

# BÖLLHOFF

Commercial vehicle industry meets 360° Joining Technology



### **Heavy loads, light solutions: The commercial vehicle industry in transition**

The commercial vehicle industry is facing major challenges. Since the invention of the first truck, the demands for efficiency, safety and environmental compatibility have increased steadily. Today, in the age of digitalisation and climate change, the industry is experiencing an unprecedented wave of innovation.

Modern commercial vehicles are high-tech rolling systems that must meet the highest standards of reliability and performance. At the same time, new powertrain technologies and autonomous driving systems are entering the market. This presents manufacturers and suppliers with complex challenges.

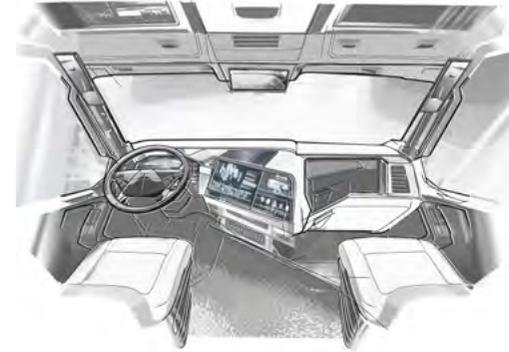
The integration of innovative materials, the reduction of emissions and the optimisation of payloads also require constant development of fastening technology. For example, lightweighting and multi-material designs require flexible and highly resilient fastening solutions.

With our 360° joining technology, we offer you tailor-made solutions for the diverse challenges of the commercial vehicle industry. Discover our innovative and reliable fastening and assembly solutions.

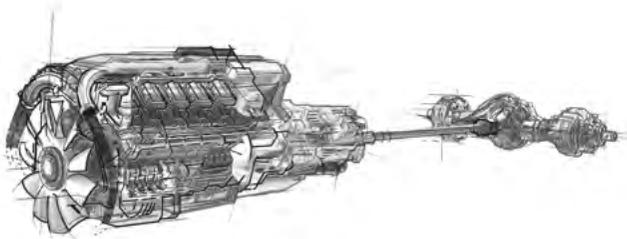




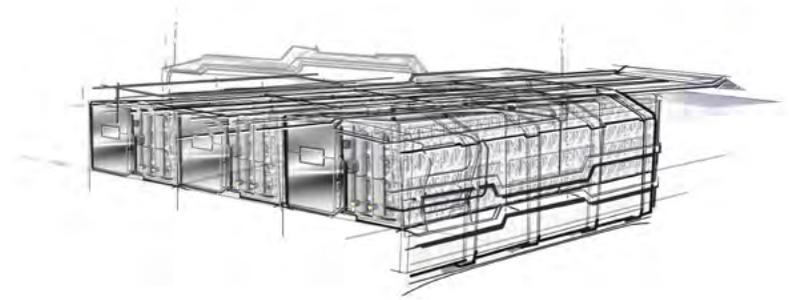
**Driver's cab exterior**



**Driver's cab interior**



**Power train**



**Battery tray**

## Your requirement: Screw locking for durable connections

- The truck cab ensures safe and comfortable vehicle operation.
- Requires various connections for seats, dashboards and electronic systems (e.g. air conditioning, infotainment).
- Connections face vibration loads from uneven roads, driving speeds, and temperature changes.

→ Efficient screw locking devices are essential to prevent connection failures and serious consequences

## Our solution:

### RIPP LOCK® Screw locking

Unscrew locks with radial ribs – the clever solution for securing screws.

The key to secure screw connections. The ribs fit tightly into the mating surface on the opposite side. This ensures a firm grip even under strong vibrations or dynamic loads.

## Your advantages:

**Securing effect:** Special radial ribs prevent loosening under extreme loads.

**Durability:** Made from corrosion- and temperature-resistant materials.

**Ease of use:** Simple, reusable, and effective with no curing time required.



## Your requirement: High-strength threads for thin materials, resistant to vibration and dynamic forces

- Gear box lever mounting requires a robust connection for stability and durability.
- Installation must be possible from one side (blind installation) due to restricted access in truck assembly areas.
- It must withstand repeated stresses from vibration and dynamic forces.

→ Blind rivet nuts provide a permanent, load-bearing threaded connection in thin-walled materials and can be installed from one side without requiring access to the rear.

## Our solution:

### RIVKLE® blind rivet nuts

Resilient threads on thin-walled components with RIVKLE® blind rivet nuts.

They are extremely easy to assemble „blind“ (without counter pressure) in metal materials, plastics, and even ceramic components.

