



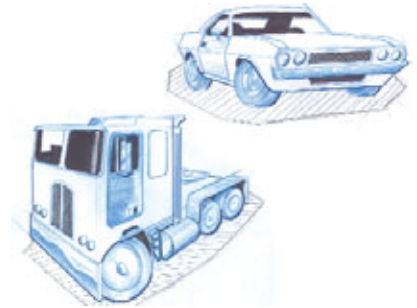
## **Böllhoff – a competent partner for innovative industries**

Thanks to decades of experience, the Böllhoff Group has gained valuable expertise in the various fields of fastening technology. And we are always committed to meeting the needs of our customers. The variety of those needs is what inspires us to develop new solutions and concepts in fastening technology.

### **Automotive Industry**

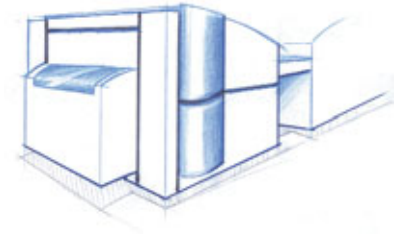
As a long-time partner of the automotive industry, we are renowned for our product reliability. We do not compromise when it comes to quality and we fulfil the highest standard in the automotive industry with ISO/TS 16949:2002 certification.

With branches and production sites in 19 countries, we are present in all the major markets of the future.



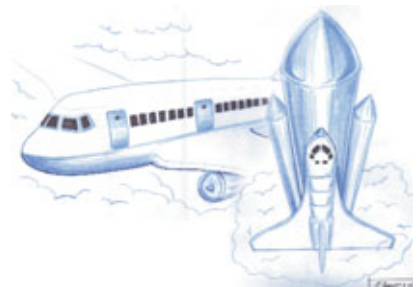
### **General Industry**

Our wide range of products enables us to be a partner for various sectors in industry. A pillar of our company is thread reinforcement in thick-walled weaker metals or plastic components, e.g. in mechanical engineering or in the plastics industry. Further more, the joining of thin-walled metal components in sheet metal forming industries using blind rivet technology, is part of our core business, as well as developing sophisticated fastening solutions for medical and electrical engineering.



### **Aerospace Industry**

Böllhoff is a licensed supplier for the aerospace industry and complies with those necessary requirements of quality management systems according to EN 9100. Historically, during the first landing on the moon in 1969, our product HELICOIL® was present in the lunar module "Eagle". Today, HELICOIL® threaded inserts comply with all aerospace standards and are regularly used in aircraft construction. Other Böllhoff products such as blind rivet nuts have been successfully used in the airline industry for years.



### **Telecommunications/IT**

Mobile telecommunication has had an incredible track record over the last decade. Böllhoff was a part of this success, in particular providing extremely small threaded brass inserts to reinforce pilot threads in the cover of mobile phones. The increasingly flat construction of mobile phones favours the use of threaded inserts instead of direct screwed joints.



## Fastening and Assembly Technology Division

In addition to our Fastener Service Supply and Systems Technology divisions, from our Fastening and Assembly Technology division, we offer solutions for metal materials as well for plastics in the fields of blind rivet technology, thread technology and plastic and quick-release technology. Above all we gladly adapt to your individual requirements.

### Our Fasteners



### Processing

Beyond the fastening element we also provide the accompanying machines and systems used for processing. Our range covers from hand-held units to process controlled, robot operated processing systems for state-of-the-art line production. Our coordinated fasteners and processing units ensure optimum production processing for you.



## Blind rivet technology

Blind rivet technology is always the answer when it comes to connecting thin-walled components and simultaneously creating threads. That means, for example, that processing is also possible with single side access to the component - so-called "blind" processing.

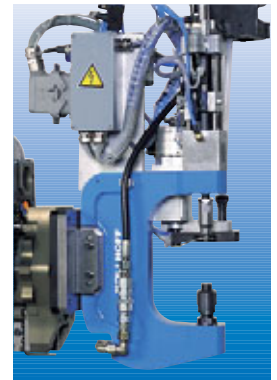
### RIVKLE® blind rivet nuts and studs

For internal and external threads on components with minimal thickness not allowing for a cut thread, Böllhoff offers RIVKLE® blind rivet nuts and studs. "Blind" assembly means that they can also be used with hollow sections. The particular advantage over other types of fasteners with internal threads is that the time expended on setting is minimal and processing costs are low due to the small number of tools used. Böllhoff offers a wide range of standard products as well as many customer-specific special products.



### RIVKLE® processing

Böllhoff offers processing tools for any application: from simple hand pliers for individual fixtures to mechanical hand-operated tools for medium and large scale production right down to fully automated processing. Since the tools are developed and produced in-house, they can be adapted to customer requirements.



