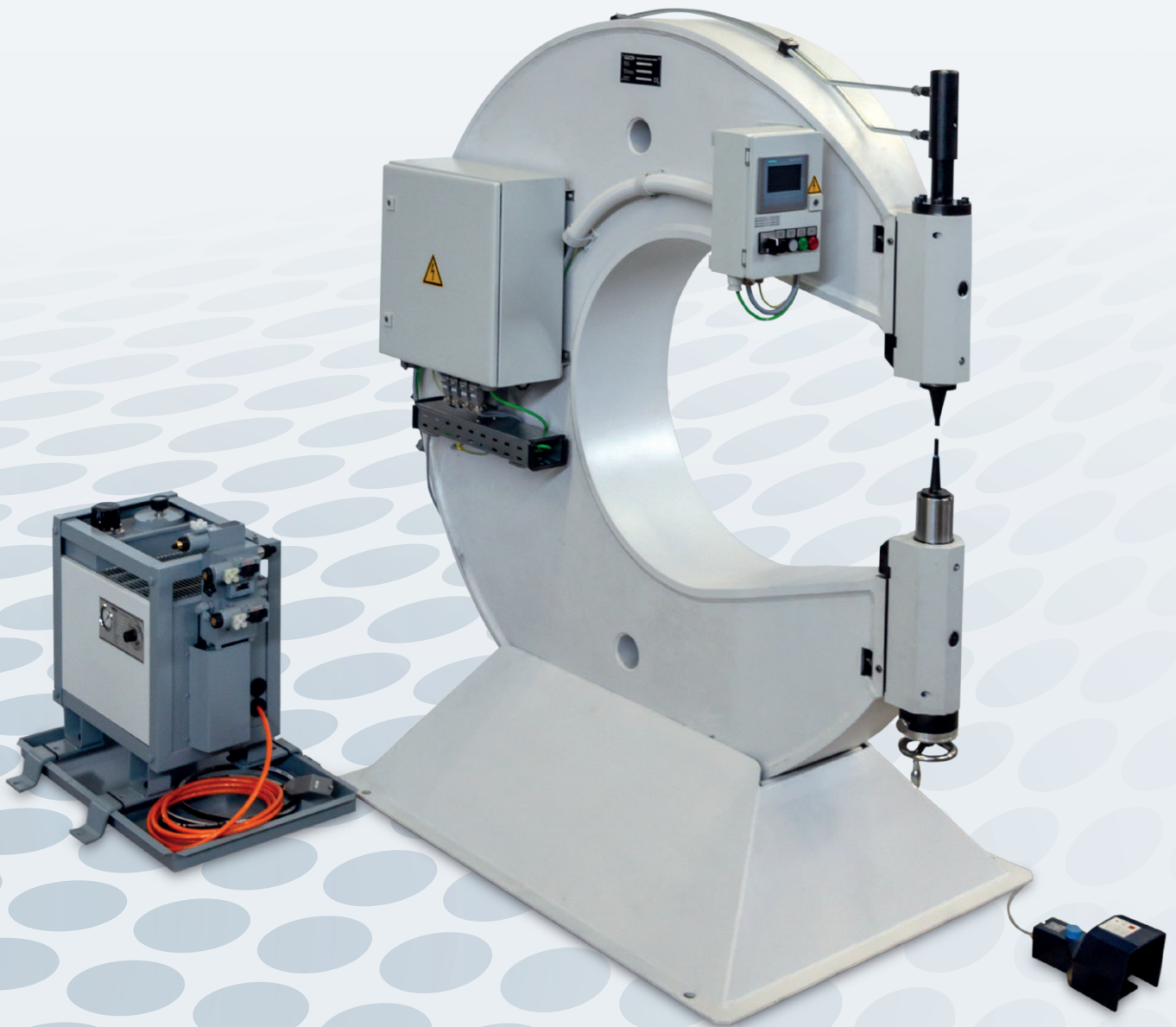


**HYDAC** INTERNATIONAL

**Hydraulic Tools  
Riveting Machines**





With more than 9,000 employees, 48 subsidiaries and over 500 sales and service partners worldwide, we are in close contact with our customers, providing engineering advice, production, installation and service.

