

Preventive services

Expert solutions
to increase your uptime



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GF Machining Solutions Customer Services is uniquely positioned to help you maximize the availability, value, precision and productivity of your GF Machining Solutions Milling, EDM, and Laser machines. Our cost-effective, customer-centric and expert preventive services put your success at the center to ramp up your productivity and ensure predictably uninterrupted uptime. We offer additional services with the rConnect modular digital service (e.g Live Remote Assistance) and our dedicated services packages. Please visit www.gfms.com for further information.

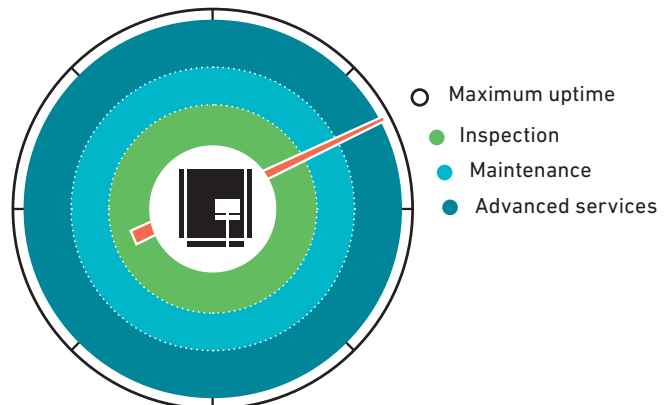
Industry research shows that regular preventive services can help you avoid 70 percent of machine downtime. GF Machining Solutions Customer Services has the experience, expertise and global network to help maintain your industrial equipment in productive and precise condition, and to take your operation to the next level.

Our expertise positions you as a reliable partner to your customers.



Our keen insight into your production environment:

- Ensures productivity
- Reduces running costs and wasted parts
- Maximizes the return on your machine investment
- Increases traceability
- Extends the useful lifetime of your machines in optimal precision condition



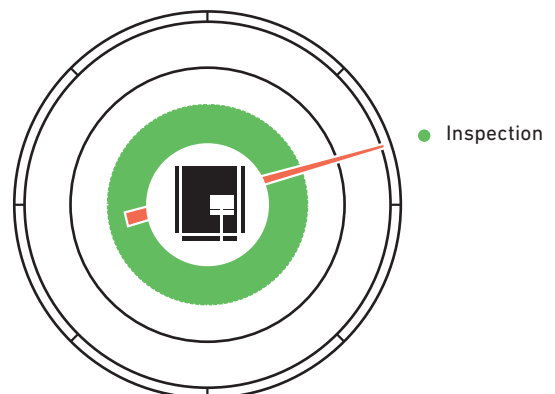
Inspection

To analyse the current condition of your machines

Your partners at GF Machining Solutions Customer Services know that excellence is based on facts, not approximations. That's why our success-triggering recommendations are based on thorough on-site inspections by highly trained, expert service engineers. After a precise analysis of the current condition of your equipment at your site, you will receive a detailed report with recommendations and necessary corrective actions that need to be taken in order to recover or optimize productivity. This service can be done at any time throughout the life of your machine.



Inspection at any time



Maintenance program

To minimize maintenance costs and optimize productivity

Our qualified service experts will visit you on a regular basis to examine and adjust your equipment and, when necessary, exchange maintenance parts.

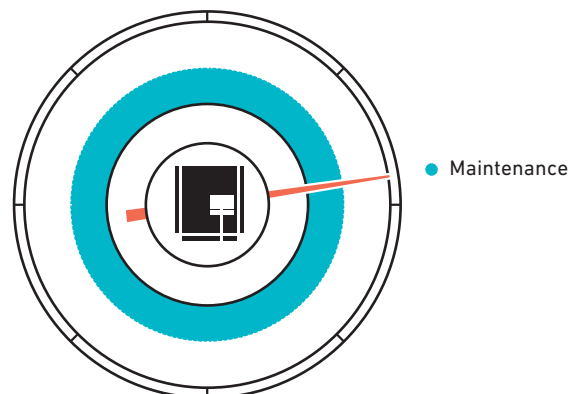
Regular maintenance is the first step to ensuring the full productivity potential of your GF Machining Solutions machine fleet. Armed with detailed, customer-centric checklists, we use state-of-the-art measurement tools to painstakingly inspect and adjust your machines.

