitted with simultaneous CNC path control. This is an essential prerequisite for extremely precise machining of individual tool geometries.

Another fundamental characteristic of the QWD 750 wire erosion machine is that the E axis always cuts the point of the profile cutting edge which is currently being machined. This allows the required lateral clearance angle to be created with maximum precision at any point of the profile.



The X, Y, W, A and E axes are all CNC-controlled.

Simple, convenient operation.



A typical work sequence when machining a single tool:

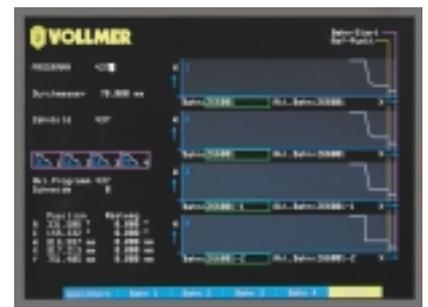
- The tool data, both for the measurement and the erosion program can be entered whilst another tool is being machined.
- After clamping the workpiece into position, the automatic measurement and erosion program is started.

A convenient, fully comprehensive user prompt system makes machine programming and operation particularly simple. Here, our many years of experience in erosion technology are brought to bear to the benefit of our customers.

The easier the operation, the faster and better the results. All necessary data can be entered and accessed on the control panel. As early as the software development stage, we paid particular attention to operating simplicity. The result is that only a minimum of data needs to be entered. An operator prompt system on the screen is already included. Tool and processing menus guarantee trouble-free working. The operator is supported by plain text and graphic support to guide him through the program. During this process, all the values can be entered directly from the tool drawings.

The control panel with LCD colour display and pushbuttons on the control panel is clearly arranged and marked with easily understandable symbols. The individual programs can be stored under names using an alphanumeric keyboard, making them easy to recall by the user.

In the automatic mode, faults are detected by the integral error diagnostics program and displayed on-screen in plain language. The operator receives precise information on the cause of the fault, which in the majority of cases enables the problem to be simply solved.



The entire machining process is fully automated. Use of path curve technology allows the complete machining assignment for a particular tool to be broken down into several individual tasks according to geometrical and technological requirements. For example, different clearance angles per cutting edge, breakdown into roughing and finishing operations, and different profiles on the same tool.

Fully automatic sequences for improved quality and economy.

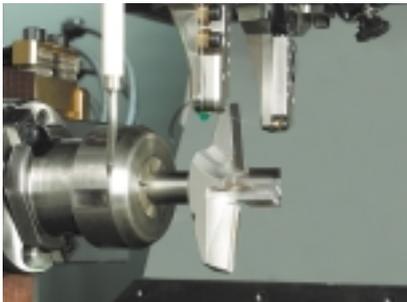


Tool measurement



Measurement program

A sophisticated machine concept was the basis for this erosion machine: automatic measuring and erosion of tools in a single clamping operation. A wide range of programs for the measurement and erosion work sequences are already stored in the machine. Each standard program can be supplemented by customer-specific parameters and tool dimensions.



Tool machining



Erosion program

Intelligent software programs offer a range of advantages. All the machining programs allow up to four erosion stages to be selected: Coarse roughing, roughing, finishing, fine finishing, each with their own erosion parameters. The active erosion stage is graphically depicted on screen. The feed amounts for the individual erosion stages can also be programmed. The gap value and the erosion speed are graphically displayed on-screen as a major aid to process optimisation. The erosion parameters are freely accessible to the user and allow individual program optimization.

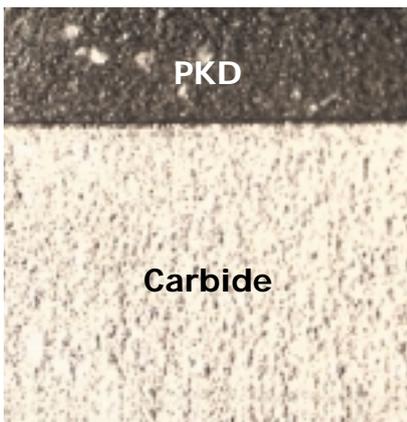


Confirmation of precision finish with a surface measuring device

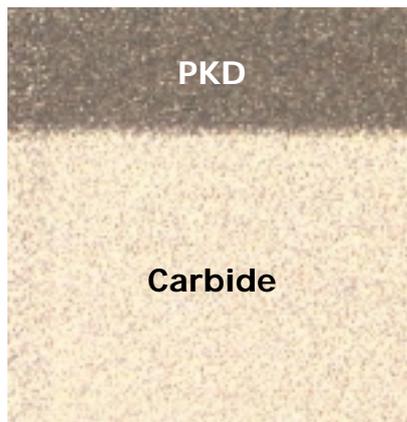


Confirming profile precision at a separate measurement station

Outstanding results from a newly developed erosion generator.



High erosion performance during roughing processes



Fine surface structure setting during finishing processes

The performance and structure of the generator play a crucial role in the machine operation. For this reason, we take responsibility for its development and optimise the parameters through an exhaustive process of testing. The generator we use here is the culmination of our many years of experience in PCD tool machining.

Outstanding results

- High erosion output for the roughing processes. Feed rates of 7 mm/min and more are achieved.
- Precision setting for the finishing processes for surface finish levels of $R_a = 0.2 \mu\text{m}$ after short machining times.

Significant advantages

- Tools are completely machined in one clamping operation. Other finishing processes are generally no longer required
- The eroded tool is finish machined and ready for use.

