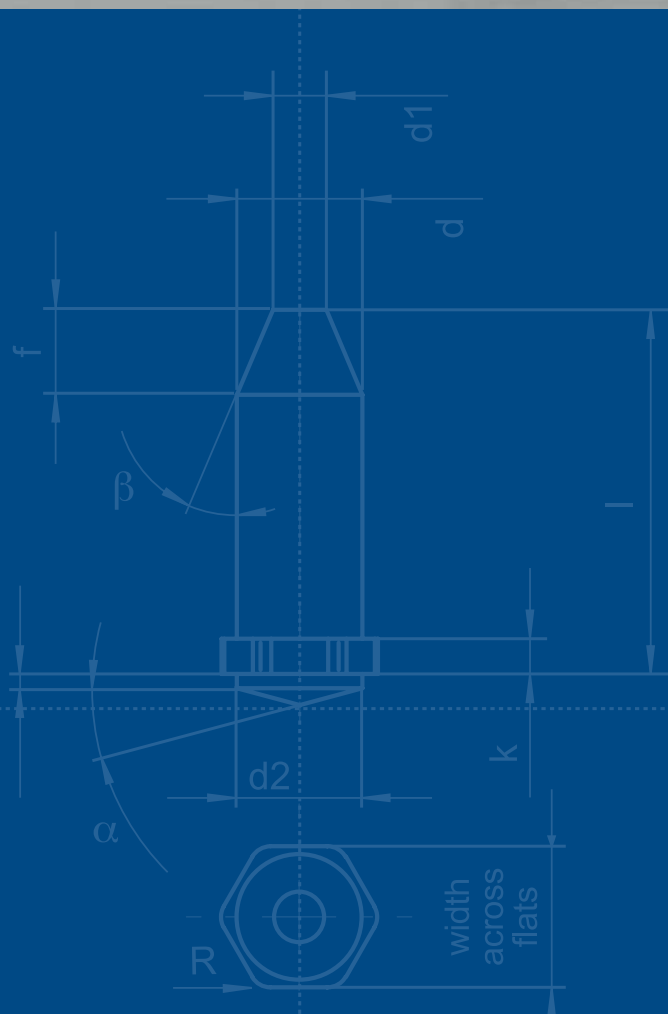




Friction welding studs

Product information



Friction welding studs



Friction welding studs
with hexagonal drive



Friction welding studs
with round plate head



Friction welding studs
with serration under head



Friction welding pin
with serration under head

Friction welding – the manufacturing process

The friction welding process is an easy and fully mechanised pressure welding process, which became established over 40 years ago as an automated welding method. It is commonly used for good reproducibility of join properties of various materials such as ferrous materials with non-ferrous materials as material combinations (e.g. steel with aluminium).

Friction welding enables high-quality welding of material combinations that cannot be joined with fusion welding – or only with considerably limited join properties.

For automated series production, e.g. in the automotive industry, the friction welding process is always the first choice within its area of application.

Newly developed special materials in particular are used economically when they can be joined with more cost-effective dissimilar substrates. This means there are always new applications.

Process of friction welding

During the rotation friction welding described here, the component spectrum is limited to rotation-symmetrical welding cross sections and a middle centre of gravity of the rotating part.

On a friction welding machine, a friction welding stud specially developed by us is rotated, depending on the friction head and welding cycle and pressed under force on to a fixed workpiece without additional material. Strong friction heats the contact surfaces extremely quickly. As soon as both materials are malleable, the rotating friction head is stopped abruptly with the stud.

With additional upset force, both parts are joined together. This creates a welding bead typical of this process.

Advantages of the friction welding process

- Many material combinations possible
- Excellent welding quality
- Good reproducibility and high process reliability
- Easy, automated parameter monitoring
- Easy integration into automated production lines
- Short cycle and welding times
- Low deformation due to symmetrical heat input
- No additional welding materials required
- Low material consumption
- No weld pool, as join temperature is below the fusion temperature
- No spray, smoke or radiation

■ Schmeck friction welding studs

For more than 20 years, we have been producing **friction welding studs** with a wide range of different geometries, strength categories and surface finishes from the following materials (with specially limited analyses):

- Construction steels, e.g. C10C
- Heat-treatable steels such as 20MnB4
- Stainless steels, e.g. 1.4301
- Non-ferrous metals

■ Friction weld studs with thread

Schmeck studs are manufactured with a standard metric ISO thread to DIN ISO 724. Other thread types are, of course, possible in consultation with the customer.

■ Dimensions

- M4/Ø4 x 10 to 50
- M5/Ø5 x 10 to 60
- M6/Ø6 x 10 to 60
- M8/Ø7,1/Ø8 x 15 to 75
- M10/Ø10 x 15 to 75
- M12/Ø12 x 15 to 75



State-of-the-art measurement technology,
e.g. use of 3D measuring machines,
ensures comprehensive quality monitoring.



Our scope of production and delivery covers:

- Weld screws to DIN 34817,
In-house standard and various automotive standards
- Weld screws to DIN EN ISO 13918
- Friction weld screws
- Weld nuts to DIN 928 and DIN 929
- Press-fit and rivet studs
- Screw-and-washer assemblies and
double screw-and-washer assemblies
- Standard and drawing parts/cold-formed parts



*Are you looking for a fixing solution
or do you have any technical questions
about our joining elements?*

*Why not contact us.
We look forward to offering you
the right fixing option.*

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