Many years of maintenance experience for Milling, EDM and Laser machines are consolidated in our checklists. Every visit ends with a machining test in order to confirm the successful and satisfying completion of our services.



Maintenance every 2,000 machining hours*

* For optimal functionality, reliability and precision of your equipment, we recommend maintenance every 2,000 machining hours.



Advanced services

To extend the lifetime of your machines in optimally precise condition

Customer Services offers advanced services to guarantee that your equipment performs at its original state of precision. That helps you maintain production quality and profitability at the highest levels throughout the lifetime of your machines. Our advanced services help you expertly respond to changes like installation of air conditioning, collisions, and customer requests for extremely precise production. Moreover, our advanced services support you in your certification process and entail the quality follow-up needed for certification.



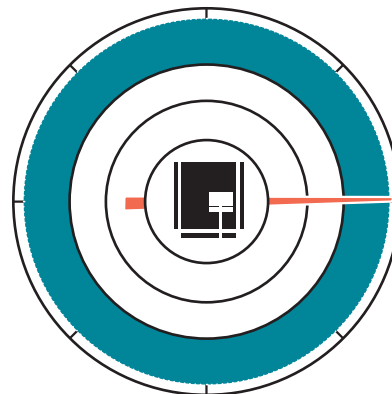
We offer several advanced services*:

- **Calibration by laser interferometer** to guarantee maximal axes accuracy
- **Geometrical control** to prevent wear on machine components
- **Circularity test with ballbar gauge** to rapidly diagnose the performance of your machine
- **Spindle services** to maximize this critical part's uptime
- **Nadcap, automotive, medical accreditation support** to facilitate your certification
- **Additional services** like thermo analysis

For more information about advanced services, please refer to our website: www.gfms.com



