PROVEN PERFORMANCES AT THE LOWEST COST
The FI 240 SLP and 440 SLP are machines that ideally combine versatility and reduced operating costs for manufacturers. This series is the result of the substantial experience accumulated by GF AgieCharmilles.
Versatile and economical

Versatility
The product is particularly reasonably priced for its quality and performance. Developed to be amongst the most versatile machines on the market, the FI 240 SLP and 440 SLP are designed and made in Switzerland. They perform demanding machining work, which may include difficult wire threading, provide exceptional machining quality and allow a multitude of applications. These enviable results have been obtained due to close cooperation with our wide range of customers, who have very diverse needs. Taking their expectations into consideration has enabled GF AgieCharmilles to develop solutions that surpass the expectations of users.

Economical
With extremely optimized operating costs, this SLP series is more economical. Thus GF AgieCharmilles offers you a machine, which is stable, reliable and carefully designed to be profitable. Therefore, the FI 240 SLP and 440 SLP will enable you to use a large variety of cutting tools, mould items and mechanical applications in complete tranquility.

With the SLP range, GF AgieCharmilles unveils future concepts for wire EDM machining.
The mechanical design is that of the fixed bench, combining robustness and accuracy. The part to be machined rests directly on the independent fixed table of the polymer concrete main frame. This design, where the part is static, enables very heavy parts to be loaded without affecting accuracy. The precision components of the machine are used solely to move the wire guides. Protected from dirt, shocks and stresses, they work permanently in an ideal situation to ensure durable accuracy.

**Greater thermal stability**

The polymer concrete main frame of the machine ensures thermal inertia 25 times greater than that of cast iron. This material is also a good electrical insulator, protecting the whole of the machine from potential current leakages that often cause corrosion, which is particularly destructive for a machine.

**Precision is guaranteed from 1 to 1500 kg**

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<thead>
<tr>
<th>zone 1</th>
<th>zone 2</th>
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<tbody>
<tr>
<td>Linear glass scales</td>
<td>Machining</td>
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<tr>
<td>Guide ways</td>
<td>Dirt</td>
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<td>Ball screw</td>
<td>Risks of collision</td>
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To obtain durable accuracy, only direct measurement of positions by linear scales is truly effective. This system enables the actual movement of the slide to be checked directly. It eliminates all the common errors that arise from the screw, such as backlash on reversal, expansion or wear. Accuracy does not vary over time and no subsequent calibration is required.
Immediate quality guaranteed

Certified accuracy

Traditional Swiss design and manufacture
The performances of the FI 240 SLP and 440 SLP do not change even after years of use. This longevity is due, to a great extent, to the manufacturing quality. The very high accuracy surface grinding of the guiding and mounting surfaces contributes to this durable accuracy.

Checking circularity and pitch to confirm accuracy
The mechanical design of the FI 240 SLP-440 SLP ensures very high pitch and circularity accuracy. This is measured and checked in accordance with the ISO 230-4 standard.

Guaranteed accuracy of movements
Before it is delivered, each machine is subjected to a laser test, which checks, in accordance with the VDI 3441 standard, that on all the axes positioning accuracy is situated within the specified tolerances.
Unique characteristics

Totally submerged wire cutting of 400 mm high parts
The powerful generator, which is highly effective with very high parts, and the rapid management of the large quantity of dielectric required, make the FI 240 SLP-440 SLP very productive and well adapted to the machining of high parts, which is really common in mould industries, the extrusion of plastic or general mechanics.

Despite the considerable size of the tank, it takes less than 30 seconds to completely submerge a 200 mm high part.

QUADRAX® 45° up to 400 mm, a unique capacity for tapered machining
The SLP series is the most flexible on the market, capable of cutting tapers of 45° whatever the height of the part (up to 400 mm).

The principle of crossed double guidance of the X, Y and U, V axes, independent and having the same dimensions, enables large taper machining and therefore the possible range of applications with EDM wire machining to be expanded.
The expertise of a market leader at the service of the user

PILOT-EXPERT, Effective protection against wire breaks
The PILOT-EXPERT software automatically optimizes machining speed depending on the shape of the part and the machining difficulty. The operator does not have to define any parameters. When the height of the part changes, the spark power is adjusted to conserve optimum speed without breaking the wire. The FI 240 SLP-440 SLP can therefore machine the most varied parts without supervision.

