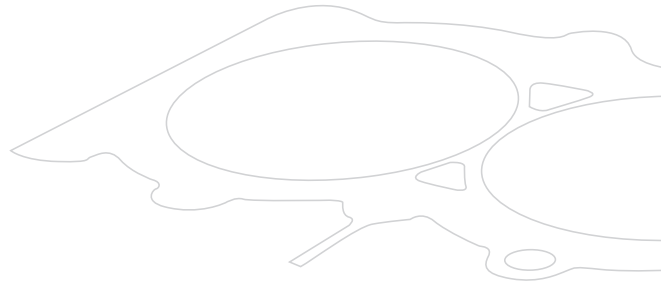




Gehring

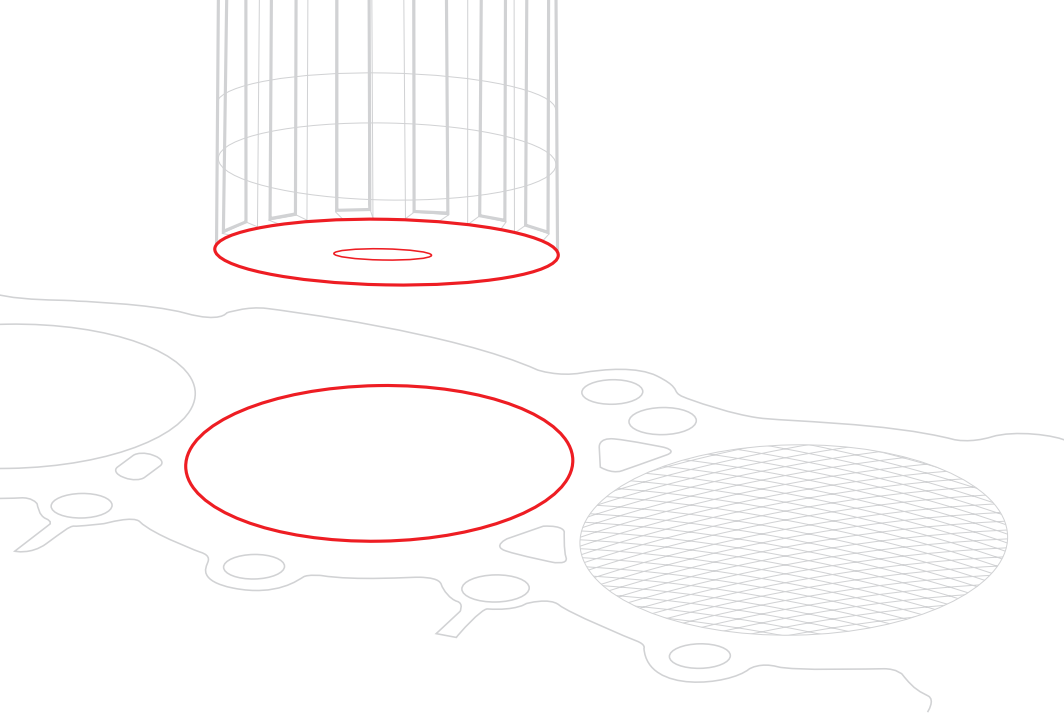


*To introduce
ourselves*



We are a globally operating machine tool company in the area of honing technology. Since 1926, the most important technical impetuses, which have made honing what it is today - a globally sought after high performance process, have come from us. There is hardly anyone in the entire metal working industry who wants to go without the performance we offer. This is our recognition and daily incentive.





Our pledge to our customers is optimal tribological surfaces for the highest possible efficiency. From abrasives to complete honing centers, we offer everything from one source: individual system and process solutions for individual requirements.

Whether in China, Brazil, India, the USA, France, or Germany, our engineers and technicians support our customers at their locations. In order to satisfy the high demands of modern manufacturing systems, we offer comprehensive training, retrofitting, and full service support via our technical service department.

Almost 90 years of experience and a constant drive towards innovation have made Gehrting the world market leader for honing technology. It is our goal to extend this position by convincing the worldwide market of our performance.





Honing technology

- What is it?

