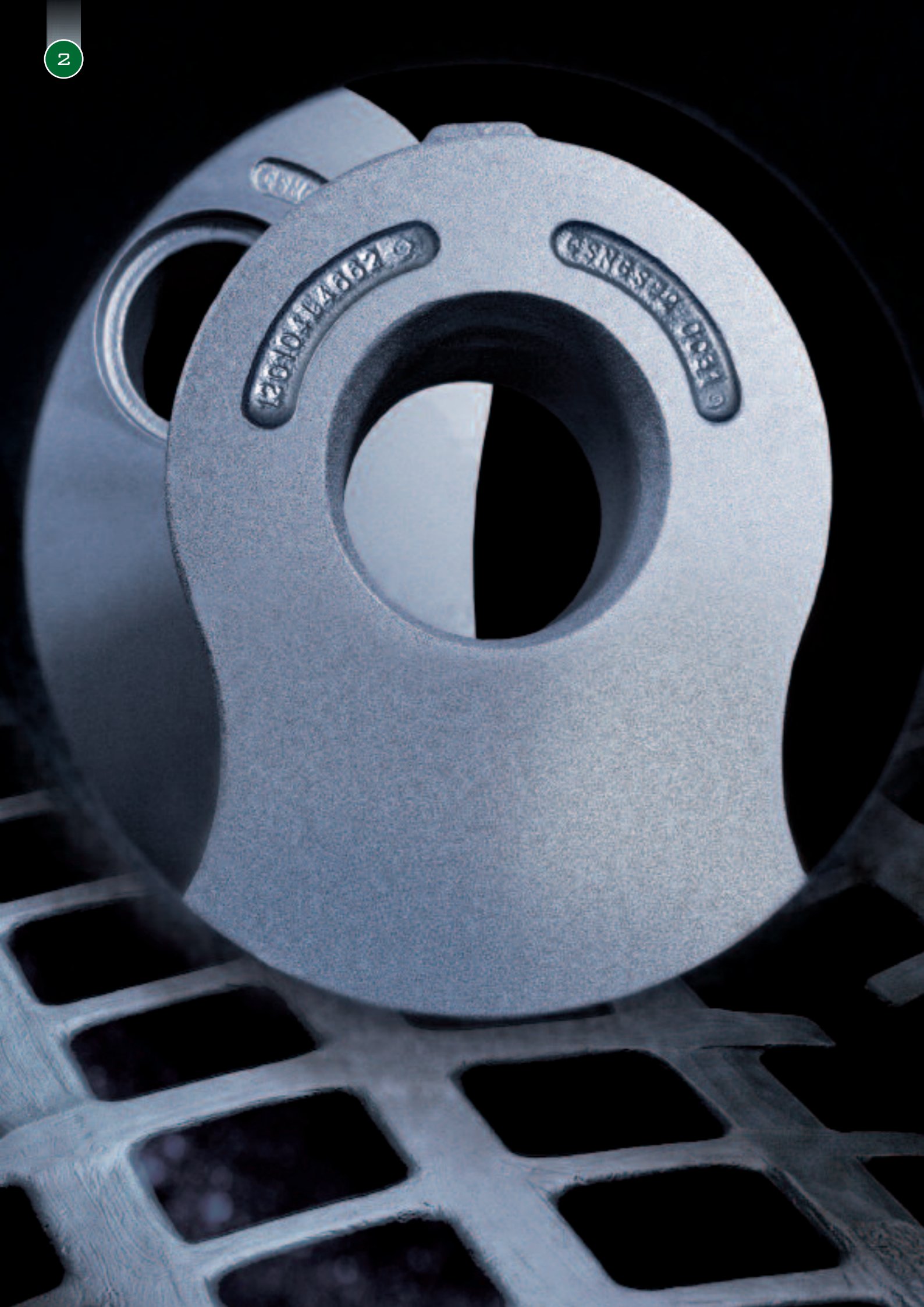




STAHLWERKE BOCHUM

HIGHLY WEAR-RESISTANT CASTINGS





WORLDWIDE REPUTATION



We are a global player. Today, we deliver our quality products from Bochum to over 40 nations on earth. We are a skilled partner for our customers in tapping emerging markets. We are committed to more than just "Made in Germany", but also **"Created in Germany"**, which we see as our challenge and duty. Together with our customers, we are taking steps towards sustainable environmental protection. Products are often coated

prior to delivery. Under hard working conditions, this coating lasts no more than a few minutes. SWB products don't require this coating. Their quality can be "seen" in the truest sense of the word. At the same time, we're saving the environment. In this way, we live up to our reputation.

