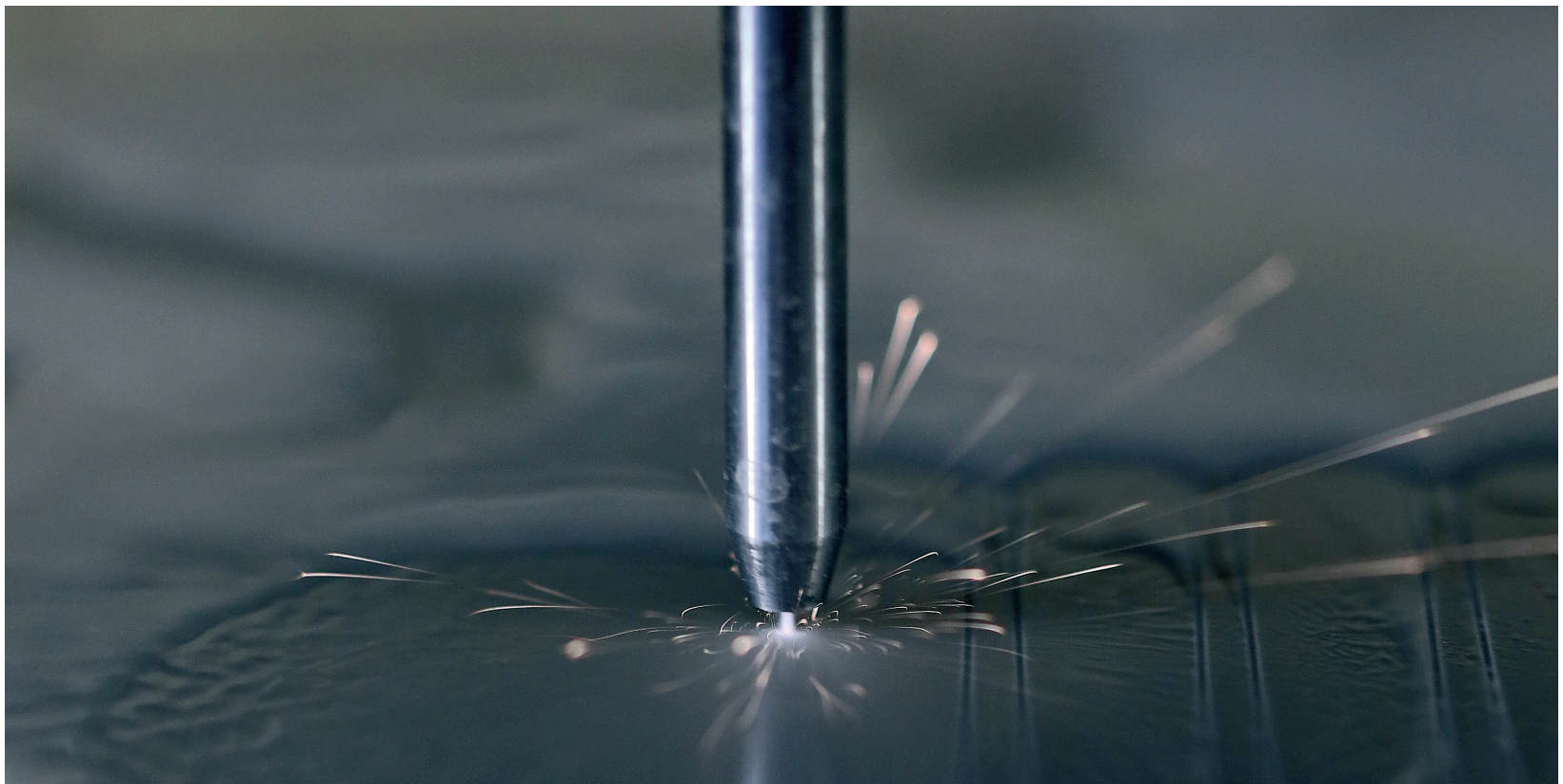




FINECUT WMC 500II

Non-thermal precision cutting of virtually all materials

- » **Smallest jet size on the market**
- » **Cuts thin structures and complex geometries**
- » **Leading precision, excellent surface finish**
- » **User friendly, easy to operate, easy to service**
- » **Pioneering development**



Designed and manufactured in Sweden.



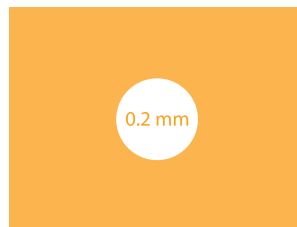
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MICRO ABRASIVE WATERJET TECHNOLOGY

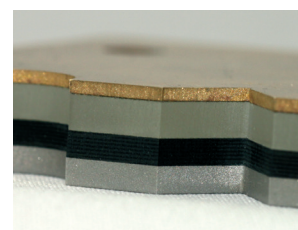
How small is the jet?

Whereas traditional abrasive waterjets have diameters down to 0.38 mm, micro abrasive waterjets are even finer. Typical micro abrasive waterjets are 0.3 mm and 0.2 mm. Our ongoing development will soon result in even smaller sizes.