Honing is a precision stock removal process for practically all raw materials. The main application is the machining of bores, but it can also be used for plane surfaces, waves or untrue bores. The goal is improving size and shape, or rather, optimizing the tribological characteristics. This means defined surface properties which arise during friction processes, such as in bearings, engines, transmissions and machine elements.

The advantage is obvious: The better these characteristics are, the higher the savings in energy cost, material use, production and maintenance. By using our honing technology, reliability and security are substantially increased, energy and raw material resources are protected and environmental impact is minimized - a fact that we strongly ascribe to with our guideline „Gehring goes green“.

With honing, bore accuracy of less than $1\ \mu\text{m}$ diameter tolerance and surface accuracy of less than $0.04\ \mu\text{m}$ are achieved. As a comparison, a human hair has a diameter of about $60\ \mu\text{m}$, and a paper clip is about $1,000\ \mu\text{m}$. Compared to other processes such as internal grinding, honing is not only easier, faster and more cost-effective, it is also more precise.

We are proud that our achievements have satisfied customers from the entire metal working industry.

Examples:

Automotive industry

Audi
BMW
Chery
Daimler
FAW
Fiat
Ford
General Motors
Peugeot
Porsche
Renault
Scania
Volkswagen
Volvo

Their suppliers

Bosch
Federal Mogul
Mahle
Shanghai Gear
Wuxi Weifu

Manufacturers of construction and utility vehicles

Caterpillar
Doosan
Liebherr

Machine and tool making

Comau
Duap
Heidelberger Druckmaschinen
MAG
Oerlikon

Our Customers

Manufacturers of hydraulic and pneumatic parts

Beijing Huade
Bosch Rexroth
Hawe
Linde

Aerospace technology

Dowty
Hindustan Aeronautics
Magnaghi Aeronautica

Ship building

B&W
MAN Augsburg
Wärtsilä

„We know from experience that Gehring is an above-average competent and reliable supplier.”

Bosch

„In view of the challenging tasks, the Gehring team has done an outstanding job.”

Ford Valencia

„In our current supplier assessment by means of six different quality criteria, Gehring has achieved top marks. Congratulations!”

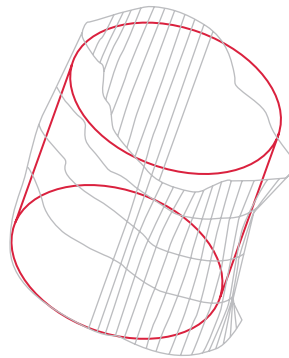
Höckle





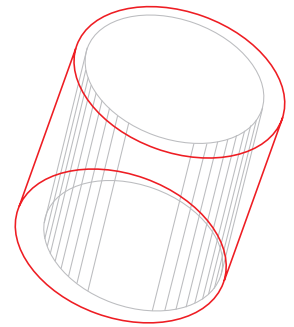
Specifically developed technologies

Part of our self-concept is to stay technologically one step ahead. Only with trendsetting techniques, versatile process solutions and the constant development of new ideas can we meet the high demands of our customers. Following are several examples of the technologies developed by us.



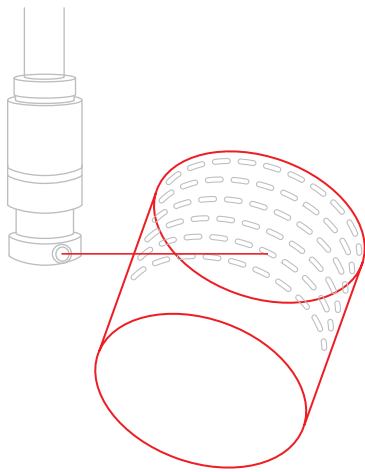
Form honing

The cylindrical shape of a combustion engine distorts under operating conditions. Form honing compensates this deformation during manufacturing which results in a nearly cylindrical shape under operating conditions. This influences exhaust quality, oil and fuel consumption, performance and wear. Form honing reacts on current requirements of the automotive industry for more efficiency and high quality of exhaust emissions. Cast-iron as well as thermal coated cylinder bores can be form honed in economic processing time.



