

HYDRO



THE FLUID SOLUTION

THE TECHNOLOGY OF HYDROFORMING



SALZGITTER
HYDROFORMING

A Member of the Salzgitter Group

HEADQUARTERS
IN CRIMMITSCHAU



MILESTONES

1998
Formation of the company under the name of Oswald Hydroforming GmbH & Co. KG

1999
First press stroke

2003
Complete transfer of all shares to the Salzgitter AG

2006
Renaming of the company to Salzgitter Hydroforming GmbH & Co. KG

2008
Company expansion through the integration of our Brumby branch

2010
Establishment of our location in Chomutov (Czech Republic)

Today, Salzgitter Hydroforming is one of **the most capable European** suppliers with locations in Saxony/Germany (Crimmitschau), Saxony-Anhalt/Germany (Brumby) and the Czech Republic (Chomutov).



Automated manufacturing for large-scale production

WELCOME

TO THE WORLD OF **COMPLEX GEOMETRIES**

Salzgitter Hydroforming GmbH & Co. KG develops and manufactures sophisticated components using hydroforming. As a **specialist in technology** we supply leading automotive manufacturers and their suppliers with ready-to-install components for the **chassis, the car body and exhaust systems.**

In the field of **heat technology** we are your partner for parts subject to particularly high demands on flow characteristics and energy conversion efficiency. Further application areas are power engineering, aerospace industry, mechanical engineering, medical engineering as well as the furniture industry.

Being one of the **leading hydroforming experts** in Europe, we stand for reliable services and high-performance products at their best.



YOUR RELIABLE PARTNER

- **Leading European manufacturer of hydroformed parts**
- **Development from the first idea to the ready-to-install component**
- **Certified quality at optimal costs**

Our Workflow

1 CONCEPT DEVELOPMENT

2 METHOD PLANNING / PARTS DESIGN

3 SIMULATION

4 TOOL DESIGN

5 PROTOTYPING

6 SERIES PRODUCTION



// DEVELOPMENT MEANS **TEAM WORK** WITH THE CUSTOMER

Each project starts with an idea. To turn your idea into an actual part, an **efficient** and **experienced** team of Salzgitter Hydroforming developers stands by your side. This means: professional consultation and support in all matters from the first moment on.

// COMPREHENSIVE COMPETENCE IN DEVELOPMENT AND A STRONG CAE ENVIRONMENT

To meet design requirements optimally, all the computer-assisted systems and tools necessary are available. Furthermore, we use **advanced, field-proven simulation software** for feasibility analyses and production method verification. Finally, the production of near-series prototypes completes our development process.

// RESEARCH & DEVELOPMENT

Our research and development enhances our technological expertise beyond present limitations allowing us to continuously cater for your future challenges. This leading technological edge is your advantage in time at the start of series production. To this day, we have already found solutions in many cases for the demanding tasks of high-strength structures, variable wall thickness distribution, new materials and integrated functions for the next generation of parts. Thanks to the cooperation with our affiliated companies, we are consistently informed about the latest trends in technology.

