

Maximum performance in a variety of applications.

# **DURAFORCE** milling and mixing rotor for the WR model range

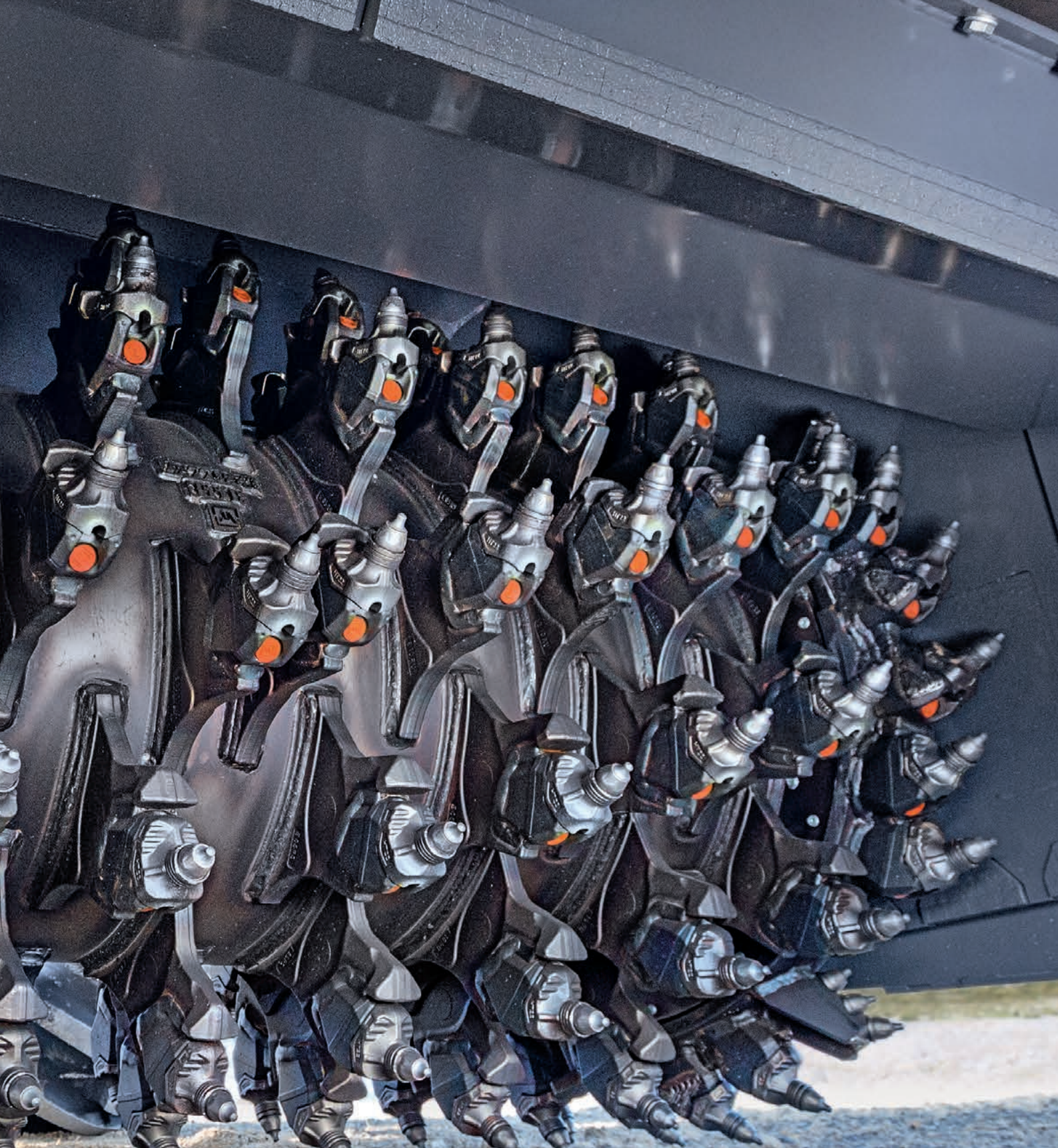




A single rotor catering to all  
requirements: high-tech to  
the very last detail







CHALLENGING OPERATING CONDITIONS SUCH AS THE POWERFUL COLD RECYCLING, GRANULATION OR STABILIZATION OF COARSE-GRAINED SOILS MAKE EXTREME DEMANDS ON THE CUTTING TOOLS. THIS CALLS FOR PERFECTLY MATCHED COMPONENTS DESIGNED TO MEET THE HIGHEST PERFORMANCE REQUIREMENTS. THEY CAN BE RELIED ON TO PROVIDE HIGH MILLING AND MIXING PERFORMANCE WHILE ENSURING MAXIMUM RESISTANCE AND DURABILITY AT THE SAME TIME.

