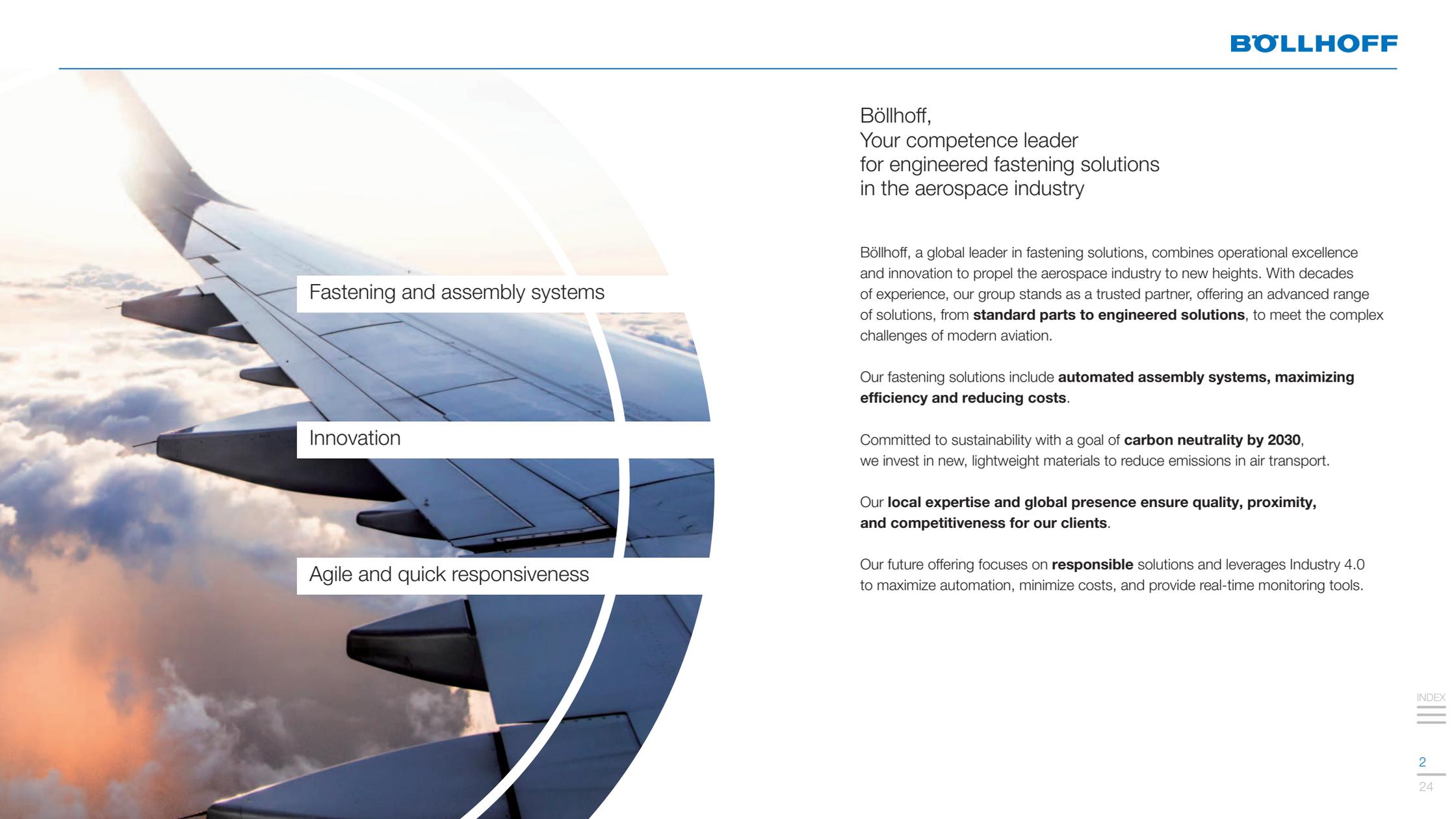


# BÖLLHOFF

**Competence leader for engineered fastening solutions in the aerospace industry**

Discover our aerospace products designed for all type of applications.





