

EXPERT SOLUTIONS

IN HIGH-PRECISION MANUFACTURING

Georg Fischer (GF) is an international industrial corporation with its headquarters in Schaffhausen, Switzerland. With its three divisions GF Piping Systems, GF Casting Solutions and GF Machining Solutions, GF offers products and solutions that enable the safe transport of liquids and gases, as well as lightweight casting components and high-precision manufacturing technologies. As a sustainability and innovation leader, GF strives to achieve profitable growth while offering superior value to its customers.

GF Machining Solutions is one of the world's leading providers of complete solutions to the tool and mold making industry and to manufacturers of precision components. The portfolio includes milling as well as wire-cutting and die-sinking EDM machines. Moreover, the division offers spindles, laser texturing, laser micromachining, additive manufacturing, tooling and automation, as well as digitalisation solutions.

GF Machining Solutions is present in more than 50 countries with its own sales companies, production plants and Centers of Competence. Its key customer segments are the Aerospace, Information and Communication Technology (ICT), Electronic Components, Medical, and Automotive industries. Each of these industries face their own specific challenges, which can be addressed with GF Machining Solutions' technologies.

Answers to today's challenges and trends

GF Machining Solutions' expertise in vertical 5-axis CNC dynamic milling enables customers to continuously machine complex molds and parts with different materials while shortening the process time. Throughout the entire machine range, GF Machining Solutions offers integrated smart automation to ramp up productivity.

GF Machining Solutions' wire-cutting EDM process is fast, precise and increasingly energy efficient. From ultraprecise machining of miniaturised components down to 0.02 mm to powerful solutions for demanding high-

GF Machining Solutions' wire-cutting EDM process is fast, precise and increasingly energy efficient.



speed machining with respect to surface accuracy, these solutions position customers for success.

The company's unique range of laser texturing machines can meet the specific needs of customers in terms of laser texturing, laser-blasting, laser engraving, and laser etching. For the smaller high-precision parts, GF Machining Solutions offers the most complete line of laser micromachining machines in the industry.

GF Machining Solutions and 3D Systems, a leading global provider of AM solutions and the pioneer of 3D printing, have partnered to introduce new metal 3D printing solutions.

The serial production of consumer goods and high-quality precision parts requires sophisticated manufacturing technologies. In addition, there is a trend toward miniaturisation. The result is a need for more precision and flexibility.

Traceable and repeatable processes for aerospace

Whether it is for crucial engine parts such as blisks or discs or aerostructure parts, GF Machining Solutions is committed to deliver long-term customer added value. For the machining of fir-tree slots on turbine disks, the company provides a turnkey high-accuracy wire-cutting EDM solution, which guarantees an uncompromised surface integrity, maximum speed and a fully traceable and repeatable process.

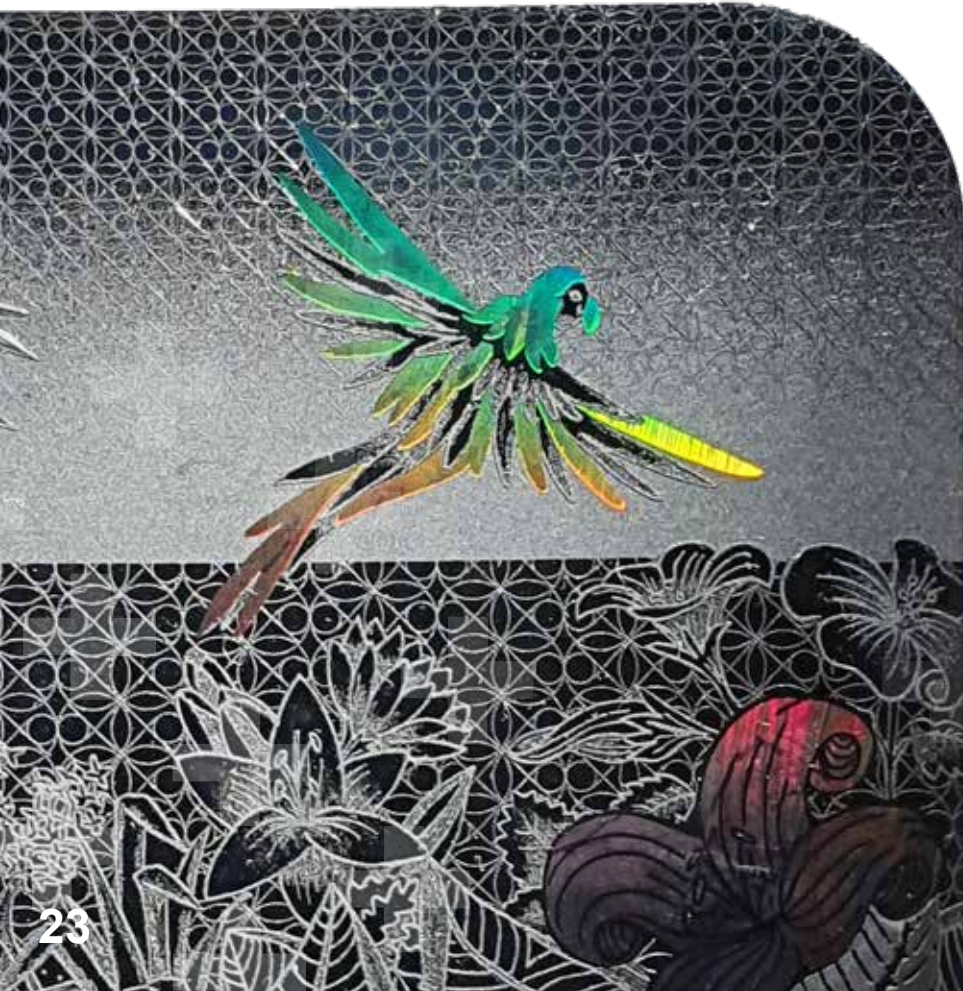
Reliable solutions for medical device manufacturing