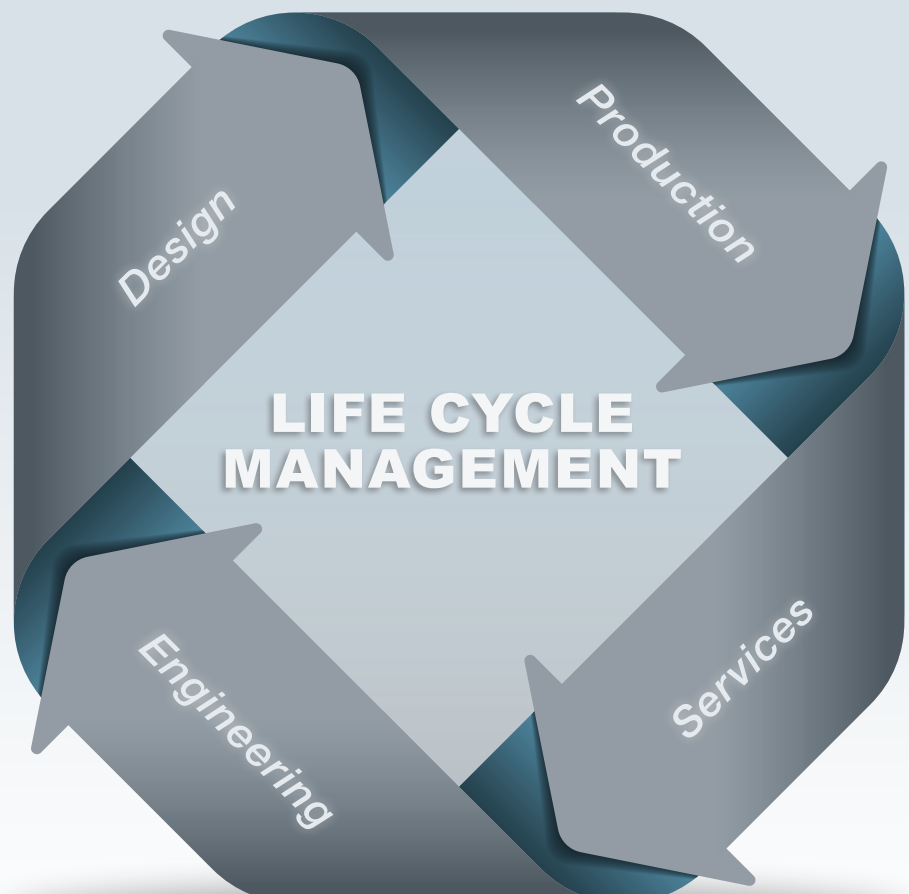
### ■ Robust, durable and extremely versatile

Riveting can be used to join **various materials**. This method can be used regardless of the chemical composition or any previous surface treatment of the parts that are to be joined. It is also possible to join more than two components. A rivet connection is a permanent connection, so the connected parts can only be separated by destroying the rivet. The rivet is the simplest and the cheapest connection element.

A rivet connection is a permanent bond and can be created without sparks or vapours being generated, unlike a weld, for example.

### ■ Complete systems and individual components

Our service portfolio includes extensive consultation, calculation, modelling, design and construction for all types of **mobile and stationary hydraulic systems for cold- and hot-riveting**. The range of services that we provide also includes commissioning on the customer's premises and comprehensive after-sales and spare part support.



