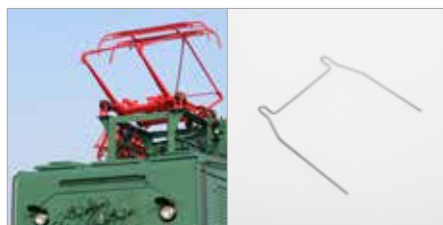
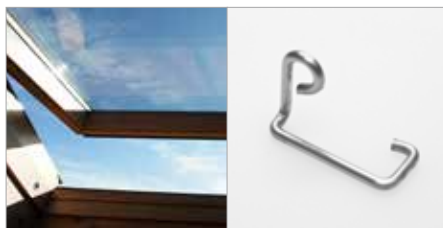




**Developing - Punching - Bending - Austempering - Testing**



**We are  
your  
partner**

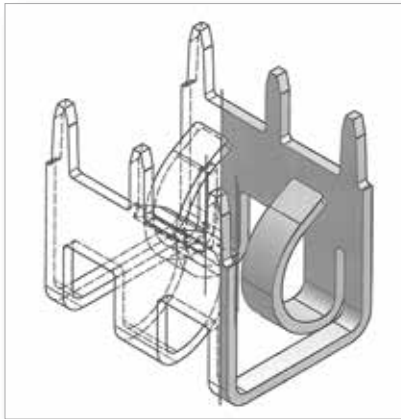


**From the idea to the quality-controlled final product.**

Together with our customers, we create designs until specific components are developed for prototypes. A few days later, experimental prototypes are provided for testing so that they can be further improved and new tests can be made.

Only after the conclusion of this process is the tooling begun. Highly skilled professionals perform all of these tasks. Only with the production release does the production start-up begin. Once the product has passed all of these production

steps, if requested, we will also carry out routine tests in order to be able to provide the customer with a corresponding production protocol.





**No one is too small, to be a master of it all.**



**oTRA**







**In-house  
tool shop**

**Punching & Bending**

Our machining facility, which is set up for all operations and is run by specialists, also serves to shorten the development phase; thus reducing the time from development to the start of production.





**Bainitic  
Process**

**Austempering**



Austempering (properly referred to as the bainitic hardening process) improves the properties of the components in terms of elastic characteristics through a refined microstructure, i.e. longer service life and more stable elasticity.

The special feature of this process is the smaller difference between the furnace and the annealing temperature.

Thus, a highly refined microstructure is formed in the hardened material and this then

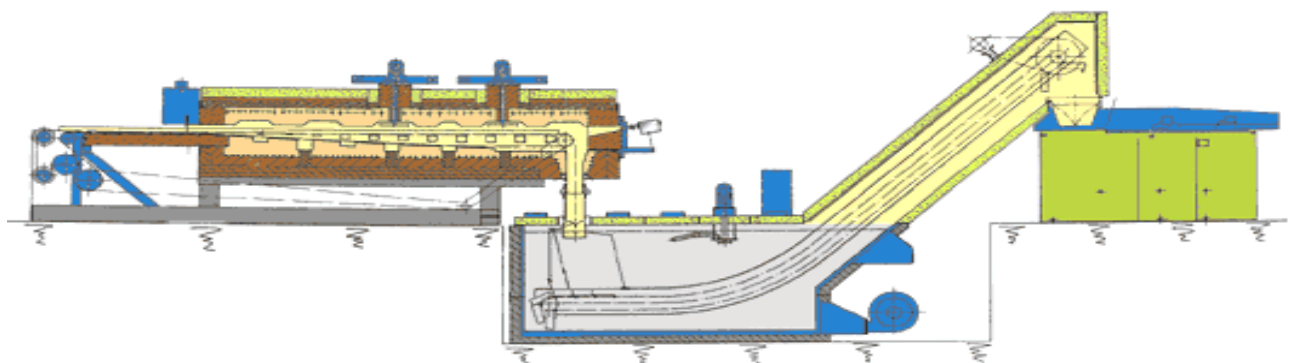
causes improvement in elasticity by significantly reducing the percentage of martensite.

Applicable for demanding and spring-stable products, such as components for steering mechanisms with a high level of stress duration.

## Advantages of Austempering:

- significantly lower hardening distortion of the part
- longer service life at high values
- smooth surface (no oxidation residues)

At OTRA, the bainitic hardening process is continuously optimised in order to always better meet the customer's needs.



Feeder

Heating for  
austenite

Cooling / Tempering  
Salt bath with annealing temperature

Washing with  
rust protection

Us



From the idea to the finished product all in one place

## ...at your service

Through many years of experience and close customer contact, we know what matters and have set ourselves the goal of implementing the customer's wishes to their full satisfaction. Together with the customer, we

design components that are defined in form and function, material and dimension (thickness 0.05 to 2.0mm / width up to 60mm / feeder up to 220mm). Whether made of aluminium,

bronze, copper, beryllium copper, brass or steel – soft, hard or NIRO – products are created, developed by our team, in the highest quality and executed on schedule.



**Philipp Ostermann  
von Roth**  
Managing Partner



**Sergej Pfeifle**  
Construction Design



**Susanne Hüßner**  
Accounts Manager

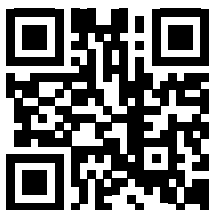


**Bernhard Benz**  
Technical Sales Manager



**Tobias Lezakov**  
QM Representative

- Experience
- Quality Awareness
- Innovation
- Flexibility
- Commitment
- Reliability
- Confidentiality



This QR-Code takes you to our website  
**[www.otra-salach.de](http://www.otra-salach.de)**

You can also find our corporate video on  
the homepage.