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In working together with our customers, an open dialogue between partners results in a **win-win situation**. We see ourselves as a manufacturer, supplier and consultant for our customers. Their success is intertwined closely with SWB's success. This strategy is based on long-term cooperation instead of short-term profit. We advise our customers in selecting wear parts for their systems. The customer provides all of the necessary information about the system and the type of material being processed. Our technicians create a clear recommendation for them. We wouldn't be SWB if our

approach were to simply adapt solutions and only follow conventional paths. Rather, we want to be a trailblazer through independent research and continuous innovation of our products. That's why today we supply not only highly wear-resistant castings, but also all of the necessary components for profitable system operation.

COLLABORATIONS BETWEEN US AND OUR CUSTOMERS TAKE PLACE IN MANY AREAS. SWB CUSTOMERS ARE RECYCLERS. IN CONTRAST TO RAW STEEL PRODUCTION WITH FURNACES, SWB MELTS SECONDARY RAW MATERIALS IN INDUCTION FURNACES. THIS GREATLY REDUCES CO₂ EMISSIONS. IN THIS ASPECT AS WELL, WE ARE MAKING A SIGNIFICANT CONTRIBUTION TO ENVIRONMENTAL PROTECTION.

COLLABORATION

INDIVIDUALITY

MATERIALS

WE SOLVE VARIOUS CHALLENGES TO WEAR AND TEAR RESISTANCE WITH SELECTED MATERIALS IN PROVEN SWB QUALITY:

Material	SWB Quality	Properties
Austenitic manganese steel	MH 0, MH 2, MH 4 X	Outstanding toughness makes it well suited for crushing tools in heavy duty conditions. The ability to cold-temper makes it extremely wear-resistant.
Heat-treatable martensitic steel, alloyed with silicon, chromium, nickel, molybdenum	CSNG So, CSNG So2, CSNG, CN 3, CCR 40	Ideal synthesis of wear resistance and toughness. Differentially heat-treated for special applications.
Heat-treatable, chromium alloyed martensitic steel with high carbon content	Crodur	Tried and true for the high demands on wear resistance in impact crushing and grinding. Can also be machined after suitable annealing.
Ferrous, chromium, molybdenum alloys with high carbon contents	P 1719, P 1721 P 1730 Nihard IV	For the highest demands on wear resistance. Primarily used for impact crushing with high impact and abrasion conditions. Hardness on installation over 60 HRc.
Metal-ceramic composite casting		Increased wear protection for special applications in various hard material crushing sectors.