## Mobile riveting machines

The diverse range of applications for mobile riveting machines covers:

- Lorry frame construction
- Wagon construction
- Pylons
- Bridge building

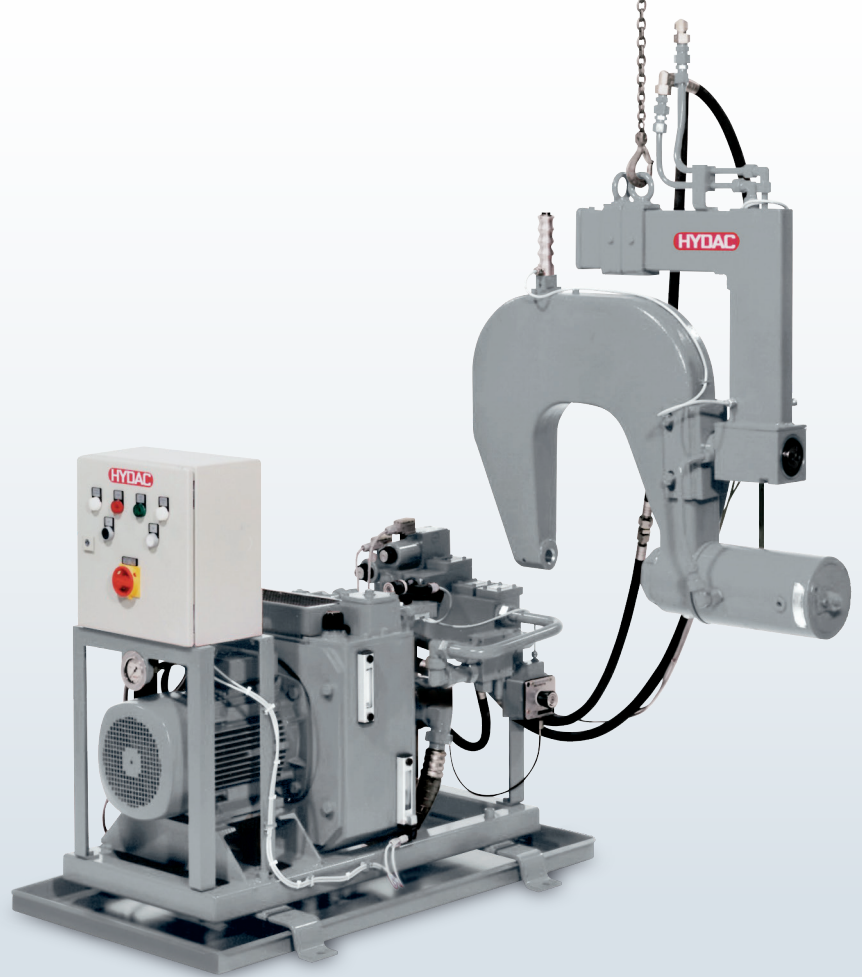
and similar applications.

Our mobile riveting machines are particularly useful for complex geometries and hard-to-access areas.

Mobile riveting machines can be provided for pressure forces **up to 500 kN**.

Mobile riveting machines essentially consist of the following components:

- Counter-pressure riveting clamp
- Working cylinder or Hydromont
- Riveting clamp suspension device
- Spring balancer incl. secondary safety chain (directly connected from crane runway to the riveting gun)
- Hydraulic power unit incl. valve control and electric control
- Riveting/punching tools
- On request, crane runway and energy chain systems



The riveting clamp is attached to the crane runway with a suspension device. The clip can be moved in three axes, so coverage is provided for the entire work area.

The drive and the control are connected to the working cylinder by energy chains.

The power unit can be placed over the work area on a platform.

When riveting frames, one riveting machine can be mounted at each side of a production line. This makes parallel work steps possible on both sides.



## Stationary riveting machines

Stationary riveting machines are mainly used in the following areas:

- Manual workstations
- Automated production processes
- Riveting of wings and fuselage sections in the aviation industry
- Pressing of membranes or similar components

Stationary riveting machines essentially consist of the following components:

- Column press or riveting machine
- Machining table
- Hydraulic power unit
- Machining tools
- On request, also with complete electric control

