

AgieCharmilles

LASER P 400



GF Machining Solutions: all about you

When all you need is everything, it's good to know that there is one company that you can count on to deliver complete solutions and services. From world-class electrical discharge machines (EDM), Laser texturing and Additive Manufacturing through to first-class Milling and Spindles, Tooling, Automation and software systems — all backed by unrivalled customer service and support — we, through our AgieCharmilles, Microlution, Mikron Mill, Liechti, Step-Tec and System 3R technologies, help you raise your game and increase your competitive edge.

Passion for Precision

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Understanding your expectations is our commitment.

Impeccable performance in a single compact solution

Outstanding quality and efficiency concentrated in the smallest possible footprint and femtosecond Laser technology's integration are the hallmarks of the LASER P 400, an unique texturing, engraving and marking solution. Specially designed for aesthetic and functional texturing of precision parts, including parts for watches and jewelry, small inserts, cutting tools, and micro machined workpieces, the LASER P 400 delivers the highly accurate and repeatable results your discerning customers demand.

Make the difference

Driving your productivity in precision parts production

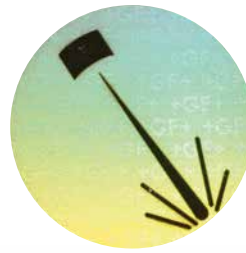
Ramp up your productivity and part quality with this leading-edge five-axis Laser solution. Use fewer electrodes and cutting tools and eliminate the need for costly raw materials. Machine your part in just one setup, limit human error and significantly simplify your manufacturing process.

Extreme texturing and engraving quality

Get clean, sharp results and absolutely burr-free texturing and engraving with no post-treatment steps required. Using an ytterbium pulsed fiber Laser in combination with a ultrashort pulsed Laser (femtosecond) you achieve exceptionally high quality.

Innovative texturing

Femtosecond Laser technology opens new possibilities for aesthetic nano textures, including ripple effects and spikes, as well as functional textures.



Make the difference

Your versatile solution

Deliver highly accurate and repeatable results your valued customers expect. This one-of-a-kind Laser engraving, texturing and marking solution combines outstanding quality, efficiency, and femtosecond Laser technology in the smallest possible footprint. It is specifically designed for aesthetic and functional texturing of precision parts for watches and jewelry, small inserts, cutting tools and micro machined work pieces.

Scalable solution

Customize your LASER P 400 series machine to your specific needs, thanks to its scalability. Start with a standard configuration and, as your business evolves, add an axis, a nano or ultra-short pulsed Laser, Automation, and System 3R Tooling.

Dual Laser

Combine in live advantages of two lasers (Nano\Femto) into one solution.

Nano and femto

Dual Laser offering more flexibility

Scalable to meet your specific current and future needs

Innovative to open new application horizons with sharp, clean engraving and Nano-level texturing

Robust for optimal dynamics and accuracy

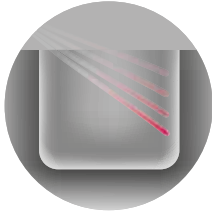
Ergonomic for user comfort and more productivity per square meter



Simplify your machining process

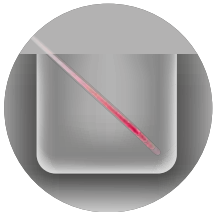
Success in one setup

In a single setup, GF Machining Solutions' leading-edge Laser technology makes it easy for you to machine all of the elements of a bottle cap cavity.



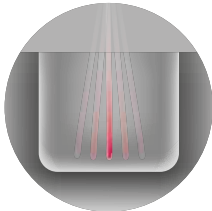
Groove machining

Eliminate the steps required by conventional technologies with five-axis Laser texturing. You do it all in one step.



Laser blasting

Achieve outstanding textural homogeneity with fully automated and ready-to-use three- or five-axis Laser blasting.



Logos and special textures

Make your own distinctive mark on your work piece, thanks to the unlimited possibilities offered by our Laser texturing technology.



