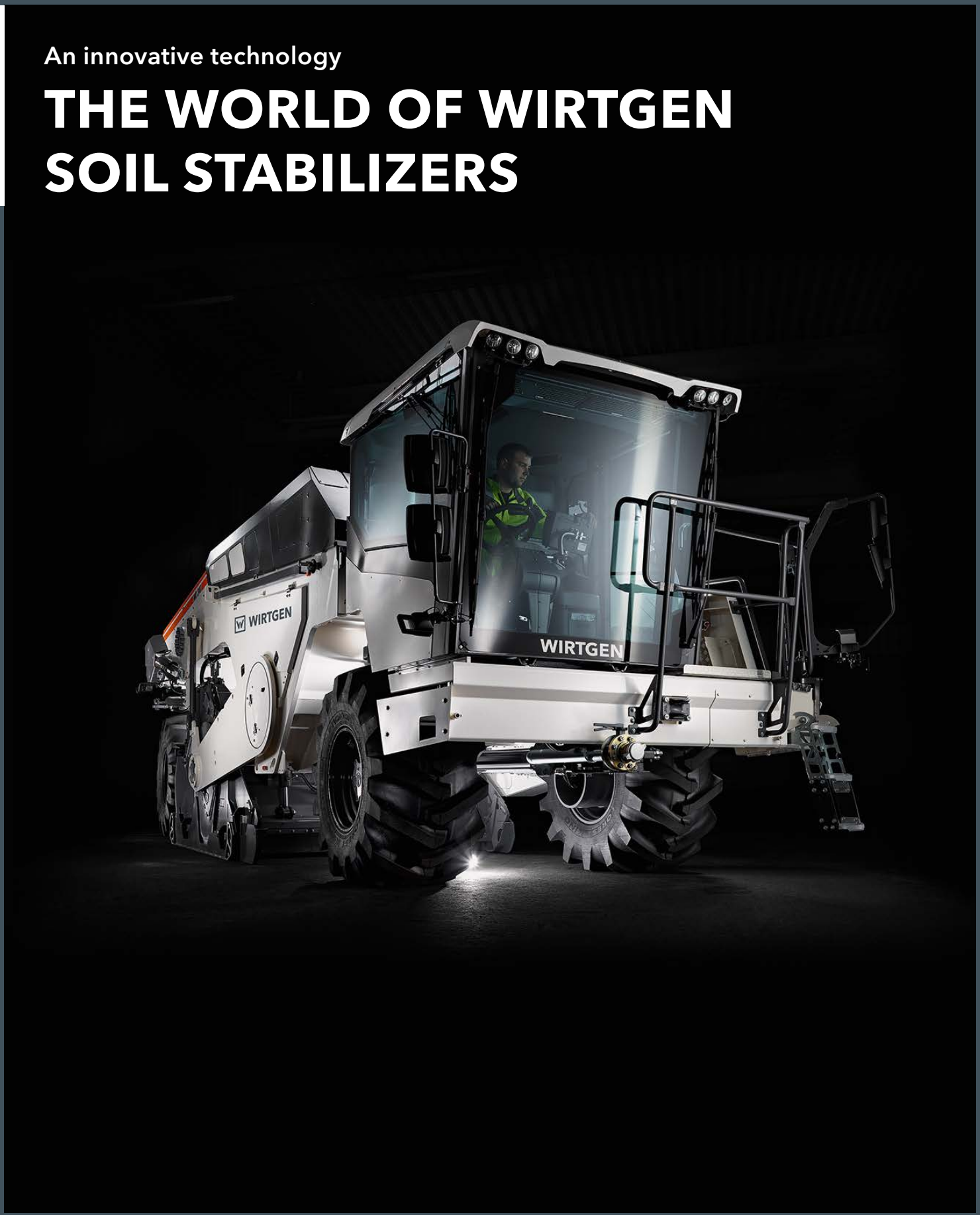
A WIRTGEN GROUP COMPANY

WIRTGEN

An innovative technology

THE WORLD OF WIRTGEN SOIL STABILIZERS



SOIL PREPARATION AND ENHANCEMENT THAT IS SECOND TO NONE

Soil stabilizers are used, for example, to prepare the road bed of vehicular traffic surfaces. They transform subbases with insufficient bearing capacity into soil that is easy to compact and can withstand heavy loads. The process makes use of the existing soil material, adding only binding agents such as cement and / or lime. In contrast to the method where the soil is replaced in its entirety, this method eliminates the cost-intensive process of transporting soil by truck. Not only does this rapid and effective process minimize resource consumption, it is also eco-friendly in a number of respects.

