

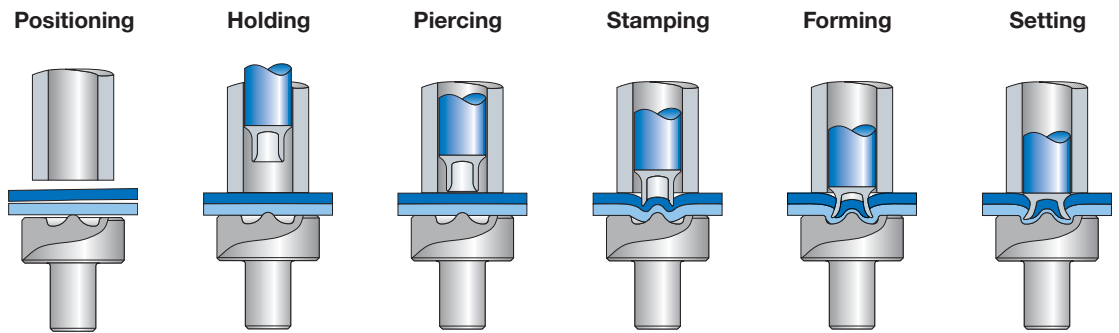


RIVSET® HDX

New self-pierce riveting technology
for the latest material trends with
high-strength results

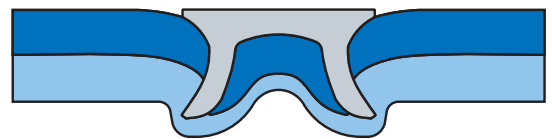
BÖLLHOFF

RIVSET® Self-piercing riveting – Functional principle



Quick and simple operation:

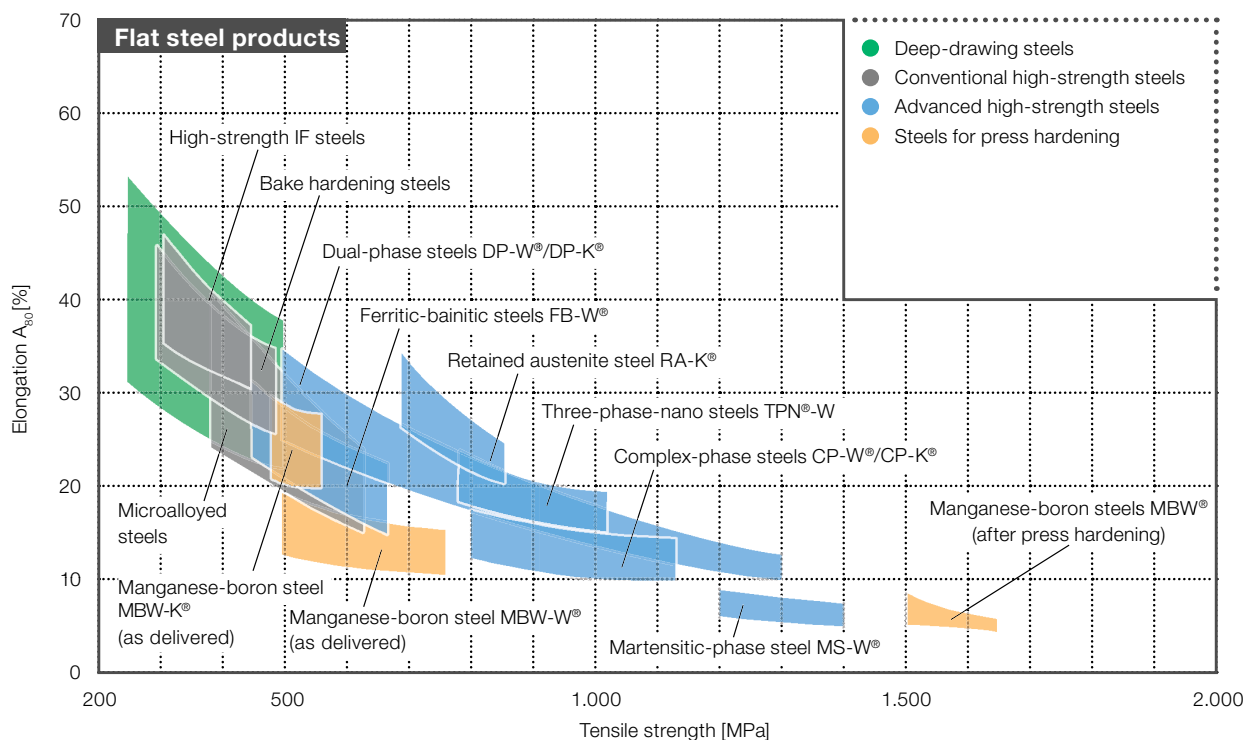
In one step only, the semi-tubular rivet punches through the upper workpiece layer(s) and forms an undercut in the lower workpiece layer.



