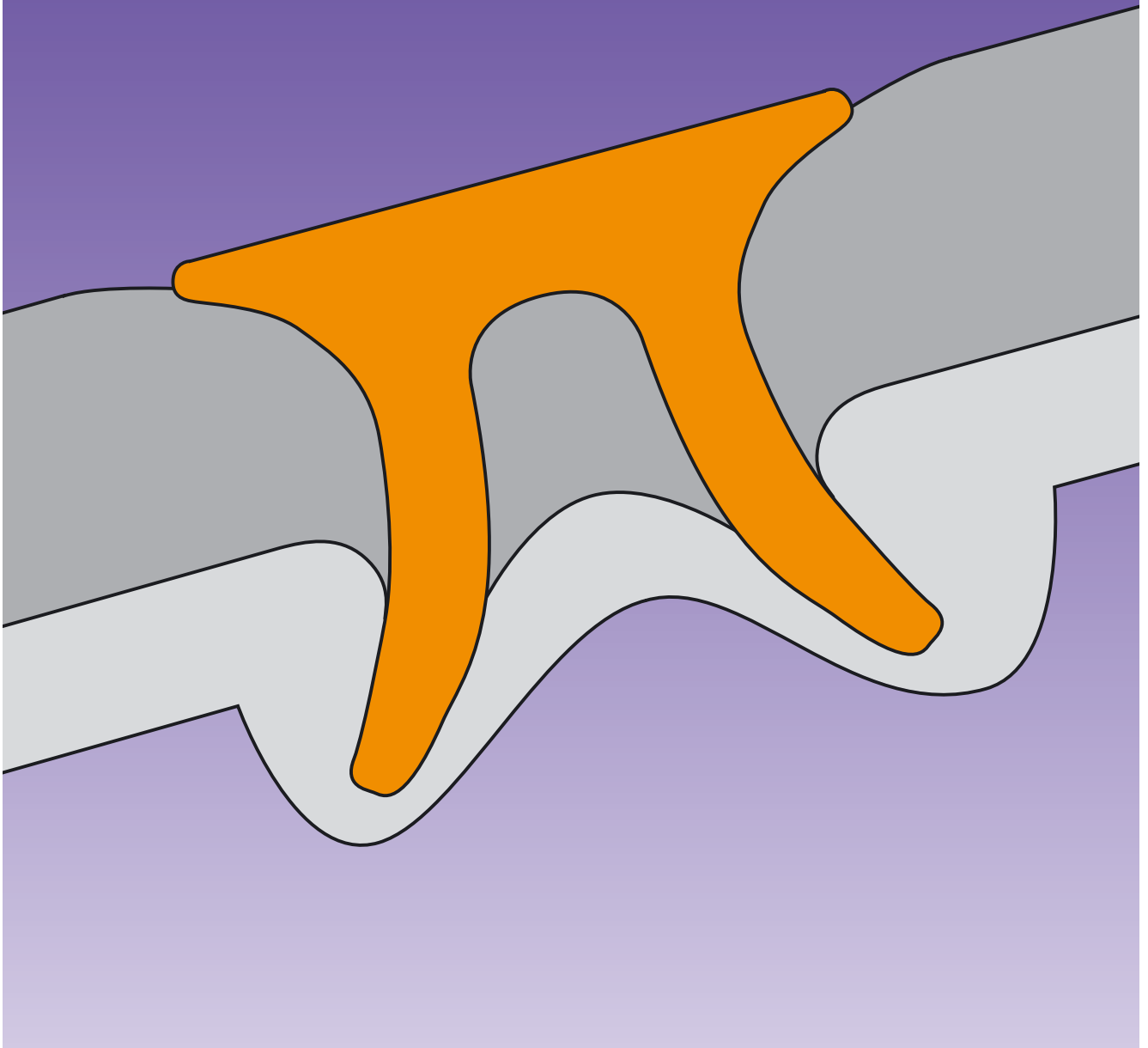


■ **TIFAS[®] SR** self-pierce rivet fastening system



TIFAS® SR self-pierce rivet fastening system

The TIFAS® SR self-pierce rivet fastening system

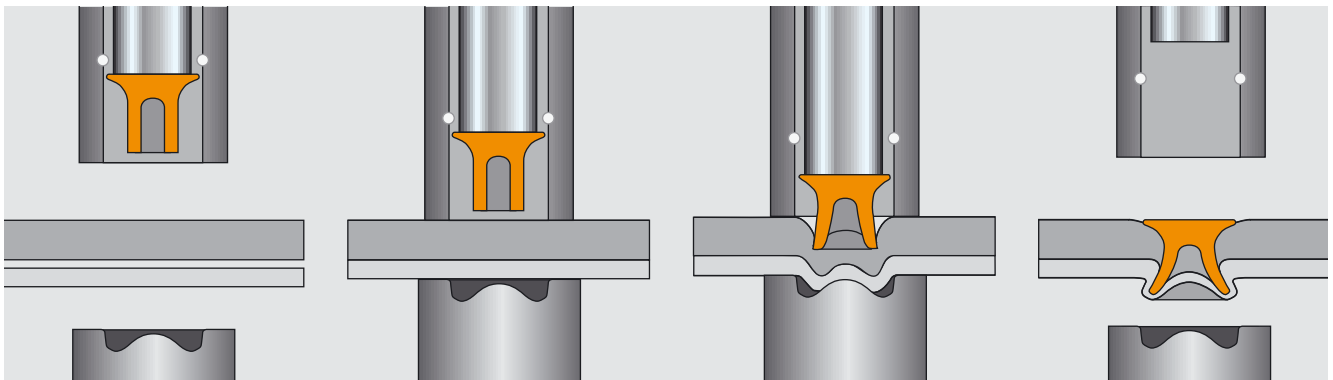
is engineered to pierce and fasten in one operation, simplifying assembly and reducing costs while providing a strong, reliable joint. They are an excellent fastening solution where welding is impossible or undesirable, such as joining dissimilar materials, pre-coated sheets or layered materials.