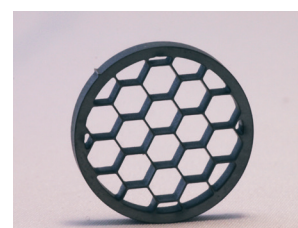
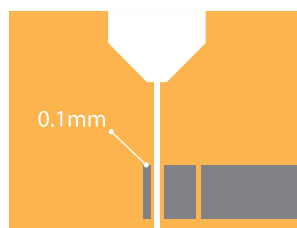
Cuts through layers of different materials

The micro abrasive waterjet is effective also in combined materials that have disparate properties, such as carbon fibre reinforced epoxy with titanium inlays.



Narrow parallel cuts, ideal for thin sections

Even if the jet velocity is high, the force of the jet is low. Consequently, thin sections down to 0.1 mm can be cut without damaging the material.



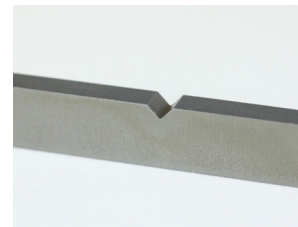
Fixturing solutions for complex geometry

The jet cuts omnidirectionally while the fixturing solutions reorient the workpiece. The movement of the jet and the workpiece is synchronized, allowing highly complex geometries and shell structures to be created.



High tolerances and fine finish

Depending on the part material and size, tolerances can come down to ± 0.01 mm. The technology can accomplish surface roughness values below $1.6 \mu\text{m}$ (Ra). For hard materials, roughness values can be below $0.8 \mu\text{m}$ (Ra).



Non-thermal cutting

The micro abrasive waterjet is a non-thermal cutting process and does not change the material. Surfaces produced will be free from adverse mechanical and thermal effects. Also no subsequent processing is required.



FINECUT WMC 500II

ULTRA-PRECISION WATERJET MACHINING CENTER

1. Dynamic, high precision motion system featuring linear motors

2. Cutting table mechanically attached to the motion equipment for ultimate precision

3. Catcher tank suspended to avoid vibration

4. Easy set-up of machine fixtures for different applications / options

5. Software and operators panel developed especially for abrasive waterjet cutting



FINECUT WMC500II TECHNICAL INFORMATION

Controller: FANUC 31i-B5

Absolute encoders: Thermally stable Invar® linear encoders, 50 nm resolution

AXES MOTION

Linear servo motor drive on X-Y

Precision ballscrew servo drive on Z

Max cutting speed: 20 m/min

Max traverse speed: 40 m/min

Acceleration: 0.5g (X, Y axes)

Positioning accuracy*: +/- 2,5 µm

Repeatability*: +/- 2 µm

**Accuracy according to ISO230-2*

WORK AREA

Cutting envelope (XYZ): 500 mm x 500 mm x 80 mm

Fixturing area: 700 mm x 700 mm

(max depth 700 mm)

Machine table size: 900 mm x 1200 mm (W x D).

Back door allows inserting longer work pieces.

State of the art machine components

To achieve prominent accuracy, we use state of the art components of the latest technology. The high end control system (Fanuc 31iB5 with ALPHA-drive technology) features options like nanometer interpolation and extensive look ahead functions to produce smooth motion.

Three types of cutting systems

Depending on material, part complexity and level of miniaturization our precision cutting can be made with any of our cutting systems that are available in 3 different categories; micro/fine abrasive waterjet, conventional abrasive waterjet, pure waterjet. A range of jet sizes from 0,2 to 0,76 mm is available, whereas the larger jet facilitates a greater cutting power.

Advanced option portfolio

The Finecut can be equipped with several options like measuring probe, 5-axis cutting head, turning axis, drilling unit, vision system, and more. We also develop new options that serves the customers' needs for efficient production. All options are retrofittable to existing machines.

Flexible fixturing

3D part geometry can be cut with assisting additional servo axes that manipulates the part synchronously to the cutting motion in order to provide access for the cutting jet. A variety of innovative fixturing's solutions can be adopted depending on part requirements. It is also easy to make your own fixtures, using the machines palletized fixturing solutions. For repeat orders, this solution enables you to quickly set up and produce.

User interface – Finesoft

19" multi-touch screen, advanced software design, intuitive programming that give the operator easy access to all the features needed without requiring prior CNC operator skills.

All this together enables you to easily serve your customer with superior part quality.

FAQ

Virtually any material?

Wood, rubber, glass, metal alloys, engineering ceramics, carbides, etc. Combined materials with complex structures like carbon fibre reinforced plastics with honeycomb.

What can't be cut?

Hardened glass and diamonds.

How fast?

Depends on the type of material. Up to 20m/min. A thicker and harder material requires a slower cutting process.

Can options be retrofitted?

Yes, all our options can be retrofitted.

Get more answers:

www.finepart.com/faq/

INDUSTRIES & INTERNATIONAL MARKET

Fields of application—various industries

- » Aerospace
- » Medical devices
- » Fine mechanics
- » Prototyping
- » Jewelry
- » Material testing/sample preparation
- » R&D
- » Consumer goods
- » Electronics & mechatronics

Finecut is established in following countries

- » Sweden
- » Denmark
- » Germany
- » Switzerland
- » France
- » UK
- » Russia
- » USA

The Finecut system enables you to obtain precision parts with a relatively moderate effort compared to other methods. Machine programs are easily created in IGEMS CAD/CAM – leading waterjet software. The intuitive Finesoft Human-Machine-Interface make it easy to install and start up machining. The waterjet based process allows for machining virtually any material and the machine, made from high-end components ensures WYPIWYG (what you program is what you get).

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