Greater productivity and design possibilities

Fewer human errors

Fewer setups

Lower running costs

3 in 1*

* Laser technology
3 operations in 1 setup



All-in-one digitized process

Simplify your process and achieve infinite repeatability

Limit human error, open new design possibilities and easily texture and engrave your parts, molds and dies — regardless of surface constraints — with our fully digital five-axis process. Fast, accurate and easy surface calculation is built into our Laser solutions to save you time and increase your productivity.

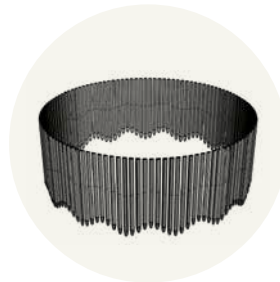
Groove machining process



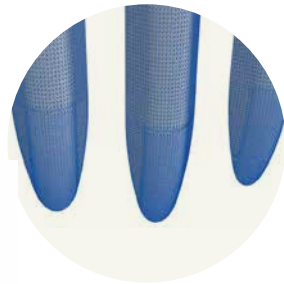
Milled cavity



Surface of engraving



Volume to be engraved



Transformation to mesh



GFMS LaserCam
5 axis simulation



Dedicated to your specific needs

One-of-a-kind, all-in-one dual Laser solution

Choose between a fiber or direct Laser and execute your three- or five-axis applications with full confidence that you have a flexible solution dedicated to your specific needs. Only GF Machining Solutions positions you to realize the full potential of Laser texturing technology with an all-in-one dual Laser head.



Start
Standard solution



Evolve
Add your
integrable solution

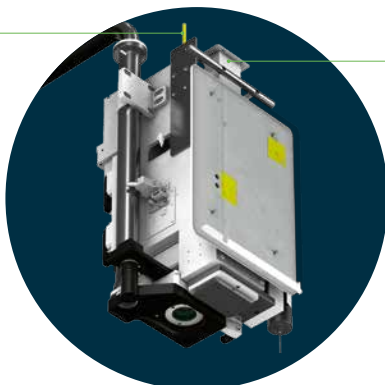


Become unique
Get a unique
five-axis solution

Versatile Laser solution

Second fiber

Ultra-short pulsed Laser (femto)

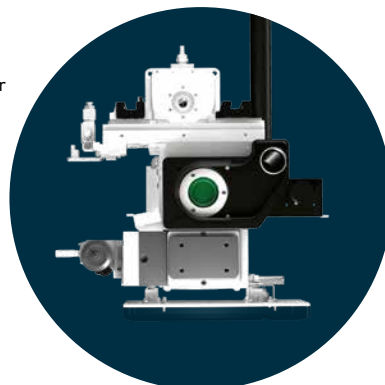


Laser fiber

Standard, all-in-one dual Laser head

Vision system for automatic laser positioning

Renishaw TP1 touch probe



Blowing nozzle

Fast mounting lens holder and exhaust collector

Higher degree of autonomy

Optimize your production

Unproductive time is the enemy of productivity, and System 3R Automation, Tooling and software has the solutions to optimize production by using your machine to its full capacity.

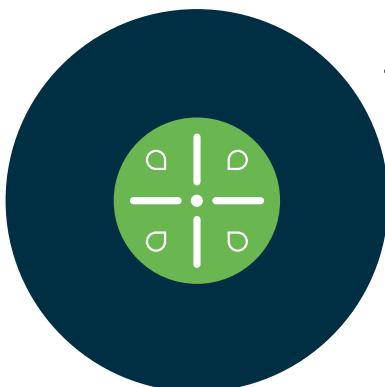


Complete solution
WPC-S / Laser P 400 (U)



Complete solution
WPT1+ / Laser P 400 (U)