INNOVATION

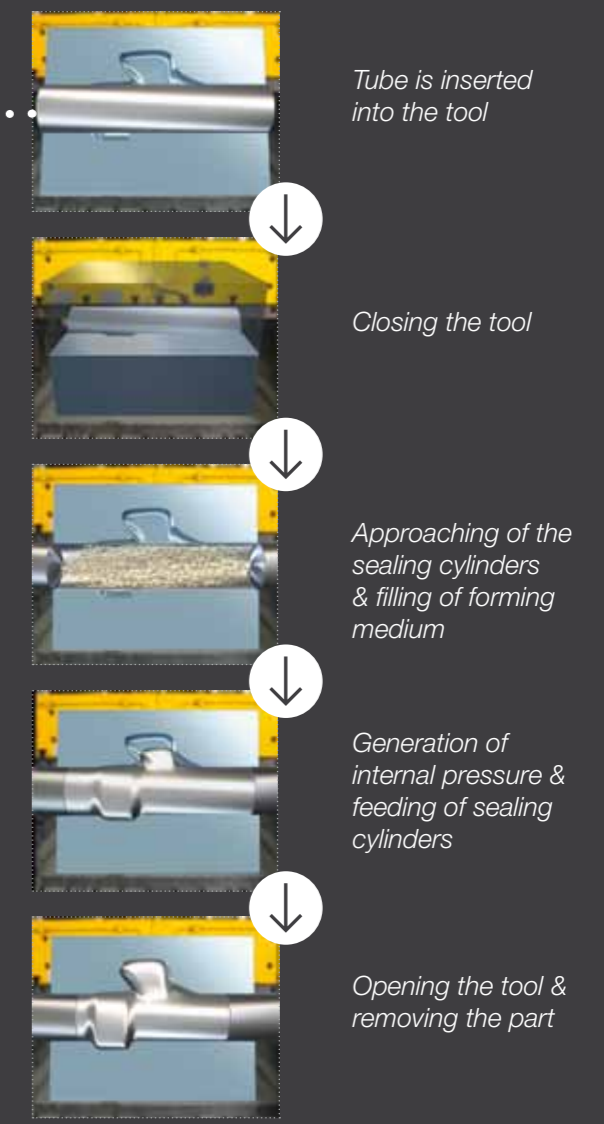


HYDROFORMING PRESSES WITH CLAMPING FORCES FROM 5,000 TO 50,000 KN
TUBE DIAMETERS FROM 15 TO 150 MM

WATER PRESSURE

THE HYDROFORMING PROCESS

The semi-finished product, mostly a straight or bent tube section, is inserted into a forming tool. The upper and lower die of the tool are then closed, the tube is filled with water and is sealed with the aid of axial cylinders. By applying internal pressures of up to 4,000 bar, the tubes are precisely formed against the die geometry with absolute repetitive accuracy. The simultaneous feeding of the axial sealing cylinders supports the material flow and allows for the highest degrees of forming.





Your parts in expert hands: hydroforming, bending, laser cutting, heat treatment



Automated production for large series

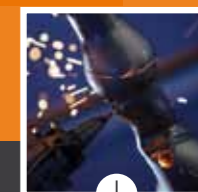


Tool & die making



WE PROVIDE
FULL SERVICE
CONCERNING YOUR PART

In order to put into practice your hydroformed products, we possess expertise on all upstream and downstream manufacturing processes, which are flexibly integrated into our workflow.



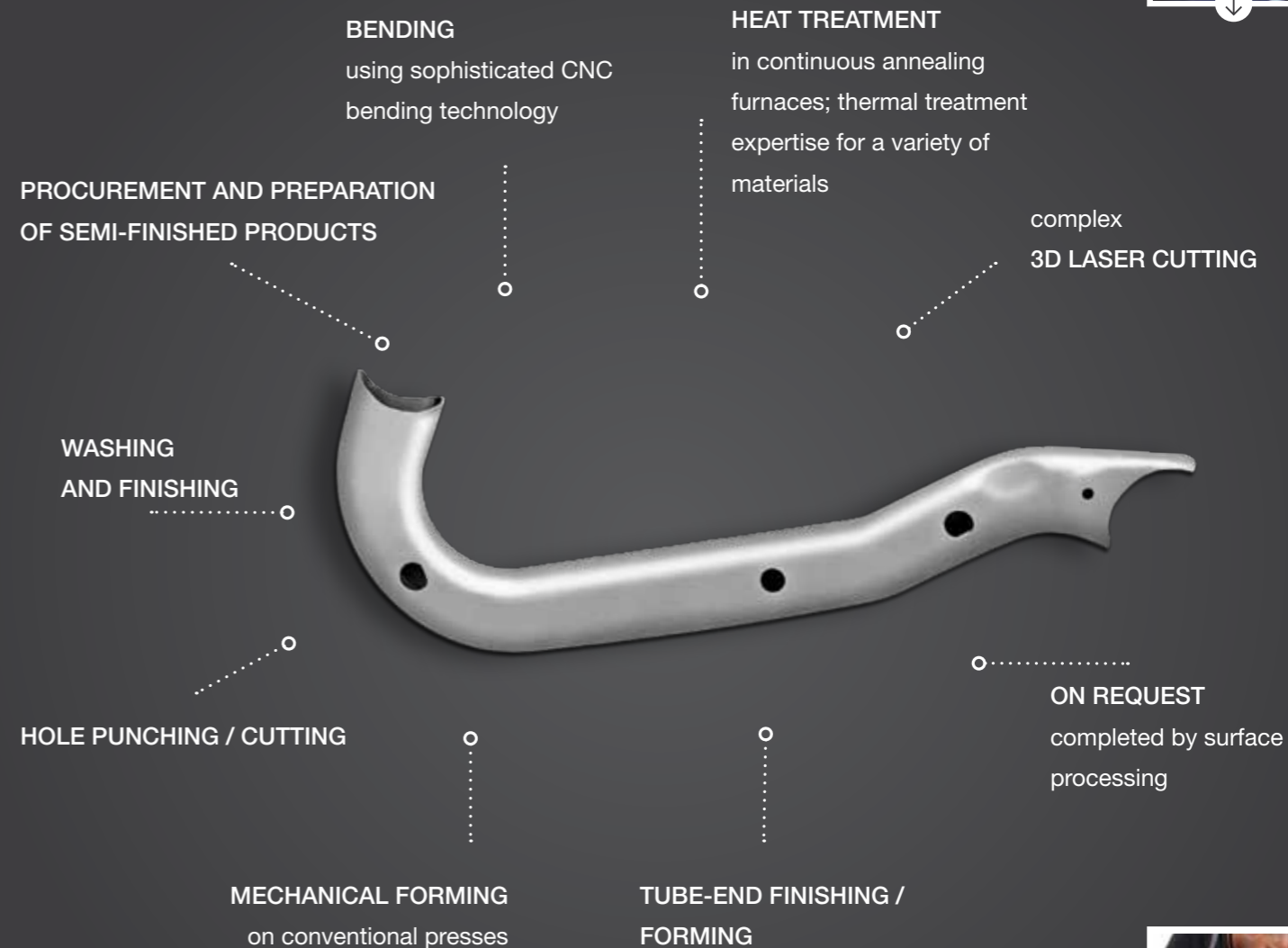
FROM FITTINGS TO LARGE
STRUCTURAL PARTS

Salzgitter Hydroforming is the European manufacturer offering the broadest product range: **hydroforming presses with clamping forces from 5,000 to 50,000 kN and workable tube diameters from 15 to 150 mm. Suitable machines and tool concepts are available according to most product requirements and dimensions.**