THE ORIGINAL WIRTGEN DURAFORCE MILLING AND MIXING ROTOR IMPRESSES WITH EXTREME WEAR RESISTANCE, IMPACT STRENGTH AND FRACTURE STRENGTH FOR ALL APPLICATIONS IN SOIL STABILIZATION AND COLD RECYCLING: A SINGLE ROTOR CATERING TO ALL REQUIREMENTS.



# Meeting a wide variety of application requirements

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## High-performance soil stabilization

Soil stabilization, which is in use around the globe, represents the ideal solution for converting subsoils of insufficient bearing capacity into soils suitable for placing and compacting. In the process, a wide variety of different types of soils need to be processed which may be highly cohesive, abrasive or even interspersed with coarse-grained rock.

### Requirements on the milling and mixing rotor:

- > Effective splitting and crushing of the soil to optimize binder effectiveness
- > Uniform distribution and homogeneous mixing of binders and, where appropriate, water to produce a mixture of high strength

- > Maximum cutting performance even in tough, hard soil to ensure high productivity and low fuel consumption
- > High fracture strength when operating in soils interspersed with coarse-grained rock to ensure extended uptimes
- > High wear resistance in abrasive, cohesive soils to ensure maximum economic efficiency

The tried-and-tested WIRTGEN **DURAFORCE** milling and mixing rotor meets every challenge in soil stabilization and is the ideal candidate to convert even the most difficult soils into construction materials of superior quality.

1 | Soil containing a high percentage of abrasive gravel.

2 | Highly cohesive soil interspersed with stones.





### Environmentally friendly cold recycling

Cold recycling and granulation are also internationally established construction processes. Distressed asphalt pavements comprising the most diverse types of rock and the underlying gravel layer are milled, usually mixed with added binders to produce a homogeneous material and then placed again in an in-situ process.

### Requirements on the milling and mixing rotor:

- Compliance with the specified grading curve to ensure the permanent structural integrity of the new base layer
  - Homogeneous mixing of the binders to ensure high adhesion (bonding strength) between the individual particles and thus maximum bearing capacity
- Steady milling process to prevent oversized particles and to ensure high-quality results
  - High milling performance and low wear even in hard, abrasive material to ensure high economic efficiency

The **DURAFORCE** milling and mixing rotor also handles the specific requirements of cold recycling. Users benefit from maximum performance, an extended service life and highest quality of the new base layers.

3 | Asphalt layers with underlying gravel layer.

4 | Extremely abrasive supplementary gravel.