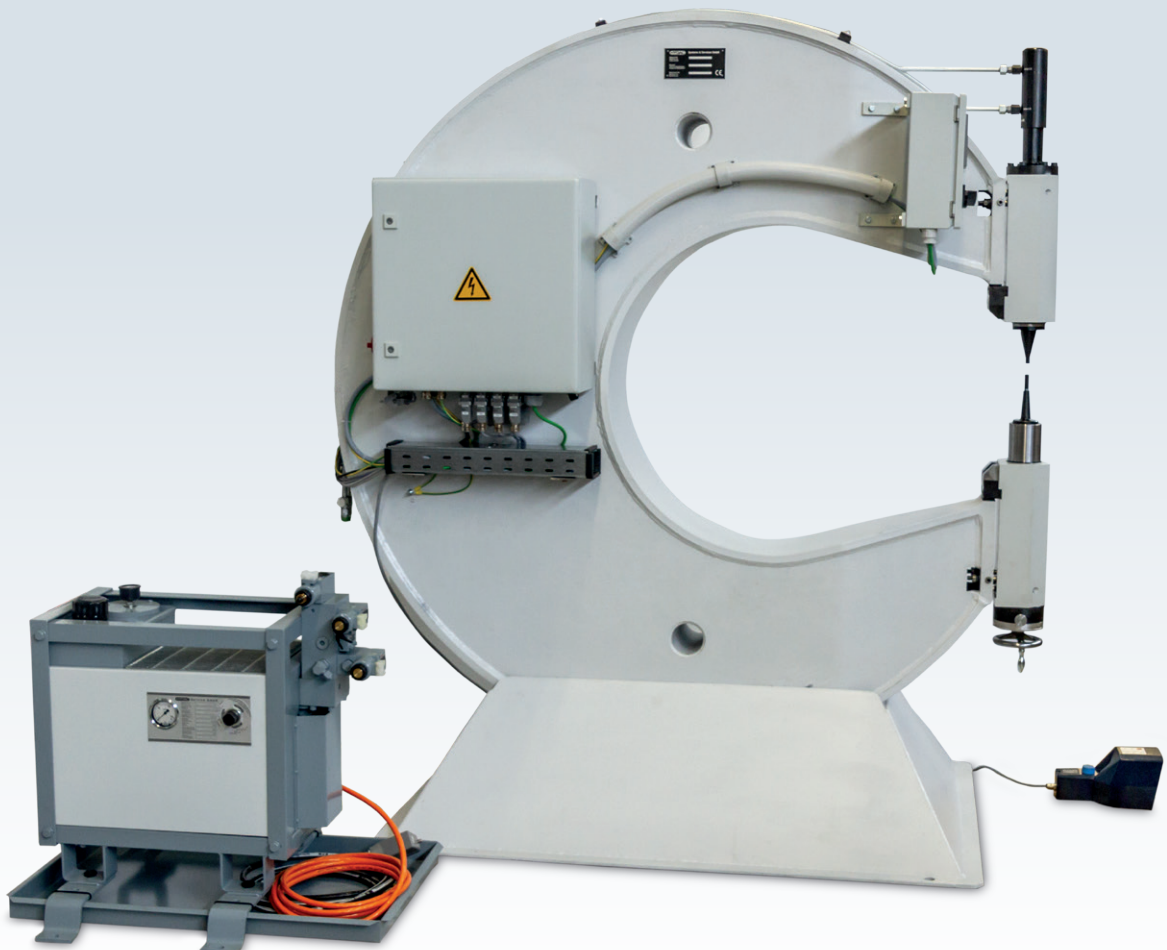
Stationary riveting machines are used where workpieces can be transported to the machine. They are made up of the C-frame or counter-pressure riveting clamp, the machining table, the riveting tools and attachments and the hydraulic unit including valve control and electric control.

The riveting can be force-, pressure- or path-dependent, with the riveting axis being vertical, horizontal or at a 45° angle.

The figure below shows a riveting machine for riveting aircraft parts with a pressing force of 63 kN.

The tail spindles are designed to hold various types of riveting tool.