### RIVQUICK® blind rivets

For connecting thin-walled components, Böllhoff offers a cost-efficient solution in RIVQUICK® blind rivets. In addition to the standard blind rivets, varigrip multi-application blind rivets, featuring a particularly large clamping range, are also available. That guarantees a tight, vibration-free fit even with great bore tolerances. In addition, we also offer a large variety of special products, developed in-house. It goes without saying that Böllhoff also supplies the appropriate manual and mechanical setting tools.



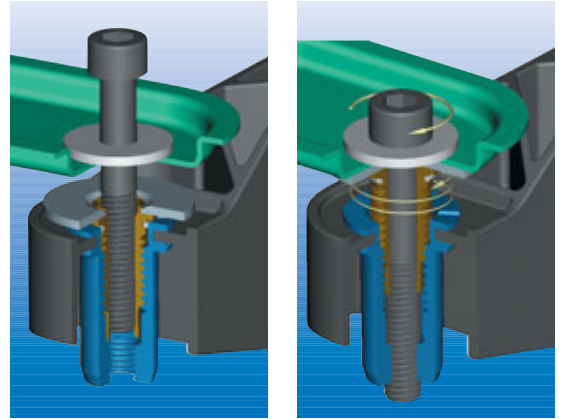
## Tolerance compensation: Deformation-free component assembly for production-specific tolerances

Manufacturers and customers alike attach great importance to reliable functions and top quality appearance, which calls for economic assembly solutions with tolerance compensation.

### FLEXITOL® tolerance compensation systems

Economic production requires individual components to have tolerances that will add up when assembled together. Not enough added tolerance makes assembly more expensive and too much added tolerance leads to the warping of components when screwing together. FLEXITOL® can be used to compensate automatically or manually for production-specific added tolerances. This system helps to prevent the components to be assembled from warping or deforming.

FLEXITOL® tolerance compensation elements are suitable for various assembly situations and materials. The product can be used in the automobile and furniture industry, casing technology, as well as facade and railcar construction.



## Reliable sealing nut/bolt connections

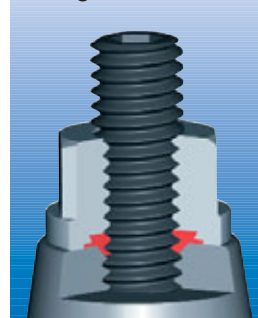
Sealing nut/bolt connections in the thread and below the nut support plate normally requires considerable effort such as mechanical processing of the support plate surface, sealing glue or other sealing elements.

### SEAL LOCK® sealing nuts and screws

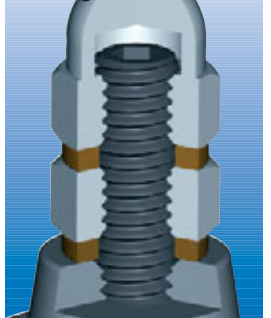
SEAL LOCK® sealing nuts and screws represent one-piece construction elements for demanding design engineers, sealing in the thread as well as sealing under the head against liquids and gases under high pressure. And this property is guaranteed, even after loosening and tightening several times. With a SEAL LOCK® nut, five time repeat fastenings are possible without problems.



With SEAL LOCK®  
sealing nut



Without SEAL LOCK®  
sealing nut



## Thread technology for metals

Thread technology creates connections with a high load-bearing capacity in metallic materials. The products have been on the market for decades.

### HELICOIL® thread inserts

Modern constructions made of lightweight materials require highly durable threads in a minimal amount of space.

With the HELICOIL® plus and HELICOIL® Tangless thread inserts, Böllhoff offers you an outstanding solution for the production of extremely high strength threads in metals with minimal shearing resistance and requiring minimum space. HELICOIL® thread inserts feature high resistance to wear and tear, low thread friction in narrow tolerances, high surface quality and resistance to both corrosion and temperature. In addition to thread reinforcement, HELICOIL® SCREWLOCK® inserts enable screw connections with integrated captive effect. Another important function performed by the HELICOIL® thread insert is the repair of worn, destroyed threads. They can be used in the machine and machine line manufacturing industries, the automotive industry, electrical and medical technology and the aerospace industry.



### HELICOIL® nuts

HELICOIL® nuts are the fusion of nut bodies with HELICOIL® SCREWLOCK® thread inserts resulting in high-performance lock nuts. This combination boasts properties such as high load capacity and high resistance to both corrosion and temperature. That means that HELICOIL® nuts make demanding screw to nut connections possible, connections not possible with other solutions on the market. Typical applications include screwed joints in exhaust systems, brakes for railed vehicles and gas heating appliances.



