

Partner of the medical industry –
expertise unites!

BÖLLHOFF

Böllhoff: **Your medical engineering expert** for fastening technology



Editorial

Medical engineering is one of the most promising industries in the industrialised countries. Characterised by innovative technologies, this industry contributes to an improved healthcare world-wide.

Medical devices do not only save lives and improve quality of life thanks to innovative products. Due to the ever growing cost pressure, hospitals and doctor's surgeries tend to use more new technologies to promote their increase in productivity. This situation – combined with the fast development of healthcare systems in the emerging countries – has a considerable influence on the development of demands. Often, the technology is highly sensitive which is why production requirements are accordingly high.

As a leading system supplier for fastening and assembly technology and as an international service provider, Böllhoff is a recognised partner to manufacturers of medical technology and their suppliers. Be it screws, rivets, clinches or C-parts management – Böllhoff stands for innovative and reliable solutions.

Read the following pages and be inspired.

Fascination

Dynamism

Innovation



Your value-added chain



Global competition in the medical industry results in high costs and innovation pressure. Therefore, it is innovative ability and technical potential that are the basis for medical technology manufacturers' and suppliers' chances of success. The acceleration of technical progress as well as the satisfaction of customer needs lead to an ever advancing technologisation and to a growing variety of versions.

Moreover, on the supplier side, there is an increasing focus on intercompany cooperation in forms of strategic partnerships aiming at an improved competence in the fields of development, production and logistics.



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Diversity as routine

As a full-range and system supplier, Böllhoff offers products and services for every part of the medical supply chain. Customer orientation starts with research and development.

With its C-parts management, Böllhoff delivers products and fasteners to the heart of the production process. There, customised equipment and machines designed according to the Böllhoff portfolio, ensure high efficiency. Optimised processes avoid downstream costs.

Our partnerships are based on an uncompromisingly high quality standard and a corporate culture imbued with the spirit of a family business.



Research and development



Many companies in the medical sector make half of their turnover with products which are less than two years old. The share of research and development in the production value is often twice the total value of industrial products.

Production and in particular development costs are a decisive factor for the introduction of new medical products. Optimised fastening and assembly processes reduce those costs and are the key to realising modern products for the medical industry.



The ECOTECH service (Economic Technical Engineering) allows manufacturers and suppliers of medical technology to benefit from technical advice from Böllhoff engineers. Their industrial know-how and advice covers all areas of fastening technology, corrosion protection and screw-locking. The simultaneous standardisation and optimisation of fasteners in the development stage

simplifies assembly and reduces tool costs. In view of an ever faster technological development and increased competitive pressure, this service is a crucial advantage in the medical industry.

RANGE OF SERVICES ECOTECH

- Standardisation of fasteners
- Optimisation of assortments
- Construction and design of fasteners
- Construction and supply of customer-specific special articles
- Application engineering tests in certified laboratory

THE SOLUTION ECOTECH

- Problem definition on site
- Concept for fastening solution
- Production of prototypes or use of existing fasteners
- Suitability check by evaluation of mechanical and physical values
- Testing under consideration of practical requirements

- Summary of results in a report
- Project-related realisation

Customer benefits at a glance

- Awareness of future trends
- Innovation management thanks to in-house research and development
- Development partnerships with companies and research institutes
- Application engineering
- In-house prototype construction and testing grounds
- In-house certified testing laboratory according to DIN EN ISO/IEC 17025
- Up-to-date CAE technology





Your modules – our products

Thread strength?

HELICOIL® thread inserts for thread reinforcement in lightweight materials

- High-strength wear-free thread
- Corrosion and temperature resistant
- High dynamic load capacity

Thin-walled components?

RIVKLE® solution for fastening a load-bearing nut or bolt thread to a thin-walled workpiece

- Load-bearing thread
- "Blind" assembly
- Tightness, e. g. due to seal below the head

Thread in plastics?

AMTEC® metallic inserts for thread reinforcement for plastic components

- Shorter injection cycles
- Low-stress tight-fit
- No relaxation

Vibrations and noise?

