

HIGH RETENTION FORCES

# SPECIFIC CLAMPS FOR SPECIAL APPLICATIONS

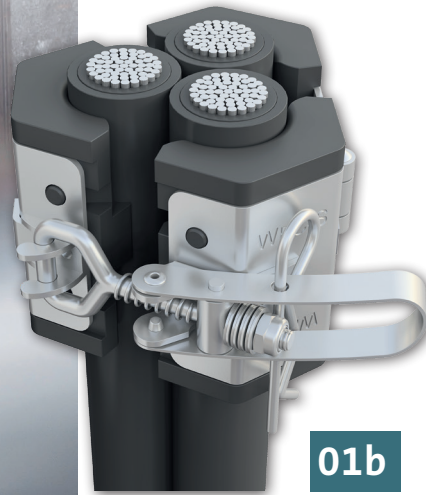
STAUFF clamps were developed for fastening hydraulic lines over 60 years ago. Today, customers from all industry sectors are approaching the inventors of the clamp with increasingly specific requirements. STAUFF now also offers 3D printing for manufacturing small batch sizes.

**Boris Mette**, Head of Marketing Communications, STAUFF

The many different types and series of tube clamps in the STAUFF portfolio are due to the different loads and ambient conditions that tubes and hoses – and therefore also their fasteners – are exposed: Vibrations, pressure levels or pressure spikes, to name only a few, can vary greatly depending on the application. The standard range already covers many requirements profiles. This also includes series with special specifications, such as reducing noise generation in hydraulic systems or multi-line clamps that can be used to fasten several lines with identical or different diameters at the same time. Demand for even more specialised designs is growing as machines and systems feature increasingly differentiated designs for specific applications. OEMs do not need “just” suppliers, but component manufacturers with a high level of development competence and reliable in-house manufacturing. Both are trust factors for which the globally active company with headquarters in the German Sauerland region is known on the international market. OEMs from other industry sectors are also increasingly approaching STAUFF: The clamps from the STAUFF portfolio



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**01 a + b**  
 Both versions of these clamps were developed specifically for use in wind turbines and can be installed easily and quickly, without any tools

cover a wide range of applications and can be used wherever tubes, hoses, cables and other supply lines require fast, easy and reliable fastening. The “Connect with STAUFF” slogan expressly encourages original equipment manufacturers from all industry sectors to engage in individual collaboration.

**APPLICATION: WIND TURBINES**

A particularly complex project: A manufacturer of wind turbines requested components for fastening and reliable guiding of electric cables in wind turbine towers. STAUFF engineers developed special Wind Power Clamps (WPCs) for these customer requirements. These clamps guarantee constantly high retention forces in a wide range of temperatures and optimum protection for the cables with particularly soft clamping jaws made of flame-resistant UL-compliant plastic. They ensure permanent, mostly maintenance-free fastening of the cables in the challenging conditions that occur in wind turbine towers. The installation process is an important product characteristic in this special situation: The WPCs are particularly easy and quick to in-

stall, without any tools. The option for manual adjustment results in an additional time saving of up to 70 %. This series meets all relevant industry requirements, such as electrical safety regulations.

**CHALLENGING CONDITIONS**

Some clamps that were originally developed for specific customer requirements have become part of the standard range. Noise Reduction Clamps (NRCs) for tubes and hoses, for example, are recommended for manufacturers of mobile machinery with strong vibrations or stationary loading systems. The clamp inserts are designed to reduce vibrations and noises. The ACT series with special drain channels for seawater was developed for applications in corrosive environments, such as ship building. And where lightweight construction is key – again possibly in ship building – the range also includes clamps with the metal parts made of aluminium instead of steel. The rail industry needs tube and hose clamps made of special flame-retardant, certified materials. These STAUFF products are also successful in the international market.

**APPLICATION: SPECIAL-PURPOSE TRAILERS**

Together with a manufacturer of special-purpose trailers, STAUFF has developed fastening components that ensure guiding, attachment and movement of hydraulic and oil hoses while being gentle on the material.

These include cylinder supply line clamps and saddle/piggy-back clamps that guide multiple lubricating oil lines, sometimes offset by 90°, as well as special “snap-in clamps” with a safety ring to fasten corrugated cable conduits.



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These components increase the service life and fail safety of the entire line system in the trailers.

### ECONOMIC PRODUCTION OF CUSTOM SOLUTIONS

Conductive plastic fasteners are required for bulk goods handling, among other things. Friction in the powdered, granular or large-piece materials produces a slight electrostatic charge.

This has to be dissipated in a controlled manner in order to avoid uncontrolled discharge. Bulk goods handling, as well other industries, therefore use tubes and hoses made of electrically conductive plastic. They are typically fastened with metal clamps,

## ” ANALYSIS OF HYDRAULIC LINE SYSTEMS IS A SERVICE FOR OEMS

which per se are conductive, but have well-known drawbacks such as lower vibration resistance and higher noise generation.

Until 2023, STAUFF mechanically machined small numbers of clamps from conductive polyethylene sheet material at customer request. For larger production runs, injection moulding is more economically viable. A suitable plastic granulate was needed for this application, and STAUFF engineers once again found a solution: The PP-EC (electrically conductive) granulate used since 2023 has a lower surface resistance ( $< 10^4 \Omega$ ) than the propylene material used as standard and is therefore not insulating, but dissipating.

The previously expensive custom production is now available at much more economical conditions.

### FAST PRODUCTION OF INDIVIDUAL CLAMPS

For small quantities, prototypes or small production runs, STAUFF also offers 3D printing. The question here is: Is injection moulding a viable process or is 3D printing more cost-effective? 3D printing offers additional advantages, namely straightforward online ordering and fast production and delivery. Users upload a CAD model of the required fastening solution to the STAUFF platform and select from options such as material, colour and quan-



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02 For small production runs, 3D printing is often better than injection moulding – STAUFF offers both

03 STAUFF also offers analysis of hydraulic line systems and consultations for optimisation

tity. With a process known as “rapid quoting”, there is no need to wait for a quotation. Once the printing order has been placed, the cooperation partner – one of the market leaders in additive manufacturing and industrial 3D printing – starts production and usually delivers the 3D-printed, fully functioning and durable clamps within a matter of days.

### VALUE ANALYSIS OF HYDRAULIC LINE SYSTEMS

STAUFF offers OEMs analysis of hydraulic line systems and consultations for optimisation: VAVE – “Value Analysing, Value Engineering”. This process is based on the competence of STAUFF as a one-stop supplier for all components of hydraulic line systems from in-house development and manufacturing.

The first step is a value analysis that examines a system (mobile or stationary) or individual function areas.

This results in recommendations for an optimal line system, for example with improved guiding and fastening of tubes and hoses. The processes also analyses detachable connections in the line systems, with a focus on economic efficiency as much as on safety, ergonomics, flow optimisation, accessibility and service life.

Images: Stauff

[www.stauff.com](http://www.stauff.com)

## TO THE POINT



NOISE REDUCTION CLAMPS MAKE HYDRAULIC SYSTEMS QUIETER

MULTI-LINE CLAMPS FASTEN LINES WITH DIFFERENT DIAMETERS

STAUFF DEVELOPS FASTENERS FOR SPECIAL APPLICATIONS

3D PRINTING AS AN OPTION FOR SMALL QUANTITIES OR PROTOTYPES