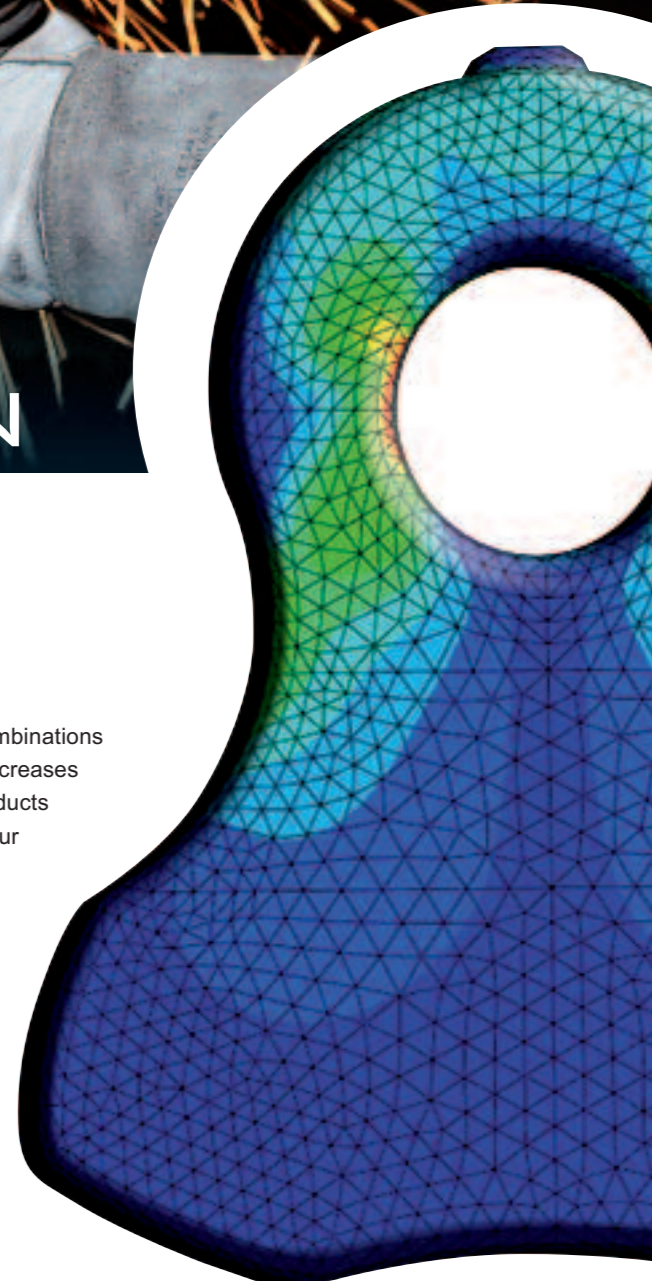
INNOVATION

Innovation means change and renewal, progress and improvement.

SWB stands for innovation. Innovative materials and material combinations improve wear resistance. Innovative design increases part life and increases productivity. With innovative manufacturing processes, we make products with a constant level of the highest quality. The working properties of our products guarantee our customers dependable and profitable use. SWB is and will remain the standard for international competition.

CENTRIFUGAL FORCE

STRAIN SIMULATIONS HELP US TO DEVELOP OPTIMAL WEAR PARTS.