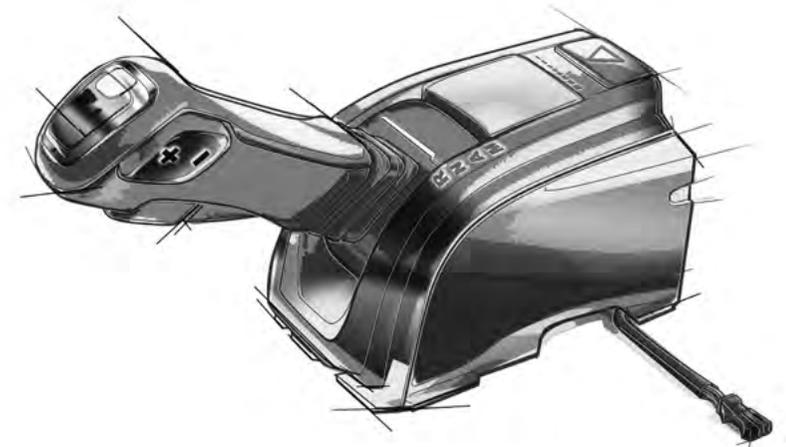
## Your advantages:

**One-side assembly:** Simple blind mounting – the solution for hollow bodies, housings, or components accessible from one side.

**Flexible application:** Usable at any production stage without reworking, even on coated or painted parts.

**No thermal stress:** Avoids heat damage, unlike weld nuts.

▶ We also supply the assembly solutions for our fasteners. Please do not hesitate to contact us for information about our complete range of processing systems for example: manual setting tools, battery-operated setting tools or fully automatic solutions.



## Your requirement: Vibration resistant connections

- Attaching the driver's seat presents assembly challenges, such as limited accessibility from one side.
- Thread cutting is time-consuming and labor-intensive.
- The load-bearing capacity of the mounting thread is often insufficient and cannot be optimised using conventional methods.
- With metric screw connections, the loosening torque poses a safety risk in the event of vibrations.

→ Self-threading screws simplify installation, improve load-bearing capacity and resist vibrations to ensure secure and efficient assembly.

## Our solution:

### B 7500: Thread-forming screws

Thread-forming screws provide an efficient solution by being screwed into pre-drilled holes in solid metal, with the hole diameter between the core and pitch diameters. Their tapered ends and lobulated shape enable thread forming, ensuring high load capacity and secure connections.

Standardised in DIN 7500, these screws come in various designs for the thread-forming zone. At Böllhoff, the B 7500 standard ensures consistent assembly parameters.

## Your advantages:

**Process optimization:** Clean, efficient assembly and reduced labour time with no tapping or chips.

**No safety elements needed:** The screw design eliminates the need for additional securing, simplifying installation and cutting costs.

**Vibration safety:** High resistance to vibrations ensures stable connections without loosening.



## Your requirement: Savings in material, installation space and weight

- The camshaft controls the valves and enables gas exchange in the cylinders.
- It is subjected to extreme loads in commercial vehicle engines.
- Reinforcements are essential due to the high dynamic forces on the camshaft.

→ Thread reinforcements enhance the stability and load capacity of the camshaft.

## Our solution:

### HELICOIL® thread inserts

Load capacity and precision at the highest stage. HELICOIL® thread inserts for strong screw joints.

Use HELICOIL® in low-strength materials like aluminum to create precise, heat-resistant, and durable threads without wear, even with frequent use.

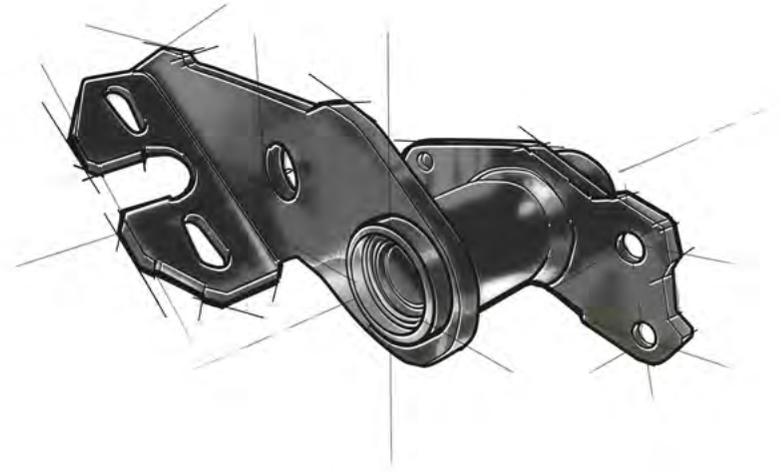
## Your advantages:

**Strength:** HELICOIL® evenly distributes load and stress, creating a stronger screw joint.

**Wear resistance:** Abrasion-resistant with high-strength threads and low friction torque.

**High-strength threads:** Ideal for materials with low shear strength, like aluminum alloys.

▶ We also supply the assembly solutions for our fasteners. Please do not hesitate to contact us for information about our complete range of processing systems for example: hand-held tools, robot-coupled hand-held tools or fully automatic solutions.