For original
precision



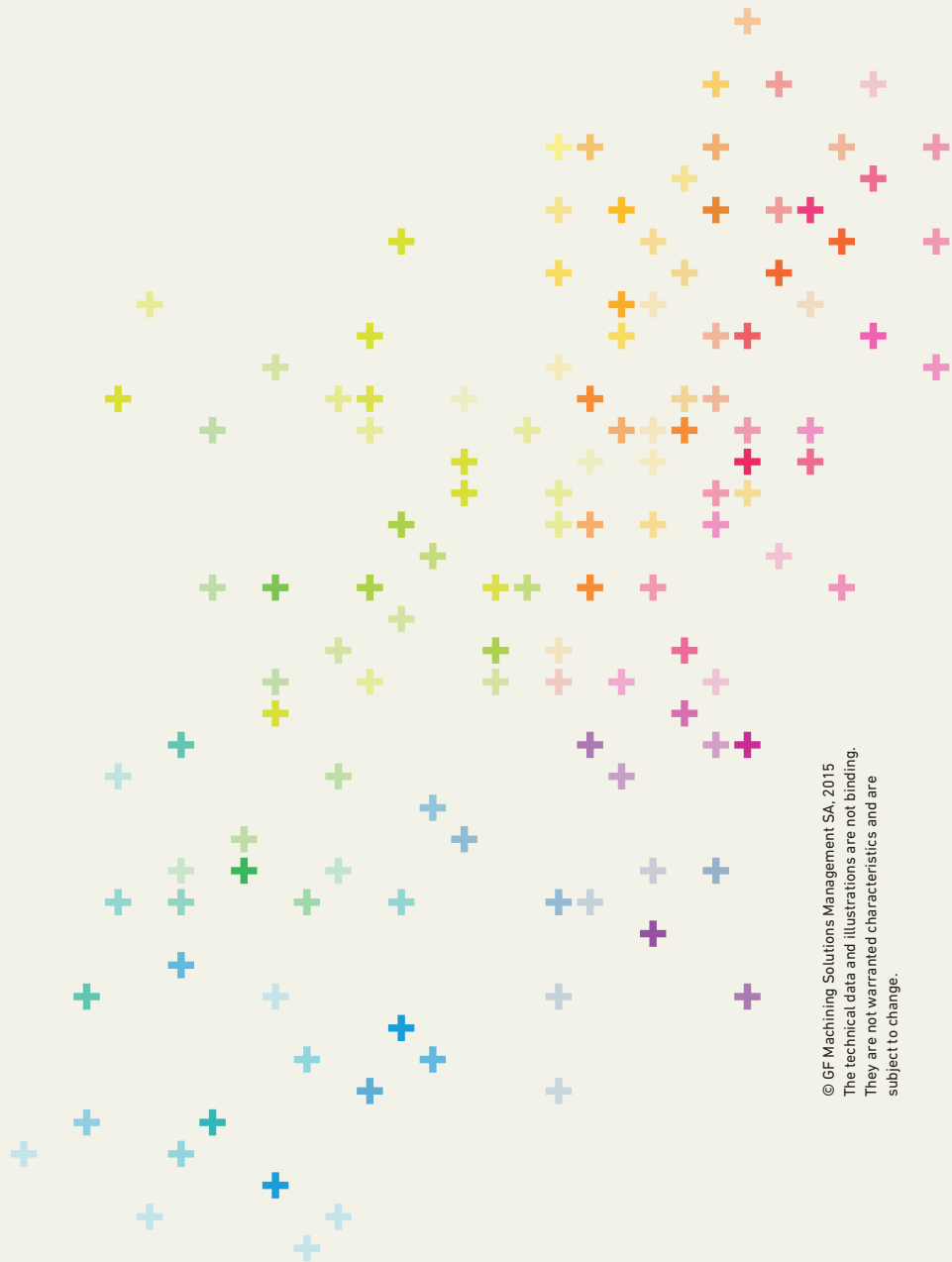
● Advanced services

* Illustrations and specifications do not necessarily apply to products and services offered in each local market.

At a glance

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

www.gfms.com



GF Machining Solutions

STEP TEC



+GF+

Switzerland

Spindle Service Solutions



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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Spindle Service Solutions

Your Spindle is one of the most important components of your Milling machine

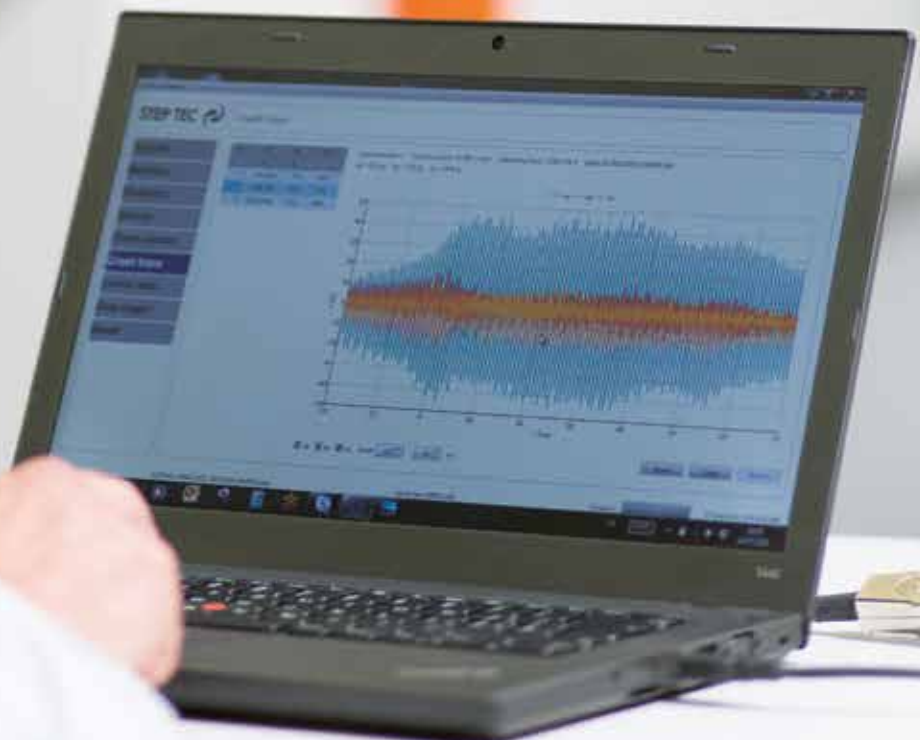
Ensure your long-term success with GF Machining Solutions' specially designed, comprehensive range of services. Through Spindle Service Solutions, you benefit from the exclusive combined expertise of GF Machining Solutions and original Spindle manufacturer Step-Tec. We make sure that your Spindle runs according your expectations from the first to the last day of usage. We help you monitor your Spindle and take action before an unexpected breakdown. Also, we offer an extended warranty. If issues do arise, you can choose between our 24-hour exchange Spindle service or having us repair your Spindle within 10 days. It's all about you.