Position honing

The goal of position honing is to shorten the process chain of cylinder block production without a loss to the final quality. Position honing combines fine boring and rough honing into one step. This improves not only size, form, and surface accuracy, but also positional accuracy such as perpendicularity and bore position. Particularly advantageous is position honing of thermal coated cylinder bores. Regarding the positional accuracy and tool life, position honing is superior to fine boring because of economic and quality reasons. The result is lower investment for the finishing process as well as lower costs per unit.

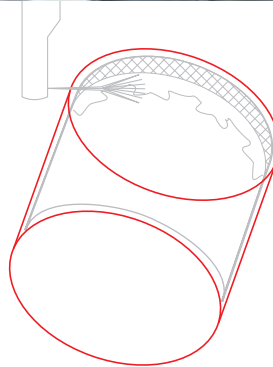


Laser structuring

Laser structured surfaces enhance as static friction and serve as absorption of torques and shear forces. Elevated micro-topographies achieve a stable connection of components. Friction based connections with laser structured surfaces are applied for example in big connecting rod eyes, cast cams and spur gears.

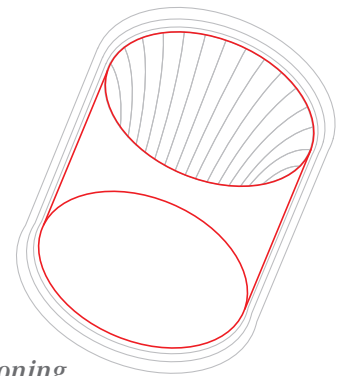
Laser-Honing

Laser-Honing is reducing friction and wear in cylinder bores of combustion engines. The method has already been approved in the worldwide series production of diesel and gasoline engines.



Nano honing

Cost reduction while simultaneously improving functionality is our goal in manufacturing cylinder liners for the optimization of combustion engines. With specially developed roughening tools a basic profile is created, which exhibits a very high adhesion force for the subsequent coating. The coating process is followed by position or rough honing. The successive finish honing process of coated bores optimizes additionally the tribological attributes of the cylinder bore whereby costs and weight are contemporary reduced.



Sigma honing

Increased component loads require a higher level of quality and the implementation of new quality parameters such as residual compressive stress. The process variation called Sigma-Honing was developed by us to fulfill the requirements of defined compressive stress in the surface of the honed bore. The advantages of Sigma-Honing include improved geometrical quality, as well as the improvement of mechanical material characteristics such as fatigue and crack resistance.



Our Machines and Tooling Systems



Abrasives

Synthetic diamonds or cubic boron nitride (CBN), in each case available in various grit sizes and crystal types



smarthone

fulfills highest requirements with regard to flexibility and economy

horizontal, most compact, stand-alone machine (1.6 m² footprint)

tailored to the needs of job shop production and prototype manufacturing

suitable for manual honing through fully-automated operations and available in a short timeframe

short setup and processing times as well as user-friendly handling



lifehone

joins its modern dynamic drive system performance with a well-balanced compact design

primarily suitable for fuel injection pumps, control valves, pneumatic and hydraulic components, as well as gear wheels

simple operation using a large, flat, Gehring operator panel

optimal configuration thanks to standardised modules



Series L

For machining high precision bores with a diameter of 3-15 mm



Series PT

Multiple stone tooling system for machining bores with a diameter of 68-110 mm



Series TN/TS

Multiple stone tooling system for machining bores with a diameter of 5-1,000 mm



*solo*hone

designed for conventional honing applications

vertical stand-alone machine

suitable for all engine blocks, as well as any type of bushing

simple operation and maintenance

short delivery time thanks to a high level of standardization



*powertrain*hone

innovative spindle and machine concept for all known processes

vertical, modular design with standardized functional subassemblies

enables highest movement and cutting speeds, as well as optimized cycles

applicable as a stand-alone module, linked production line or transfer machine



*deep*hone

offers a completely new concept which makes it possible to hone inside and outside on one machine

joins highest performance with a well-balanced compact design

primarily suitable for the machining of precision engines and large parts

available as horizontal and vertical machine concept

stands out because of high cost efficiency and availability



Your trust, our service

Modern manufacturing systems are demanding. They must operate dependably throughout the years in multiple shift operations, demand increased technical knowledge, careful support and fast worldwide help during faults. In order to provide this, we have developed a comprehensive service portfolio.