In short, soil stabilization is one of the most cost-effective and environmentally friendly construction methods.

WIRTGEN SOIL STABILIZERS

TRACTOR-TOWED STABILIZERS (WS SERIES)

> Working width up to 2,500 mm
> Working depth to 500 mm

SOIL STABILIZERS (WR SERIES)

> Working width up to 2,400 mm
> Working depth to 560 mm

WIRTGEN

BREAKING NEW GROUND IN SOIL STABILIZATION

For a Homogeneous Subbase

Heavy, muddy soil makes life difficult for road construction contractors, because roads need a sturdy bed. In light of this fact, it is important to ensure that the soil – as the backbone of the road – has sufficient bearing capacity prior to starting any road construction project. Soil stabilizers transform subbases with insufficient bearing capacity into soil that can withstand heavy loads and is easy to compact. The soil is improved by mixing in lime, and is strengthened using cement.

Our stabilizers can handle a wide range of soil enhancement and stabilization tasks, including the construction of roads, parking lots, industrial facilities, airfields, port facilities, and railroad tracks. They are also suitable for various earthworks such as the construction of dams, embankments, and backfilling. The soil stabilizers are also suitable for highly specialized tasks, such as sealing landfill sites.

The rapid, environmentally friendly process eliminates time-consuming, cost-intensive soil replacement.

01

01 The WR's wheeled chassis can easily handle any terrain.

02 The perfect match: a tractor-towed stabilizer from WIRTGEN is pulled by a JOHN DEERE tractor.

03 The WR stabilizes the subbase on the spot and in one operation.

WIRTGEN > GOOD TO KNOW

The Benefits of Soil Stabilization at a Glance:

> Reduces construction times

> Conserves resources

> Prevents the generation of landfill waste

> Reduces the need for high-cost material transportation

> Minimizes environmentally harmful traffic disruptions

> Decreases the overall carbon footprint

> Simplifies project management

A GROUNDBREAKING TECHNOLOGY ON THE PATH TO SUCCESS

1986

The 2000 VCR cold recycler is released with crawler units and a working depth of 20 cm.

1993

The CR 4500 is the first high-performance recycler to seamlessly process full-width road surfaces.

1995

With its eye-catching lifting column design, the WR 2500 is WIRTGEN's first real soil stabilizer.

2004

The easy-to-transport WR 2000 and the universal WR 2400 are introduced.

2006

WIRTGEN introduces the WS 2200 and WS 2500 tractor-towed stabilizers for small-scale stabilization.

2012

The new generation of the WR series offers maximum quality in every application.

An Ongoing Success Story

Stretching back to the modified road milling machine and extending forward to the highly specialized line of cold recyclers and soil stabilizers, this is the impressive history of how WIRTGEN technology developed and came to be what it is today. Ever since the mid-1980s, we've been fascinated by the tremendous potential of this method and have continued to play a key role in its development, establishing our position as a recognized leader in the field.

As such, it goes without saying that we have paved the road to success with many innovative milestones. For example, we have also carried out pioneering work in dust-free binding agent processing and have been leading the industry with innovative solutions for our customers since the 1990s. The comprehensive assistance we provide to contractors during construction projects has always been extremely important to us and a decisive factor in the method's breakthrough.

1996

The company develops an injection system to produce foamed bitumen.

1998

Equipped with its own electrical power supply, the KMA 150 mobile cold recycling mixing plant is installed on a flatbed truck.

2003

The WR 4200 is introduced with a variable working width and twin-shaft pugmill.

2013

The 3800 CR Rear Load mixes milled material with binding agents and conveys the material directly to a road paver.

2019

The W 380 CR(i) and the W 240 CR(i) perform high-quality in-place recycling.

2021

The double trough system of the KMA 240 (i) enables the addition of precise quantities of cement, even at high mix production rates.