### KOBSERT® thread inserts

Our solution for creating vibration-proof and torsion-proof nut threads in metal materials with low shearing resistance is the KOBSERT® thread insert. It can be used in components made of aluminium and magnesium alloys. Due to the large outer diameter of the KOBSERT®, high-strength screw joints are possible, even with minimal screw-in depth. The KOBSERT® is mechanically anchored into the component without additional locking pins, locking washers or chemical adhesive or sealing compound. Unlike other insert systems, no radial tension is created in the components. KOBSERT® thread inserts with sealing ring are designed for joints impervious to gas and liquid.



## Thread technology for plastics

Böllhoff's thread technology range goes well beyond thread inserts for metals. We also offer a corresponding range of products for plastics components which are being developed for increasing uses.

### AMTEC® thread inserts

AMTEC® thread inserts were designed for installation following deformation of plastic components. This eliminates manual insertion of inserts for moulding – in processes, steps that would make the manufacturing process of plastic components much more involved and less safe. This means that AMTEC® thread inserts are a cost-effective, high quality solution. We offer thread inserts for various embedding processes: warm embedding, ultrasonic welding, self-tapping screw-in and expansion anchoring. We can also develop special fasteners for moulding – in on request.



### AMTEC® miniaturisation

In order to meet the needs of the telecommunications and IT industries, Böllhoff has developed fasteners in very small sizes. AMTEC® thread inserts are frequently used for thread reinforcement in mobile telephones. The result is that shorter screws may be used, enabling a flatter, more compact construction. The use of thread inserts as opposed to direct screwing also enables significantly thinner walls, thus avoiding sink marks. SNAPLOC® mini fasteners make snap connections possible. A further advantage is screw retention. AMTEC® thread inserts can also be used in the field of medical technology, for example.



### AMTEC® processing

There are many ways to install AMTEC® thread inserts. Depending on the type of plastic and the application geometry used, the following processes are possible: warm embedding, warm embedding using electromagnetic resistance welding, ultrasonic insertion and friction welding.



## Plastic and quick-release technology

In its leading market position in fastening and assembly technology, Böllhoff recognised the increasing importance of plastic many years ago and has since been expertly developing fastening components out of plastic and plastic/metal for almost all industries. We strive to consistently gear our activities towards the requirements of the market. Therefore we have divided our range of products into four areas:

### High-precision technical parts of mould and assembly groups

#### TEPRO®

Customer-specific, future-oriented solutions. As a development partner we cooperate closely with our customers. Our services range from consultation on technical applications to rapid development of concepts to the manufacture of prototypes and tool construction right down to the production of parts ready for production.

TEPRO® also means the assembly of individual parts to system components. Assembly using machines has the advantage of being a reliable and quick solution which, on the whole - even in terms of cost factors - represents a real alternative to manual processes. The realisation of complex assemblies represents a logical step towards comprehensive customer service.



### Vibration and noise decoupling fasteners

#### SNAPLOC®

SNAPLOC® is a further development in the area of decoupling connectors.

The quick and easy handling of the two-part system will immediately win you over. Thanks to the optimal geometry and the special selection of materials for the coupling (TPE), vibrations are absorbed and noises thus damped.

But that's not all. SNAPLOC® also opens up undreamt of design possibilities.

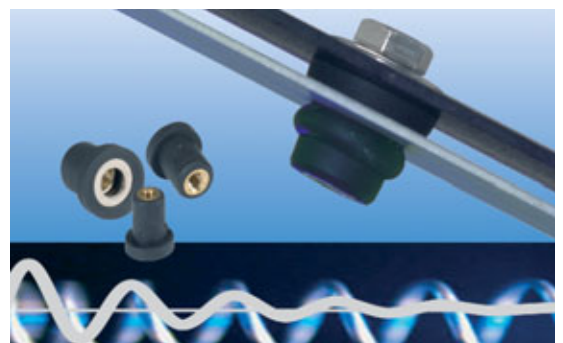


#### RIVKLE® Elastic

RIVKLE® Elastic is the innovative solution for fastening load-bearing thread bodies to thin-walled components with additional vibration and noise damping effects.

It consists of a metal sleeve, usually with a metric thread, and a casing made of elastomer or thermo-plastic elastomer.

This type of fastening is a reversible rivet joint.



## ***Screws and screw systems as fastening solutions made of plastic or plastic/metal combinations***

### **UNITEC® K' in K'**

Screwing together plastic components using plastic screws and inserts largely depends on the mechanical demands placed on the non-positive and positive joints. The material pairing of component and screw/insert is of key importance.