PROCESS CONTROL

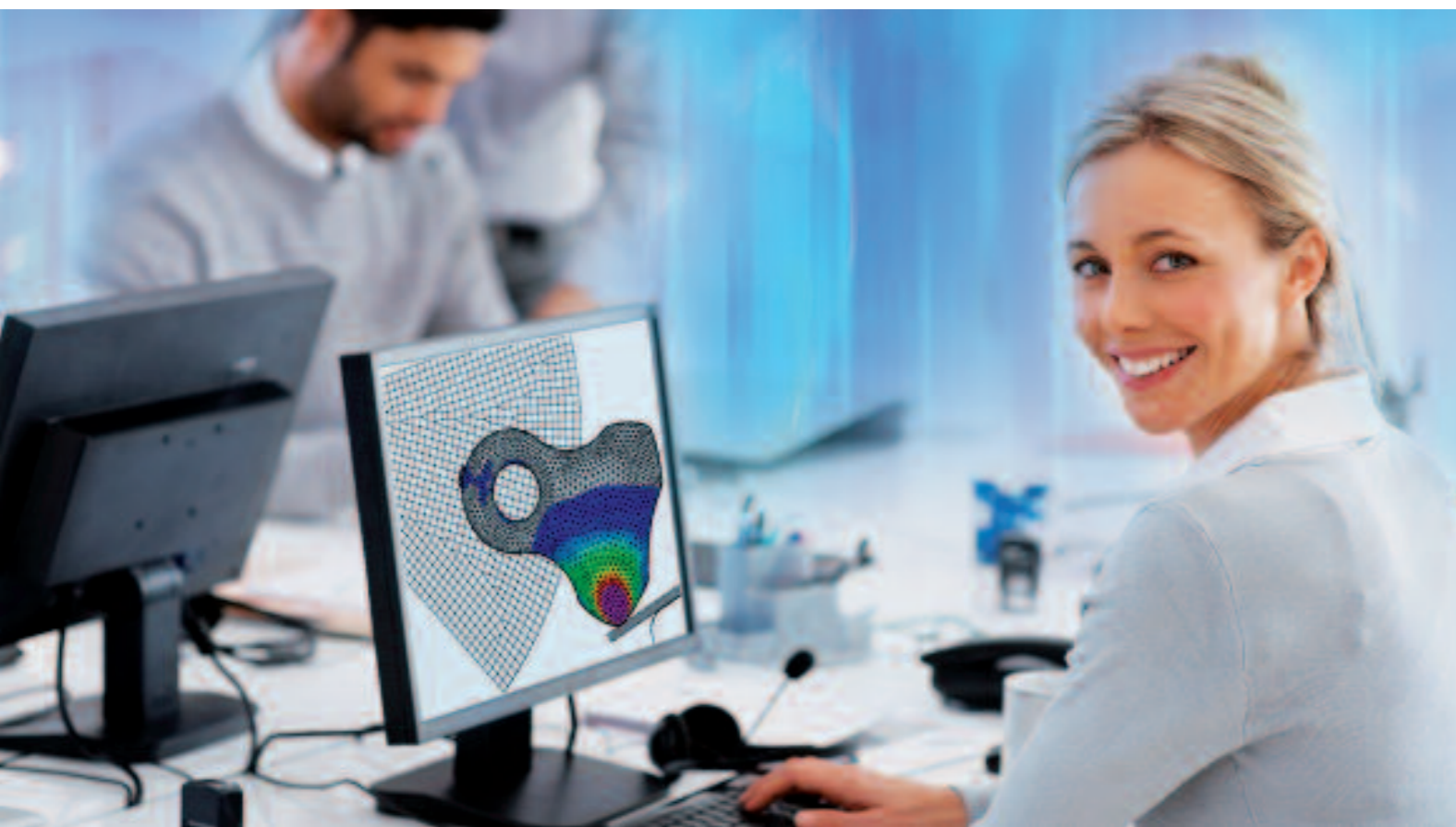


“Quality isn’t easy to attain. You must strive for quality”. Acknowledging and implementing this statement is the foundation in all areas of our business. For us, quality begins much earlier. Even while advising our customers, it is our determination and part of who we are to always deliver the best product for every need.

We design, produce and deliver quality. The consistent application of this basic concept also requires precise and sophisticated control of all production processes at all times, ranging from construction to heat treatment. We create optimal wear parts with the help of state-of-

the-art CAD-CAM technologies. The subsequent production steps, casting process and heat treatment, are tested and approved prior to production start with simulation programmes. These then serve as the basis to control the real production process. We don’t leave it up to chance. Because quality is no coincidence, but rather the result of optimally developed production processes.

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CONTROL MECHANISM



Complex production methods make unified quality assurance indispensable throughout all of the steps. By labelling each individual casting, we ensure that product quality can be traced throughout the entire production process.

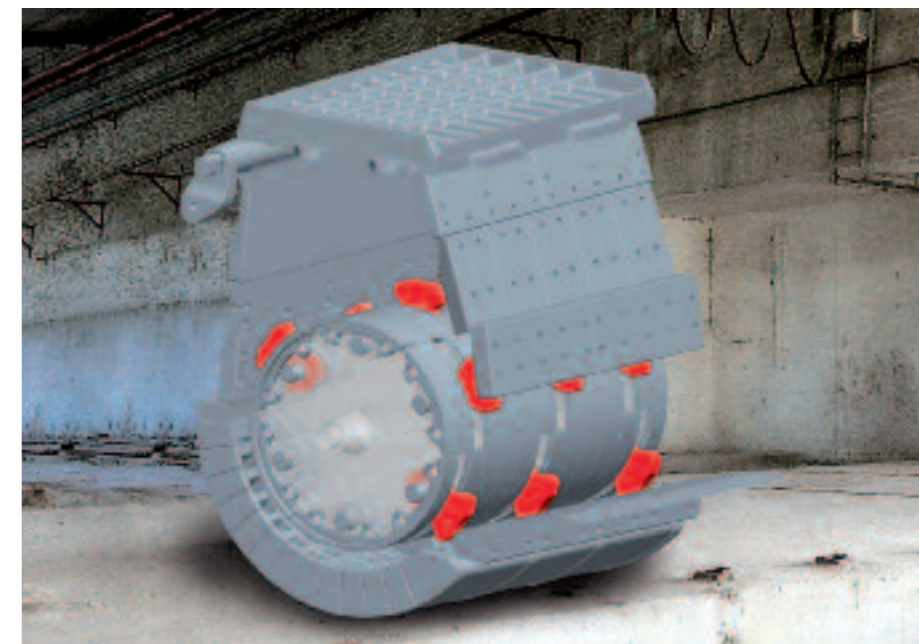
This is how we maintain the consistent high quality standard of our products. Our production follows strict guidelines based on ISO EN 9001 (2000). At the end of