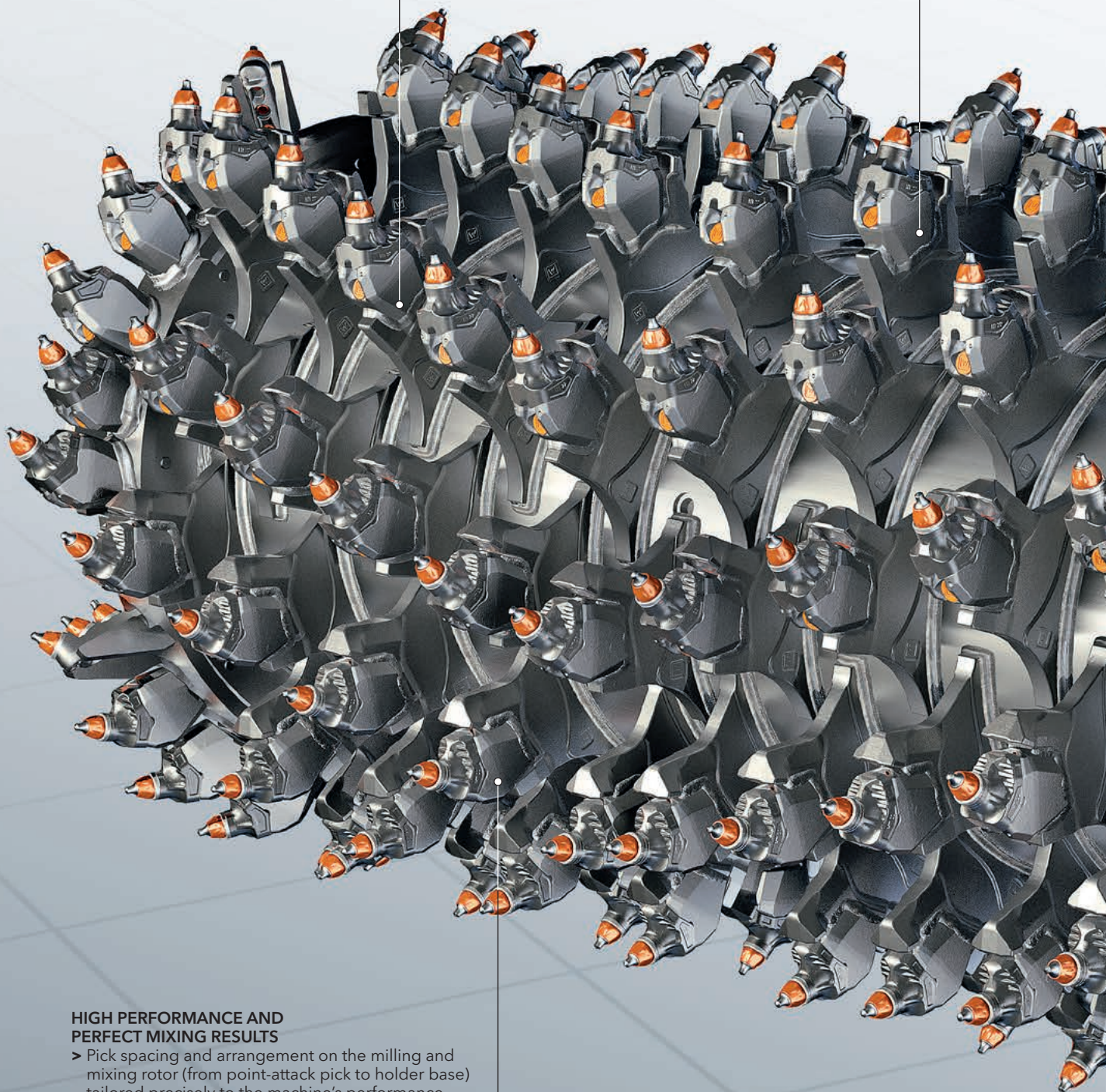
# Outstanding features of the DURAFORCE milling and mixing rotor

## MULTIPURPOSE MILLING AND MIXING ROTOR

High-production milling and mixing rotor for all soil stabilization, cold recycling and granulating applications

## EXTENDED SERVICE LIFE AND MAINTENANCE INTERVALS

- > Hard-wearing point-attack picks of the Z generation for challenging applications in soil stabilization and cold recycling
- > Durable HT22 quick-change toolholder system to minimize breaks in operation



## HIGH PERFORMANCE AND PERFECT MIXING RESULTS

- > Pick spacing and arrangement on the milling and mixing rotor (from point-attack pick to holder base) tailored precisely to the machine's performance
- > Perfect pick arrangement to ensure a uniform, smooth milling and mixing process



**POWERFUL  
MIXING PROCESS**

Intelligent geometry of the holder base  
paired with a large diameter of the  
milling and mixing rotor to ensure  
optimum, homogeneous mixing