EXAMPLES OF SOIL STABILIZATION APPLICATIONS

Maximum Flexibility

Soil stabilization stands head and shoulders above soil replacement due to its low transport volume, shorter construction times, and conserved resources. As a soil stabilizer, the WR uses its powerful milling and mixing rotor to mix pre-spread binding agents such as lime or cement up to 560 mm deep into existing soil with insufficient bearing capacity, transforming it into a high-grade construction material right on the spot.

The resulting homogeneous mixture of soil and binding agent features improved tensile, compressive, and shear strength, long-term resistance to water and frost, and volume stability. Typical applications include the construction of paths, roads, highways, routes, parks and sports fields, commercial zones, industrial parks, airfields, dams, backfilling, and landfills.

01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01 WIRTGEN soil stabilizers process difficult subsoil and transform it into a high-quality construction material.

02 Soil mixed with a binding agent can be easily compacted.

03 Synergies as far as the eye can see: WIRTGEN, JOHN DEERE, and STREUMASTER.

04 Soil stabilization operations with the WS 250.

05 During soil stabilization operations, either cement or lime is pre-spread as a binding agent.

06 Flawless mixing results and perfect leveling are the hallmarks of the tractor-towed stabilizer.

07 The “S-Pack” (short for “spreader pack”) binding agent spreader optionally built into the soil stabilizer is used for dust-free binding agent discharge.