Choice of chucks and Tooling



Three-axis System 3R
Dynafix 280/GPS 240

Five-axis manual rotary 3R system
Macro 54

Five-axis automatic rotary 3R system
Macro 54

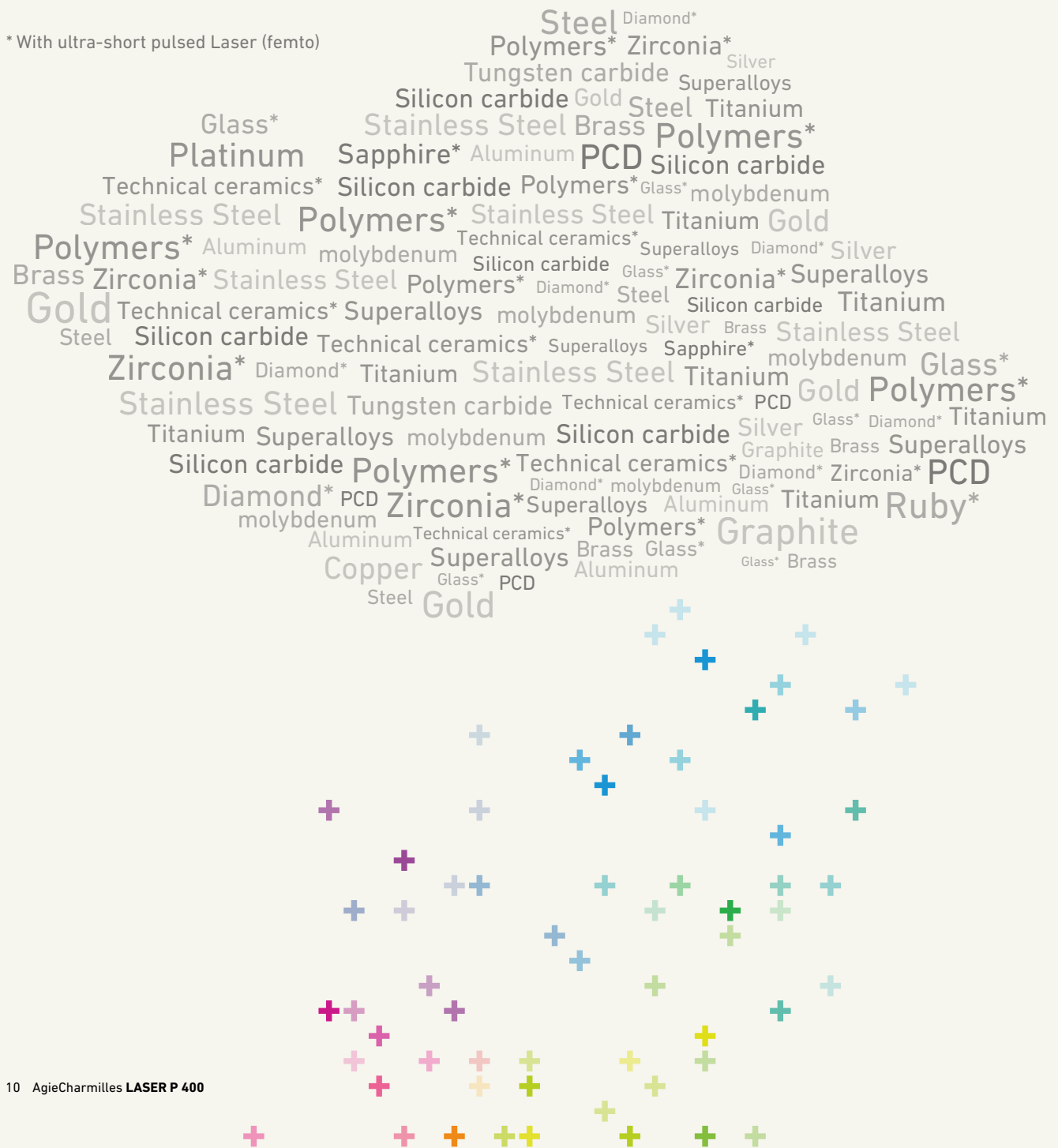


New product design dimension

Unlimited possibilities

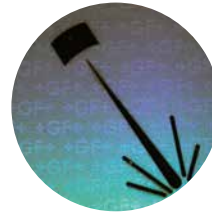
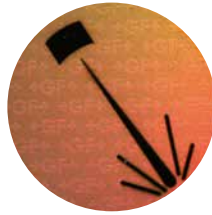
Texture new materials with confidence

As the market reference in surface texturing, we make it easy for you to engrave a wide variety of materials in three or five axes, with or without a femto Laser source: steel, aluminum, carbide, brass, graphite, copper, ceramic and gemstones. With the femto Laser, you can also engrave glass, sapphire and polymers.