RIVSET® Self-piercing riveting – Trends in lightweight construction

Self-piercing riveting is a recognised joining method for the mechanical high-strength joining of similar or different types of materials. Also joinings with more than 2 layers are possible.

In the course of the current lightweight construction trend and the associated material usage ranging from aluminium to ultra high-strength steels, it is necessary to further develop the established self-pierce riveting technology beyond its tried and tested process limits.



RIVSET® HDX – New self-pierce riveting technology for high-strength joints



This was the objective when developing the new RIVSET® HDX rivet. It meets the requirement of joining material mixes of ultra high-strength steels and more ductile materials with the known limits to setting force the setting device has.

This is achieved by the combination of the optimal fastener geometry and the required hardness.

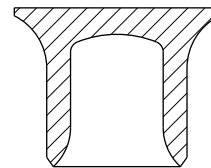
Böllhoff successfully realises joints using materials with a tensile strength of 1,600 MPa and a sheet thickness of 1.8 mm in the top layer.

The HDX rivet can be used for established flange widths employing the RIVSET® self-pierce riveting method.

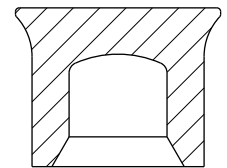
RIVSET® HDX – Compared to the RIVSET® C-SKR rivet



- Increased shank diameter
(from 3 mm/5 mm to 4 mm/6 mm)
- Modification of the cutting edge geometry
- Application of force by means of a larger surface
- Increase of hardness to H6



C-SKR

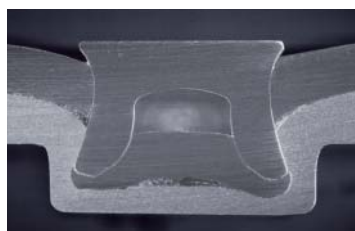


HDX

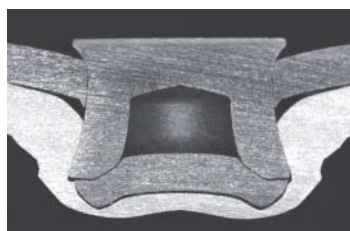
RIVSET® HDX – Joining for all purposes

Materials:

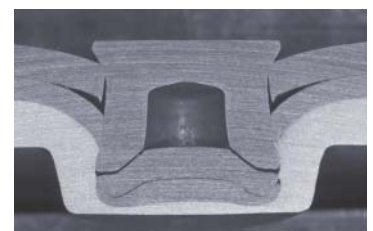
- Higher-strength steels with R_m to 1,600 N/mm² and approx. 1.8 mm in the top layer
- Aluminium (pressure casting, extruded profile, sheet)
- Adhesive as intermediate layer



Press-hardened steel 1.8 mm
Adhesive
Aluminium 2.0 mm



Press-hardened steel 1.8 mm
Aluminium 2.0 mm



Press-hardened steel 1.35 mm
Deep-drawing steel 1.0 mm
Aluminium 2.0 mm

RIVSET® Gen² – Self-pierce riveting in its new generation



Setting tool

Product characteristics:

- Optimised interference contours with minimised weight
- Regular throat depth of the C-frame up to 500 mm and 750 mm with a lightweight frame
- Optional with exchangeable die dome
- Optional with possibility of media docking
- Optimum centre of gravity
- Low maintenance effort of the hydraulic cylinder results in low operating costs
- Different setting forces available



Rivet feeding

Product characteristics:

- Delivery rate 45 rivets / minute
- Supply of approx. 5,000 rivets (depending on the rivet geometry)
- Minimum maintenance effort
- Pre-separation of rivets and rivet length control with an accuracy of ± 0.5 mm



Drive

Product characteristics:

- Modular and compact hydraulic system
- Suitable for setting forces of up to 78 kN
- Decentralised valve block (at the setting tool)
- Optimised process cycle of ≤ 1.5 seconds/rivet (depending on the setting tool)
- Integrated oil temperature measurement
- Optimisation of the energy-efficiency
- Switchable additional cooler
- Reduction of the required hydraulic hose connections



RIVSET® Gen² – Modular, flexible and efficient!