06

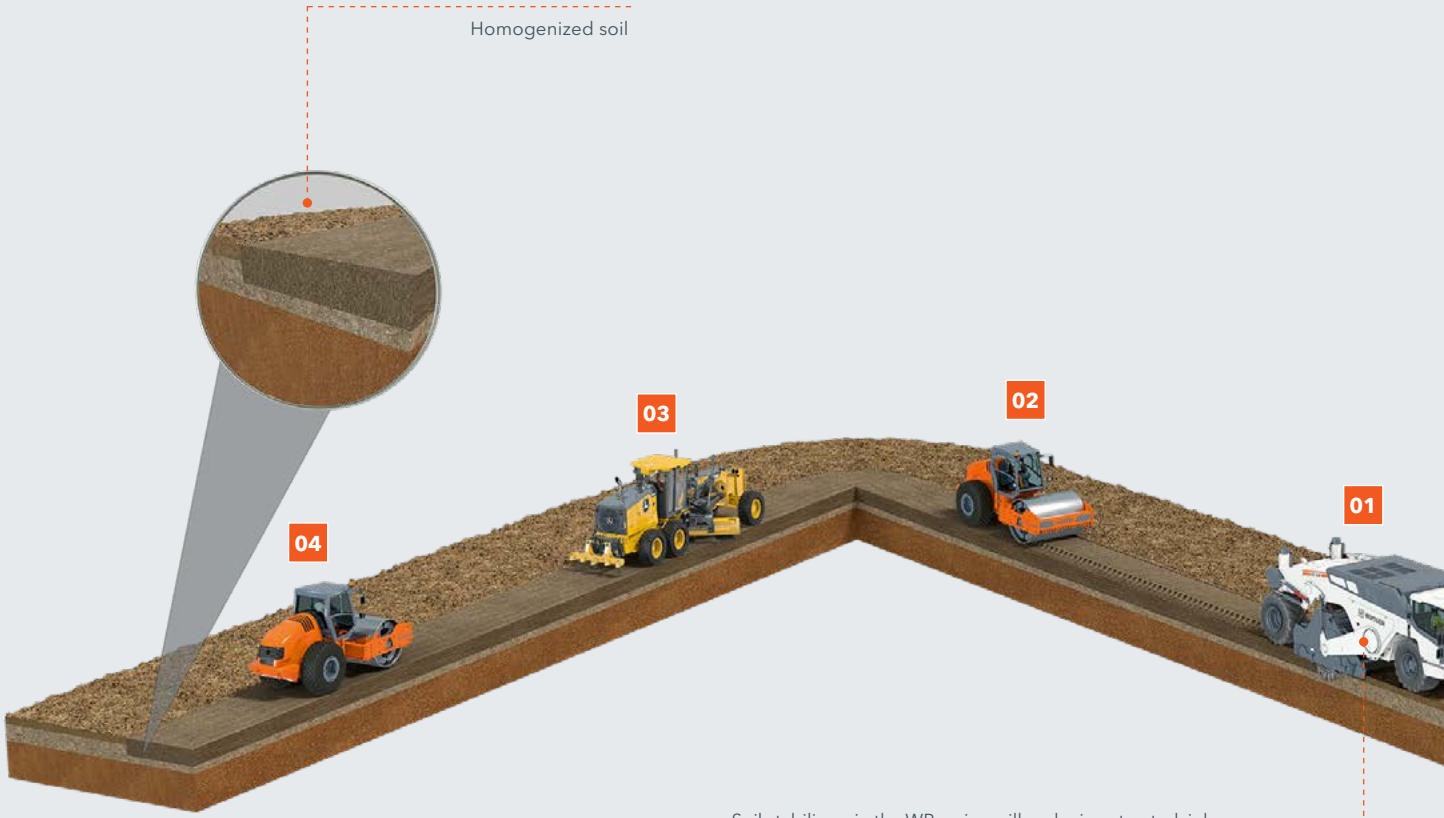

07

ADDITIVE-FREE SOIL TREATMENT

WR Series

Soil Homogenization

In the homogenization process, the WR's powerful milling and mixing rotor granulates the native soil without the addition of binding agents and loosens it. After a HAMM compactor has completed the precompaction process, a JOHN DEERE motor grader then grades