**ROBUST DESIGN**

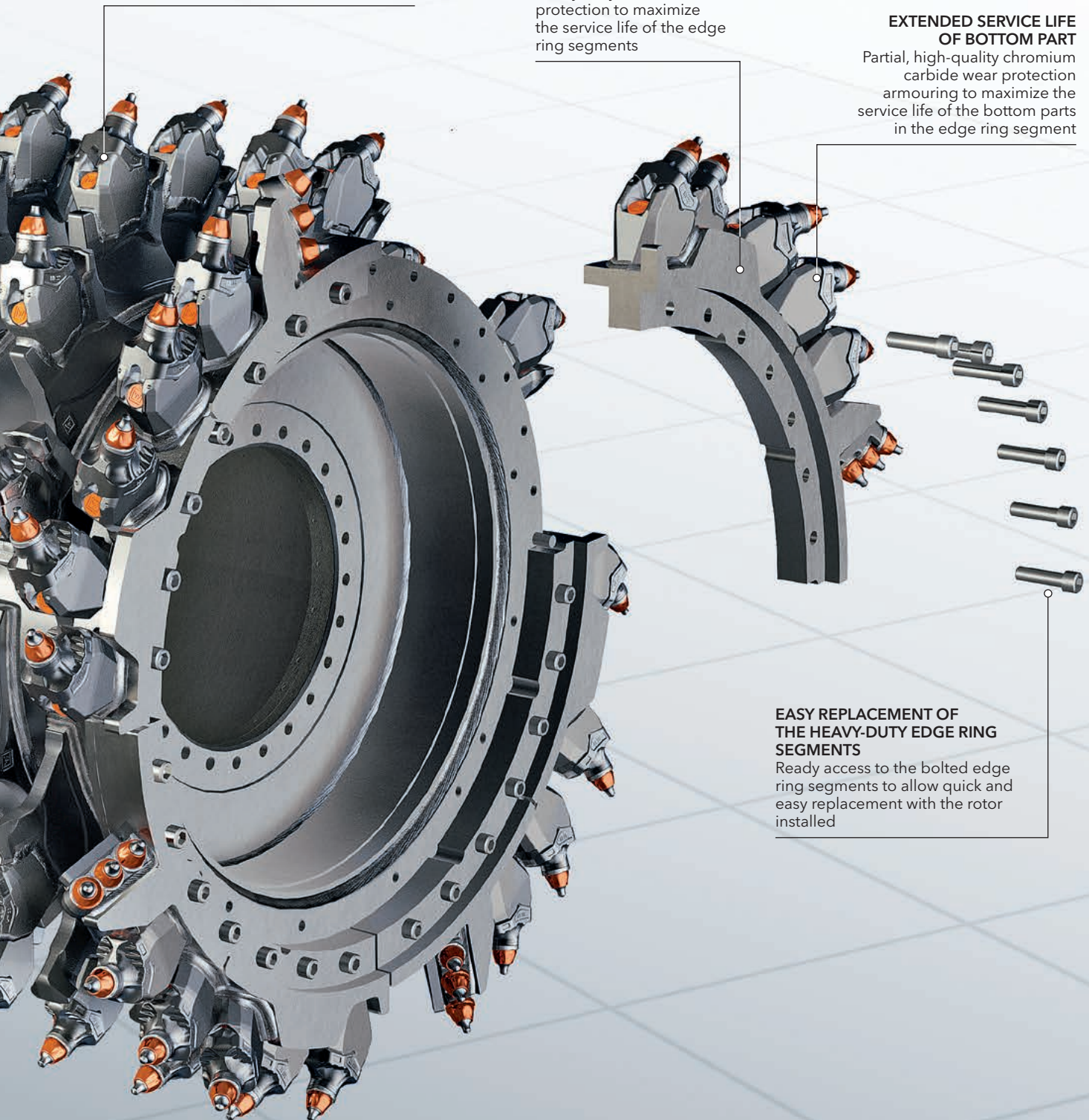
Heavy-duty Hardox wear  
protection to maximize  
the service life of the edge  
ring segments