Features of the TIFAS® SR self-pierce rivet fastening system:

- Pierce and fasten in one operation, eliminating need for insertion holes and alignment
- Self-sealing; rivet radially expands into material, without breaking through substrate
- Provides consistent, high joint strength, comparable to spot welds and other mechanical fastening methods
- Unlike welding, TIFAS® SR fasteners join materials without creating a heat-affected zone, thereby preventing shrinking and minimizing distortion and other materials changes
- Can be used on a wide variety of materials including steel, aluminium, nylon webbing, plastic and rubber
- Can join dissimilar materials and cleanly join pre-coated, pre-painted or pre-plated materials
- Can be used to join materials with intermediate compounds, including adhesives
- Rivets can be plated or painted to your specifications
- Can join materials with oil or other surface contaminants
- Process load monitoring can be incorporated into installation tooling system to track and notify operator of variances in joint

The principle



TIFAS® SR pierce rivets are fed to the riveting module.

The tool clamps the sheets together.

The rivet pierces the top sheet and radially expands into the bottom sheet.

High joint strength is achieved by the interlock between the rivet and application materials.

Because piercing and joining take place at one time, and drilling and hole alignment are eliminated, the TIFAS® SR pierce riveting system results in higher productivity and more cost-effective assembly.

Head form



Benefits of the

TIFAS® SR self-pierce rivet fastening system:

- Reduces component costs
- Eases automation requirements
- Maximizes manufacturing flexibility
- Can eliminate drilling and punching operations
- Can eliminate spot welding operations and its environmental hazards, such as fumes and sparks
- Lowers noise level during installation
- May reduce number of fastening points
- Increases product reliability
- Maintains integrity of application material
- Can eliminate rework of products including repainting of coated materials
- Eliminates air/water path through fastening point, resulting in a leak-proof joint
- Can eliminate surface preparation, including cleaning
- Increases consistency and quality on the assembly line

TIOS® SRA 50 battery tool

Features

- Electro-hydraulic operation
- C-frames with various throat depths are available which can be changed quickly
- Joining force can be continuously adjusted from 20–50 kN (4.500–11.240 lbf)
- With special tooling the TIOS® SRA 50 can also be used for removing pierce-riveted joints
- Motor automatically turns off after joining force is reached

Benefits

- Wide range of uses, from sampling, prototyping and repair use to low volume production
- Can also be used for placing clinch nuts and studs and also pierce nuts and studs



TIOS® SRH 2 tool with hydraulic intensifier

Features

- Hydraulic intensifier with hand-operated or stationary C-frame
- Adjustable pressure setting
- Various C-frames, either hand-operated or stationary, can be connected by a quick-fitting coupling

Benefits

- Can be used in a large range of applications, from sampling to low-volume production
- The C-frames can be equipped with different tooling, so the TIOS® SRH 2 can be used for riveting and pressing
- Can also be used for placing clinch nuts and studs and pierce nuts and studs



TIFAS® SR self-pierce rivet fastening system

Application examples

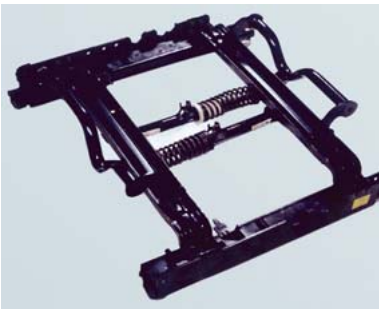


A 12-head riveting system is integrated into an automatic production line for assembling aluminum ladders. Each ladder step is fastened simultaneously to the ladder frame.

The machine can be used for different ladder sizes. Other benefits include shorter cycle times, cost-effective production, elimination of insertion holes, and a stronger and more reliable end product.



This body component consists of an aluminum sheet, a casting, and an extrusion with different material thicknesses. Due to the higher fatigue strength of the pierce-riveted joint (compared to a spot weld), the number of joints was reduced dramatically.



TIFAS® SR pierce rivets allow the components of this car seat to be joined after painting. For aesthetics, the rivets are painted to match the color of the component, eliminating the need for color caps. The assembly machine manufactures two models in one cell, using two different rivets fed to a robotically-mounted C-frame. The lower portion of the C-frame that contains the die rotates 180°, allowing the use of two different dies to provide optimum joint strength.



The innovative, weight-saving introduction of a side impact bar made of an aluminum bar and steel bracket demanded an efficient alternative to welding. A shear strength of 16 kN (3,597 lbf) also had to be achieved. Together with a machine integrator, a fully-automated production machine was designed with process monitoring that produces 18 side impact bars per minute.



Gebr. TITGEMEYER GmbH & Co. KG
Hannoversche Straße 97
(Navigation: Hettlicher Masch 2)
49084 Osnabrück, Germany
P.O. Box 43 20
49033 Osnabrück, Germany
Telephone: +49 (0)5 41/58 22-0
Telefax: +49 (0)5 41/58 22-494
E-Mail: export@titgemeyer.com
www.titgemeyer.com