Fastening and assembly systems

Innovation

Agile and quick responsiveness

Böllhoff,  
Your competence leader  
for engineered fastening solutions  
in the aerospace industry

Böllhoff, a global leader in fastening solutions, combines operational excellence and innovation to propel the aerospace industry to new heights. With decades of experience, our group stands as a trusted partner, offering an advanced range of solutions, from **standard parts to engineered solutions**, to meet the complex challenges of modern aviation.

Our fastening solutions include **automated assembly systems, maximizing efficiency and reducing costs.**

Committed to sustainability with a goal of **carbon neutrality by 2030**, we invest in new, lightweight materials to reduce emissions in air transport.

Our **local expertise and global presence ensure quality, proximity, and competitiveness for our clients.**

Our future offering focuses on **responsible** solutions and leverages Industry 4.0 to maximize automation, minimize costs, and provide real-time monitoring tools.

Table of content

Böllhoff: the organization behind the performance. . . . . 4

Delivering operational excellence in aerospace . . . . . 5

Our response for optimal performance in aerospace environments . . . . . 6

**HELICOIL®** – Wire thread inserts. . . . . 8

**RIVKLE®** – Blind rivet nuts . . . . . 10

**SNAPLOC®** – Plug-in connections. . . . . 12

**ONSERT®** – Light-cured fasteners. . . . . 14

**AMTEC®** – Inserts for plastics. . . . . 16

    Nuts . . . . . 18

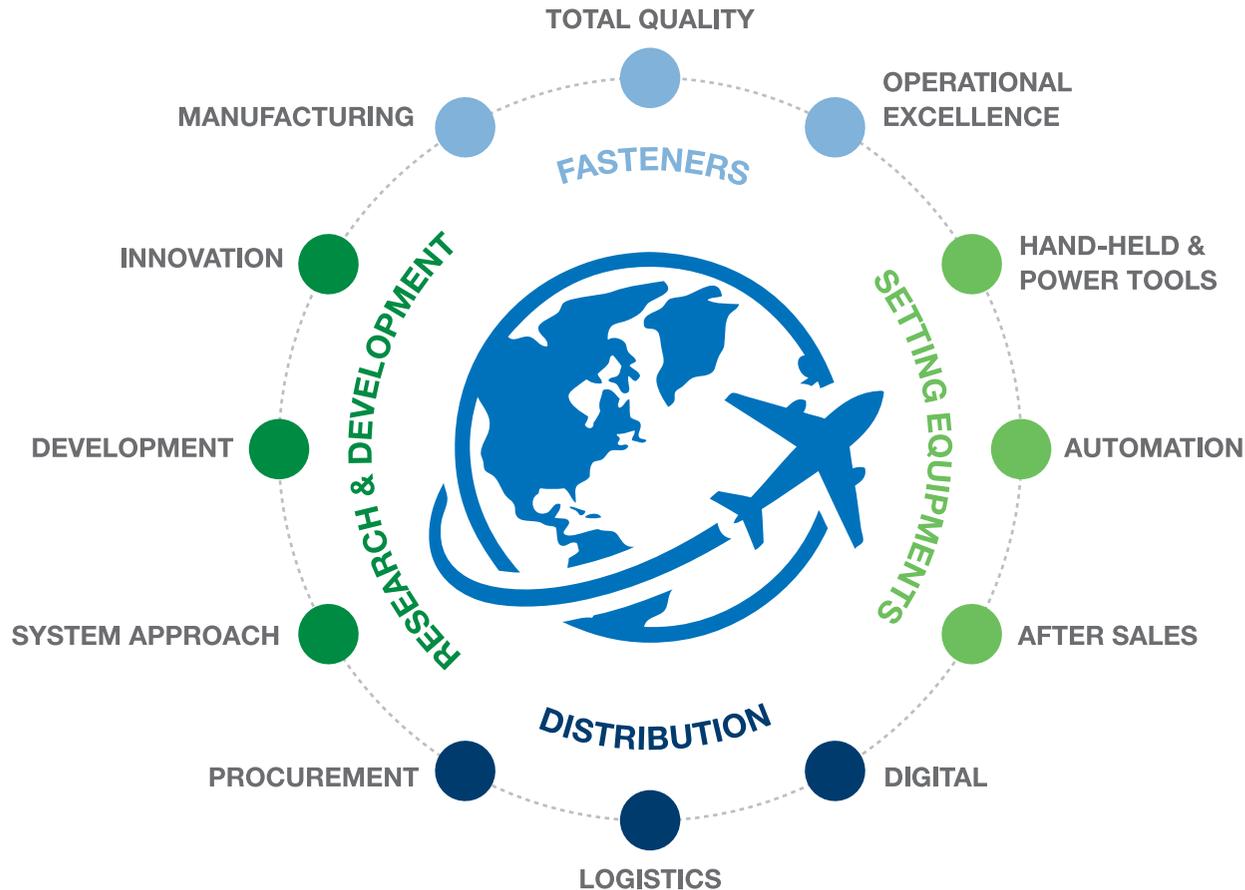
    Washers . . . . . 19

    Screws & bolts . . . . . 20

Overview of our value proposition. . . . . 21

 InfoPoint. . . . . 22

Böllhoff stands out in the aerospace sector by combining innovation, fasteners and assembly systems, and an agile approach to meet industry demands efficiently. To achieve this, Böllhoff's organization, structured around its own key enablers, allows the company to operate efficiently and meet high standards.



## Key enablers to achieve excellence

- **Development & Engineering:** Advanced simulation tools and international expertise to design and optimize fastening solutions.
