



**STAHLHÄRTEREI
HAUPT** HÄRTE IST HAUPT-SACHE

OVERVIEW | STATUS OF 12/2017 | E HARDENING & TEMPERING

Conversion hardening
Quenching
Tempering

Dimensions:
max. 1500 mm x 3000 mm

Fully automated Process

HARDENING

The most important heat-curing method is the conversion hardening, in which the crystal lattice of the workpiece is converted during the quenching of austenite into martensite.

In a second step, the so-called tempering, we reduce the hardness and establish the desired properties (hardness, tensile strength and toughness) of the steel. We then heat the steel again, depending on alloying proportions and desired properties. This results in the desired hardness of use.

The higher the tempering temperature, the lower the hardness. The toughness increases. Depending on the content of alloying elements and carbon, tempering is carried out in the temperature range of 100-350 ° C, for high-alloy steels up to 600 ° C.

The combined process of hardening and tempering is also called hardening.

TEMPERING

Hardening of steels, hardening and subsequent tempering in the upper possible temperature range is used to achieve good toughness properties with a given tensile strength.

The highest toughness is achieved when the hardening structure consists of martensite, which is however only conditionally possible with larger cross-sections.

Therefore, the selection of suitable tempering steels with satisfactory hardenability must be based on the workpiece size.

ADVANTAGES:

- Increased material toughness

APPLICATIONS:

- Gear and drive components
- stampings
- machine components

MATERIALS:

- Tempered steels