SNAPLOC® and RIVKLE® elastic fasteners and fixing systems for absorbing vibration and noise transfer

- Fast and easy assembly
- Reduction of parts
- Adaptability due to adjustable parameters

Easy opening and closing?

QUICKLOC® quarter-turn pressure locks for quick and repeatedly detachable joints

- Clamp, rotation and pressure locks
- Maintenance-free, vibration-resistant and captive
- Fast assembly

Fastening without fastener?

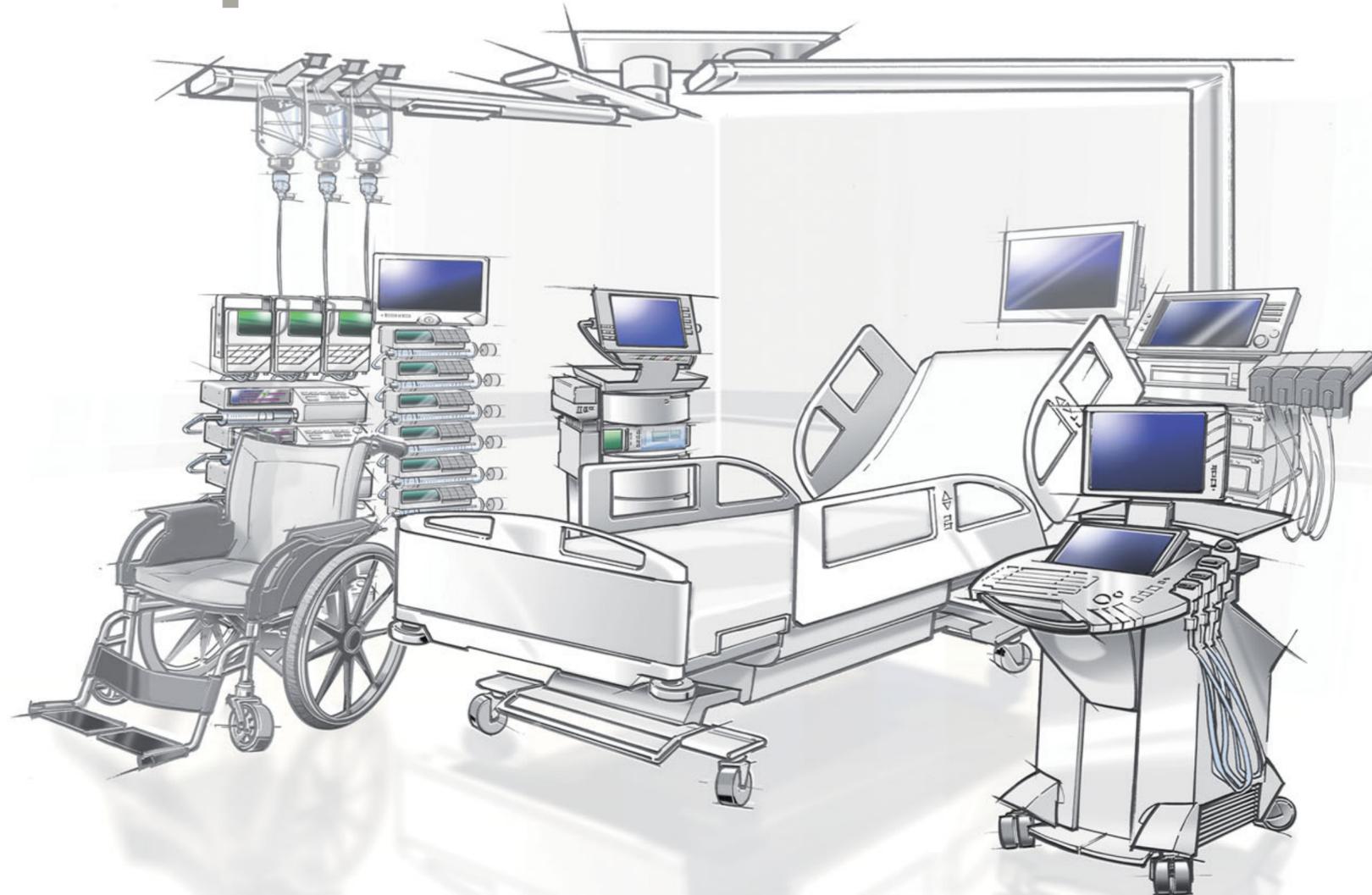
RIVCLINCH® form-fittingly and non-positively joining sheets and profiles by cold-working