**EXTENDED SERVICE LIFE  
OF BOTTOM PART**

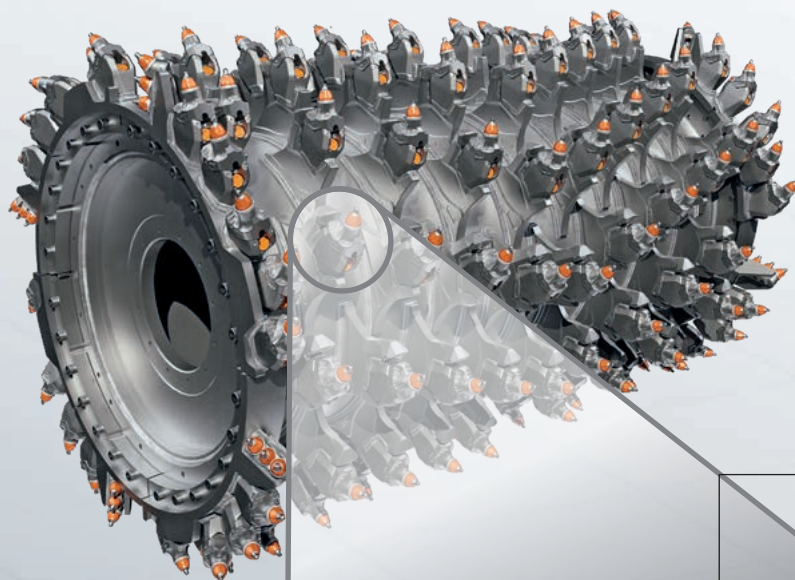
Partial, high-quality chromium  
carbide wear protection  
armouring to maximize the  
service life of the bottom parts  
in the edge ring segment

**EASY REPLACEMENT OF  
THE HEAVY-DUTY EDGE RING  
SEGMENTS**

Ready access to the bolted edge  
ring segments to allow quick and  
easy replacement with the rotor  
installed



# Outstanding features of the DURAFORCE milling and mixing rotor



**WEAR PROTECTION OF THE QUICK-CHANGE TOOLHOLDER SYSTEM**  
Forged "hammer head" at the holder base for effective wear protection of the HT22 quick-change toolholder system