New product design dimension

The femto laser possibilities



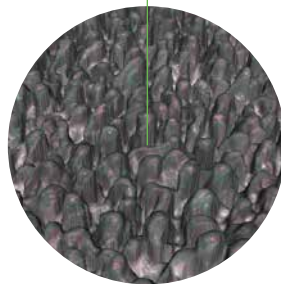
Ripples

New design possibilities with femto laser, colors by light diffraction.



Efficient

Femto second laser allows burr free engravings, limiting Laser post treatment operations



Spikes

New capability with femto laser, deep blacks texture (light trapping)



Standard and cost effective fiber laser solution (Nano second)

Ease of use

Best ergonomic solution for your ease of use



Comfortable utilization

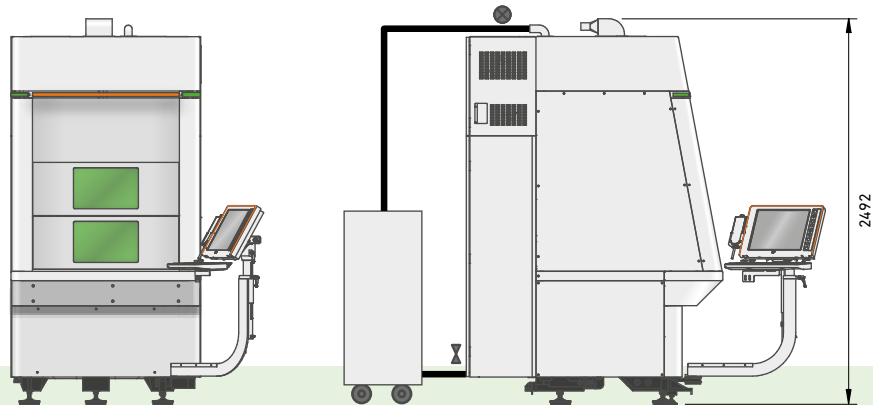
Doors open for easy loading and optimal workpiece access.
Doors closed: the large window provides an excellent view inside the machine for process monitoring.