TAPER-EXPERT, Mastery of large tapers
The TAPER-EXPERT software enables high accuracy machining of tapers with an angle varying between 0 and 30°. It corrects the position of the wire in accordance with the angle in real time and during machining. The surface quality is the same as for cylindrical machining.

CT-EXPERT, GF AgieCharmilles expertise within your reach
Designed to enable beginners to get the maximum benefit from their machine, CT-EXPERT selects the best machining settings, suggests the best wire, automatically calculates all the offsets and creates a command program linking the various machining phases.

PROFIL-EXPERT, Mastery of fine details
To ensure accuracy of sharp angles and small radii when roughing, PROFIL-EXPERT automatically adjusts the machining parameters and the wire tension during changes of direction. When finishing, it accurately adjusts the advance speed to ensure perfect geometry of the fine details. PROFIL-EXPERT needs no adjusting, does not modify the programmed path and is adapted to all part materials and heights.
GF AgieCharmilles can offer the most suitable expert systems in accordance with quality objectives.
Achieve more...
FI 240 SLP  
FI 440 SLP

AgieCharmilles
Threading functionalities

The exclusive threading system for all types of wire
Automatic threading is rapid and reliable whatever the type of wire used: hard or soft brass, coated or not. The key to success is preparing the wire properly before threading. The wire is annealed and stretched over a large length. The thermal break leaves no burr and the tapered extremity of the wire facilitates its path through the closed guides and the rethreading in the slot.

Wire guides without clearance, simple and accurate
Diamond closed guides with the same diameter as the wire ensure very accurate positioning under all circumstances. Guides without clearance give a perfect position, even during changes in machining direction. Their universality enables machining from 0 to 30° without the operator’s intervention.
1. **Hole search during threading**
   Furthermore, it is possible to program the hole search. Activation of this function can be programmed by a specific code. The machine attempts, if necessary, up to 8 successive threadings over a circular trajectory around the initially defined point.

2. **Automatic detection of the absence of a threading hole**
   If the pre-hole has been forgotten or if it is not situated in the planned position, the machine moves automatically towards the next pre-hole. This prevents the installation from stopping during unsupervised work, at night or during the weekend.

3. **Non-contact search before machining launch**
   For the start-up of machining, the wire must not touch the part. If this happens, there will be a short circuit and the spark machining cannot begin. Now it is possible to move the wire away from the part in a helical trajectory until cancellation of the contact. Machining can then begin.

4. **Threading and rethreading under all circumstances**
   Suction in the lower head safeguards threading. Furthermore, it is possible to program the filling height of the tank to the threading, which enables difficult threadings to be performed successfully. Threading with the tank full or partially filled saves time draining and filling the tank between several threading operations.
Operating costs

Machining at the lowest price

A more economical machine
The FI 240 SLP and 440 SLP are prized because they allow excellent control of operating costs. The option of using inexpensive wires, a lower filtration cost, added to low electrical consumption, make the FI 240 SLP and 440 SLP economical machines par excellence.

Optimum filtration
This series offers a system equipped with four filters as standard. Depending on his needs, the user can either benefit from the fineness of filtration or the cost of filtration, which is closely linked to the autonomy of the filter. The greater the capacity of the filter, the more the hourly cost of filtration falls. The minimum flow of dielectric required, provided in the past by two filters, is now provided by four.

At the end of the life of the filter, the flow is directly proportional to the unsealed filter area. Four filters instead of two can be filled more while leaving the same unsealed filter area. Therefore, it is possible to lower the cost of filtration by 25%.
Machining performance

Assistance functionalities to enhance performance

The performance of the machine is closely linked to its digital generator and to the large number of machining technologies available. In fact, this series has around forty machining technologies enabling the machine always to be used to optimum effect with various materials and various types of specialized or inexpensive wire.

Performances at the lowest costs

Machining performance

The «Direct Cut Performance»

This innovation gives better results in one cut than in two cuts (roughing and finishing). It is designed to cover the greatest number of applications and enables a surface finish of CH26 (Ra = 2 μm) to be obtained with a geometric spread of less than a hundredth of a millimeter for parts less than 90 mm high.

In this context, the development of our generator enables machining approximately 15% faster and divides EDM wire consumption practically by three! These developments reduce part wear linked to wire feed by around 40% and lower the cost of filtration by around 20%. Finally, machining autonomy is doubled. This unequalled performance makes the FI 240 SLP-440 SLP a maximized machine service for the most standard applications.