Machine Trials

To achieve optimal end results, all influencing factors must be coordinated. We achieve this in individual machine trials. With individually verified and recorded project phases, we find the ideal solution for you.

Technical Customer Service

A high-performance product requires an equally high-performance support service during the entire life cycle. A globally operating team of experienced service technicians supports you in all areas, at your location and at any time.

Teleservice

Our machines are technically equipped so that they can be monitored via the internet or the telephone system. Faults can be diagnosed remotely, and be resolved precisely, cost-effectively and quickly.

Training

High manufacturing quality can only be achieved with extensively qualified operating and maintenance personnel. To ensure this, we have developed a broad training program which is specifically designed based on your requirements.

Spare Parts

An extensive and quickly available assortment of spare parts is essential with today's manufacturing requirements. A specially appointed team makes sure that your machine downtime is reduced to a minimum.

And more

Do you want to retool your machines for new jobs or update older models? Do you want to produce a sample part, but do not have the necessary manufacturing and personnel capacity? No problem, we will do it.

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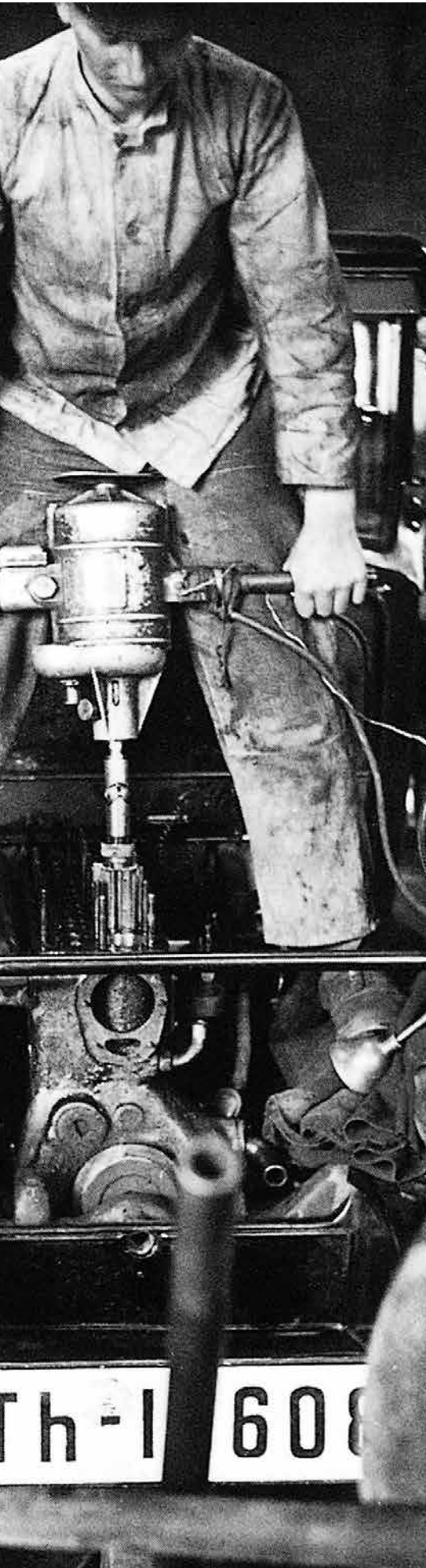
Worldwide Presence

With our presence on three continents and a total of ten subsidiaries, we are very well-positioned and primed for the increasing globalization of the world economy.



Our representatives worldwide stand competently by your side and are your direct contacts in the market.

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www.gehring.de



Milestones

1926

The Gehring Company in Naumburg/Saale is founded by C.-W. Gehring for reconditioning engines and the first mass production of honing tools.

1938

The first 6-spindle honing machine with a combined drive in the spindle case is manufactured.