Technical data

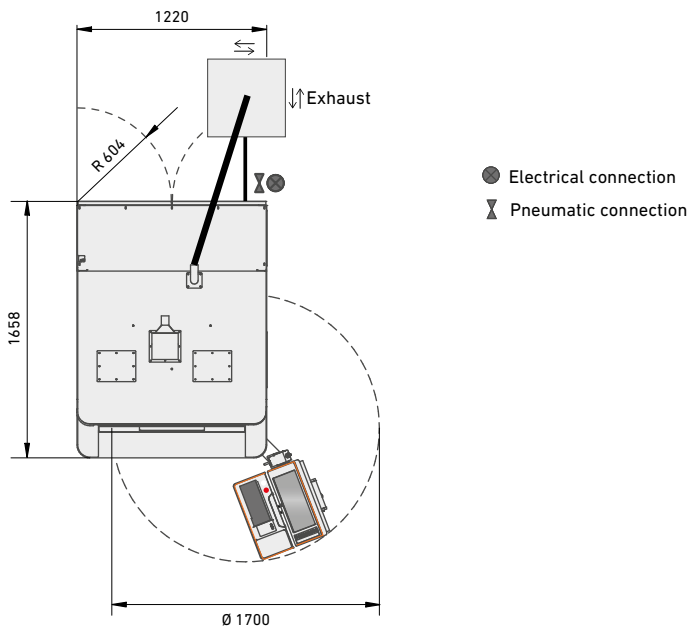
LASER P 400

Dimension of complete equipment *	mm	1230 x 2330 x 2490
Machine weight (machine only)	kg	2400
Floor space (machine only)	m ²	2.04
Maximum workpiece dimensions 3Ax/5Ax	mm	600 x 400 x 250 / Ø 120 x h 120
Maximum workpiece weight 3Ax/5Ax	kg	50/4
Table size	mm	680 x 400
Travel X/Y/Z	mm	600 x 400 x 300
Rotary 4/5 axis **	mm	A 115°-105°/B 360°
Laser sources	W	Multi-Laser sources: nanosecond and/or ultrashort pulsed laser **
Power consumption		Electrical: 3 x 400 Vac + ground; 6 kVA Pneumatic: 6 bars 500 l/h

* Width x depth x height ** Option



LASER P 400



GF Machining Solutions



EDM (electrical discharge machining)

AgieCharmilles wire-cutting, die-sinking and hole-drilling machines

For over 60 years we have been at the forefront of every EDM development: designing and refining the EDM process and building machine tools that deliver peerless part accuracies, surface finishes, cutting speeds and process reliability. Today, our AgieCharmilles wire-cutting, die-sinking and hole-drilling machines are recognized throughout the world as the best in the business. Our continuous research and development in digital generator technology, control systems and integrated Automation systems are evidence of our commitment to keeping your EDM operations on the leading edge of technology.



Laser

AgieCharmilles Laser texturing machines

Laser texturing is a fully-digitized surface engineering process that has huge potential. The technology enables precise 2D and 3D textures or engravings to be machined accurately and directly onto complex parts or molds to improve and alter their aesthetic appeal, functionality and performance. The process is infinitely repeatable and offers many distinct environmental and economic advantages over conventional texturing processes.

Laser Additive Manufacturing (AM)

GF Machining Solutions has partnered with EOS, the global leader for high-end AM solutions, to integrate this innovative technology and further develop it into its current solutions to fully benefit the mold industry, by focusing on injection efficiency: optimized cooling design to reduce cycle time, lower energy consumption, higher quality of plastic parts.



Tooling and Automation

System 3R Tooling, Automation and software

Productivity is the key to manufacturing success, and automating a manufacturing process is a proven method of increasing its efficiency, effectiveness, quality and reliability. System 3R's integrated Tooling, Automation and software solutions ranging from simple workpiece pallet and electrode changers through to flexible manufacturing and robot handling systems are guaranteed to help you increase their competitive advantage.



Milling

Mikron high-speed (HSM), high-performance (HPM) and high-efficiency (HEM) Milling centers

Customers operating in the mold, tool and die and precision component manufacturing sectors stake their reputations on being able to quickly and cost-competitively meet their customers' demands. That's why they invest in GF Mikron machines. Incorporating the latest and most advanced technologies and premium-performance components, Mikron HSM, HPM and HEM machines help you increase your production capabilities and improve your productivity. Designed and built for speed, accuracy and reliability, the machines, like you, are proven performers.

Liechti dedicated aerospace and energy machining centers

Aerospace and power generation turbine manufacturers increasingly turn to Liechti dedicated five- and six-axis machining centers to machine complex, high-precision airfoils on blades, disks, blisks, blisks/IBRs and impellers. It's easy to see why because these machines, with their specific profile machining technology, specialized CAD/CAM software and engineering competence for ultra-dynamic machining in titanium, Inconel, nimonic, titanium-aluminide and high-alloy steels, yield productivity gains as much as 30 percent, thanks to reduced machining times. In the globally competitive aerospace and power generation manufacturing sector, that's definitely worth shouting about.