## Your requirement: Sealed boreholes for reliability and safety

- The brake booster ensures effective braking with minimum effort.
- Auxiliary holes are often drilled during production for fixing or mounting purposes.
- Air or fluid leaking from these holes can compromise the function and safety of the booster.

→ Sealing nuts prevent leaks, ensuring system reliability and safety.

## Our solution:

### SEAL LOCK® Sealing nuts

High-strength screwing and maximum sealing.

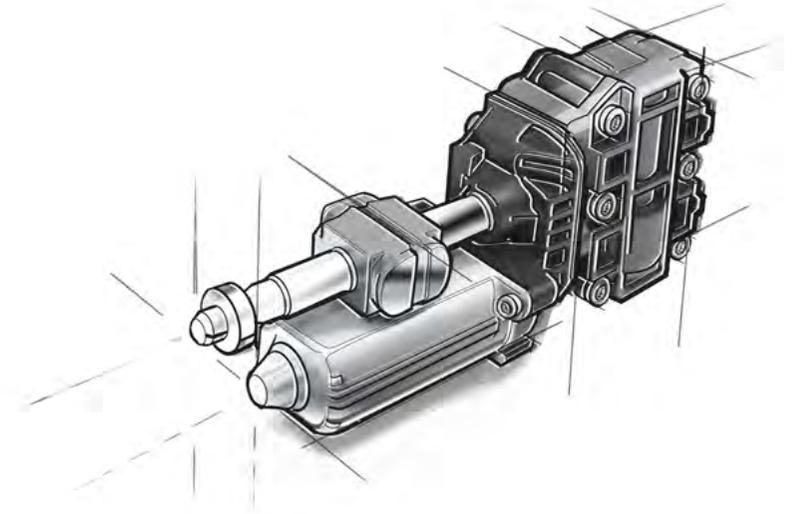
SEAL LOCK® sealing nuts provide a reliable seal against gas or liquids, even under high pressure. They seal simultaneously inside the thread and below the head. The one-piece sealing nuts can be fit quickly.

## Your advantages:

**Tightness:** Seals liquids and gases in the thread and under the head.

**High preload force:** Metal support prevents preload force loss.

**Consistency:** Resistant to temperatures from -40 °C to 110 °C.



## Your requirement: Efficient sealing solutions for auxiliary boreholes

- The exhaust system of a commercial vehicle includes various components that transport fluids, such as reducing agents.
- Optimal vaporization is crucial for achieving precise indexing and maximum performance.
- Auxiliary holes are typically needed for mounting these components during manufacturing.

→ Sealing plugs provide an efficient solution to seal these holes and prevent fluid leakage.

## Our solution:

### SEALING PLUG – blind sealing plug for drill holes

High performance at low cost: The blind plugs seal drill holes efficiently and permanently.

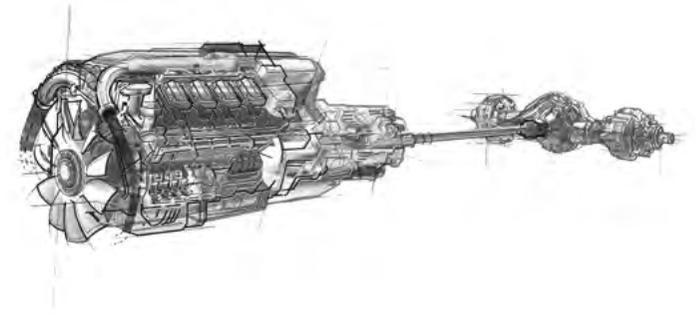
In many applications, hydraulic or gaseous media flows through channels and drill holes. The SEALING PLUG reliably closes and seals drill holes and withstands operating pressures both in the low-pressure range and high-pressure range up to 500 bar.

## Your advantages:

**Simple installation:** Fixed parameters ensure reliable and reproducible assembly, even under high pressure.

**Application-oriented:** Suitable for all applications, from manual tools to automated systems.

**Cost-efficient:** Eliminates the need for threading or additional sealants, offering an economical solution in various materials.