- Without additional fastener
- No surface damage to coated workpieces
- Repetitive

Screw-fastening: hand-held or stationary?

UNIQUICK® screw fastening units and hand-held screwdrivers ensure maximum precision during assembly

- Feeding and screw-fastening without loss of performance
- For deep screw points
- Open interface to adapt pneumatic and electrical drives



Special screws for special applications?

Screws specially tailored to the medical industry

- DIN and standard screws as well as special screws with most diverse drives and head shapes
- Thread-forming direct screw-fittings

The perfect nut for every application?

Versatile nuts for versatile fasteners

- Nuts with plastic rings or metal lock rings
- Plate nuts, cap nuts, retaining nuts, etc.
- Nut-and-washer assemblies

Technology and diversity, all about bolts?

Customer-specific or standardised bolts

- Most diverse surfaces, materials and geometries
- Individual shape, size and type
- Head bolts, spacer bolts, threaded bolts, etc.

Washers and discs for every application?

Height compensation and underlay with standardised and innovative components

- Contact, spring and insulating washers
- RIPP LOCK® lock washers
- Customised washers and discs

Small screws for demanding challenges?

Screws with various coatings and materials

- Miniscrews and microscrews made of steel, titanium, GRP, plastic, brass, etc.
- Demagnetised screws

Setscrews for special requirements?

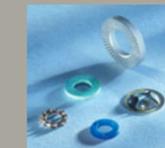
Setscrews and studs of all types

- With hexagon socket or slot as driving feature
- Chamfered end, tip, tang, cup point, etc.
- Many different sizes and surfaces

More than just fasteners?

One-stop-shop for all C-parts to reduce number of suppliers and bundle competence

- Fixtures, clamps, saddles, clips, etc.
- Ball, sealing rings, bushings, springs, etc.



Purchasing and logistics



Customer benefits at a glance

- Optimised internal processes
- Reduced number of suppliers
- Re-assignment of planning, scheduling and procurement
- Reduced administrative effort
- Reduced stock, storage area and capital commitment
- 100 % readiness to deliver
- Standardised and optimised C-parts

Innovative ability and flexibility are two of the biggest challenges for the medical industry. Due to rising healthcare costs and the resulting pressure for rationalisation and a simultaneously increasing demand worldwide, the market is subject to heavy fluctuations and high competitive pressure. This requires an optimisation of material and of information flow. C-parts management systems simplify processes, minimise stocks, avoid supply shortages and reduce costs.

An uninterrupted supply to assembly and maintenance lines must of course be provided for. Even one missing or faulty fastener can result in a production standstill.

Under the name of ECOSIT® (Economic Supply in Time) Böllhoff has established a supply and stocking system – for added efficiency and cost effectiveness. Böllhoff manages the entire supply chain for its customers: material, planning, buying, quality assurance, storage and the internal distribution of goods, right through to the production and maintenance area.

ECOSIT® supports sustainable reliable and simplified processes in the medical industry – by reducing the number of suppliers and ensuring 100 % supply capability.



Case studies

SIRONA DENTAL SYSTEMS

With the ECOSIT® procurement system, Böllhoff regularly supplies the numerous unloading points in the customer's production with most different DIN parts, parts as per drawing, fastening technologies of our own production as well as with other C-parts. In practice, the customers' process costs were considerably reduced.