- **Innovation:** Integration of innovating technologies from the automotive and other industries to enhance efficiency and performance.
- **System approach:** A strong focus on Total Cost of Ownership (TCO) to ensure long-term value for customers with powertools or automated systems.
- **Fastener expertise:** Robust know-how in standard and advanced solutions.
- **Automation:** Setting technology designed for integration in a robotic cell or automatic machine.
- **After-sales service:** Global availability and rapid intervention for automated system maintenance.
- **Industrial manufacturing:** A strong production footprint with 15 manufacturing sites, mainly in Europe, ensuring high flexibility and capacity.

Our commitment to operational excellence combined with innovation, guarantees high-performance fastening solutions tailored to the rigorous demands of the aerospace industry, optimizing quality and reducing costs.

## **Streamlined organization results in high-performance fastening solutions.**

- 
- **Medium series production capacity:**  
Fasteners production dedicated to aerospace requirements.
  - **Multi-site presence in Europe and in Morocco:**  
Reducing carbon footprint with complementary production expertise.
  - **Quality and efficiency:**  
Commitment to continuous improvement to maximize product and service performance.
  - **Certified reliability and performance:**  
Enjoy impeccable quality with products tested in accredited laboratories and compliant with the strictest international standards.
  - **Maximum strength and durability:**  
Provide fastening solutions that ensure maximum strength and increased durability, even for demanding lightweight construction applications.
  - **Quick and effortless installation:**  
Optimize installation time with our advanced technology systems, designed for optimal efficiency.
  - **Ultimate resistance to extreme environments:**  
Our fasteners are engineered to withstand corrosion, high temperatures, and the most demanding conditions.

Our comprehensive range of fasteners and assembly systems empowers aerospace manufacturers to streamline assembly processes, enhance structural integrity, and facilitate more efficient aircraft production.