## Your requirement: Tightness and stability

- Stability under shocks and vibrations is essential for battery protection.
- Prevention of fluid or gas ingress is required for safety and thermal management.
- Materials must be lightweight and corrosion-resistant
- One-sided installation is needed for modular designs and tight spaces.

→ Sealed blind rivet nuts ensure a robust assembly that is sealed against the entry of all fluids and meets the requirements of the ISO 20653 standard.

## Our solution:

### RIVKLE® Seal Ring – Blind rivet nuts

They reliably join thin-walled components.

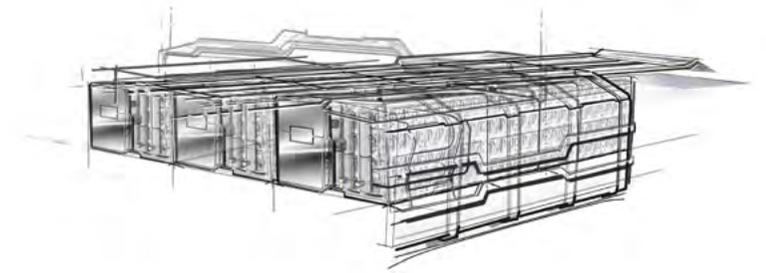
To protect your assemblies from external influences, RIVKLE® Seal Ring technology ensures a tight seal against all fluids and gases.

## Your advantages:

**Tightness:** Complies with ISO 20653, specification IPX7

**Durability:** UV-resistant and withstands temperatures up to 220°C

**Fluid resistance:** Resistant to oils, hydrocarbons, and other fluids



## Your requirement: Secure and corrosion-free connections

- Robust, vibration-resistant connections are essential for the stabilisation of battery trays.
- Corrosion resistant threads are required to withstand harsh environmental conditions.
- In the case of dynamic loads, connections must be prevented from loosening.

→ Thread inserts ensure secure, corrosion-resistant threads, providing durable and reliable connections.

## Our solution:

### HELICOIL® Smart

The HELICOIL® Smart is an innovative thread insert that enables faster assembly due to the elimination of tang breakage, which significantly reduces assembly time. It provides precise, wear-free threads with high strength and is ideal for modern production requirements.

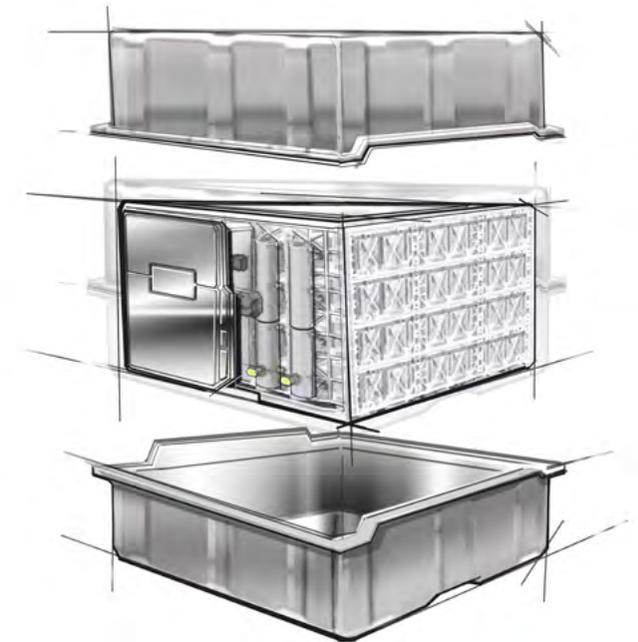
## Your advantages:

**No Tang Break-Off:** Eliminates manual tang removal, reducing risks and simplifying installation.

**Time efficiency:** Cuts installation time by 20% for faster, cost-effective assembly.

**Automation ready:** Supports automated systems for consistent, high-volume production.

▶ We also supply the assembly solutions for our fasteners. Please do not hesitate to contact us for information about our complete range of processing systems for example: hand-held tools, robot-coupled hand-held tools or fully automatic solutions.





