



Company Presentation



- The technology of diamond wire sawing has been pursued since 2009, and after many research projects and the successful development of a laboratory saw, a Steinbeis company became DIDRAS GmbH
- Diamond wire sawing is a cutting process using wire with diamonds bonded to the surface by a nickel layer. It is a cutting process with a geometrically indeterminate cutting edge.
- The separation process is particularly suitable for brittle-hard materials such as silicon, hard metal, sapphire or composite materials such as printed circuit boards and many other materials.
- **Special feature: The surface roughness of the sawn surfaces corresponds to that of a grinding process.**

Particularly thin diamond wire loops

DIDRAS has developed a joining process that can join particularly thin diamond wires.

This allows diamond wire loops with a diameter of 0.12 mm to be created.

The diamond wires are welded into loops using a special welding device.



Compared to conventional wire swas with winding technology, sawing with diamond wire loops has **two decisive advantages**:

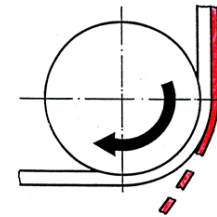
- ✓ **A consistent cutting pattern** due to the movement of the wire in only one direction
- ✓ Significantly higher cutting speeds **up to 50m/s**.

Sawing with **particularly thin diamond wires** is the most suitable method:

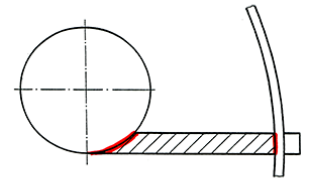
- ✓ If the workpiece is very fragile and can hardly withstand any clamping forces (feed and cutting force < 5N)
- ✓ If no edge chipping is desired, e.g. when precessing green compacts
- ✓ When workpieces are to be cut from hard/soft combination of materials
- ✓ When a small cutting gap is important



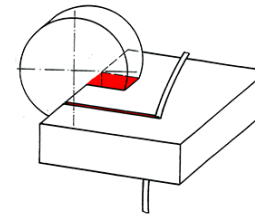
- Low feed and cutting forces
- Small cutting width of 600 – 150µm can be realized
- 2D-cuts due to all around coated tool
- Low contact length and heat input as well as self-cleaning effect
- Ideal for composite materials such as rubber-metal compositions, GRP and electronic components
- Surface requires no reworking (similar to a ground surface)



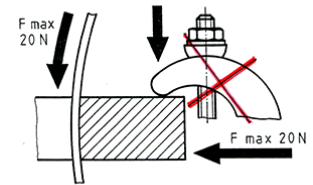
Flexible and self cleaning



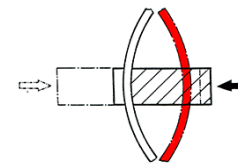
Low contact length and heat emission



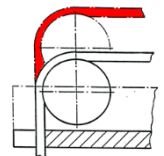
Small cutting gap



Low feed and cutting forces



All-around coating – 2D cuts



Adaptation to the workpiece due to different cutting heights

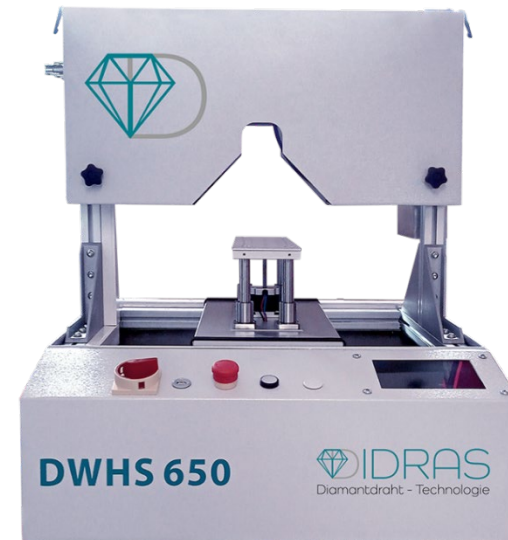


CNC-Diamon Wire Saw DWLS 650 – for contour cutting



- Movement range X 200mm
- Movement range Y 200mm
- Wire / Cutting speed 10-50m/s
- Culvert up to 50mm
- Intuitive control via touchdisplay.

Diamon Wire Saw DWHS-650 – for straight cutting



- Wire / Cutting speed 10-40m/s
- Vertical lift 150mm
- Culvert up to 75mm
- 7" touchdisplay



Our standard length for wire loops is 1690mm



- **120µm Diamond Wire Loops**

Particularly suitable for laboratory use. This wire can be used to saw the smallest components, e.g. in the electronics sector.

- **180µm Diamond Wire Loops**

Particularly suitable for cutting samples in the laboratory. It is also suitable for sawing graphite electrodes.

- **240 - 300µm Special Diamond Wire Loops**

We will be happy to help you if you need stronger wire diameters.



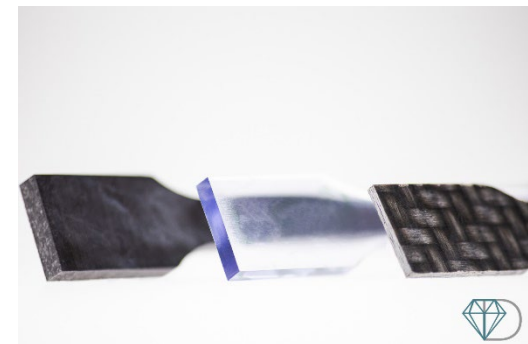


We offer cutting tests of your desired materials so that you can test the suitability of the process for your applications.

Cutting of 2D-contours

Thanks to the very thin wire, the smallest contours can be produced directly without post-processing. This results in hardly any waste and only small amounts of cutting dust.

- Ceramics (e.g. Al_2SiO_5)
- Composite materials
 - Glass fiber
 - C-fiber
 - Rubber profiles
- Cadmium telluride (CdTe)
- Graphite
- Quartz Glass
- Tungsten carbide
- Test pieces
- Sapphire





 **DIDRAS**
Diamond Wire Technology



36. Control
23.–26. April 2024
Stuttgart



www.didras.com