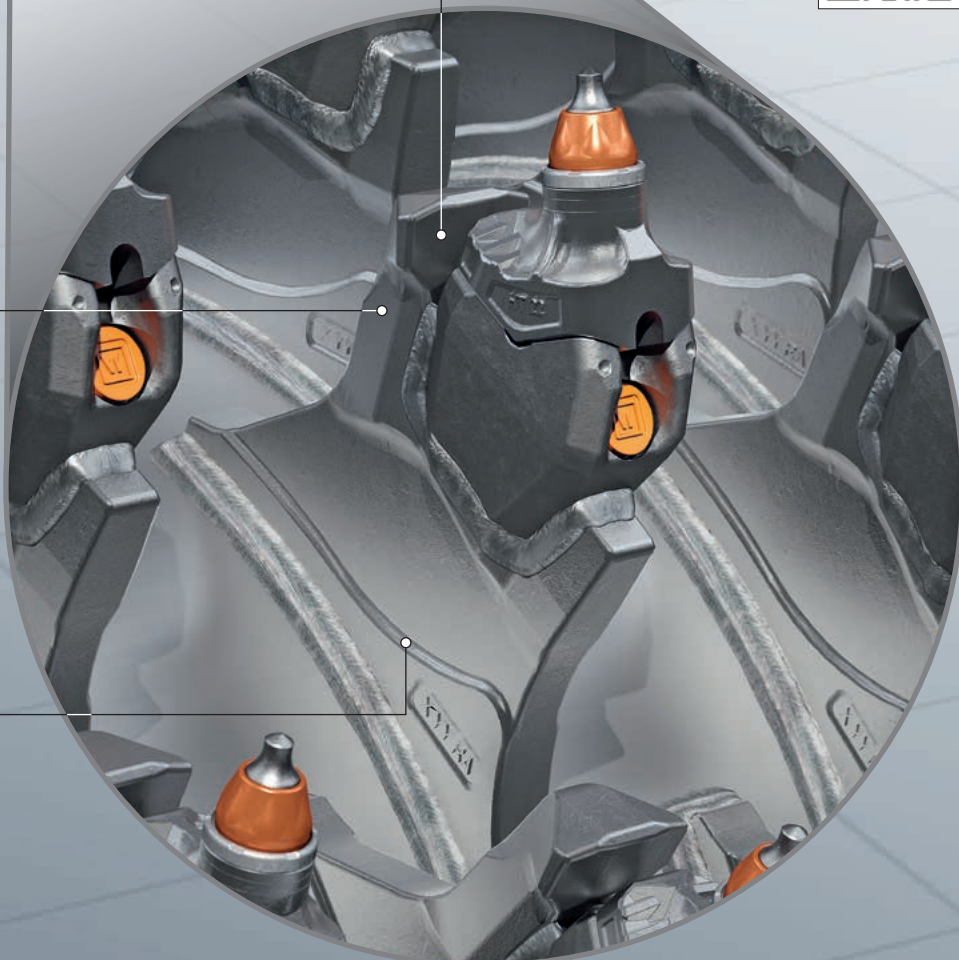


## IDEAL FLOW OF MATERIAL

- > Streamlined geometry of the holder base to minimize resistance during the milling and mixing process
- > Optimized flow of material to ensure high milling and mixing performance

## UNIFORM DISTRIBUTION OF EXTERNAL FORCES

- > High-quality material alloy in the holder base to withstand maximum loads
- > Optimized geometry of the holder base to ensure effective distribution of longitudinal and transverse forces





#### INCREASED PRESTRESSING FORCES

Optimized bolt position provides higher pre-stressing forces to ensure reliable prestressing of the upper part in the bottom part

#### EXTREMELY LARGE MAXIMUM WEAR DISTANCE

Substantially larger maximum wear volume to ensure a significantly extended service life of the upper part

#### OPTIMIZED MAINTENANCE INTERVALS

Extended torque control intervals at the toolholder bolts (every 500 operating hours) minimize maintenance requirements



