

NEW RIVTAC® Advanced

The new dimension of high-speed joining



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RIVTAC® High-speed tack setting



In 2010, the Böllhoff Group presented a world's first in the joining technology: RIVTAC® high-speed tack setting.

A future-oriented joining method for diverse industries which is primarily suited for profile-intensive mixed material designs with small wall thicknesses. For one-sided accessibility, no pre-punching is required.

A special benefit is the short joining time, which is well below 1 second. Particularly in automotive body lightweight construction, the intelligent joining concept has been well-established.

This is how it works in detail

In this mechanical joining method, a nail-like tack is accelerated to high speed and driven into the non-pre-punched joining parts. The speed can be controlled through the joining pressure and depends on the materials to be joined as well as on the component thicknesses.



At the beginning of the joining process, the ogival point of the tack displaces material extruding it for the tack shank. The joining part materials can flow into the straight knurlings of the shank to achieve positive locking. Particularly with higher-strength materials, a frictional connection is created because the joining parts are formed and pressed. Therefore, the joint strength results from those two principles of action. High-strength materials, mixed joints as well as multiple-layer joints can be joined with high process reliability — providing particularly good strength characteristics.

The well-known benefits at a glance:

- Joining without pre-punching in case of one-sided accessibility
- Minimised joining and cycle times
- Joining of high-strength materials
- Flexible use for mixed joints, multiple-layer joints and hybrid joints

RIVTAC® Automation P – Processing system



The RIVTAC[®] automation system with process monitoring allows fully automatic tack setting. It is perfectly suited for applications in large-scale production and offers highest flexibility during production planning. With the modular design, the individual components can be flexibly positioned during production.



RIVTAC[®] Automation P RIVTAC[®] Automation P High-speed joining – innovative and flexible Catalogue No 6810

https://www.boellhoff.com/en/pdf/rivtac-automation-p

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RIVTAC® Advanced - The new dimension of high-speed joining

The automotive industry, and in particular the e-mobility sector, continues to focus on lightweight construction. In that field, our RIVTAC[®] joining technology is already used with success in battery packs. The current situation which is strongly influenced by climate protection, sustainability and resource efficiency requires creative ideas. The use of new steel grades and innovative material composites constantly creates new challenges for the joining technology.

More than a decade after its first use in the series production of the Mercedes SL-Class* and many other fields of application, today we introduce to you the new dimension of high-speed joining: the RIVTAC® Advanced.

Thanks to the intelligent further product development, the RIVTAC[®] Advanced allows new application possibilities. You can join materials with a tensile strength of 1,200 MPa and a sheet thickness of up to 1.5 mm without producing slugs. The sheets do not require pre-punching. The fasteners can be processed with high process reliability using the existing RIVTAC[®] Automation P.



Photomicrograph of the RIVTAC® Advanced tack point (hardened surface layer)

RIVTAC® Advanced – Extended field of application



Tack length: 16 mm

Head diameter: 8 mm

Shank diameter: 3 mm

Hardness: core hardness: 400 HV10; hardened surface layer

Coating: zinc-nickel (ZnNi)





Test procedure: cross-tension and tensile shear test as per Technical Bulletin DVS/EFB 3480-1

Joining materials:

1: HCT980X, t = 1.2 mm 2: EN AW-6060 T66, t = 5.0 mm

Fastener: RIVTAC® Advanced

Testing machine: Zwick Z100

Test speed: v_{test} = 10 mm / min

Additional advantages at a glance:

- New possible uses due to extended field of application
- Slug-free joining of materials with a tensile strength of 1,200 MPa and a sheet thickness of up to 1.5 mm
- Reliable processing of the RIVTAC® Advanced with existing RIVTAC® Automation P

You have any questions or a running project? Feel free to contact us.



Passion for successful joining.

Böllhoff Group Innovative partner for joining technology with assembly and logistics solutions.

Find your local partner at www.boellhoff.com or contact us at fat@boellhoff.com.

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