the prepared surface. In the final step, various HAMM soil compactors are used to compact the soil.



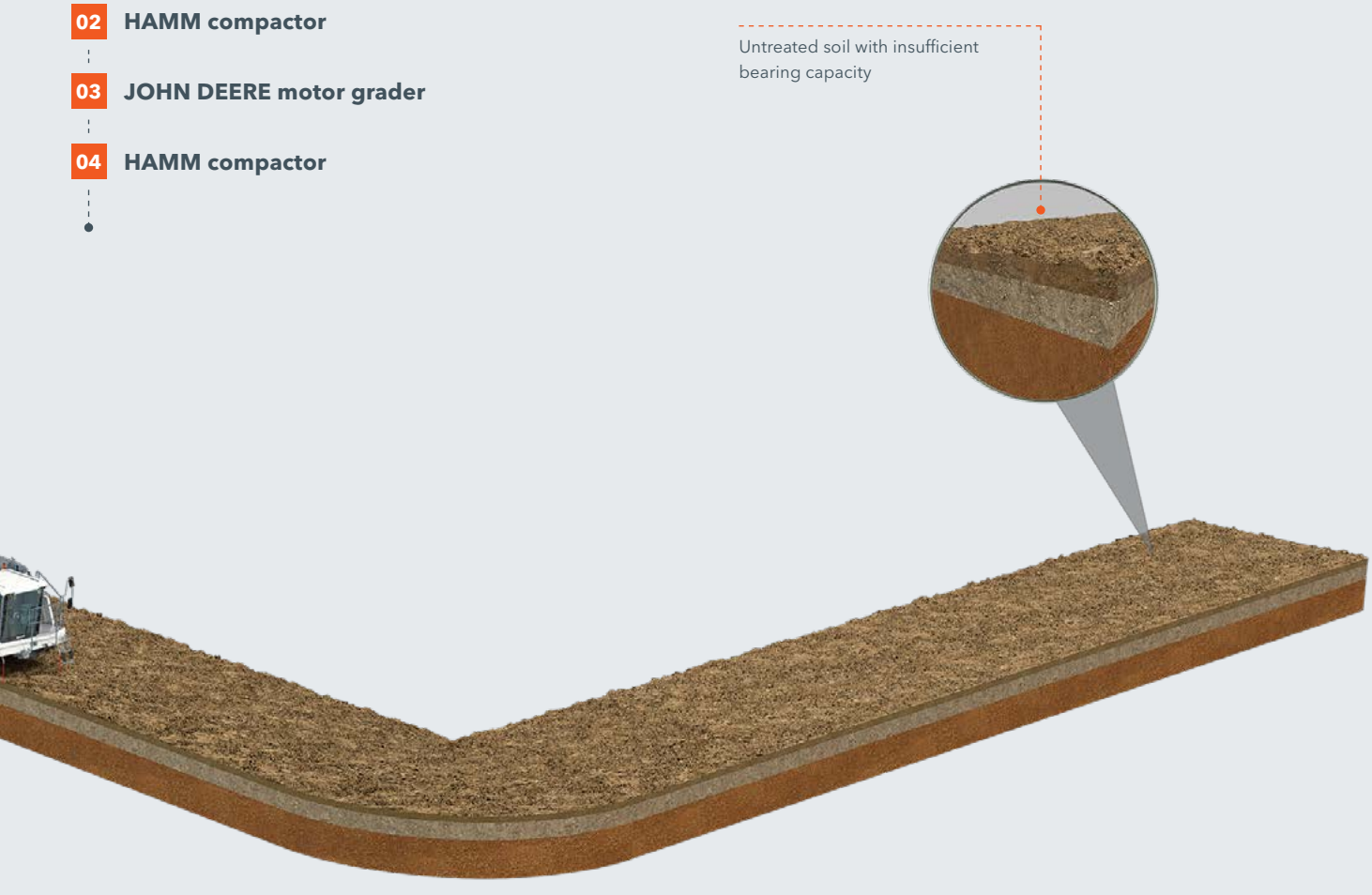
Soil stabilizers in the WR series mill and mix untreated, inhomogeneous soil to a depth of 56 cm. The result is homogeneous soil, perfectly prepared and improved for compaction, without the addition of any binding agents.