Step-Tec Spindles

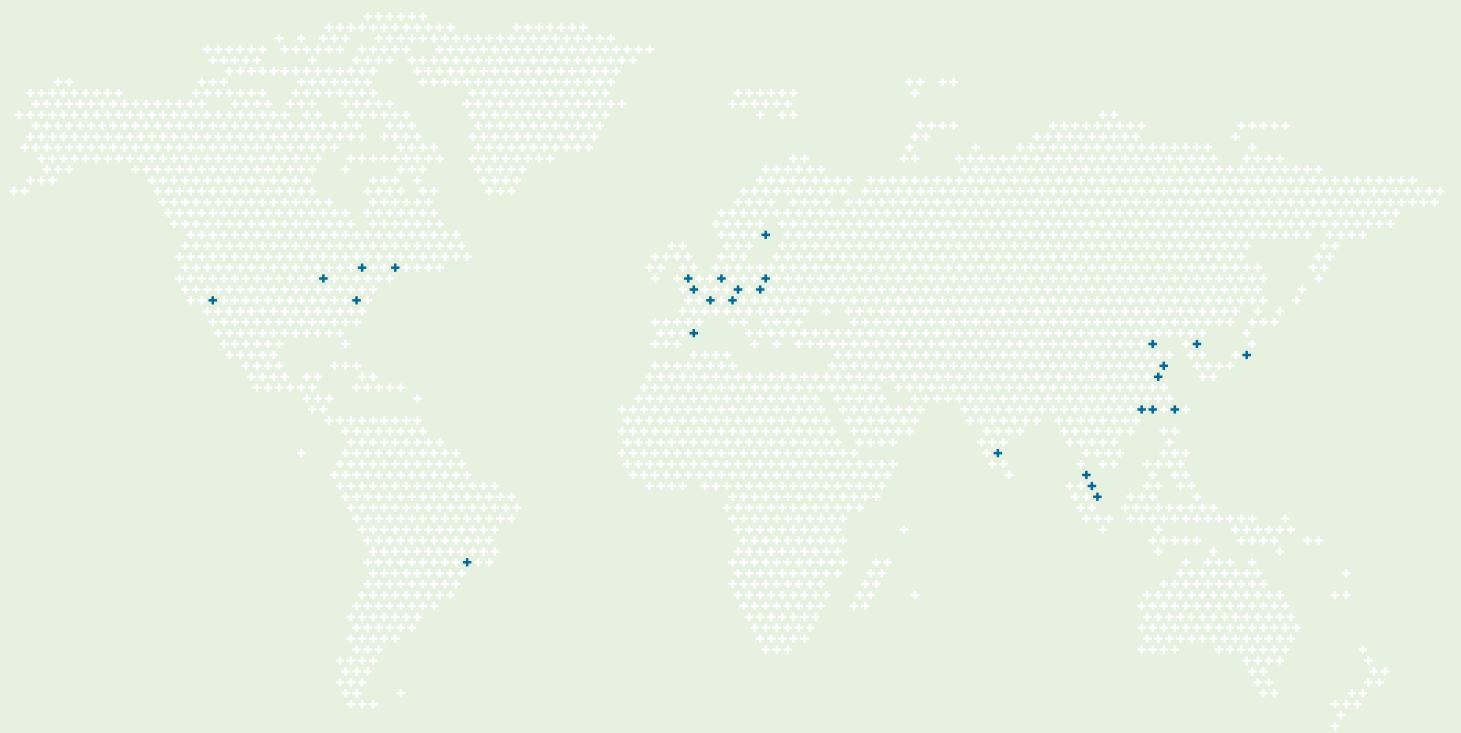
At the heart of every GF Mikron machining center is high-performance Step-Tec Spindle. Step-Tec Spindles are essential core components of our machining centers. Highly accurate and thermally stable Step-Tec Spindles ensure that our machines can handle everything from heavy-duty roughing to fine-finishing operations.