Böllhoff Control System (BCS)

Product characteristics:

- Decentralised hardware configuration with central control of the individual modules via bus system
- “Embedded PC”-based control
- Control of up to 3 rivet feeding units (standard)
- Open interface to various robot interfaces (ProfiNet, Interbus, etc.)
- Manual control unit incl. visualisation of the process curves (plug & play)
- Optionally with panel PC and operator guidance via touch screen
- Optionally with multi-visualisation of one to five device(s) by means of one control panel computer

RIVSET® Gen² – HDX design



The process-related RIVSET® Gen² setting tools and machine components can be configured modularly for HDX application. Comprising the Standard Böllhoff Control System (BCS) and the Standard Böllhoff drive technology, the corresponding rivet feeding unit can be selected so that machine properties relevant for mass production, e.g. process times < 1.5 s or availabilities > 99.5 %, remain unchanged.

Design features:

- Force level of the cylinder
- Setting head geometry
- Rivet feeding unit
- Rivet feeding hose (possibly also docking adapter)



Contrarily to feeding an SKR/SKR rivet, RIVSET® HDX rivets are not fed transversely through a profiled feeding hose, but lengthwise through a round hose according to the respective rivet head diameter. The altered rivet guidance affects all machine components of the rivet feeding unit of a RIVSET® Gen² machine.



Our areas of competence – point by point

Sales

Innovative ability and technical potential are becoming increasingly important as the basis for chances of success.

You will be provided with professional consultation by your personal contact nearby. So, no valuable time will be lost.

Our expertise and experience are reflected in an extensive distribution network. The headquarters of this family business, with four generations of history, is located in Bielefeld, Germany. Böllhoff is furthermore represented with sales and production facilities in 23 countries. Outside these 23 countries, Böllhoff cooperates in close partnerships with representatives and merchants to serve international customers in other important industry markets.



Project management

Our aim is to exceed your expectations.

The foundation for our competencies is an efficient close-meshed network of consultancy service, development programme and customer support. The shared objective is to realise the best technical and economically attractive solution. This is also the standard for our project management. Our team supports you with management- and product-specific expertise.

Our employees have years of experience in the application-specific project planning of fastening and automation solutions and implement custom-made solutions to meet your needs. We think in terms of systems: process optimisation, cost reduction, strengthening competitive positions.

Our project management comprises the interdisciplinary coordination of complex activities by means of planning, control and monitoring during all project stages.



Design engineering and development

The development of fasteners is geared to the material trends of our customers. The focus of the corresponding processing systems is on functionality, flexibility and design.

The main requirements for these systems are: a reproducible process, availability suitable for industrial use and short process times.

The potential will be higher, the sooner we get to bring in our competencies.

For the realisation of these ideas, we work with state-of-the-art CAD systems in keeping with the latest requirements of the automotive sector. We coordinate the data transfer with each customer.



Your partner for successful

Production

Our fasteners are manufactured only in our own production facilities and are subjected to strict quality inspections in every stage of production. This is how we meet the high requirements of our customers. One product at a time.

The production of important mechanical components (know-how parts) is an integral part of our manufacturing expertise. Thanks to this know-how and our range of machinery, we are a competent partner for the advance development and development for the production of prototypes and samples.

Moreover, the assembly of processing equipment and the corresponding functional check is also one of our core competencies. All final assemblies and start-up operations are carried out in-house, rather than placed with suppliers.



Quality

We systematically rely on well-engineered manufacturing processes and modern measurement and monitoring technology. We don't leave good quality to chance – it is the result of systematic planning and implementation.

The technical requirements are defined by you or, if requested, also in collaboration with our qualified employees and checked for feasibility. The beneficial effect is increased by process reliability and the prevention of unnecessary costs.

In the course of this, you are backed up by our accredited laboratory as per DIN EN ISO/IEC 17025.

In order to ensure the highest possible quality, we undergo regular audits by customers and accredited certifiers.



Service

We will be there for you – whenever you require our assistance.

The Böllhoff service team has specialised in assisting you with the value preservation of your investments and in securing a cost-effective production. Therefore, we can offer maintenance agreements which make our technically highly sophisticated machines still more durable.



joining – worldwide.

Böllhoff International with companies in:

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

Apart from these 23 countries, Böllhoff supports its international customers in other important industrial markets in close partnership with agents and dealers.

Böllhoff Group
Please find your local contact on www.boellhoff.com
or contact us under fasteningtechnology@boellhoff.com