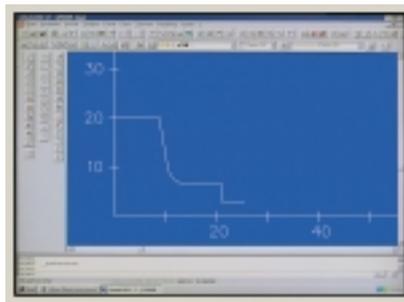
Flexible applications

- Matured software programs in accordance with rigorous Vollmer standards.
- A large number of parameters are already defined, such as PCD types, CBN or carbide, roughing, finishing or fine finishing operations.
- Maximum flexibility in programming the erosion process.
- By modifying the erosion parameters in the generator menu, the erosion process can be ideally adjusted to the machining assignment.
- Breakdown of the work process into four stages with individually definable feed amounts.
- Monitoring the erosion process with depiction of significant elements for further optimization.

High degree of flexibility using Vollmer multiprocessor control with CAD-CAM system.



CAD-CAM workstation



Monitor CAD workstation

The Vollmer multiprocessor control with CAD-CAM system offers maximum flexibility in the design of individual tool geometries. With the AutoCAD standard software, it is possible to generate any choice of profile on all PCs with industrial capability. This information is transmitted via network (DNC) to the machine.



Integration of the erosion machine into in-house data networks.

- The tool and tool profile are drawn at an office workstation
- The data is transmitted via the network
- The tool is eroded in the erosion machine

The central generation and management of tool erosion programs enables major economic benefits.

Quality down to the last detail.



To ensure that a consistently high standard of quality can be achieved, we create the right conditions with state-of-the-art technologies and individual components. The modular-structured PMC multi-processor system is the nerve centre of the machine in which all the data is processed. The software for workshop-oriented programming (WOP) is contained in the basic machine.

We have also taken care of the safety aspect, with for example, an integrated central lubrication system and an automatic fire extinguishing device which is activated immediately in case of fire. A cooling unit is also provided as a standard feature to ensure that the dielectric fluid is held at a constant temperature at all times. The dielectric fluid device is easily accessible and has a plug-in connection to the machine. An effective extraction device is available as an optional extra.



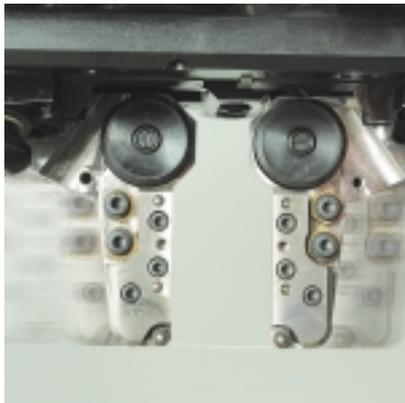
This cooling unit holds the temperature of the dielectric fluid at a constant level



Automatic fire extinguisher



Central lubrication allows automatic observance of lubrication intervals



Variable wire electrode guide for maximum precision for a wide variety of tool shapes



The modular Vollmer PMC multiprocessor control system

The main benefits of the QWD 750 wire erosion machine at a glance. Essential for maximum precision.

With Vollmer, you benefit from comprehensive know-how for the manufacture and servicing of PCD tools.

The newly developed QWD 750 erosion machine complies with the most rigorous demands on tools with complex cutting edge geometries and configurations.

Complete machining with wire electrode for extremely precise erosion results.

Particularly stable, machine concept by the use of polymer concrete.

Measuring and erosion of tools in a single clamping process.

Vollmer multiprocessor control with CAD-CAM system for maximum possible flexibility in the design of tool geometries.

Particularly easy operation, matured user prompt system.

User-friendly machining menus, developed specifically for the manufacture and resharpening of tooling.

Universal machining of tools for the wood and plastics industry.

Erosion generator developed by Vollmer complies with the most rigorous performance criteria.

Maximum flexibility due to CNC-controlled E axis, so ensuring that all clearance angles are manufactured with maximum precision.

Integrated software programs with selection of up to four erosion steps. The erosion parameters can be freely accessed by the operator, allowing individual optimisation of programs.

Data exchange with the erosion machines via DNC.

Impressive high standard of erosion quality for standard and profile tools, also available from the QM 110 erosion machine with disk electrode.

The new QM 110 erosion machine with disc electrode also provides ideal application conditions for a range of PCD profile tools, for both production and servicing.

Top quality erosion results for wood, metal and plastic machining tools. Presented with the iF-Product-Design Award 2001 and the red dot award: product design.

For more detailed information, please do not hesitate to contact us.



Specifications at a glance.

Milling cutters

Outside diameter to 320 mm
Cutting edge length to 480 mm

Cylindrical tools

Outside diameter 10 to 320 mm
Overall length to 500 mm
Cutting edge length to 480 mm

Discoid tools

Outside diameter to 320 mm
Cutting edge length to 480 mm
Tangential clearance angle to 6°
Radial clearance angle -10° to 6°
Clearance angle to 30°

Automatic chamfering to 45°
Axially parallel cutting edges •
Cutting edges with axial angle •
Helical cutting edges to 45°
Cylindrical tool •
Conical tool •
Profiled tool •
Right and left-hand cutting tool •
Tool weight max. 20 kg

Wire electrode

Wire diameter 0,15 to 0,3 mm
Adjustment range, wire guide 20 to 120 mm
Wire speed to 7 m/min
Coils (DIN 46399) K 125/K160

Traversing ranges

X axis 500 mm
Y axis 300 mm
W axis 200 mm
A axis Rotary range 360°
Toolholding system ISO 40 (ISO 50)
E axis swivel angle 120°

Automatic measurement device

Measurement resolution 0,001 mm

Delivery output

dielectric pump 60 l/min
Dielectric fluid capacity 140 l
Connected load 3,4 kW, 4,5 kVA
Weight ca. 4400 kg

* • included as standard

Dimensions

QWD 750