Blind sealing plug for drill holes  
**SEALING PLUG**

Thread inserts for thread reinforcement **HELICOIL®**



Thread inserts for plastic parts – after-moulding **AMTEC®**

Thin sheet metal screw **QUICK FLOW® Plus**



Sealing nuts **SEAL LOCK®**

Bonding of functional elements **ONSERT®**



Thread inserts for in-moulding processes **IMTEC®**

Screws for plastics **AMTEC®**



Tolerance compensation systems **FLEXITOL®**



Vibration- and noise-decoupling plug-in connections **SNAPLOC®**



Vibration and noise decoupling **SITEC®**



Quick acting fastening systems **QUICKLOC®**



Customer-specific development parts and assemblies **TEPRO®**



Self-locking screws, washer and nuts **RIPP LOCK®**

Resistance element welding **WELTAC®**



Processing systems for fasteners



Joining without fastener **RIVCLINCH®**



Insert nuts **KAPTI®**



Customized drawing parts



Tamper-proof connections **PARRYPLUG®**



Blind rivet nuts and studs **RIVKLE®**



Blind rivets for high-strength, non-detachable joints **RIVQUICK®**



Self-pierce riveting technology **RIVSET®**



High-speed joining **RIVTAC®**





## Competence leader in 360° Joining Technology

– so what does this mean for you?

As a family-run company, we have been creating successful joints since 1877. Whenever you want to join components or need special development parts, we are by your side. For that, we rely on our enthusiastic team who have product specific know-how, as well as on our 360° Joining Technology which stands for a wide portfolio of joining solutions, processing systems and services.

### Innovation and development

- Modern methods, organisational forms and processes
- Trend analyses
- Research cooperations
- Open innovation
- In-house research and development
- Application engineering and consulting
- Customer-specific development parts
- Manufacture of samples and prototypes
- Value analyses

### Procurement and assembly

- Engineering competence thanks to in-house production
- 14 modern production facilities worldwide
- Production methods:
  - Injection moulding
  - Turning
  - Cold working
  - Wire winding
  - Mechanical and plant engineering
- Acceleration of your assembly processes
- Wide range of manual and automated assembly solutions

### Logistics and quality

- Supply chain solutions
- Quality management according to IATF 16949
- Quality management according to EN 9100
- Distinctive quality and environmental awareness
- Accreditation of the in-house laboratory
  - according to DIN EN ISO/IEC 17025
  - certification according to DIN EN ISO 14001
- Regular audits through customers

### Sales and services

- Efficient consulting, assistance and service
- Local expert specialists
- Proximity to customers thanks to global presence
- After-sales service
- Expert seminars, training and workshops
- Online seminars
- Customer in-house fairs
- eShop

## Catalogues

### Product catalogues



#### RIPP LOCK®

Screw locking  
Catalogue No 8210

<https://www.boellhoff.com/en/pdf/ripp-lock>



#### SEALING PLUG

Sealing plug for drill holes  
Catalogue No 8050

<https://www.boellhoff.com/en/pdf/sealing-plug>



#### SEAL LOCK®

Sealing nuts for high-strength  
screw joints  
Catalogue No 0500

<https://www.boellhoff.com/en/pdf/seal-lock>



#### RIVKLE®

Blind rivet nuts and studs  
Catalogue No 2307

<https://www.boellhoff.com/en/pdf/rivkle>



#### HELICOIL® Plus

Thread technology for high-strength  
fastenings – metric threads  
Catalogue No 0100

<https://www.boellhoff.com/en/pdf/helicoil-plus>



#### HELICOIL® Smart

The new generation of thread technology  
for high-strength joints  
Catalogue No 0155

<https://www.boellhoff.com/en/pdf/helicoil-smart>

### Product overview



#### 360° Joining Technology

Catalogue No 1190

<https://www.boellhoff.com/en/pdf/product-guide>

**Videos****Fasteners****SEALING PLUG**

Sealing plugs for drill holes

<https://www.boellhoff.com/video/sealing-plug>

**RIPP LOCK®**

Screw locking

<https://www.boellhoff.com/video/ripp-lock>

**RIVKLE® Seal Ring**

Blind rivet nuts and studs with integrated sealing solution

<https://www.boellhoff.com/videos/rivkle-seal-ring>

**RIVKLE®**

Blind rivet nuts – Riveting process

<https://www.boellhoff.com/video/rivkle-riveting-process>

**HELICOIL® Plus Free Running**

Thread inserts for metal

<https://www.boellhoff.com/video/helicoil-plus>

**HELICOIL® Smart**

Thread insert without tang breaking

<https://www.boellhoff.com/video/helicoil-smart>

**SEAL LOCK®**

Sealing nuts for high-strength screw joints

<https://www.boellhoff.com/videos/seal-lock>

# BÖLLHOFF

Passion for successful joining.

## **Böllhoff Group**

Competence leader in 360° Joining Technology

Find your local partner at [www.boellhoff.com](http://www.boellhoff.com) or contact us at [info@boellhoff.com](mailto:info@boellhoff.com).

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