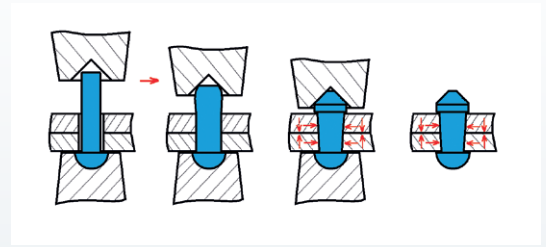
We also produce and design riveting machines – tailored to suit your particular application.



## Riveting types

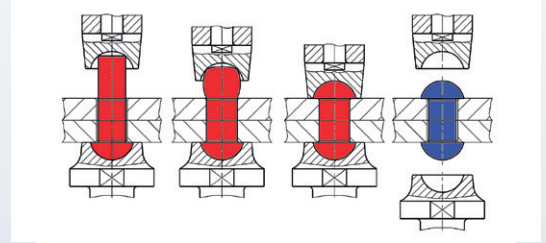
### Cold-riveting

The rivet shank is pressed into the borehole, creating an intense bearing stress. The rivet head is formed with high pressure force and the riveted parts are pressed together as the head is formed. The borehole is widened into a conical form. As the rivet does not need to cool down, it remains in this state and a friction-locking and form-locking, permanent connection is created.



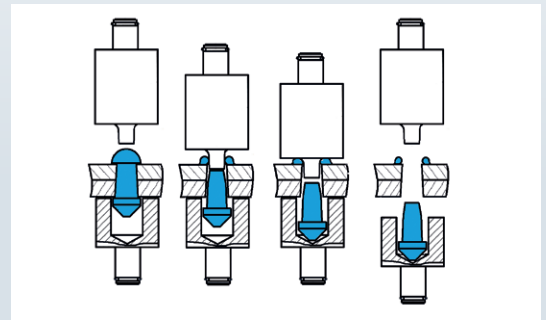
### Hot-riveting

Hot rivets are positioned in the borehole. The borehole is filled by the compressed rivet shank and then the head is formed. After cooling, the rivet undergoes shrinking in the shaft cross section and in the shaft length. This creates high tensile force in a longitudinal direction (a purely friction-locking connection!)

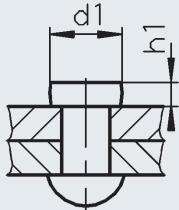
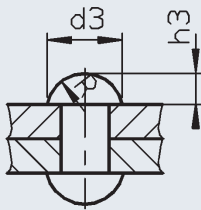
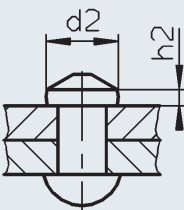


### De-riveting

Rivet connections can only be loosened by destroying the connection element. With HYDAC de-riveting tools, the riveting process can be reversed with the same riveting machine. This is done without damaging or expanding of the borehole.

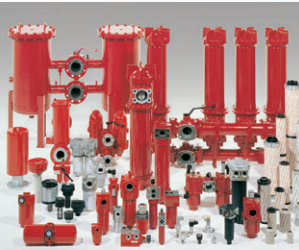


## Comparison of closing heads

Flat head	Round head	Pan head
		
Advantages		
<ul style="list-style-type: none"> <li>● Low closing force</li> <li>● Little or no deformation of the riveted part</li> <li>● Lightweight, easy-to-handle rivet clamp and rivet devices</li> </ul>	<ul style="list-style-type: none"> <li>● Good centring</li> <li>● Visually appealing</li> </ul>	<ul style="list-style-type: none"> <li>● Good centring</li> <li>● Relatively low closing force</li> <li>● Relatively lightweight rivet clamp</li> <li>● Low deformation of the riveted part</li> <li>● Same load-bearing capacity as the round head</li> </ul>
Disadvantages		
<ul style="list-style-type: none"> <li>● Bad centring, particularly for manual riveting</li> <li>● For stationary riveting, only rivet with clamps or in fixtures</li> </ul>	<ul style="list-style-type: none"> <li>● Very high closing forces</li> <li>● Thus heavy and cumbersome rivet clamp</li> <li>● Large risk of deformation of the riveted part</li> <li>● Very precise coordination needed between borehole diameter and rivet shank protrusion</li> </ul>	<ul style="list-style-type: none"> <li>● Less visually appealing than round head</li> <li>● In enclosed spaces, disadvantages compared to flat head because of taller head form</li> </ul>