## Our technologies for structural excellence

Fastenings that withstand vibrations, high mechanical constraints, adapt to mixed materials, ensure robustness, and achieve weight reduction:

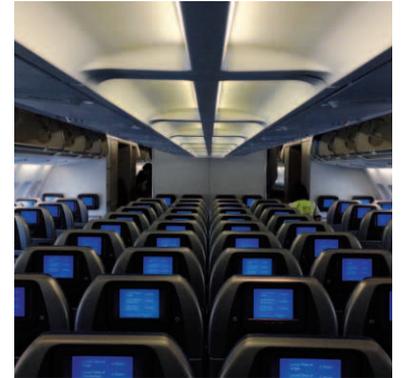
- Blind riveting
- Self-locking
- Double locking
- High load performance



## Interior solutions

Fastenings that are cost-effective, fire-safe, lightweight, easy to maintain, and versatile:

- Self-locking
- Fastening in plastic components
- Blind riveting
- Light-cured fastening
- Quick coupling
- Anti-noise and vibration



## Propulsion and equipments excellence

Fastenings designed for security, high temperature resistance, and vibration durability:

- Self-locking
- High temperature performance
- High load performance



## Space innovation

Fastenings designed for weight saving, temperature change resistance, compact volume, vibration durability, and sustainability multiple functions:

- Self-locking
- Light-cured fastening
- Blind riveting
- Fastening in plastic components





Blind rivet nuts



Wire thread inserts



Plug-in connections



Inserts for plastics



Light-cured Fasteners



Nuts



Washers



Screws & bolts

-  Structure
-  Interior
-  Propulsion
-  Space



## Lightest and most cost-effective solution for parent threads.

From manual to robotic integration, for understandable optimization with total cost optimization approach.

### Functional features and advantages:

- **Strengthening threads in soft materials:** Enhances the robustness of threads in materials with low shear strength.
- **Creating precise and strong internal threads:** Ensures accurate and reliable threading for various applications.
- **Reducing thread friction:** Allows for smoother operation and precise adjustment of preload force.
- **Corrosion and heat resistance:** Offers durability in harsh environments and high-temperature applications.
- **Durability and wear resistance:** Provides long-lasting performance with high abrasion resistance.

## Variants

Screw loss protection  
with or without tang



HELICOIL® Screwlock

High corrosion resistance and reduced friction  
with or without tang



HELICOIL® Free running

Secure,  
vibration-resistant fastening



HELICOIL® locknuts

High strength blind riveting  
with locking function via wire thread insert



RIVNUT® Aero

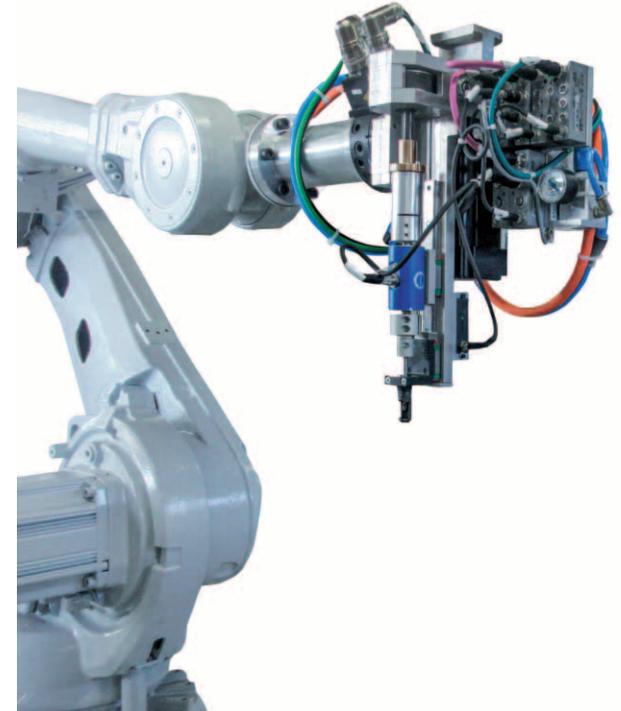
From powertools to full automated setting system, wire thread inserts will be installed with precision.