Preventive services for maximum machine availability

A smooth production process

This program is especially designed for you with a warranty extension and preventive solutions to minimize unplanned machine downtime. The first step is a fast and efficient diagnosis of your Spindle's condition. Thanks to our innovative Spindle Diagnosis Module (SDM), our expert service engineer analyzes your operating parameters then proposes a warranty extension and/or the preventive services to secure and optimize your production.

**Secure your production
with solutions dedicated
to your specific needs.**





Extended warranty*

Our preventive diagnostic combines precise mechanical operation such as Spindle tool holder and run-out inspection, clamping force measurement, and recording of main operating parameters like vibrations in three axes, collision history, and bearing temperature. Based on an in-depth analysis of your Spindle status, our expert service technician proposes the appropriate warranty extension or preventive measures adapted to your specific needs.

*To obtain an extension of warranty, the diagnostic must be performed before the end of the Spindle warranty. The Spindle must be equipped with our Spindle Diagnosis Module (SDM).

Your benefits

- + Fast and cost-effective diagnostic with low impact on Spindle operating time
- + Up to 5,000 additional hours of warranty coverage to protect the heart of your Milling machine against unexpected failures
- + Avoid unexpected costs
- + Benefit from the Exchange Program by receiving a replacement Spindle within 24 hours

Preventive Maintenance

Thanks to our diagnostic, we can advise you on preventive exchange of key components, such as on-site exchange of the cooling-through unit. Avoid any leakage and fluid ingress with our expert performing this preventive maintenance measure at between 3,000 and 5,000 operating hours.

Your benefits

- + Low investment compared to possible machine downtime
- + Avoid expensive Spindle damages
- + Longer Spindle life
- + Additional warranty hours after replacing the cooling-through unit

Our recommendation

Improve your performance— including speed and surface finish— and avoid unnecessary crashes and vibrations with our application training for your operators and CAD/CAM engineers.

Preventive Exchange

Act upon the first indication of failure instead of waiting for your Spindle to break down. After an in-depth analysis, our expert advises you on the likelihood of reduced Spindle performance or even catastrophic failure in the next year and works with you to facilitate the Preventive Spindle Exchange to keep you going strong.

Within two months of the diagnostic— and based on your specific schedule and availability of a replacement Spindle— we organize the replacement of your existing Spindle.

Your benefits

- + More affordable than the Spindle Exchange Program, plus you benefit from attractive conditions as we can plan availability and repair time
- + Guaranteed productivity
- + Scheduled servicing, individual date arrangement
- + Up to a 24-month or 5,000-hour Spindle warranty



Formulate the best service strategy with our support

Our Step-Tec Spindles keep you a step ahead

GF Machining Solutions' range of Spindles, solutions and services is as unique as your requirements to stay ahead of your daily challenges. Whatever your Milling, drilling, turning or grinding application, we are here to listen and serve. With more than 20 years of experience, we are focused on helping you position yourself with outstanding results, whether your demand is productivity, availability or superior quality.

That's why we have developed extremely durable products. And that's why we have developed a wide range of services like tailored training programs as well as all kinds of predictive, preventive and reactive maintenance programs.

It's all about you.

Fabrice Monti di Sopra
Step-Tec Managing Director

Marcel Vorburger
GF Machining Solutions
Head of Services and Academy



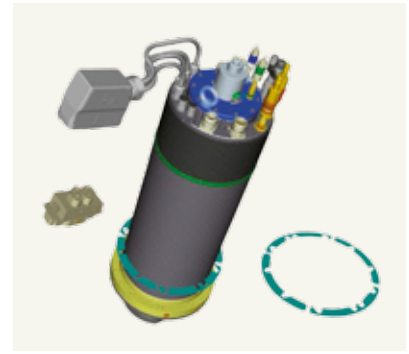
Emergency exchange services

Ensure fast replacement of your defective Spindle

The exchange service program is an efficient solution in case of unexpected Spindle breakdowns. Get the full support essential to minimizing downtime with our efficient solutions guaranteeing replacement or repair of your defective motor Spindle at a fixed price.

Get the confidence in your production that only the original manufacturer can guarantee.





Exchange Program

Exchange your defective standard motor Spindle for a completely refurbished or new Spindle at a fixed price. Our refurbished Spindles are immediately available and full warranty conditions apply.