the production process, each casting is inspected inside and out. Besides a hardness test specific to material and product, 100% of the wear parts we deliver undergo a magnetic fracture test and, if necessary, an ultrasonic test. The products are then tested for weight and dimensions, and subsequently packed into delivery units within tight ranges. This ensures that rotors run in balance.

HOW IMPORTANT IS THIS? HERE'S AN EXAMPLE: A 134 KG HAMMER WEIGHS 39,000 KG ON A RUNNING ROTOR AND IMPACTS THINGS WITH THIS FORCE! WE GIVE YOU PEACE OF MIND – AND WE STAND BEHIND OUR NAME.



RECYCLABLES



Utilising scrap metal is extremely profitable: Extracting steel from steel scrap requires less than half of the energy required to produce steel from ore. Because it is so economical, several hundred million tonnes of scrap metal are recycled around the world each year.

SWB produces the **following for scrap metal recycling**:

- Hammers
- Caps
- Anvils
- Grids
- Segments

and all other shredder components constantly subjected to wear like angles, side liners, wearing plates, hammer pins and fixing elements





SWB products are used where crushing takes place: crushing mineral resources like stone, ore and coal as well as crushing secondary resources like brick and construction remnants.

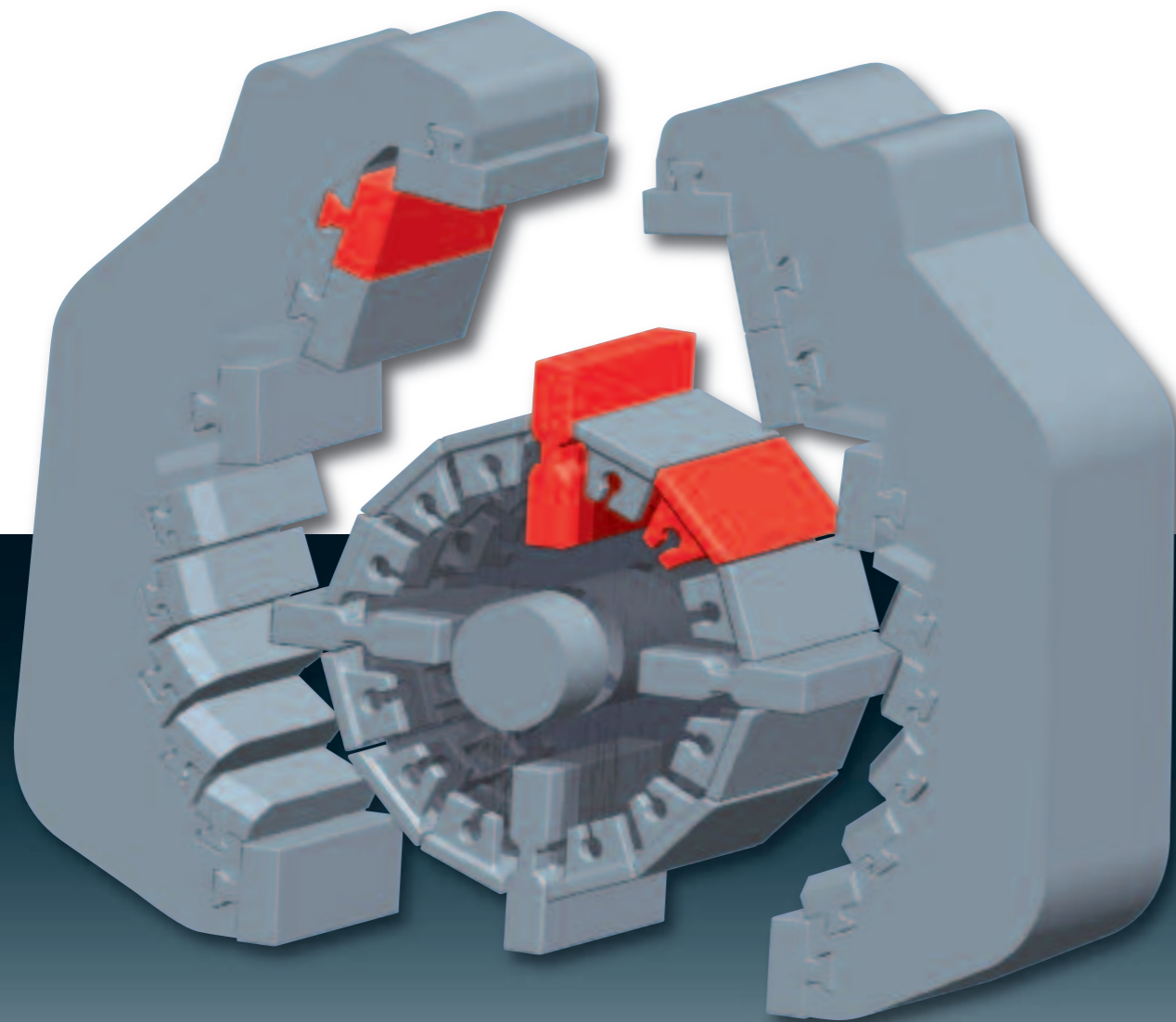
We develop, produce and deliver parts for **horizontal and vertical impact crushing**:

- Blow bars
- Impact elements
- Swing beam rails
- Rotor protection plates

and the complete wear-resistant interior linings of impact crushers

For **mineral processing** in general we produce and deliver:

- Grinding balls
- Grinding rings and yokes
- Hammers for hammer mills
- Segments for briquetting presses



IMPACT FORCE

THE HAMMERS AND BLOW BARS FROM SWB PACK A PUNCH. THEY BREAK THE RESISTANCE OF THE HARDEST MATERIALS: QUARTZ, GRANITE, BASALT, PORPHYRY – AS WELL AS HARD BRICKS AND REINFORCED CONCRETE IN CONSTRUCTION REMNANTS. IMPACT FORCE REQUIRES HARDNESS AND TOUGHNESS. SWB WEAR PARTS HAVE BOTH OF THESE QUALITIES. THEY ARE STRONG ENOUGH TO CRUSH THE HARDEST MATERIALS, YET TOUGH ENOUGH TO WITHSTAND THE CONSTANT FORCES OF ABRASION.

We offer our customers a well thought-out product range for many areas of application. With extensive know-how and lots of innovation, we design and deliver complete wear protection and highly wear-resistant components for processing systems. Always using the latest technological advances, together we increase our success with our customers.

AREAS OF APPLICATION:

- Mineral processing
- Crushing
- Recycling
- Shredders of various constructions
- Metal grinders
- Impact crushers
- Impact mills
- Vertical crushers
- Vertical mills
- Hammer mills
- Ball mills
- Jaw crushers
- Cone crushers
- Gyratory crushers
- Rolling crushers

COMPLETE RANGE

Hammers – caps – anvils – grids – segments and all other shredder components constantly subjected to wear, such as angles – side liners – wearing plates – hammer pins – fixing elements (screws) for scrap recycling

Blow bars – impact elements – swing beam rails – rotor protection plates – and the complete wear-resistant interior linings of impact crushers for horizontal and vertical impact crushing

Grinding balls – grinding rings – yokes – hammers for hammer mills as well as segments for briquetting presses for mineral processing

NETWORKING



We believe in innovation in all areas of production and in dialogues with our customers. We integrate you with an exchange of information through modern media. Today we deliver products to more than 40 countries around the world. And we are constantly expanding our sales network. It is important to us to always be able to provide you with

current information. You'll find the SWB experts responsible for you on our website. Use the printed QR code on your smartphone or enter the link below into your browser.

We look forward to hearing from you.

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INNOVATION
REALISED.

FROM 2-D TO 3-D:
THE QR CODES IN THIS
EDITION WILL LEAD YOU
DIRECTLY TO OUR FILMS
AND ONLINE ADDRESSES
VIA YOUR SMARTPHONE.

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