Electric installation tool  
**HELICOIL® E-PSG 256 Quick Exchange**



Robot-coupled hand tool  
**HELICOIL® Automated system with powertool**



Screwdriver module for robot connection  
**HELICOIL® Automation**

-  Structure
-  Interior
-  Propulsion
-  Space



**Versatile and high-strength blind rivet nuts for efficient assembly.**

Faster installation, lower costs, automation-ready.

**Functional features and advantages:**

- **One-sided assembly:** Allows for blind installation, ideal for components with limited access.
- **Material compatibility:** Suitable for steel, aluminum, stainless steel and composites.
- **High pull-out and torque resistance:** Secure fastening under dynamic conditions.
- **Corrosion and temperature resistance:** Excellent performance in harsh environments.
- **Load distribution:** Minimizes stress on surrounding material.
- **Sealing solutions:** Provides sealing against fluids and gases.
- **Ease of installation:** Compatible with automated machines for quick and consistent installation.

**Variants**

**Strong internal threads  
in thin-walled components**



**RIVKLE® Standard**

**Load-distributing  
for composite materials**



**RIVKLE® SFC**

**Sealing against fluids  
and gases**



**RIVKLE® Seal Ring**

**High strength blind riveting nut  
with locking function**



**RIVNUT® Aero**

**Pre-fixing components  
to carrier parts**



**RIVKLE® Studs**

From pneumatic or electric setting tools with process control to full automated setting system, blind rivet nuts and studs will be set with precision.



Battery setting tool with integrated process control  
**RIVKLE® NEO B109**



Hydraulic pneumatic tool with process control  
**RIVKLE® EPK C**



Setting head with automatic loading system  
**RIVKLE® HSA**

-  Structure
-  Interior
-  Propulsion
-  Space



**Quick coupling and noise decoupling performances in 1 product.**  
Cut assembly time and reduced production and maintenance costs.

**Functional features and advantages:**

- **Vibration and noise decoupling:** Isolates vibrations and reduces noise.
- **Quick assembly and disassembly:** Fast, tool-free installation and removal.
- **Tolerance compensation:** Ensures a secure fit despite component variations.
- **Versatile applications:** Suitable for automotive, electronics and consumer goods.
- **Secure fastening:** Provides a durable and reliable connection.
- **Cost-effective solution:** Reduces parts and assembly time, lowering costs.
- **Design flexibility:** Multiple options for different design requirements.

## Variants

Fastening with external threads



**SNAPLOC® Ball studs**  
With external thread

Fastening with internal threads



**SNAPLOC® Ball studs**  
With internal thread

Direct screwing into plastic components



**SNAPLOC® K' in K'**  
Ball studs

Fastening by clipping into an opening



**SNAPLOC® Ball studs**  
In clip form

Insertion into injection moulding tools



**SNAPLOC® Ball studs**  
For injection moulding

Quick, tool-free assembly into locating holes



**SNAPLOC® Coupling**  
For mounting domes

Easy push-in installation into specified bores or square openings



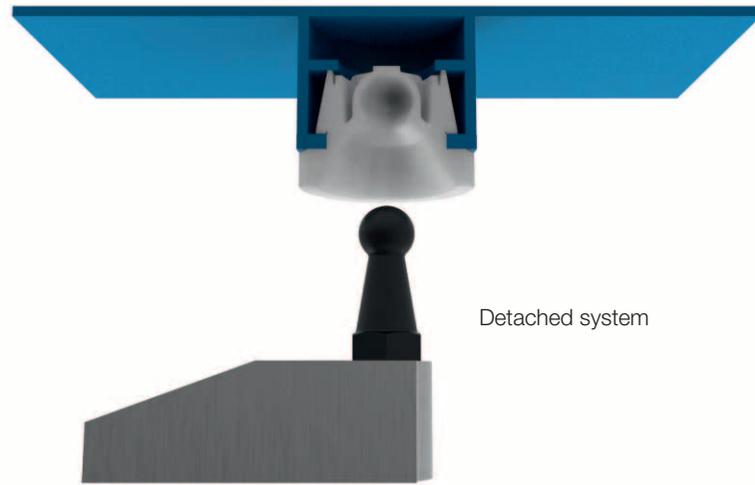
**SNAPLOC® Coupling**  
For plate fastening

