EMHART TEKNOLOGIES.
Your Partner for Self-Piercing Riveting Technology!

Self-piercing riveting begins, where spot welding reaches its limit!

Design engineering and realization from a single source!

Emhart® Teknologies
TUCKER™
A BLACK&DECKER COMPANY

Riveted joints – full service from design to documentation

A solid joint resulting from a reliable process

Different materials are joined without prepunching. The result is a form-fit joint, no matter whether coated or uncoated aluminium or steel are used. A total thickness of up to 9mm and – depending on the application – even higher thicknesses can be riveted easily with this process.

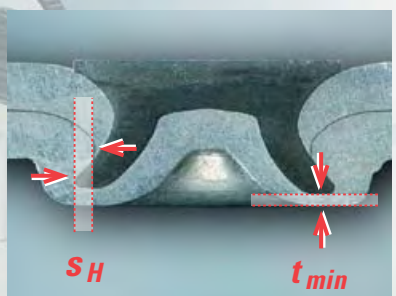
Strength properties of the joints with materials of higher strength, especially when under dynamic load, are considerably improved in comparison to weld joints. These results fit in with the general demand for higher passive safety of passenger cars and it has been fully integrated in lightweight automobile construction for example.

Application Engineering – the analysis of the application

First of all the basic condition of the self-piercing riveting application is analysed.

The key questions are the following:

- Is the material suitable for self-piercing riveting?
- Which requirements arise from the riveting environment/riveting direction?
- Which strength property is required from the joint?
- Is glue used in the riveting environment?



*The relevant quality features like **undercut (s_H)** and **remaining base plate thickness (t_{min})** are determined in the ground section of the specimen.*

Determination of the joint parameters

The combination of rivet, die and material is to lead to a virtually form-fit joint. To ensure such optimum characteristics, an analysis of the riveting conditions and material properties is necessary.

Application analysis demands tests for the determination of the

- appropriate rivet length
- suitable die for optimum joint characteristics
- strength needed

A laboratory with extensive equipment is available especially for this purpose.

At Emhart Teknologies we have prepared ourselves for your special demands. An experienced team of experts will support you with your projects.

Our test results, which ensure optimum joints resulting from reliable processes, serve as recommendations to our customers. All information is available to you in form of a comprehensive documentation package.

An important part of the analysis is the determination of the appropriate die. It is often the case that there are several possibilities. In many cases, several positions are riveted with the same die so that the optimum geometry, which allows for the different characteristics of the joints, has to be found.

The complete design engineering of the dies is done here at Emhart Teknologies. Samples can be directly manufactured during the prototyping phase.

Preparation for the analysis of the SPR-joint.

Customer support in all phases – from prototyping to serial production

Comprehensive support right from the beginning

Our team is also at your disposal if your prototype parts are to be joined.In this area we make use of our long experience in working with car body parts as well as with subassemblies.

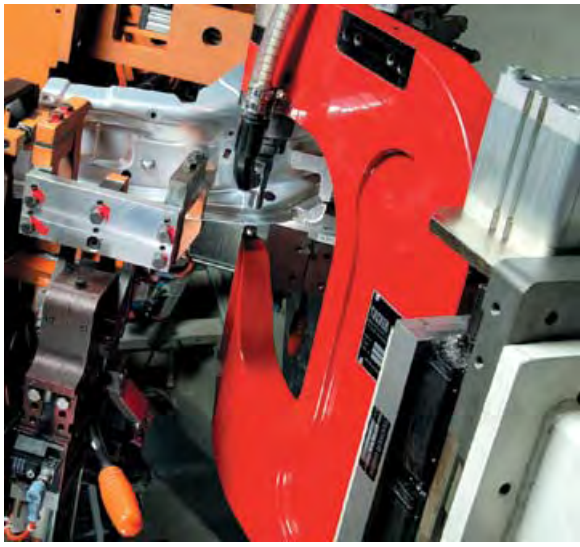
Accessibility studies by means of CAD system as well as on the real assembly part are part of our service just as the production of sample joints for your internal tests.

We enjoy looking for new solutions and are highly motivated to break new ground together with you. Our strengths are flexibility, creativity and expert knowledge.