01 **WIRTGEN WR 240 (i) soil stabilizer**

02 **HAMM compactor**

03 **JOHN DEERE motor grader**

04 **HAMM compactor**



SOIL TREATMENT USING WATER AS AN ADDITIVE

WR Series

Soil Treatment Using Water as an Additive

To optimize the soil's moisture content, the WR's powerful milling and mixing rotor granulates the existing soil. At the same time, water is sprayed into the mixing chamber and homogeneously mixed in with the soil. After a HAMM compactor has completed the precompaction process, a JOHN DEERE motor grader then grades the prepared surface. In the final step, various HAMM soil compactors are used to compact the soil.

Soil stabilizers in the WR series mill and mix untreated soil with insufficient bearing capacity to a depth of 56 cm. In this process, the moisture content of the soil is optimized for compaction by adding a carefully dosed amount of water. This results in soil that can be compacted for the subsequent construction stages without the need for any binding agents.

01 Water tank truck

02 WIRTGEN WR 240 (i) soil stabilizer

03 HAMM compactor

04 JOHN DEERE motor grader

05 HAMM compactor

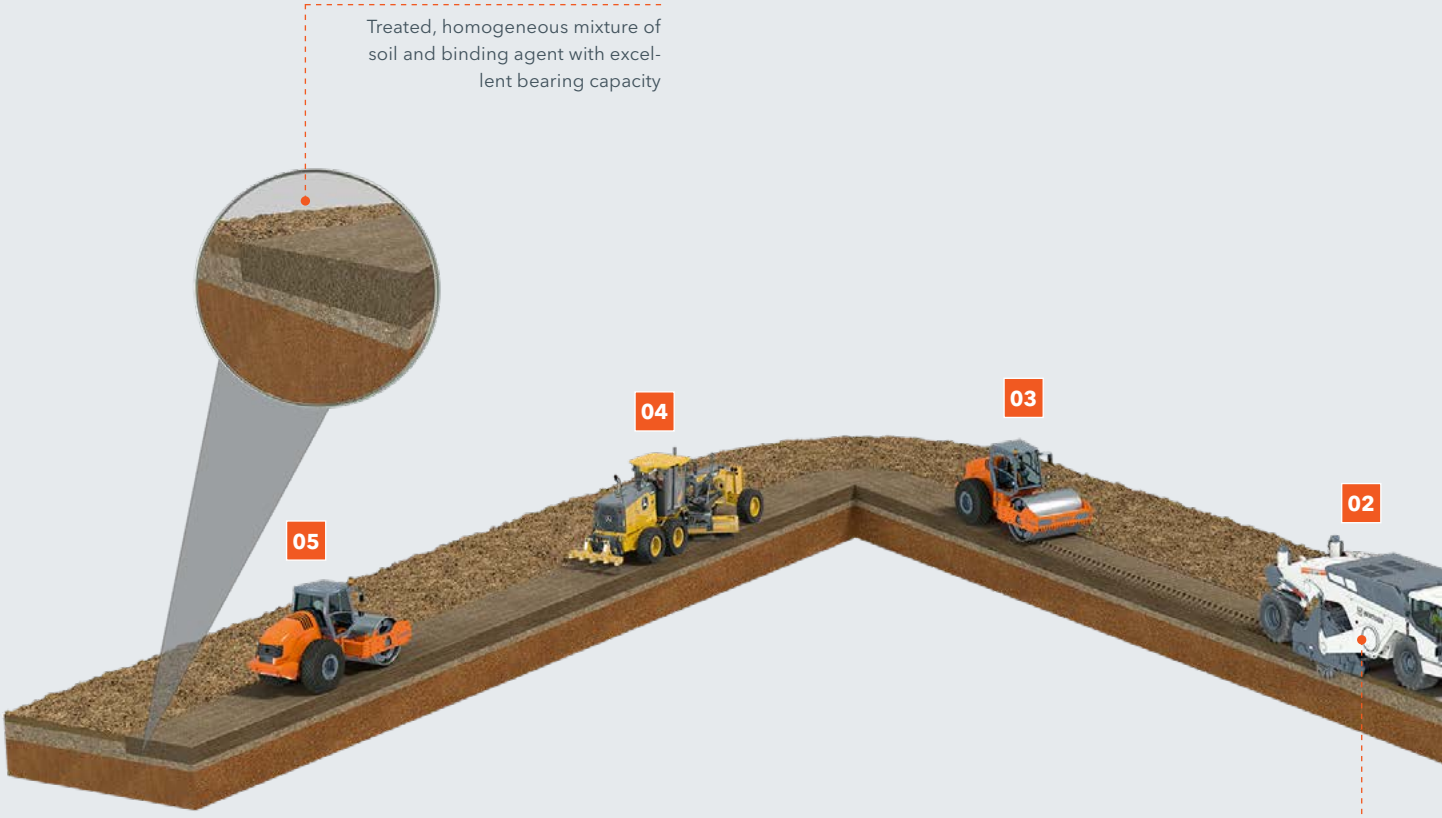
SOIL TREATMENT USING LIME AS AN ADDITIVE

WR Series

Soil Improvement Using Lime as an Additive

In order to improve loamy, wet, and sodden soils, a STREUMASTER binding agent spreader first pre-spreads lime. Behind the binding agent spreader, the powerful milling and mixing rotor of the WR homogeneously mixes the existing soil with the lime.

After a HAMM compactor has completed the precompaction process, a JOHN DEERE motor grader then grades the prepared surface. In the final step, various HAMM soil compactors are used to compact the soil.



Soil stabilizers in the WR series mill soil with insufficient bearing capacity when wet to a depth of 56 cm. The addition of lime improves the soil. The result is durable soil with outstanding bearing capacity that is even frost-resistant.