Compensate for angular differences during assembly

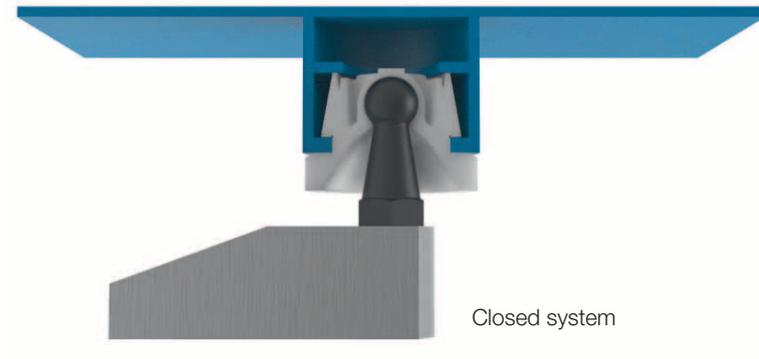


**SNAPLOC® Angular Couplings**

Manual plug-in and unplug system



Detached system



Closed system

**This is a cross-sectional view of the coupling.**



Structure



Interior



Propulsion



Space



## High-strength adhesive bonding with short curing time under 5 seconds.

Quick and drilling-free attachment for lightweight and smart design.

### Functional features and advantages:

- **Adhesive bonding:** Utilizes light-curing adhesive for strong and reliable bonds.
- **Transparent plastic socket:** Ensures precise alignment and curing.
- **No thermal stress:** Suitable for materials sensitive to heat.
- **Versatile application:** Compatible with metals, plastics, and composites.
- **Quick installation:** Fast curing process reduces assembly time.
- **High load capacity:** Provides robust fastening for various applications.
- **Corrosion resistance:** Durable in harsh environments.

## Variants

Adhesive bonding  
of studs



ONSERT® Studs

Adhesive bonding  
of inserts



ONSERT® Inserts

Adhesive bonding  
for wiring management



ONSERT® Special

Adhesive bonding  
for insulation attachment

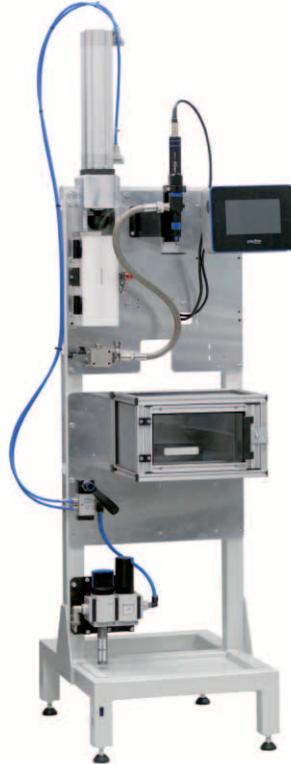


ONSERT® Special

From battery-operated manual installation tool to full automated setting system, light-cured fasteners will be fixed efficiently.



Manual UV-LED-curing lamp  
**ONSERT® SL ONE**

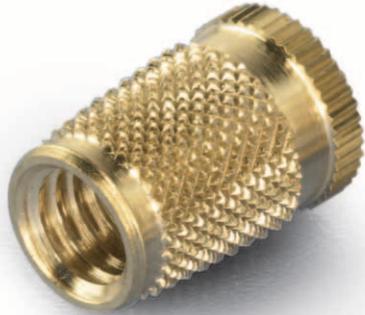


Dosing system  
**ONSERT® Processing system**



Automated pick-and-apply system  
**ONSERT® Automation**

-  Structure
-  Interior
-  Propulsion
-  Space



**Reliable anchoring performance in plastic with broad compatibility in injection molding processes.**

Secure, low-stress embedding for high-demand plastic applications.