The FI 240 SLP and 440 SLP offer excellent performance. They are equipped with unique machining technologies, that are specially optimized to improve competitiveness.
Usage safety

Due to the ICP system, collisions are of no consequence. The 5 axes of the FI 240 SLP-440 SLP are protected by ICP against the effects of programming errors or bad maneuvers. This integrated system prevents any breakage of sensitive and costly elements and therefore boosts the operator’s confidence.

ICP in detail...
The effectiveness of the ICP system is a result of its capacity to absorb shocks by means of springs, integrated into the mechanics, which compress during a collision. Stoppage of the axis is detected by a comparison of the motor rotation (encoder) and linear movement (glass scales). Due to the ball screw system, the machine will be able to instantaneously stop any movement without inertia. Since the difference in position is perfectly controlled, no loss of reference necessitating aborted machining is observed. Return on the contour and therefore to standard machining conditions is possible without specific reinitialization or manipulation.
Ergonomics and comfort

Exceptional accessibility for optimum yield

Accessibility
With its single-piece worktable, fixed directly onto the main frame, the immobile working area is really very accessible to the operator. With a mobile table, the working area is at a distance from the operator, which can hinder viewing of the machining area or manually moving a heavy part.

Ergonomics
The upper machining head is widely retracted. Loading of heavy parts can be assisted by the use of a hoist.
The CNC CT-Millennium

Simplicity of use and flexibility

The touch screen is efficient and user-friendly
A powerful PC contains the most advanced technologies. Based on the Windows XP® operating system, the machines are equipped with a 40 GB hard disk as standard. External connections are via a PCMCIA port for a flash memory card, 2 USB ports and a CD-ROM drive. Due to the touch screen, it is possible to simply press the screen in order to perform the required function.

e-Doc: documentation always at your fingertips
The CNC contains intelligent and interactive documentation in HTML in the form of a website. The maintenance procedures provided enable breakdowns and drops in performance to be anticipated. When an alarm is triggered, a detailed explanation and a clear procedure for resolving the problem are given instantly. The parts to be replaced are identified by means of photos and numbers.

DSF (Dynamic Screen Function): assistance in images
The new dynamic screen function (DSF) assists and helps the operator with set-up and references for the work to be performed. Drawings are animated in accordance with the parameters entered by the operator. For example, the injection nozzles can be adjusted without the risk of errors or damage to the material.

Facilitated file management due to Windows
The Windows XP® operating system makes managing programs and technologies extremely simple. Like an office PC, files are organized by directory grouping together all the programs required to carry out a job.
Communication possibilities

Advanced connectivity for an efficient exchange of data and information

Network connections
The FI 240 SLP and 440 SLP allow the connection of a very wide choice of peripheral devices, by serial line or by integration of the machine into a LAN (Local Area Network). The functions for transferring files such as programs or machining technologies enable communication between the machines and the programming stations.

Transfer of external data
The CNC includes a number of measurement cycles to simplify machining implementation. For example, the 3 Point Set Up cycle enables the wire to be aligned perpendicularly on the upper face of the part to be machined, which avoids the use of costly adjustment equipment and makes the alignment of parts particularly easy and fast. The 3 Point Set Up cycle can also be prepared on a three-dimensional measuring machine, the data of which will be transferred to the machine.

e-Connect: remote notification
In order to guarantee a maximum number of machining hours and increased flexibility, the FI 240 SLP and 440 SLP enable, due to their advanced numerical command, remote notification of messages or alarms. This notification is made by e-mail and can then be transferred by SMS (Short Message System).

e-Supervision: telemonitoring
In addition to remote notification, e-Supervision provides the possibility of consulting the status of the FI 240 SLP and 440 SLP at any time, and, consequently, advancing their production.

e-Control: remote management
This option combines all the functionalities of e-Connect and e-Supervision and also enables the machine to be controlled remotely for comprehensive management.
About GF AgieCharmilles

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.

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.

Spindle
HSM Spindle Technology

Development, production and sale of the motor spindles that form the core components of modern HSM centers. The spindles rotate at speeds between 10 000 and 60 000 rpm.

Service
Services and Consumables

Service, maintenance, spare parts and consumables for EDM, milling and HSM systems as well as for other machine tools; consumables include filters, wire, graphite, copper electrodes and special resin.