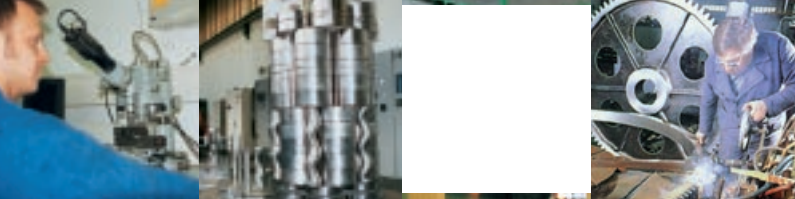
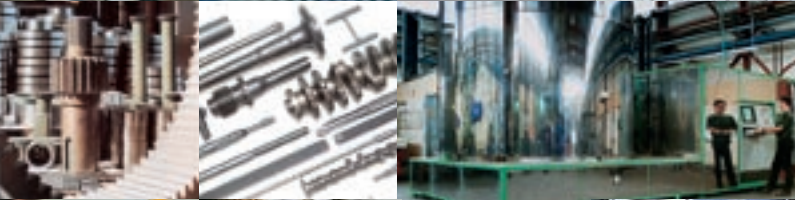
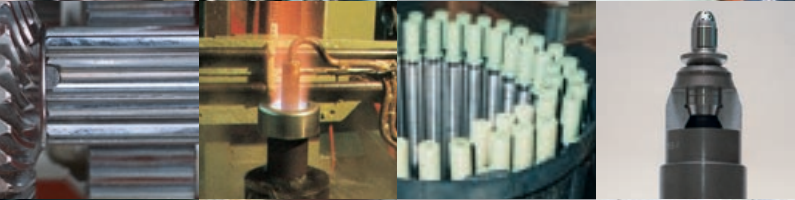




REESE

DIE HÄRTEREI



Tradition and creativity

Härterei Reese Bochum GmbH was founded in 1948 by Dr.-Ing. Helmut Reese. It soon developed into a universal hardening operation which offered a wide range of heat treatment processes. In Bochum new processes were developed and established technologies optimized.

High investment in modern plant engineering has ensured that reproducible hardening results are achieved. However up-to-date plant isn't everything: In spite of automation the know-how of our employees is as ever a most important factor for optimum hardening results.

CASE HARDENING · CARBONITRIDING

Batch sizes of up to 16 t; max overall dimensions: 2,500 mm diameter x 2,500 mm, 1,400 mm diameter x 5,500 mm, 2,150 mm diameter x 4,120 mm.

INERT GAS HARDENING AND TEMPERING

In a regulated furnace atmosphere, max overall dimensions: 2,500 mm diameter x 2,500 mm, 1,400 mm diameter x 5,500 mm, 2,150 mm diameter x 4,120 mm.

NITRIDING AND NITROCARBURIZATION

Plasma, gas & vacuum, passivation (corrosion protection), max overall dimensions: 2,500 mm diameter x 3,400 mm

VACUUM HARDENING

Temperatures up to 1,300 °C, max overall dimensions: 650 mm x 1,100 x 720 mm

ANNEALING

In a regulated atmosphere, temperatures up to max 950 °C, max overall dimensions: 2,500 mm diameter x 2,500 mm, 1,400 mm diameter x 5,500 mm, 2,150 mm diameter x 4,120 mm.

SURFACE HARDENING

Inductive and flame hardening of shafts, axles etc. up to a max 1,000 mm diameter x 10,000 mm (16 t weight). Rotary hardening up to 1,250 mm diameter, single tooth hardening on gearwheels of up to 5,500 mm diameter.

STRAIGHTENING

Precision straightening presses; max pressing force: 800 t, max workpiece length: 10,000 mm.

SHOT BLASTING

Max dimensions: 2,200 x 1,800 mm

BURNING TESTING

By means of nitral etching to a max diameter of 1,200 mm.

QA · CONSULTATION · SERVICE

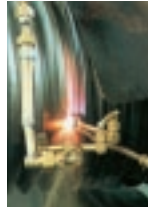
Hardness testing, micrographic examinations, spectral analyses, expert surveys.

Härterei Reese Bochum is therefore proud of its committed workforce and it trains its own employees just as the Härterei Reese branches in Brackenheim, Chemnitz and Weimar do as well.

This association of Härterei Reese operations guarantees a high level of process competency which has been gained in over 50 years of company development – for the benefit of its customers.



The complete spectrum of hardness technology



Härterei Reese Bochum works – amongst others – for companies in the machine construction and toolmaking areas, for the motor industry and gearbox manufacturers. To achieve optimum heat treating results for the most diverse design elements with their wide material spectrum, modern, largely automated plant engineering is available, whose process

control system ensures flexible and economic use.

For case hardening, tempering, carbonitriding and annealing, Härterei Reese Bochum uses – amongst other things – a new automated multi-purpose chamber oven line, whose control system continuously queries and evaluates the important process parameters. Five million DM was invested in this plant alone, which was started up in 1999.