Accumulator Technology 30.000



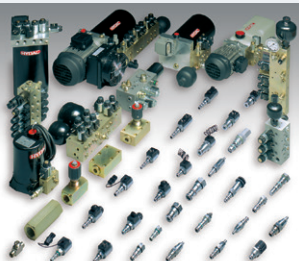
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Process Technology 77.000



Filter Systems 79.000



Compact Hydraulics 53.000



Accessories 61.000

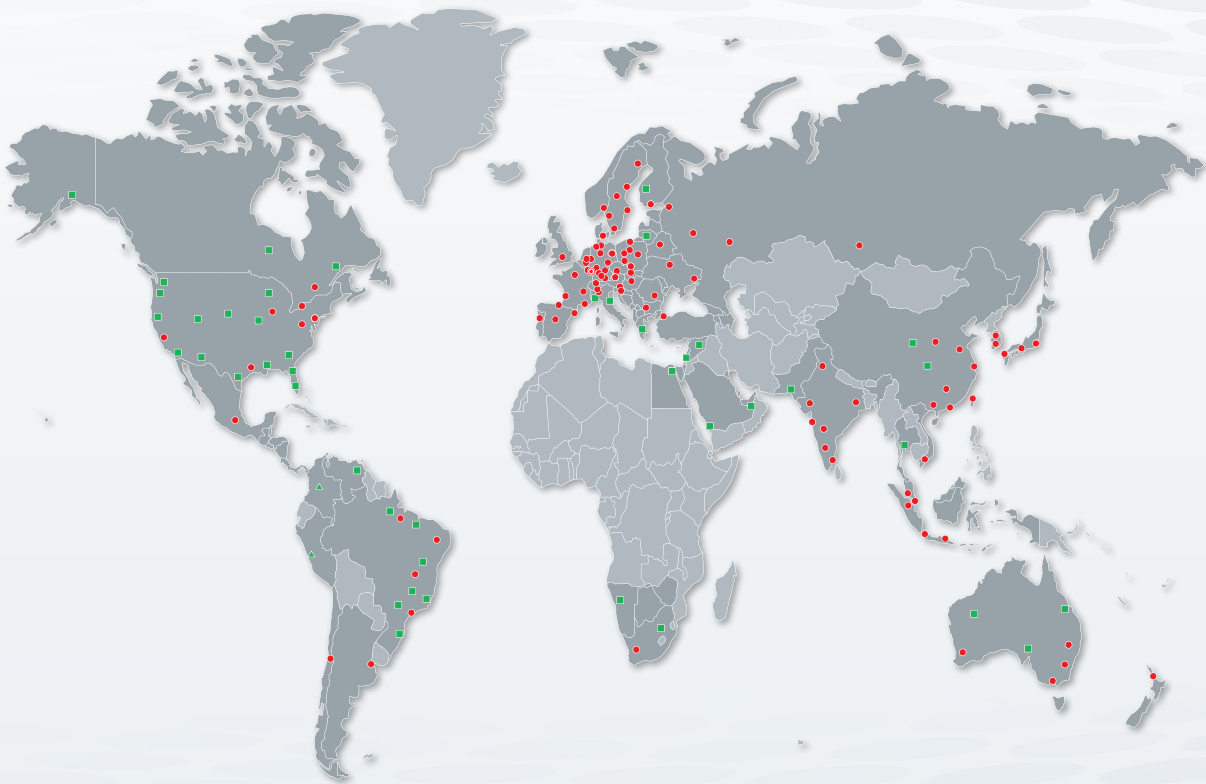


Electronics 150.000



Cooling Systems 57.000

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**Note**

The information in this brochure relates to the operating conditions and applications described. For applications and / or operating conditions not described, please contact the relevant technical department. Subject to technical modifications.