Medical manufacturing has a shared set of challenges – from specific material choices, tools and consumables to manufacturing data tracking and compliance with ISO13485. GF Machining Solutions enables manufacturers to create products that provide unique value for patients, reduce their manufacturing risk, improve their efficiency, and set them apart from the competition.

Spinal fusion plates, for example, present many challenges for manufacturers. Made of titanium, they often have complex curved surfaces that require both high-precision and absolutely smooth surfaces. GF Machining Solutions can provide a fully automated turnkey cell including milling, wire-cutting EDM and laser texturing that guarantees high product quality, efficient 24/7 production and can generate a log file of all key production data. The complete system can be monitored using the rConnect software and hardware package.

In order to be closer to the customer, GF Machining Solutions has opened several Centers of Competence around the world, such as the Medical Solutions Center of Competence in Schorndorf (Germany). In creating the Medical Solutions Center, GF Machining Solutions is ensuring that a team of highly trained professionals with medical manufacturing experience works together in meeting these needs. Not only are the machines for additive manufacturing, laser machining, high-speed milling, wire-cutting and die-sinking EDM on site, but also the software and the people who speak the language of the medical industry.

The company's unique range of laser texturing machines can meet the specific needs of customers in terms of laser texturing, laser-blasting, laser engraving, and laser etching.





innovation provides the means for the realisation of consumer design trends and the ability to machine a variety of tool steels to facilitate the injection of new material. Through simultaneous 5-axis, high-speed precision milling technology, GF Machining Solutions offers a way to produce injection molding inserts with a very high contour accuracy and surface quality, eradicating the need for environmentally harsh and labour-intensive post-processing.

Trends driving the automotive industry forward

Automotive OEMs facing short product life cycles push the need to reach the market faster. Key trends include the stringent regulations to reach safety, emission and mileage norms, combined with advanced mobility moving from self-driving to autonomous driving. This makes the advancement of realising functional features in the interior and exterior modules necessary. Sustainability is a common goal for automotive OEMs, and supply chains are expected to reach the European Union's "Green Norms". To address these needs, GF Machining Solutions has created a sustainability logo, which will help manufacturers identify the sustainable qualities of the machines.

The combination of GF Machining Solutions' competences makes it a suitable partner for companies working in different industries. In collaboration, they are able to find the right solutions for specific customers.

Author:

E.A. de Hoog

Future Solutions,

GF Machining Solutions International

Dedicated expertise in electronic components and ICT

In the dynamic environment of electronic components and ICT manufacturing, manufacturers encounter several technical and business challenges. Accuracy is key when producing connectors, optical applications, applications for mobile devices, semiconductors and battery and power systems.

For example, to create a multi-cavity thermoforming mold, GF Machining Solutions provides a comprehensive die-sinking EDM solution. The cavity, offering extreme flatness and perfect 3DS - VDI surface, enhances demolding, increases productivity and reduces scrap. In combination with high-speed precision electrode milling, this solution provides complete control over quality, cost and productivity.

Sustainable packaging solutions

In the context of the ongoing debate about plastics packaging and sustainability, the role of mold makers and machine tool providers and their responsibility are evolving. The challenge consists of adapting product design and production to new materials and changed consumer behaviour. The product packaging process has evolved from a segmented approach to fully automated modular lines where products like milk and their exterior packaging in plastic or cardboard are processed simultaneously to consistently produce shipment-ready products.

GF Machining Solutions supports mold makers for plastic injection through its technologies and innovation, so they can achieve the desired manufacturing, while fulfilling their financial and social responsibilities. Technology