Customer Services

Operations Support, Machine Support and Business Support

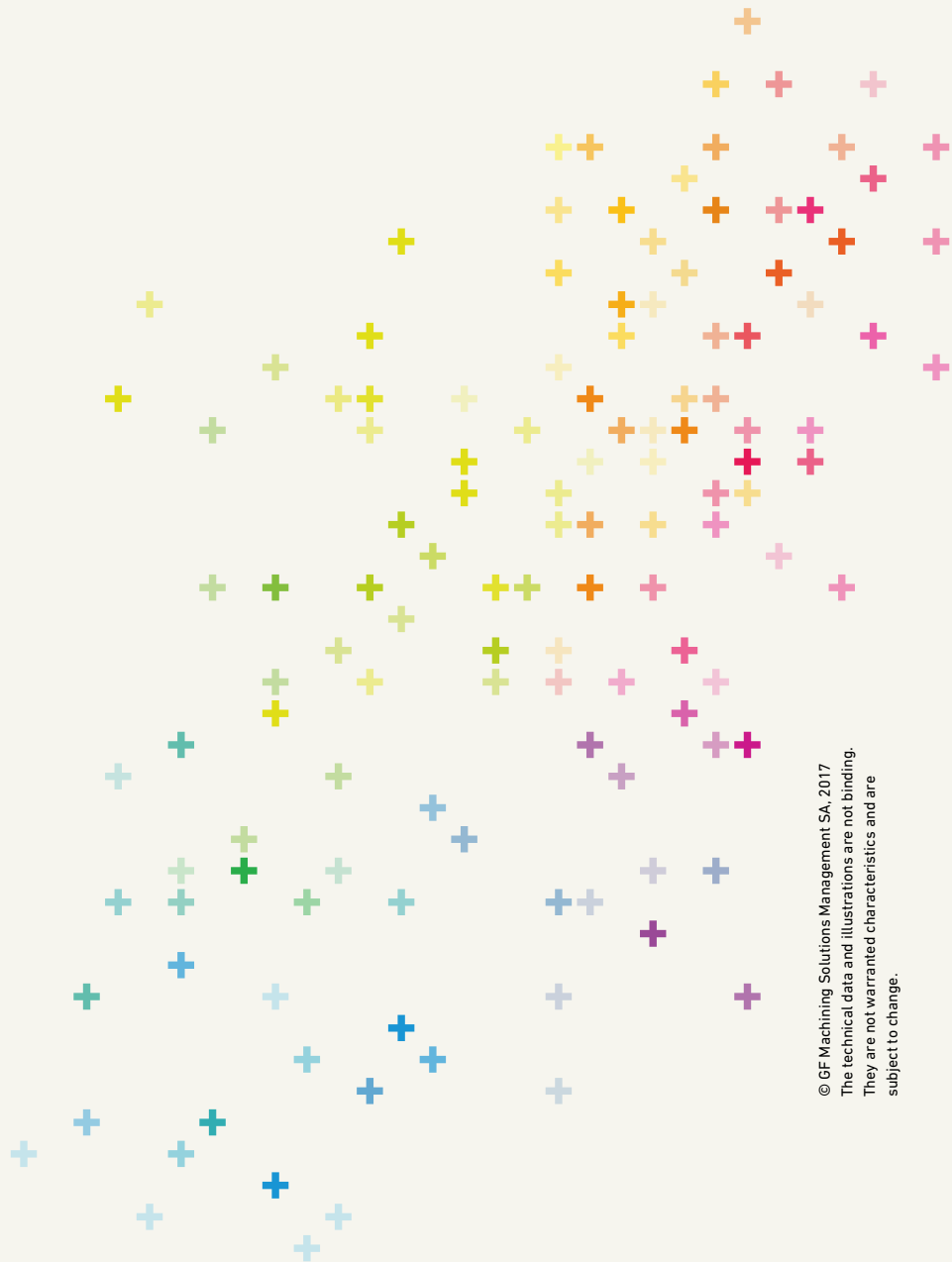
To help you get the most and the best from your machine tools and equipment, we offer three levels of support. Operations Support covers our range of original wear parts and certified consumables (EDM wires, filters, resins, electrodes etc.) to ensure that your machines are performing at the highest levels. Machine Support maximizes, through our best-in-class technical support, preventive services and quality spare parts, your machine tool uptime. Business Support is designed to help you make a real step-change in your productivity and performance with solutions tailored to your specific needs.



At a glance

We enable our customers to run their businesses efficiently and effectively by offering innovative Milling, EDM, Laser, Additive Manufacturing, Spindle, Tooling and Automation solutions. A comprehensive package of Customer Services completes our proposition.

www.gfms.com



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