FROM SMALL TO
LARGE-SCALE PRODUCTION

The manufacturing concept is individually adjusted to the number of pieces desired and costs are optimized:

- Prototypes and small series are produced manually
- Tailor-made automation of single processes complements the manual production in the event of medium-sized series
- Large series are manufactured on fully-automated production lines



ADVANTAGES OF HYDROFORMED PARTS

Processing of various metal based materials, such as carbon steels // stainless steels // tempering steels // aluminium // copper, etc.

PRODUCT FIELDS

- ▶ CHASSIS
- ▶ CAR BODY
- ▶ EXHAUST SYSTEMS
- ▶ POWER AND THERMAL ENGINEERING
- ▶ ...AND MAYBE YOUR APPLICATION

HIGH ACCURACY OF SHAPE AND REPEATABILITY
 HIGH WORK HARDENING RATE
 VERY HIGH FORMING DEGREES
 UTILIZATION OF THE SMALLEST AVAILABLE SPACES
 HIGH STIFFNESS

LOW WEIGHT
 MINIMUM WALL THICKNESSES

EXTREMELY TIGHT BEND RADII
 OPTIMAL FUNCTION INTEGRATION
 STREAMLINED SHAPES
 HIGH SURFACE QUALITY

THIN-WALLED LIGHTWEIGHT CONSTRUCTIONS



TIGHTEST BEND RADII



HOMOGENOUS WALL THICKNESS



SOPHISTICATED TUBE-END FORMING



EXTREME FORMING DEGREES



HIGH REPEATABILITY



FASCINATING FEATURES, DIVERSE APPLICATIONS

REPEATEDLY ACCURATE AND HIGH-STRENGTH

Closed profile sections without disturbing flanges or joints result in repeatedly accurate, high-strength parts.

CRASH-SAFE AND FATIGUE ENDURABLE

Homogenous forming throughout the part allows for full utilization of the materials' work hardening potential, e.g. with respect to stress loads in crashes or dynamic load conditions.

LIGHTWEIGHT CONSTRUCTION PERFORMANCE AT THE TIGHTEST AVAILABLE SPACES

Parts designed according to their specific stress conditions ensure high stiffness and the implementation of lightweight construction principles while optimally utilizing the smallest available spaces.

FLEXIBLE IN CROSS SECTION AND VARIABLE

Thanks to flexible cross sections and maximum design freedom, hydroforming, besides typical applications in the automotive industry, also caters for a variety of other industrial sectors, such as thermal and power engineering, aerospace industry, mechanical engineering, medical engineering as well as the furniture industry.

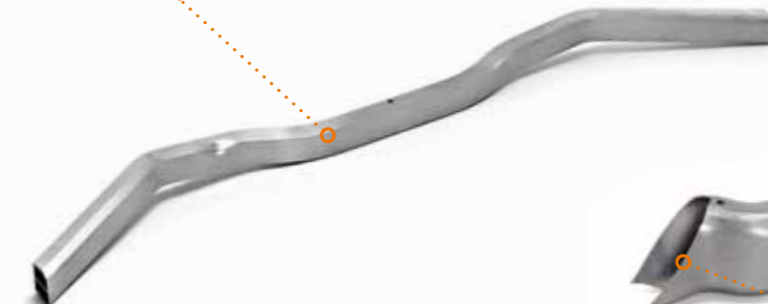
HIGH STIFFNESS



PRECISE HOLE POSITIONING



HIGH-PRECISION SHAPES



SOPHISTICATED TUBE-END TRIMMINGS



EXCELLENT FATIGUE STRENGTH





// **CERTIFIED QUALITY**
IS THE MEASURE OF ALL THINGS

We guarantee consistent quality assurance. We are certified according to the ISO TS 16949 and ISO 9001 quality management systems as well as to the DIN EN ISO 14001 environmental management system.

In manufacturing and product inspections we rely on 3D coordinate measuring technology, intelligent measuring equipment and gauge concepts ensuring that installation capability and functionality can be reliably monitored.



PRECISION
IS OUR ABSOLUTE TERM

05 // QUALITY ASSURANCE

FORMING

WWW.SZHF.DE

// **FLEXIBLE AND SMOOTH LOGISTICS**
FOR LEAN PRODUCTION SYSTEMS

Our logistics processes can be adjusted to our customers' production systems, e.g. KANBAN, batch controlled manufacturing or consignment warehousing. Packaging concepts are individually agreed.

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