Your benefits

- + Get your machine rapidly back on track
- + Fast Spindle delivery time within 24 hours
- + Warranty up to 24 months or 5,000 hours

Spare Spindle for you

If your machines are used intensively with recurring risk of collision or crashes due to complex mixes of production parts, we recommend keeping a new or fully refurbished Spindle in your own stock. In case of an incident, the exchange is done rapidly and the damaged Spindle is sent to our factory.

Your benefits

- + Fulfill your on-time delivery commitments despite unpredictable incidents
- + Benefit from attractive conditions based on our stock of refurbished Spindles
- + Storage warranty*: 36 months.
- + Warranty up to 24 months or 5,000 hours after commissioning

* Specific storage and environmental rules must be followed. After 36 months, the Spindle is sent to our factory for inspection. Then, an additional 36-month storage warranty is applied.

Factory Repair

Profit from the most favorable solution when the intervention can be planned. After a detailed analysis, we send you a complete report with a quote. Upon your approval, we replace all damaged parts in original quality within 10 days, and conduct a thorough six-hour test before returning your Spindle.

Your benefits

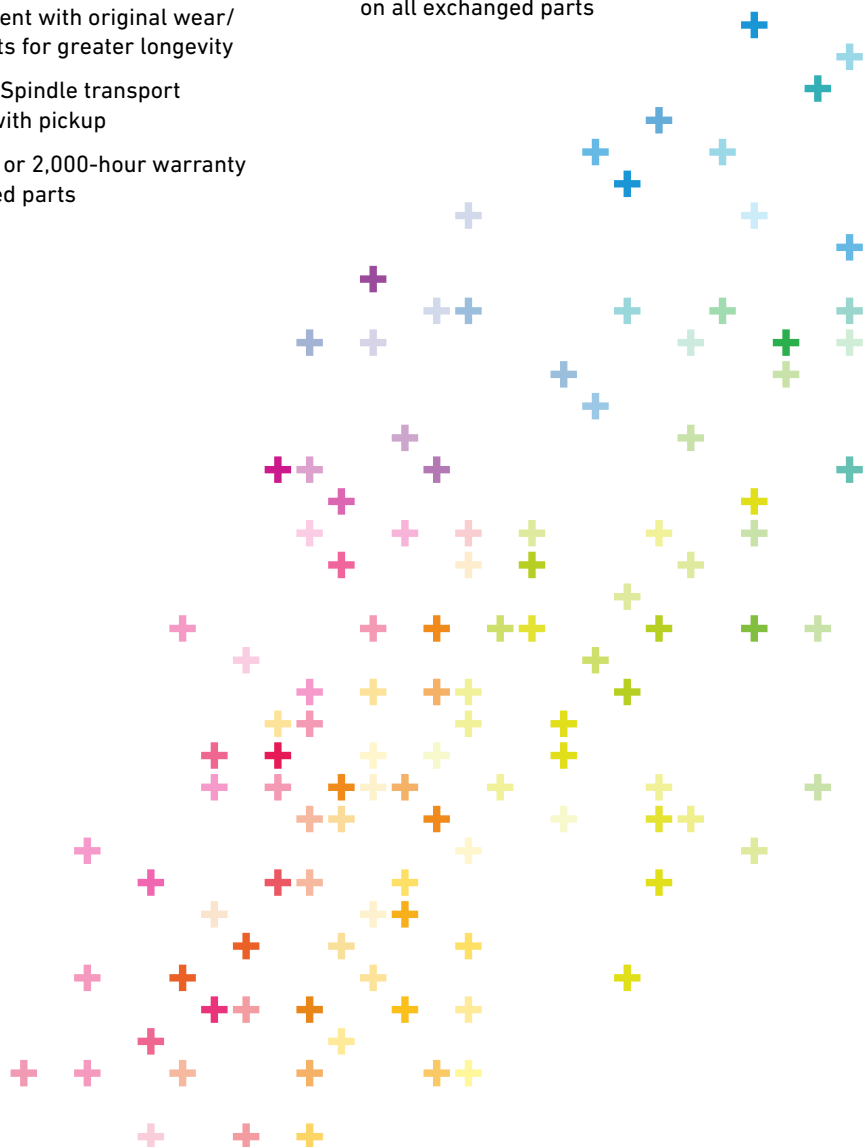
- + More affordable than a fully refurbished Spindle
- + Professional disassembly and analysis of your Spindle
- + Replacement with original wear/ spare parts for greater longevity
- + Complete Spindle transport logistics with pickup
- + 12-month or 2,000-hour warranty on repaired parts

On-site Repair

The best solution for peripheral defects, ensuring the highest uptime of your equipment at a cost-effective price. Repair of parts with minor damage, such as the clamping set and electrical connection, is carried out by our experienced service engineers. Full warranty conditions apply on all exchanged and repaired parts.

