Highlights

Windows XP OS, easy to use

Embedded 3D CAD/CAM (option), prepare program in parallel with cutting

Multi-cuts, best surface finish Ra≤1.0µm

Advanced generator, higher cutting speed

Plenty of corner strategy

High rigidity design, good precision consistency

Adaptive dynamic wire tension control

Travel

FW 1U: Travel X x Y x Z = 350 x 320 x 150 mm

FW 2U: Travel X x Y x Z = 500 x 400 x 250 mm

FW 3U: Travel X x Y x Z = 630 x 500 x 350 mm
FW 2U

FW 3U

Good precision consistency, Reliable performance, Low running cost
Applications

Wide application, suitable for general mould and parts processing

Reed mould

Height: 52mm
Material: ASP-23
Numbers of cuts: 3
Surface finish: Ra<1.0µm
**Extrusion mould**

Height: 200mm  
Material: stainless steel 2Cr13  
Consistency: 10µm  
Numbers of cuts: 1

**Combination parts**

Height: 20mm  
Material: Cr12  
Numbers of cuts: 3  
Surface finish: Ra 0.9µm  
Matching clearance: 5µm per side

**Multi-holes**

Height: 20mm  
Material: Cr12  
Pitch error: 15µm  
Roundness: 10µm
Dielectric unit

Filter system with paper filter cartridge is used for better erosion and longer lifetime of dielectric.

Machine

"T" type base and 3-point support allow the loading of heavy work piece without affecting accuracy.

U, V axes cross slide designed, compact structure.

Finite element analysis and full physical verification achieve high rigidity and unwavering precision.
Coordinate measuring machine (CMM)

The machining accuracy of key parts is checked with CMM to ensure the manufacturing accuracy.

Guideway and ball screw

High precision linear guideway and ball screw are used for achieving better positioning accuracy.

Laser verification

Before delivery, every machine is measured with a laser interferometer to verify the positioning accuracy according to the international standard ISO 230-2.

Machining

Machining centers “Mandelli” and “MIKRON” guarantee the manufacturing accuracy of parts.
Achieve more...
Wire speed control
Wire speed controlled by frequency converter for multi-cuts and automatic winding wire.

Big capacity of wire drum
Increasing the cutting efficiency and the lifetime of wire by using big wire drum.

Wire installation automatically
Wire is installed manually on the traditional machine, but wire can be installed automatically on FW xU series machines for saving time and increasing cutting efficiency.

Adaptive dynamic wire tension control
This structure avoids causing jumpiness at turning the direction of rotation for ensuring high machining accuracy.

Wire guide
Closed wire guides are used for high machining accuracy.
Generator

Reliable performance

PCB boards are soldered by wave welding machine automatically and tested by static test machine and simulator.

The generators are tested at 40°C for a long time.

Outstanding performances of the generator, the maximum speed (three cuts) can reach to 50 mm²/mn.

Octagon

FW xU series machines have unique mechanical structure of keeping wire tension constant, frequency converter for controlling wire speed. With new generator, multi-cuts can be done, cutting time has been saved and better surface finish has been achieved.

<table>
<thead>
<tr>
<th>Machine type</th>
<th>Numbers of cuts</th>
<th>Time of cutting (min)</th>
<th>Surface finish Ra (µm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional machine</td>
<td>1</td>
<td>150</td>
<td>2.5</td>
</tr>
<tr>
<td>FW xU Series</td>
<td>3</td>
<td>75</td>
<td>≤ 1.0</td>
</tr>
</tbody>
</table>

Stop position of wire drum

Set up wire drum stopping at the left/right limit position for saving time of winding wire.

- Stop point (randomicity)
- Stop point (the left/right limited position)

Corner strategy

The system processes intelligent corner strategies selected according to the different applications.
Machine setup

- Limit, move, edge find, reference, halfway, center find, spark alignment, flushing, wire run and other functions.
- Including move function on the handbox.
- Six user coordinate systems.

File preparation

- Create new folder and NC files.
- Copy/paste/delete/rename the file.
- Copy files by USB/LAN/RS232.
- Edit the NC files.
- Graphical check for NC files.