**Functional features and advantages:**

- **Made from high-quality materials:** Utilizes materials like brass, stainless steel, and aluminum for durability.
- **Features knurled, slotted, and helical grooves:** Provides strong mechanical interlock through varied groove designs.
- **Compatible with installation methods:** Fits thermal, ultrasonic, and electromagnetic welding.
- **Secure embedding in plastic components:** Ensures stable integration in plastic parts.
- **High resistance with low-stress anchoring:** High pull-out and torque resistance, minimal stress.
- **Suitable for various materials and industries:** Applicable for various types of plastics and sectors like automotive, aerospace and electronics.

**Variants**

**Secure anchoring in thermoplastics via heated insertion, ensuring high pull-out values and efficient installation**



**HITSERT® 2**

**Locking function: tight fit with low stress, ensuring high pull-out values**



**Self-centering anchoring in plastics with self-tapping thread for flexible, quick installation**



**HITSERT® 3**

**High-strength, torsion-proof threads for brittle and ductile plastics, optimizing installation with low torques**



**QUICKSERT®**

Utilizing manual installation or advanced joining methods such as Electromagnetic Resistance Welding (ERW) and Heated Element Welding (HEW), precise and efficient metal-thermoplastic connections are achieved.



### Electromagnetic resistance welding – ERW

- **Rapid contactless heating:** Enables efficient integration of thread inserts, reducing production time.
- **Perfect plasticisation:** Ensures strong fastening by filling recesses and undercuts accurately.
- **Precision cooling:** Achieves installation accuracy up to 0.05 mm, enhancing product quality.



### Heated element welding – HEW

- **Approved single-phase joining method:** Efficiently embeds metal thread inserts in thermoplastic components.
- **Contact heat transfer:** Ensures precise fusion of plastic in the joining zone for secure integration.
- **Positive locking:** Displaces plasticised mass into recesses and undercuts for strong fastening.



### Ultrasonic welding – USW

- **Ultrasonic welding process:** Efficiently joins thermoplastic components through boundary-layer friction and vibration.
- **Rapid plasticisation:** Quickly fuses plastic material for secure integration of thread inserts.
- **Positive locking:** Displaces fused material into recesses and undercuts for strong fastening.



### Manual installation by screwing the elements into plastic applications



Structure



Interior



Propulsion



Space



## Vibration-resistant components and assemblies for critical connections.

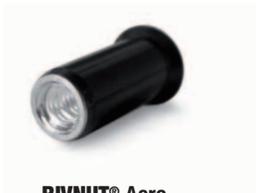
Small and medium series - Customer design - Fast execution.

### Functional features and advantages:

- **Self-locking solution:** Add a frictional force due to mechanical deformation or component such as an HELICOIL® or a ring.
- **Positive locking solution:** Using a mechanical or positive stop, the nut is prevented from unscrewing or backing off.
- **Material diversity:** Available from aluminum for weight saving application to Inconel for high temperature, high resistance needs, covering the entire range of raw materials.
- **Coating:** Large range of coatings available to suit the requested resistance.

### Variants

High strength blind rivet nut  
with locking function



RIVNUT® Aero

Secure,  
vibration-resistant fastening



HELICOIL® locknuts

Secure tightening and loosening  
using a wrench, with high level  
of customization



Wrenchable nuts

Secures and positions bearings on  
shafts in engines, aircraft equipments,  
helicopters, ensuring proper alignment  
and reducing axial movement



Bearing nuts

Secures and connects pipes or tubing,  
ensuring a leak-proof and stable fitting  
in plumbing and hydraulic systems



Fitting nuts



## Load distribution with enhanced friction control, stability and surface integrity.

Small and medium series - Customer design - Fast execution.