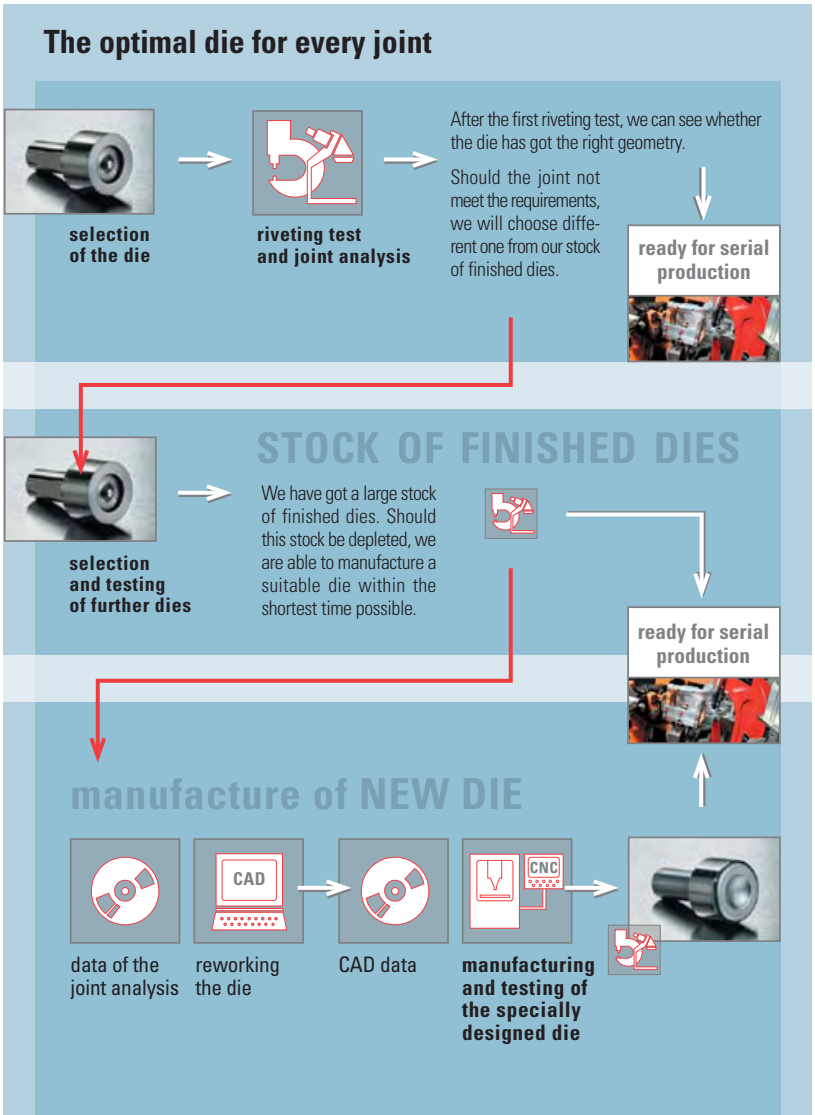
Consistent documentation

All investigations, test results and evaluations are documented in a comprehensive manner. You will receive quality reports on tensile strength tests, pictorial material of ground sections, strength test values, data sheets and suggestions for optimization.

This documentation serves as a basis for serial production and enables a short-term realization in practice.



Modern technology helps us to analyse the interrelated factors which influence the process.



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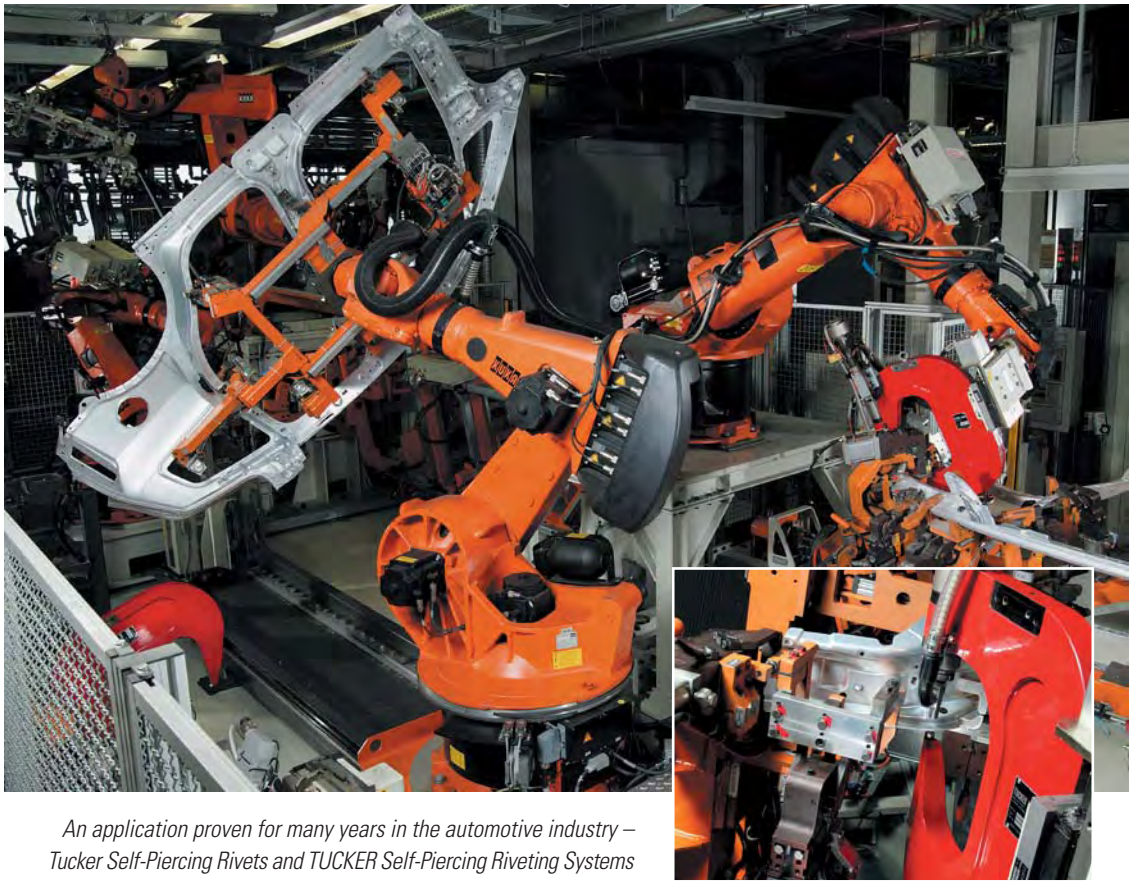
Practical application of self-piercing riveting technology at Audi AG, Neckarsulm, Germany



An application proven for many years in the automotive industry – Tucker Self-Piercing Rivets and TUCKER Self-Piercing Riveting Systems

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