



There is no need for components to be earthed, as usual, when electrically conductive clamps are used.

Images: Stauff

Fastenings for special applications

Clamps for the future

The fastening of hydraulic tubes and hoses is the best-known use of Stauff clamps. However, the product range also includes special fastening solutions for the secure routing of electrical cables, pneumatic and low-pressure lines, or other supply lines.

OEMs from the most varied sectors are approaching Stauff Engineering with increasingly specific requirements, asking for special shapes, as well as specific materials. As with all uses of Stauff clamps, the secure seating of tubes and lines is also a requirement in the hydrogen industry. However, there is an additional challenge in the hydrogen sector: as hydrogen ignites extremely easily under high pressure, it is essential to prevent uncontrolled discharge of the electrical voltage in line systems and to discharge the voltage in a controlled manner instead. Only electrically conductive materials may be used to guarantee this. This requirement also applies to the components used to guide and fasten the metal pipes that are themselves conductive.

Electrically conductive and economically produced

Like most plastics, the polypropylene used as standard for Stauff clamps in accordance with DIN 3015 is an electrical insulator that does not dissipate voltage. As an

alternative, clamps are supplied made of electrically conductive material. Stauff clamps made of dissipative material have proved themselves for many years in many voltage-sensitive applications, including the bulk goods sector. Small batches of these clamps were usually manufactured mechanically as special parts from sheet material, a complex and therefore comparatively expensive production process.

A suitable plastic granulate had to be found for the significantly more economical production of larger quantities using an injection moulding process. Since 2023, Stauff has been using PP-EC granulate ("electrically conductive"), which has a lower surface resistance ($<10^4 \Omega$) compared to the standard polypropylene used, tends to dissipate rather than insulate. Since then, large batches of all series could be manufactured from electrically conductive material by injection moulding and offered on considerably more favourable terms.

The reason for this further development of the Stauff clamp range was a request received from a well-known

OEM for mobile and stationary extraction systems. Conductivity also plays a major role in this application, as electrostatic dust can easily ignite, and sparks can be produced. The metal clamps usually used with their known disadvantages, such as lower vibration resistance and higher noise generation, were to be replaced by plastic clamps. Stauff PP-EC clamps have also been extensively tested in practice in this application and are now successfully used.

Use with bulk materials, in mining, and in concrete processing

The bulk goods sector is one of the traditional sectors in which PP-EC clamps have been used. Traditional bulk goods include building materials, such as sand, gravel and cement, raw materials, including ore, coal or clay, and foods, like sugar, salt, coffee or cereals. Apart from the danger to the operator from uncontrolled electrostatic discharges, the powdered, granular or chunky granules react differently to electrostatic charge. Some have a tendency to clump and become unusable for the intended application. The electrical conductivity of tubes and their fasteners also plays a key role in other industries, for instance in mining or concrete processing. In all cases, Stauff clamps made of conductive plastic contribute to greater safety at the workplace: they protect the user from more or less strong electric shocks.

Special developments for wind turbines

WPC clamps are an example of the fastening of supply lines outside of the hydraulic sector. They were developed to route electrical lines in the towers of wind turbines. Critical properties here include simple, fast and tool-free installation with an option for subsequent adjustment (up to 70% time savings). They also require constantly high retention forces within a broad temperature range and provide protection for the cables by having soft clamping jaws made of flame-resistant UL-certified plastic. This ensures that the lines are permanently fastened under adverse conditions without any maintenance costs. This series meets all relevant industry requirements, among other things governing electrical safety.

Customised developments

Clamps made of special, flame-retardant and certified materials are also called for in the rail sector. Applications include the fastening of various supply lines, including electric cables, pneumatic and low-pressure lines or even water lines for the supply of restaurants and toilets



The number of components required is significantly lower when Multi Line Clamps are used.

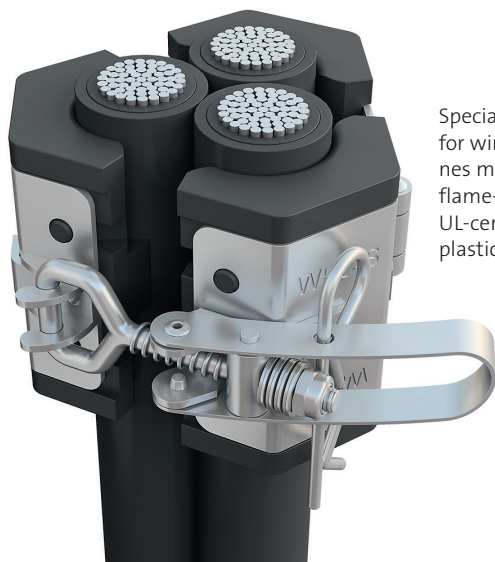


in passenger cars. They are installed “underfloor”, i.e. under the floor panel of the passenger compartment. Multiple lines (either with identical or different diameters) can be mounted in a space-saving manner using multiple MLCs (Multi Line Clamps) made of black, flame-retardant polyamide (PA-VO). Stauff meets international standards with other flame-retardant plastics (DIN 5510-2, EN 45545-2, BS 6853, NF F F 16-101, NFPA 130, JRMA).

Space-saving fastening of different supply lines in passenger cars.

Special components for trucks

Together with a manufacturer of special-purpose trailers, Stauff has developed fastening components that ensure that hydraulic and oil hoses can be guided, attached and moved, while being gentle on the material. They include cylinder supply clamps and saddle / piggy-back clamps, which guide multiple lubricating oil lines, sometimes offset by 90 degrees. Also special “snap-in clamps” with a safety ring to fasten corrugated cable protection hoses. These components increase the service life and fail safety of the line system in trailers. That is why consultation and the development of an individual solution pays off – for the manufacturer as well as for the users of the trailers.



Special clamps for wind turbines made of flame-retardant, UL-certified plastic.