### Functional features and advantages:

- **Weight distribution:** Improve fastening performance distributing the load homogeneously.
- **Surface protection:** Using a large washer on a weak material keeps it from being damaged during fastener's installation.
- **Sealing capability:** Selecting or designing the appropriate washer will create a tight-fitting seal between the screw head and the surface.
- **Tight tolerances:** Machined for precision.
- **Misalignment adjustments:** Spherical washers enable compensation for alignment gaps in the assembly.
- **High-load applications:** Offering a large choice of hardened raw material to guarantee superior strength and wear resistance.

## Variants

Load distribution and surface protection in assemblies



Flat washers

Compensation in misaligned connections



Spherical washers

Machined washers with customizable geometry to suit any situation or access with tight tolerances



Precision washers



Structure



Interior



Propulsion



Space



## Essential for secure fastening in aerospace assemblies.

Small and medium series - Customer design - Fast execution.

### Functional features and advantages:

- **High temperature:** Suitable for propulsion environments where temperatures can reach up to 800°C.
- **High strength:** Ensures reliable connections for demanding applications with high vibration, shear and axial load resistance.
- **Light weight:** Lightweight screws to suit space and E-VTOL.
- **Detachment prevention:** All products can be customized for pin, wire-locking or other solutions to secure the fastening system.
- **Head and drive type:** Solutions to suit wrench or screw driving needs with a large range of products.

## Variants

Reliable fastening in extreme  
heat conditions



High temperature

Critical for heavy loads  
and structural integrity



High strength

General-purpose fastening  
in aerospace assemblies



Standard parts

Precision screws and bolts optimized  
for a specific need or application



Custom designs



# Competence leader in 360° Joining Technology

- so what does this mean for you?

As a family-run business, 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 management- and 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
- Thirteen 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
- Regular audits through customers
- 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

## 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

**RIVKLE®**

Blind rivet nuts and studs

Catalogue No 2307

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

**RIVNUT® Aero**

Blind rivet nuts for aerospace

Catalogue No 2317

<https://www.boellhoff.com/en/pdf/rivnut-aero>

**INSERT®**

Quick and process-reliable bonding of fastening elements with light-curing adhesives  
Catalogue No 0250

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

**HELICOIL® Plus**

Thread technology for high-strength fastenings – metric threads

Catalogue No 0100

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

**HELICOIL® Tangfree**

The tangfree coil thread insert for high-strength threads  
– metric threads  
– imperial threads: UNC and UNF  
Catalogue No 0150

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

**AMTEC®**

Precision thread inserts for aftermoulding joining in plastic components

Catalogue No 0200

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

**SNAPLOC®**

Vibration and noise decoupling plug-in connections

Catalogue No 4350

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

**Product Guide**

360° Joining Technology

Catalogue No 1190

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

**Videos****Fasteners videos****RIVKLE®**

Blind rivet nuts - Riveting process

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

**ONSERT®**

Quick and process-reliable bonding of fastening elements with light-curing adhesives

<https://www.boellhoff.com/video/onsert>

**HELICOIL® Plus Screwlock**

Thread inserts for metal with screw-locking

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

**SNAPLOC®**

Vibration- and noise-decoupling plug-in connections

<https://www.boellhoff.com/video/snaploc>

**Installation videos/Aerospace-specific video****ONSERT® Portable Mini**

Quick and process-reliable bonding of fastening elements with light-curing adhesives

<https://www.boellhoff.com/video/onsert-portable-mini>

**HELICOIL® Plus**

Installation with electronical tool HELICOIL® E-PSG 256 Quick Exchange

<https://www.boellhoff.com/video/helicoil-installation-with-e-psg-256>



The aerospace industry meets 360° joining technology

<https://www.boellhoff.com/video/aerospace>



Advanced joining technologies for the aerospace industry

<https://www.boellhoff.com/videos/aerospace-advanced-solutions>

# 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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Observe protective note according to ISO 16016.