Erosion process

- Select NC file for machining.
- Erosion settings.
- Display erosion status and erosion time in real time.
- Modify parameters during the machining.
- Erosion process trace with graphics.
Technical Data
FW 1U, FW 2U, FW 3U

<table>
<thead>
<tr>
<th>Machine</th>
<th>FW 1U</th>
<th>FW 2U</th>
<th>FW 3U</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine dimensions *</td>
<td>mm</td>
<td>1225 x 1625 x 1730</td>
<td>1715 x 1790 x 2050</td>
</tr>
<tr>
<td>Cabinet dimensions *</td>
<td>mm</td>
<td>685 x 935 x 1865</td>
<td>685 x 935 x 1865</td>
</tr>
<tr>
<td>Total weight</td>
<td>kg</td>
<td>1810</td>
<td>2680</td>
</tr>
<tr>
<td>Travel X, Y, Z</td>
<td>mm</td>
<td>±18</td>
<td>±18</td>
</tr>
<tr>
<td>Max. taper angle</td>
<td>°/mm</td>
<td>±3/150</td>
<td>±3/180</td>
</tr>
<tr>
<td>Diameter of wire</td>
<td>mm</td>
<td>0.12 – 0.20</td>
<td>0.12 – 0.20</td>
</tr>
</tbody>
</table>

| Work tank               |             |             |             |
| Max. workpiece dimension| mm          | 630 x 400 x 200 | 800 x 500 x 300 | 930 x 650 x 400 |
| Work table dimension ** | mm          | 650 x 420   | 800 x 500   | 930 x 650   |
| Work tank *             | mm          | 960 x 640 x 120 | 1200 x 740 x 150 | 1360 x 930 x 150 |

| Dielectric unit         |             |             |             |
| Filter accuracy         | µm          | 10          | 10          | 10          |
| Dielectric unit capacity| l           | 50          | 50          | 50          |

| Generator               |             |             |             |
| Max. machining speed    | mm²/min     | 180         | 190         | 190         |
| Best surface roughness Ra| µm        | ≤1.0        | ≤1.0        | ≤1.0        |

| CNC                     |             |             |             |
| CNC type                | PC based controller – 80G Bytes HD |             |             |
| Communication           | USB, LAN, RS232 |             |             |
| Axis controlled         | 4 simultaneous |             |             |
| ISO code                | Linear - circular - taper - 4 axis program with G&M codes |             |             |
| Language                | English - Chinese - Portuguese - Spanish - Russian |             |             |
| Measurement unit        | Metric - Inch |             |             |
| Handbox                 | Standard    |             |             |

| Electrical supplie      |             |             |             |
| Standard                | 380V±10%, 50/60Hz, 2kVA |             |             |
| Room condition          | 15 – 30°C / 40 – 80% |             |             |

| Main options            |             |             |             |
| AC Motors for X,Y axes  |             |             |             |
| CAD/CAM                 |             |             |             |

* Width x depth x height  ** Width x depth
**Milling**  
*High-Speed and High-Performance Milling Centers*  
In terms of cutting speed, HSM centers are 10 times faster than conventional milling machines. Greater accuracy and a better surface finish are also achieved. This means that even tempered materials can be machined to a condition where they are largely ready to use. One essential advantage of HSM is that with systematic integration, the process chain can be significantly shortened. HSM has developed alongside EDM into one of the key technologies in mold and tool making.

**EDM**  
*Electric Discharge Machines*  
EDM can be used to machine conductive materials of any hardness (for example steel or titanium) to an accuracy of up to one-thousandth of a millimeter with no mechanical action. By virtue of these properties, EDM is one of the key technologies in mold and tool making. There are two distinct processes – wire-cutting EDM and die-sinking EDM.

**Laser**  
*Laser Ablation*  
Laser ablation supplements and extends the technologies offered by GF AgieCharmilles. With our laser technology we enable you to produce texturizing, engraving, microstructuring, marking and labeling of 2D geometries right through to complex 3D geometries. Laser ablation, compared to conventional surface treatment using manual etching processes, offers economic, ecological and design advantages.

**Customer Services**  
*Operations, Machine and Business Support*  
Customer Services provides with three levels of support all kind of services for GF AgieCharmilles machines. Operations Support offers the complete range of original wear parts and certified consumables including wires, filters, electrodes, resin and many other materials. Machine Support contains all services connected with spare parts, technical support and preventive services. Business Support offers business solutions tailored to the customer’s specific needs.

**Automation**  
*Tooling, Automation, Software*  
Tooling for fixing workpieces and tools; automation systems and system software for configuring machine tools and recording and exchanging data with the various system components.
We enable our customers to run their businesses efficiently and effectively by offering innovative Milling, EDM and Automation solutions. A comprehensive package of Customer Services completes our proposition.

Achieve more

We commit to a promise. That promise is "Achieve more." It's a commitment to create the right conditions for our customers to obtain competitive results. When our customers win, we win.