#### LARGE SHANK CROSS-SECTION AND OPTIMIZED GEOMETRY

Increased shank cross-section and optimized shank geometry for increased fracture strength

#### EXTREMELY LARGE CONTACT SURFACE

Significantly larger, hard-wearing and self-centring contact surfaces between upper part and bottom part for an extended service life of the milling and mixing rotor

#### TWO DIFFERENT UPPER PARTS



Bore diameter of 22 mm



Bore diameter of 25 mm





# Unrivalled expertise from a single source

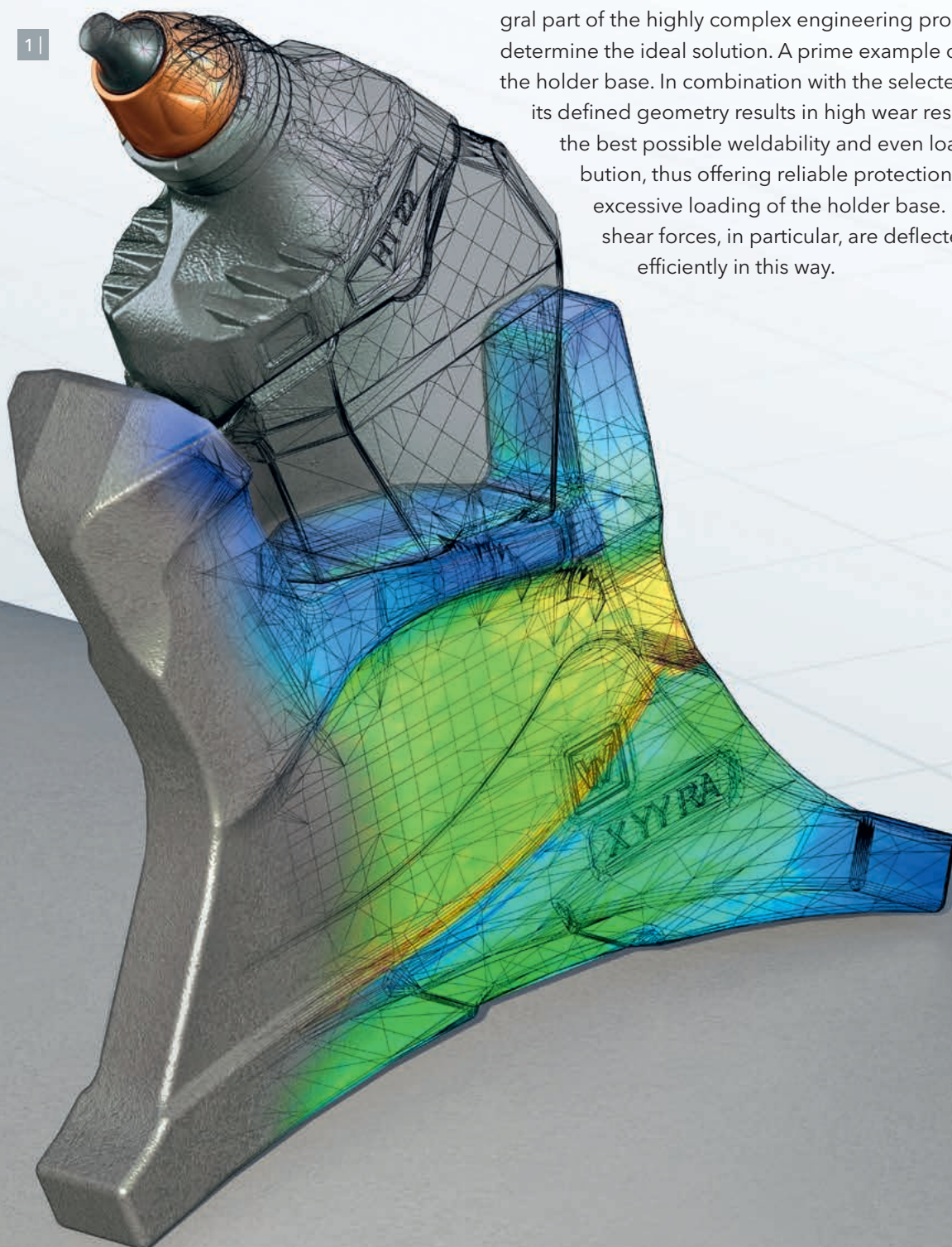
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WIRTGEN offers high-performance cutting systems from a single source. From a single source means perfectly matched components and consistently impeccable quality. The **DURAFORCE** milling and mixing rotors combine expertise gained in many decades with mature manufacturing methods and forward-thinking technologies.