1941

The first Gehring honing machines with hydraulic stroke drive, central lubrication, and oil processing are built.

1943

Patent application for a hydraulic gauge system.

1948

restarts as Maschinenfabrik Gehring in Ruit near by Stuttgart.

1951

Patent application for abrasives with natural diamonds.

1960

Plateau honing on combustion engines is introduced.

1961

The first honing machine with pneumatic in-process gauging is built.

1966

The first honing tool with direct cooling is built.

1975

The Gehring Cylindromatic is introduced.

1977

For the first time, parts for diesel injectors are honed to less than 1 μm cylinder form in mass production.

1989

Gehring presents the first NC-controlled honing machines at the international machine building exposition EMO.

1992

Implementation of laser technology and laser-honing of combustion engines is developed and patented by Gehring.

2006

The lifehone is developed. Series for small diameters

2007

Position honing is introduced. The powertrainhone product line is developed.

2010

Formhoning is introduced. The honing of diameters ≤ 0.8 mm is developed to be ready for production.

2011

Presentation of the smarhone and the new exclusive machine design on the EMO in Hanover.

ONE Gehring

With the corporate vision ONE Gehring we strengthen internationalization of our business fields for our customers, partners and suppliers.

With the quality benchmarks *global performance, best practice orientation, resource efficiency as well as commitment and experience* we show our superior values and offer to our customers' global solution orientation, application-relevant technologies, ideal cost and resource management as well as full extensive service partnerships.

