Outstanding progress in medical technology

Georg Fischer's leadership is based on innovative products and know-how

Ever more astonishing achievements in medical technology are making headlines – both in the trade media and in the general-interest press. Thanks primarily to the fast pace of research and high-quality manufacturing technology, applications have now become possible that seemed unimaginable only a short time ago. Georg Fischer, with its innovative products and expertise, is an important player in the rapidly growing field of medical technology.

Medical technology is wide-ranging and involves a great many products that enhance public health and make daily life easier for users. The public is interested primarily in the products and applications that are especially research- and technology-driven. "In this area, we are a major presence due to our role as a manufacturer of high-speed and high-performance milling centres," explains Ralf Löttgen, Head of New Technologies and Applications at Mikron Agie Charmilles AG, which is part of the Georg Fischer Group. The company concentrates on three areas: implants, instruments, and appliances.

Three fields of application

Implants involve such devices as splints and plates for support when repairing broken bones in the arm, skull or jaw and devices for spinal fusion. Other types of implants are artificial knee and hip joints (based on forgings or machined from bar stock on Mikron machines) and dental implants such as teeth, bridges and dentures. The instrument category includes surgical saws, scalpels, bone rasps, automatic syringes and extracting forceps for dental applications. In the equipment area, applications include computer tomography and devices for corneal surgery such as LASIK eye lasers for correcting vision problems. Though wide-ranging and varied, medical technology is based on a common denominator in the three fields just mentioned, and this common denominator is manufacturing technology. All of these medical products are produced using ultramodern five-axis milling machines. One-time set-up allows greater accuracy since form and position tolerance are not affected by repeated set-up changes. Another advantage lies in the markedly higher productivity that is achieved by reducing throughput time by half and requiring fewer operators.

Five-axis machines boost market dynamics

The five-axis high-speed milling centres have opened up new applications for milling. This relatively new technology has only been utilized efficiently in industry since 2001. Because of outstanding technical performance features, these five-axis machines are helping Mikron Agie Charmilles to grow more rapidly than the market. What are the most important success factors? It was recognized early on that automation is the key to the economical machining of complex parts, and programs were implemented accordingly. Mikron Agie Charmilles also realized the considerable potential that dynamic five-axis machining has for the manufacture of complex forms, tools and production parts. By combining these two features, we can achieve great benefits – for tool, die and mould making, in general, and for production in industrialized countries with high wage costs, in particular. The tool and mould-making industry has broken new ground in productivity and quality, and these efficient, flexible production systems mean lower procurement costs. Mikron's HSM Centres of Excellence, which are located around the globe, also contribute to market success. They demonstrate in concrete terms the many advantages of high-speed machines – in a number of different fields, especially medical technology.

The bottom line

Optimally designed for industry

"The MEDARTIS® Group was founded in 1997 by Dr. Thomas Straumann, who was returning to the field of osteosynthesis to specialize in the areas of oral, maxillary and facial surgery. MEDARTIS® continued to develop metallurgical processes and now has extensive expertise relating to the fabrication of high-quality titanium implants. Production at the new plant in Bretzwil (near Basel, Switzerland) was expanded in 2005. There are already two Mikron five-axis automated milling centres in operation in the Bretzwil plant, and two more will be delivered this year. Mikron's machine concept is optimally designed to meet the requirements of our industry. Other advantages are the close reliable collaboration with Mikron and Mikron's efficient customer service."

Peter Weisskopf, Head Business Unit Operations MEDARTIS® AG, Basel

Mikron Agie Charmilles

Innovative tool-making

Mikron, part of AgieCharmilles GF, focuses on the development and manufacture of 3, 4 and 5-axis high-speed and high-performance machining centres. The product offering spans the entire range from milling machines for standard machining to high-performance milling (HPM) machines right up to the ultimate top-class ultra high speed milling machines.

HSM Centres of Excellence

Close to customers – worldwide

Professional advice

Mikron Agie Charmilles operates HSM Competence Centres from Nidau to North America, and from São Paolo to Shanghai. In these centres, customers receive professional advice about high-speed milling (HSM) and are thoroughly informed about optimal integration of HSM technology into the process chain. The centres offer seminars, general training programs and individual advisory consultations.

Reasonable and flexible

The use of HSM in the manufacturing process is generally a design issue. There are convincing reasons for it: high productivity, work piece accuracy, automation, process reliability, attractive price-performance ratio and excellent suitability of HSM technology for fabricating complex three-dimensional parts. Another plus involves rapid retooling and a high degree of flexibility.

«Adding quality to people's lives»

Higher quality of life, lower costs

Implants as durable …

Mikron Agie Charmilles, with its high-speed and high-performance milling centres, is a major presence in the industry, especially in the area of implants. The goal is to make implants as durable as possible. This is accomplished by incorporating new developments such as special biocompatible materials and coatings, new materials that have lower wear, fewer premature failures and require fewer surgical procedures, and also new processes.

… and low-cost as possible

Surgical procedures should be as brief, low-cost, safe and pain-free as possible. Temporary devices are often no longer necessary. Shorter procedures also contribute to better treatment and better quality of life.

Contact: Bettina Schmidt, Head of Corporate Branding, Georg Fischer AG, 8201 Schaffhausen/Switzerland,
Phone +41 (0)52 631 26 98, Fax +41 (0)52 631 28 63, E-Mail: bettina.schmidt@georgfischer.com