Härterei Reese Bochum is also renowned in its neighbouring European countries as the specialist for **long-term heat treatment** and for the

hardening of large workpieces. In this area for example especially large-scale plants are available for the case and surface hardening of components up to 10 m long and weighing up to 16 tonnes. Inert gas hardening furnaces can take components up to 5,500 mm long and 2,500 mm in diameter. Computer-controlled plants for MF and HF induction hardening complete



the selection of processes. Any distortion in the components can be compensated for on Europe's largest precision straightening press (pressing force of 8,000 kN).

As the first hardening shop to do so, Härterei Reese Bochum offers **burning testing for the quality assurance of highly-stressed gear components.** This test helps to detect micro-structural changes caused by partial overheating during grinding. Many gearbox manufacturers use this service, through which considerable economic damages can be avoided.



Universal hardening shop with researched know-how



Research, development and the exchange of experience during seminars on technical hardening aspects are the innovative basis of our daily work. As a result of development work, carbonization processes are today possible up to a case hardening depth of 9 mm. In the case of the nitriding process, this hardness depth is 1.2 mm. Since 1998 we have succeeded in significantly improving the **dimensional accuracy of case hardened items**. This means for example that gearbox manufacturers can achieve considerable cost reductions in tooth flank damage. The hardness laboratory supports this work and investigates the materials and causes of damage as part of the customer contract.

From QM zu TQM

Quality is the first commandment for technical hardening services, since this decides the service life and loading capacity of the hardened workpieces. Härterei Reese Bochum is fully aware of this responsibility: Its QM system has been certified according to DIN EN ISO 9001.



This high level of quality is not only valid for the whole heat treatment process but also for the consultation and delivery service. So as part of our commitment to Total Quality we are always aiming for continuous improvements in the quality process.

Responsibility for the environment

Responsibility for environmentally-correct production in the workshops of Härterei Reese Bochum is an important concern. As the first hardening operation in Germany to do so, it operates with an environmental management system which is certified according to DIN EN ISO 14001 and the measures in the Ecological Audit Regulations (German).

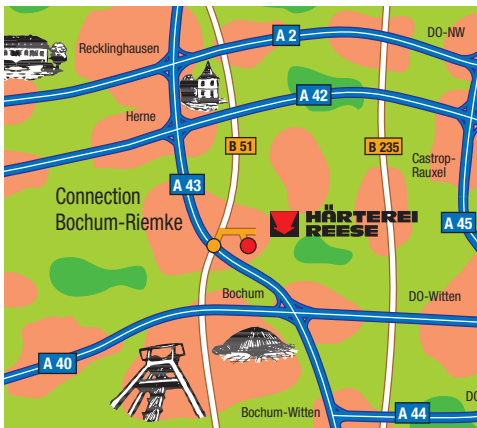


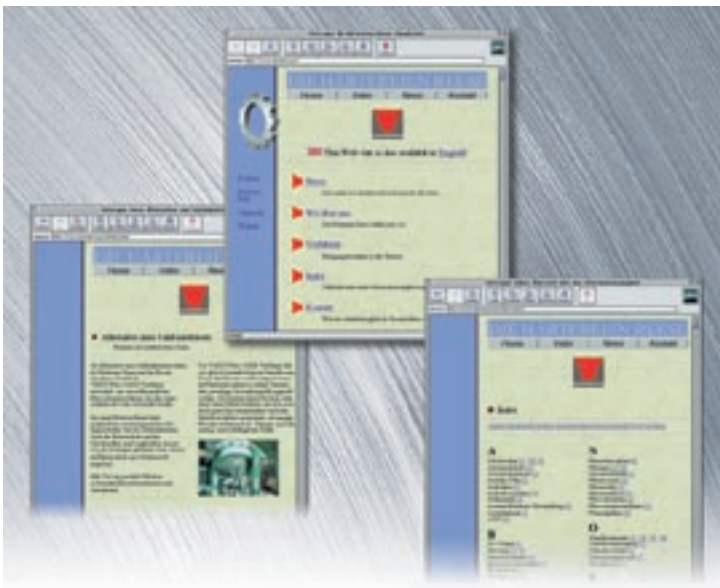
Consultation is an important ingredient

The experience of the company Härterei Reese in Bochum shows that cooperation with companies incorporating heat treatment measures very early in the design process is always the most successful. From the economic point of view advantages always arise from this procedure in that material selection, the processing sequence and the hardening process are all optimally matched to one another. Then under certain circumstances it is possible to carry out the early planning of grinding allowances or even get rid of intermediate processing steps. Härterei Reese Bochum supports its customers in material selection and brings its know-how into the design and production process.

In the case of hardening

In the case of scheduling problems, technical questions or emergency technical hardening situations, Härterei Reese Bochum offers special help: **The hardening service.** This service comes into action when speed and flexibility – the typical virtues of the service industry – are needed, perhaps because delivery dates get too close or where special technical hardening tasks are called for.





More Information?

Would you like to know more?
Just visit us on the Internet.
At the address:

<http://www.hardening.com>

we will introduce you to the four locations of Härtereie Reese. At this site you will also find a dictionary of hardening technology in which you can call up detailed and illustrated information on numerous keywords in the heat treatment area. If for example you would like to know for which materials and applications nitrocarbonization is suitable you will soon find a qualified answer.

You can also obtain further information via our service telephone:

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