B. BRAUN MELSUNGEN

The Böllhoff supply system at B. Braun is provided with "SmartBin® technology". The items to be stored and managed are filled into containers and boxes at the customer's premises. Each of these boxes is placed on electronic scales which serve as a weight detector. Every day, Böllhoff checks their weight online and thus ascertains the current on-site stock at B. Braun. As soon as the

calculated stock in a box drops below the defined replacement limit, the items are automatically ordered and supplied. With SmartBin®, B. Braun has reduced storage area, storage costs as well as procurement costs and moreover benefits from the multiple evaluation options.



Production and assembly



An ever increasing proportion of the added value of a medical product is produced by suppliers. The complexity of medical engineering today requires cross-company cooperation. New business models will considerably change the cooperation within this industry. Modern electronic media are becoming increasingly important for the coordination of tasks based on the division of labour.



Customer benefits at a glance

- Reduced production and assembly times
- Profound knowledge of the medical industry
- Recognised production planning know-how
- High level of development expertise
- Wide product range
- Customer-specific solutions



Böllhoff's flexibility and innovative strength is reflected in its wide range of fastening and assembly products for the production and modernisation of the medical industry: screws, nuts, thread inserts, quick-release fasteners, rivets, standard and custom-made parts in all required dimensions and materials. All fasteners and their processing systems are carefully

coordinated. Production and modernisation processes can also be optimised with Böllhoff's innovative screw and joining systems.

Case study

FRESENIUS MEDICAL CARE

On the premises of Fresenius Medical Care in Schweinfurt, Germany, Böllhoff has conducted a technology forum presenting services, products and systems relevant for Fresenius. At the beginning of the event, Fresenius employees gathered information relating to the current situation of the fastening and assembly technology at technical lectures which had been tailored to the

participants' needs. They thus gained new impulses as well as approaches to their projects. After the technical lectures, live presentations were held. At those presentations, participants were made more familiar with the diverse Böllhoff services, products and systems and moreover benefited from discussions of different solutions with Böllhoff experts. During their partnership, with the ECOTECH service, Böllhoff has

already realised several projects of application engineering in cooperation with Fresenius. Special tapping screws are for example used in different components of the devices to reduce the number of different parts as well as assembly times and costs at the same time increasing process reliability.

Quality and internationalism



Customer benefits at a glance

- Certified quality management according to ISO/TS 16949:2002
- Certified environment management according to DIN EN ISO 14001
- In-house certified testing laboratory according to DIN EN ISO/IEC 17025
- Successful cooperation with leading manufacturers of medical technology
- Cross-national presence

The Böllhoff quality management is certified according to ISO/TS 16949:2002. This means a strict orientation towards the zero-defect philosophy: Continuous improvement is a constant process.

Apart from that, for more than 130 years, the Böllhoff Group has proven to be a flexible and fast-working independent family business. This independence will also in the future be the pacemaker for the further development of the company. Experiences create trust. Values create connections – Joining together!

Böllhoff is one of the leading international service providers of fastening and assembly technology. The headquarters of this family business, with four generations of history, is located in Bielefeld, Germany. Böllhoff is a worldwide operating company with over 2000 employees and a network of companies and representatives on every continent.



Michael W. Böllhoff

Wilhelm A. Böllhoff

MEDICAL INDUSTRY WORLDWIDE

Globally active manufacturers of optical, mechatronic and medical technologies have international success with innovative products. The continually growing export ratio of up to 60 percent shows the great importance of foreign trade for manufacturers and suppliers of medical technology. Above all, there are the medium enterprises which

open future markets through commitment across borders and use the chances of a globalised world. However, to be able to have worldwide success, all available resources on this planet must be used efficiently. With Böllhoff as a partner, numerous international production facilities of manufacturers and suppliers of medical technology are optimally

supplied with a comprehensive range of products and services – worldwide!



Böllhoff International with companies in:



Argentina
Austria
Brazil
Canada
China
Czech Republic
France
Germany
Hungary
India
Italy
Japan
Mexico
Poland
Romania
Russia
Slovakia
Spain
Turkey
United Kingdom
USA

Apart from these 21 countries, Böllhoff supports its international customers in other important industrial markets in close partnership with agents and dealers.

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