The UNITEC® K' in K' screw connection principle uses specially developed thread profiles to create customised solutions for non-positive and positive fasteners that are self-locking, self-tapping, self-moulding, adjustable and that can compensate tolerance.

In addition to the plastic in plastic screw and insert versions, solutions for thinner sheets and plastic plates are also often required. The plastic in plastic systems were developed specifically for such applications.



### **MEPLAG®**

MEPLAG® metal screws with plastic head or plastic nuts with metal threads offer the rigidity of metal threads with the design and functional advantages of plastic.

Plastic efficiently opens up a wide variety of design possibilities, customised in form and colour to the customer's needs taking into account the end product to be fastened.



## ***Quick-release fastener systems made of plastic, metal or plastic/metal combinations***

### **QUICKLOC®**

QUICKLOC® quick-release fastener systems are the ideal fastening solution for a wide variety of applications and requirements, e.g. maintenance openings, casings and covers.

Böllhoff uses clamping, rotating and pressure locks as well as complex locking systems to ensure low costs for repairs and assembly thanks to extremely convenient maintenance and handling.

Using quick-release fasteners decreases times for opening and closing. Requirements such as vibration safety, sound absorption and electrical isolation can also be fulfilled.



## Everything from the one source – take advantage of our expertise

### Application technology

In an environment where requirements are in a constant state of change, we stand by our customers with expert advice in the field of fastening technology. If nothing in our wide range of products meets your application needs, we bring in the expertise of our development department to work together with you to find an innovative solution.

Regardless of the material, production method and surface treatment, Böllhoff offers you a suitable alternative for any constructive possibility.



### Laboratory

Both mechanical and physical tests as well as chemical material analyses take place in our own accredited laboratory, certified according to DIN EN ISO EIC 17025:2000 since 1999. The customer then also receives a summary of results and a conclusion.



### Quality management

Superior product quality whilst protecting resources as much as possible is a matter of course for us. After all, precision is our business. We can carry out a quick and precise 100% check of our products using state-of-the-art camera technology.



### Certifications

As a provider of fasteners, we have adapted our internal processes to perfectly match our customers' needs. We have already received numerous awards for our quality management. An example is the ISO/TS 16949:2002 certification, the world's highest standard in the automobile industry.



## Böllhoff around the world

Customer proximity calls for global presence. We are a leading international company in the field of fastening and assembly technology and have business relations all over the world. A network consisting of 26 companies with locations in 19 countries and representatives on 5 continents gives us access to all of the major markets. Our competency, experience and expertise make us a reliable local partner.



## Other Böllhoff divisions

### Fasteners Service Supply

The comprehensive service range for logistics, technology and IT:

ECOSIT®: **Economic Supply In Time**

Customer-specific purchasing and supply systems to optimise purchasing and logistics.

ECOTECH®: **Economic Technical Support**

Technical support for special and made-to-order parts for the optimisation of existing applications and for new constructions.

ECOLINE®: **Economic Online**

Professional advice regarding customer-specific IT connections. Design and implementation of interfaces.