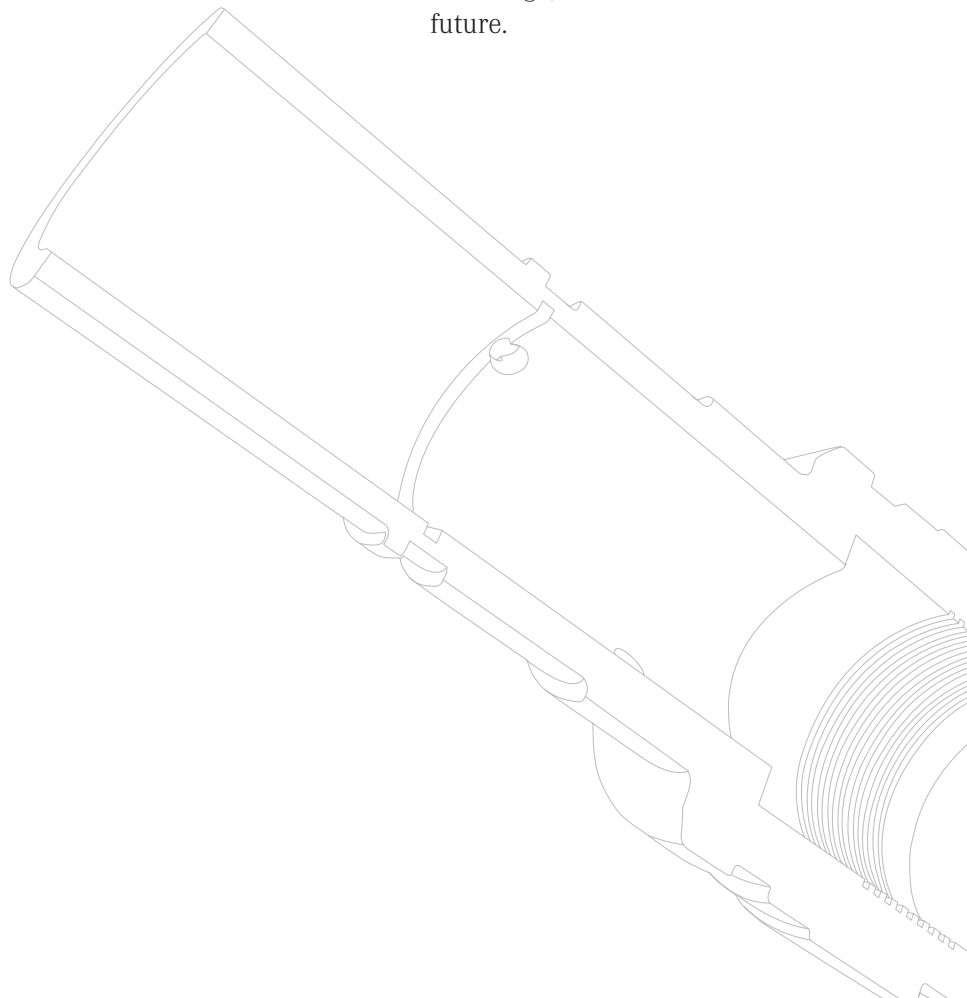




Key Word
Corporate Culture

The success of Gehring comes first and foremost from the merit of our employees, who with their expertise, passion and creativity are the standards of the company and represent our customers' interests. That is why we generously invest in the professional and personal development of our employees - whether through targeted training of experienced resources, broad training programs or the implementation of modern management and leadership concepts.

One of our paramount goals is to be an attractive employer. A minimal turnover rate and the high identification with the company prove our success. An open, active association with one another, mutual trust and breaking new ground together, requires daily commitment. For our self-image, our customers and our future.



Our Name

Gehring stands for the productive combination of experience and innovation. Our almost 90 year's old company history and our passion for aggressively tackling new things explains our performance. The trust placed in our competence gives us the assertiveness to question the conventional over and over again.

Our Values

Service - Our performance is what we are measured by. We constantly test ourselves and strive for continuous optimization.

Responsibility - We create values that last. Our actions are characterized by efficiency, sustainability and the gentle handling of valuable resources.

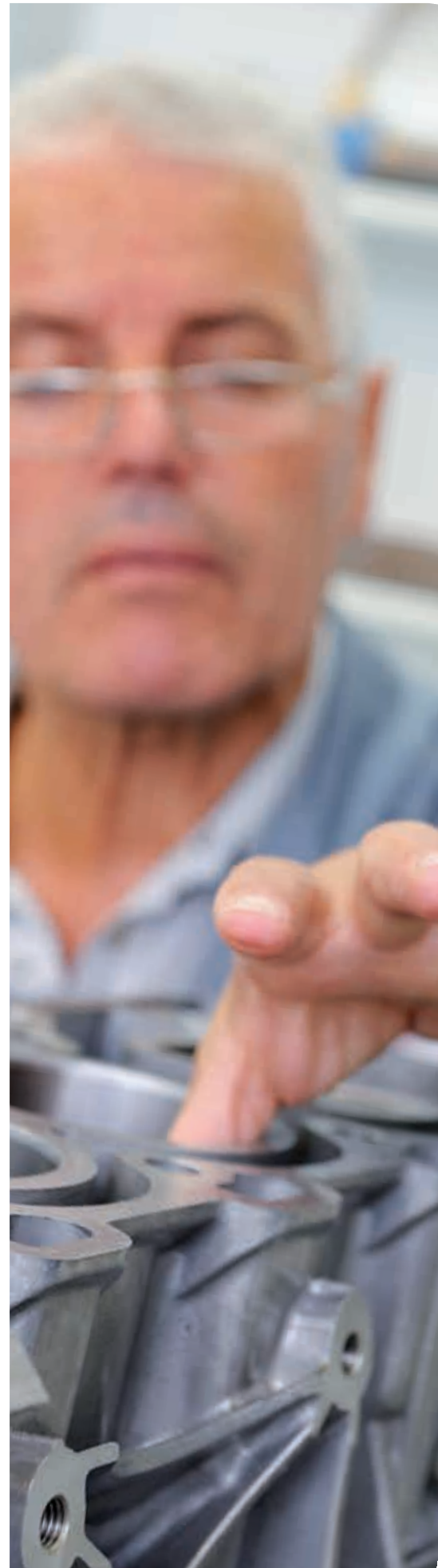
Teamwork - Our employees make our success possible. Our goal is to secure the future.

Innovation - We continuously develop new solutions for the benefit of our customers. We always want to be the decisive step ahead.

Customer focus - Our customers are our focus. We orient ourselves without compromise on their goals.

Our Pledge

First-class performance.
Customer orientation.
Sustainability.





Time to exchange

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