Your benefits

- + Repair with little impact on your operator's time
- + Full warranty conditions apply on all exchanged parts



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

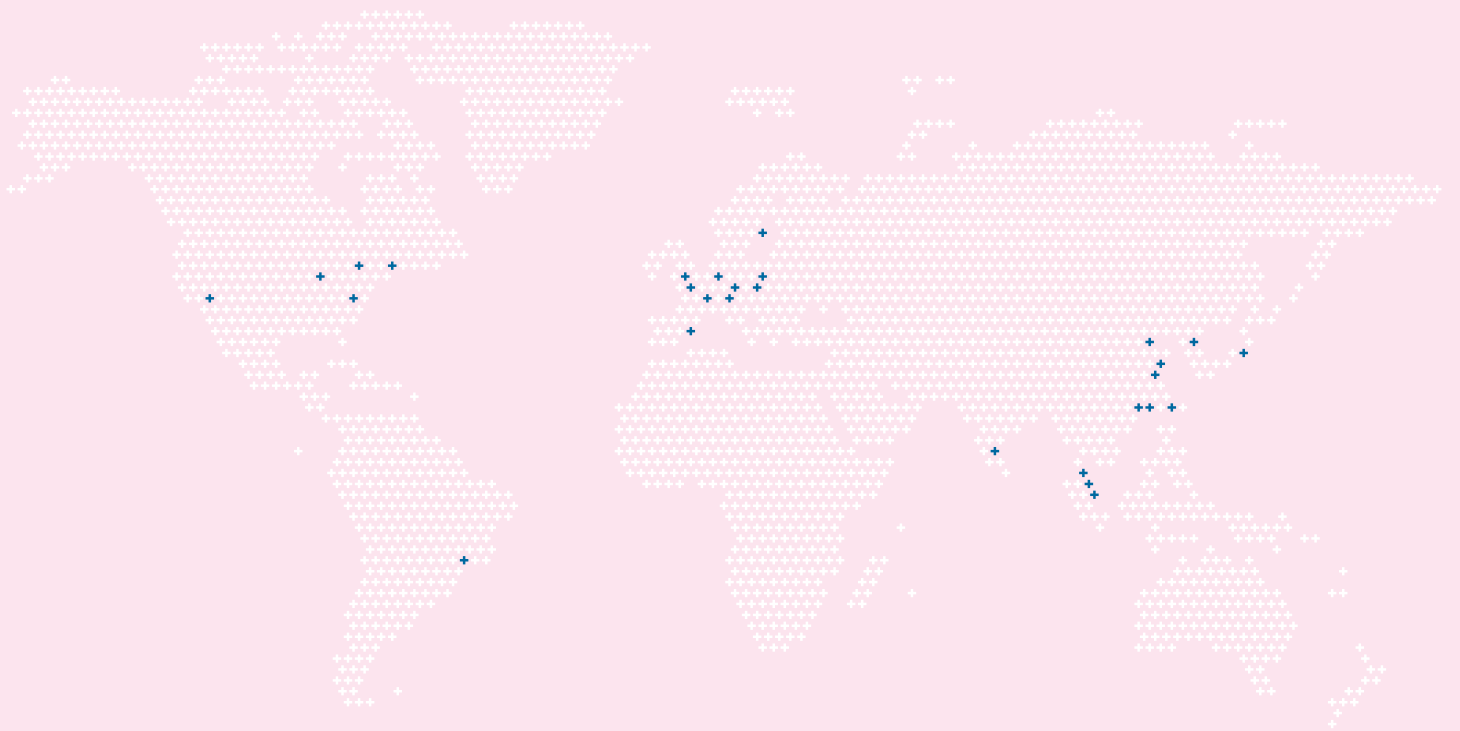
At the heart of every GF Mikron machining center is high-performance Step-Tec Spindle. Step-Tec Spindles are essential core components of our machining centers. Highly accurate and thermally stable Step-Tec Spindles ensure that our machines can handle everything from heavy-duty roughing to fine-finishing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