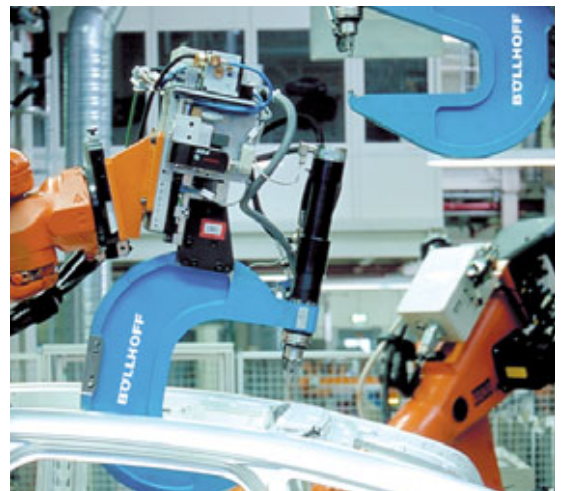


## Systems technology

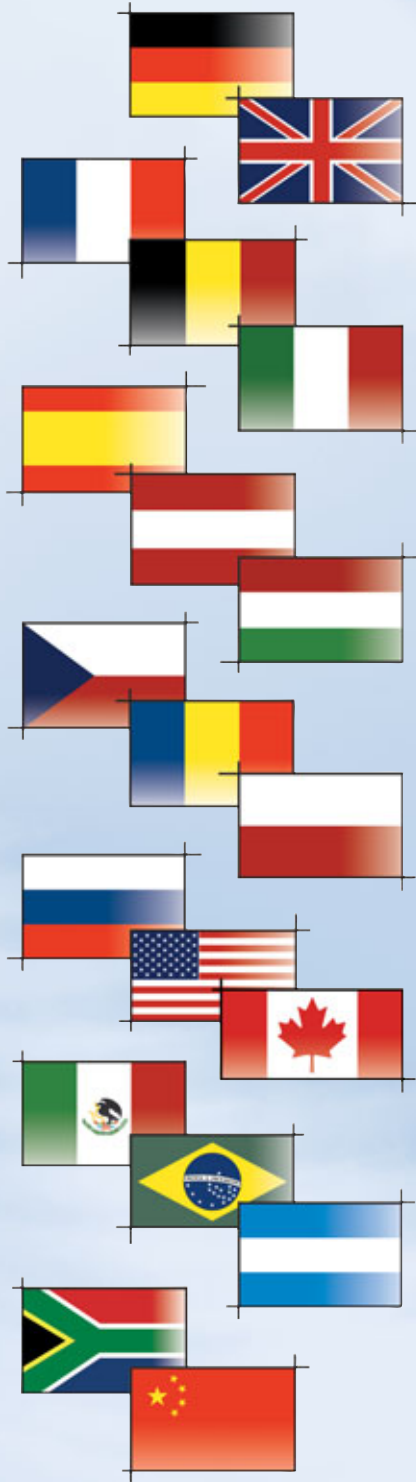
We have combined our technical assembly expertise in the areas of screws, self-piercing rivets and clinch points under the umbrella of system technology.

The area of mechanical clinching technology featuring RIVSET® self-piercing technology and RIVCLINCH® clinching technology creates application-specific solutions for joining sheets and profiles: we plan customer-specifically from handheld appliances down to systems with robot connections.

In the area of screw technology we offer tried and true quality from the handheld UNIQUICK® Fix right down to the modularly structured, stationary screw system UNIQUICK® Vario.



# Böllhoff International



## North Europe

Wilhelm Böllhoff GmbH & Co. KG, Bielefeld  
Böllhoff GmbH, Bielefeld with branches  
in Bielefeld, Braunschweig, Jettingen-Scheppach,  
Dormagen, Leipzig, Munich, Nuremberg and Stuttgart,  
Böllhoff Verbindungstechnik GmbH, Bielefeld  
Böllhoff Systemtechnik GmbH & Co. KG, Bielefeld,  
Böllhoff Schraubtechnik GmbH, Bielefeld  
Böllhoff Produktion GmbH & Co. KG, Bielefeld  
and Sonnewalde, Germany  
Bollhoff Fastenings Ltd., Birmingham, Great Britain

## South-West Europe

Bollhoff Oталu s. a., La Ravoire,  
Bollhoff Usinec s. a., Paris, France  
Bollhoff S.P.R.L., Aalst, Belgium  
Bollhoff s.r.l., Mailand, Italy  
Bollhoff s.a., Madrid, Spain

## South-East Europe

Böllhoff GmbH, Linz, Austria  
Böllhoff Kft, Székesfehérvár, Hungary  
Böllhoff s. r. o., Prag, Czech-Republic  
Böllhoff s.r.l., Bors, Romania  
Bimex-Böllhoff\*, Krzemienica and Lipno,  
Bollhoff Technika, Łączenia Sp. z o.o., Poland  
OOO Böllhoff, Velikij Novgorod, Russia

## North America

Bollhoff RIVNUT® Inc., Kendallville, Indiana, USA  
Bollhoff Inc., Ontario, Canada  
Bollhoff S.A. de C.V., Mexico City, Mexico

## South America

Bollhoff Adm. e Part. Ltda., Jundiaí,  
Bollhoff Service Center Ltda., São Paulo,  
Porto Alegre and Curitiba, Brazil  
Bollhoff S.A., Buenos Aires, Argentina

## Africa

Bollhoff (Pty) Ltd., Centurion, South Africa

## Asia

Bollhoff Fastening Ltd., Wuxi and Shanghai, China

\*Joint-Ventures

In addition to Böllhoff companies in these 19 countries, the company has a network of agents and dealers serving an international customer base on major industrial markets world-wide.

# BÖLLHOFF

Böllhoff Verbindungstechnik GmbH · Archimedesstraße 1-4 · 33649 Bielefeld · Germany  
Phone +49 (0)5 21 / 44 82-05 (3 26) · Fax - 6 58 · Internet [www.boellhoff.com](http://www.boellhoff.com) · E-Mail [ihoernlein@boellhoff.com](mailto:ihoernlein@boellhoff.com)