Field experience and customer feedback are important factors feeding directly into the process.

## 1 | Solution-driven engineering

State-of-the-art work equipment – such as professional simulation tools – is an essential ingredient of WIRTGEN's standard tools of the trade. It forms an integral part of the highly complex engineering process to determine the ideal solution. A prime example of this is the holder base. In combination with the selected alloy, its defined geometry results in high wear resistance, the best possible weldability and even load distribution, thus offering reliable protection against excessive loading of the holder base. High shear forces, in particular, are deflected most efficiently in this way.





## 2 | Tried-and-tested forging process

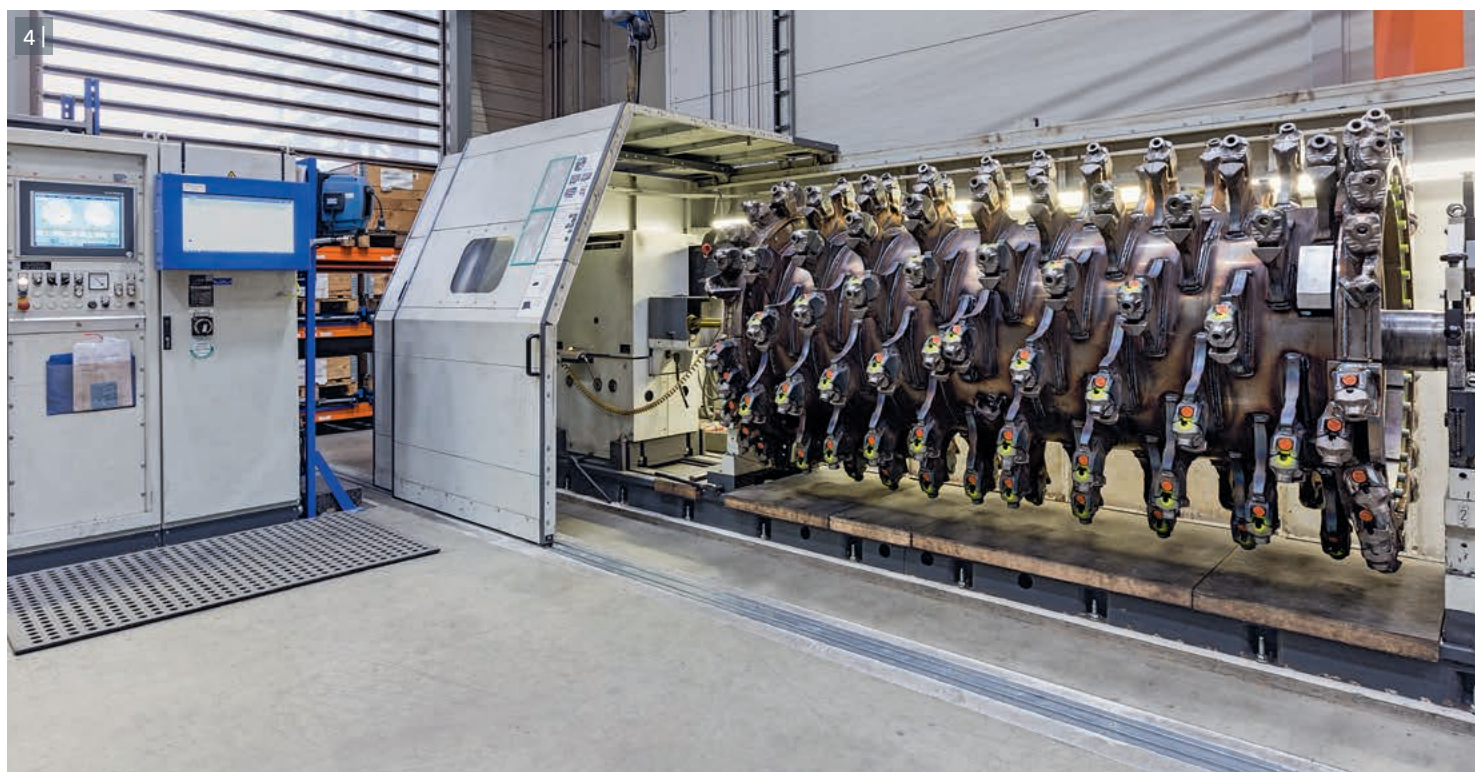
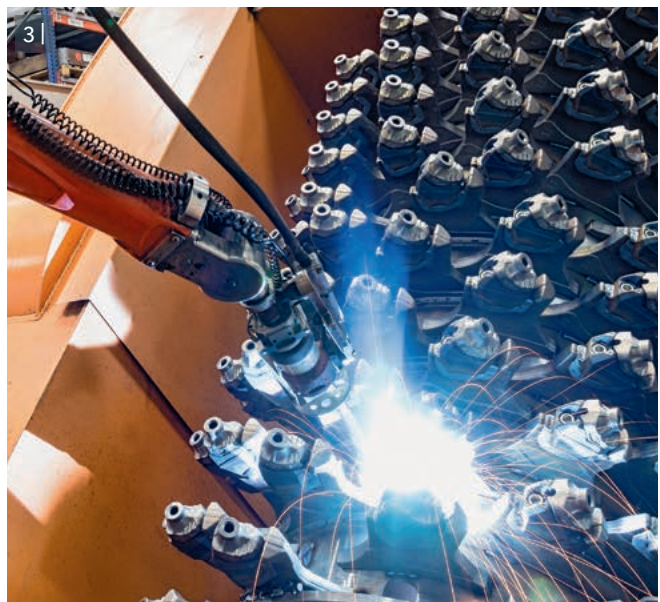
The holder bases of the **DURAFORCE** milling and mixing rotor are given an intelligently designed 3D geometry using the tried-and-tested forging process. In addition to even load distribution and thus maximum stability, this process results in an optimum flow of material and homogeneous construction material mixtures.

## 3 | Automated welding processes

Final welding of the quick-change toolholders and holder bases on the **DURAFORCE** milling and mixing rotor is effected using welding robots. Our welding robots provide a maximum degree of process reliability, precision and quality of the welding seams, guaranteeing fast and efficient production processes.

## 4 | Precise balancing

The milling and mixing rotors, which can weigh up to 4,500 kg, operate at significantly higher milling speeds than the milling drums installed in cold milling machines. That is why each single rotor produced at the WIRTGEN plant is balanced with meticulous care. The resulting perfect concentricity of the rotor not only considerably extends the useful life of the entire machine but also protects the machine operator from vibration.







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