Customer Services

Operations Support, Machine Support and Business Support

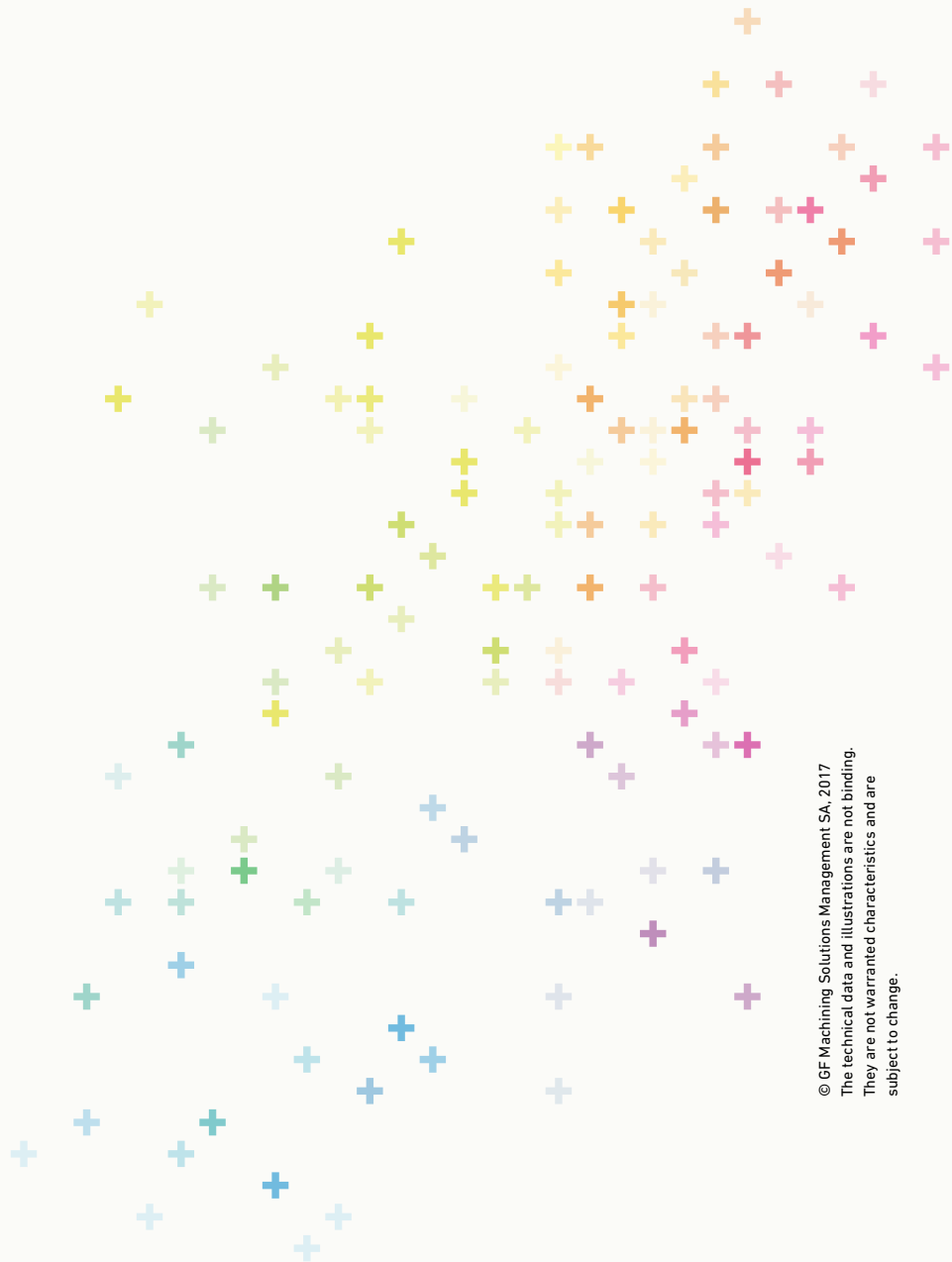
To help you get the most and the best from your machine tools and equipment, we offer three levels of support. Operations Support covers our range of original wear parts and certified consumables (EDM wires, filters, resins, electrodes etc.) to ensure that your machines are performing at the highest 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.

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