01 **STREUMASTER binding agent spreader**

02 **WIRTGEN WR 240 (i) soil stabilizer**

03 **HAMM compactor**

04 **JOHN DEERE motor grader**

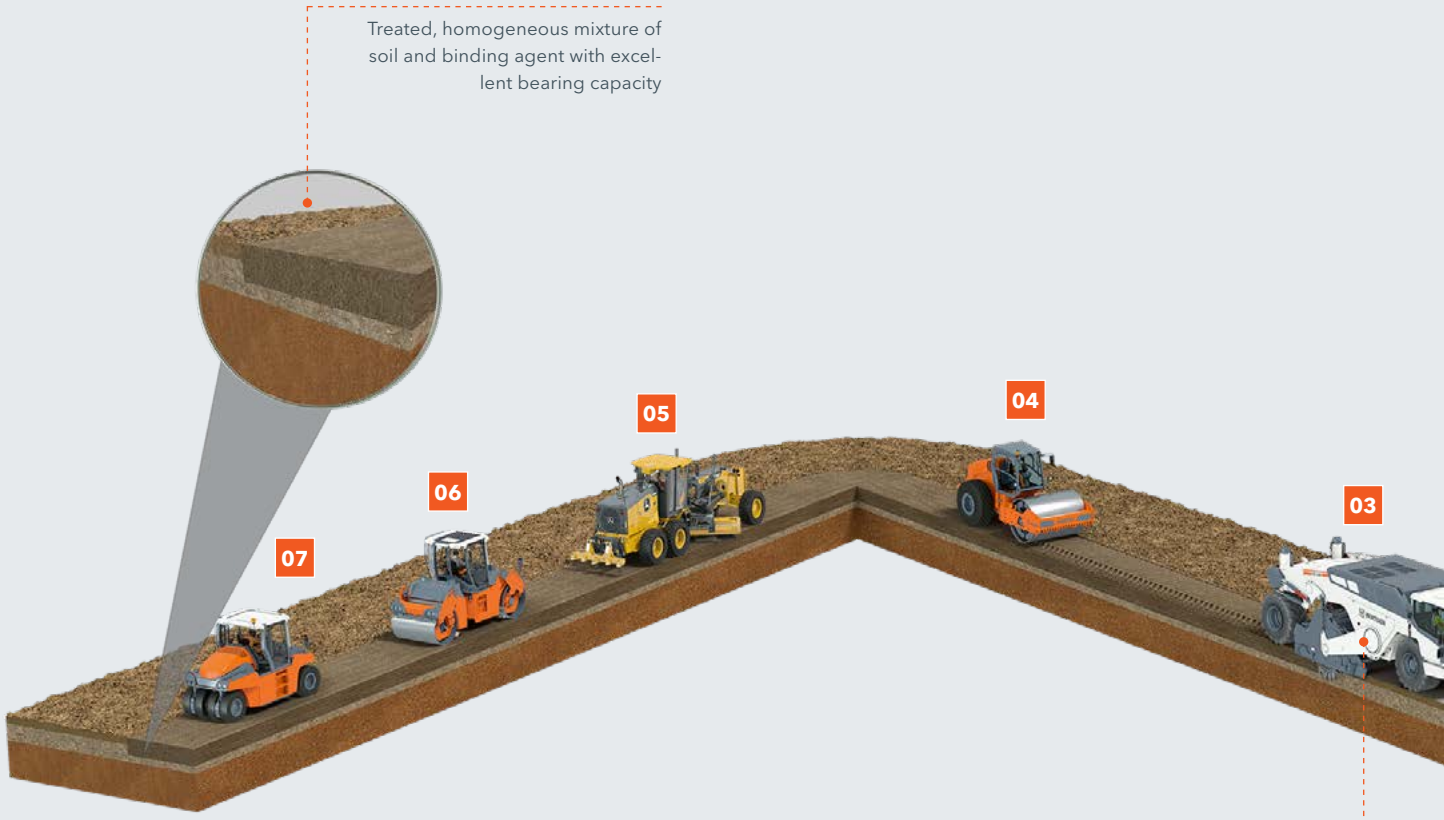
05 **HAMM compactor**

SOIL TREATMENT USING CEMENT AND WATER AS ADDITIVES

WR Series

Soil Consolidation Using Cement as an Additive

In order to consolidate the soil to increase its bearing capacity, a STREUMASTER binding agent spreader first pre-spreads cement. The WR's powerful milling and mixing rotor homogeneously mixes the sub-base and the pre-spread cement. When treating dry soil, a carefully dosed amount of water is simultaneously sprayed into the mixing chamber. After a HAMM compactor has completed the precompaction process, a JOHN DEERE motor grader then grades the prepared surface. In the final step, various HAMM soil compactors are used to compact the soil.



Soil stabilizers in the WR series mill and mix untreated soil with insufficient bearing capacity to a depth of 50 cm. The addition of cement results in soil with outstanding bearing capacity that is ideal, for example, for future construction activities.

01 **STREUMASTER binding agent spreader**

02 **Water tank truck**

03 **WIRTGEN WR 240 (i) soil stabilizer**

04 **HAMM compactor**

05 **JOHN DEERE motor grader**

06 **HAMM tandem roller**

07 **HAMM pneumatic tire roller**

WIRTGEN KEY TECHNOLOGY: CUTTING TECHNOLOGY

Professional Expertise
Thanks to our decades of experience in the field of cutting technology, we are able to equip our soil stabilizers with technology adapted to the requirements of mixing and cutting.

Specific Rotors and Cutting Tools
The precise, optimized arrangement of the picks on the milling and mixing rotor, coupled with the powerful, mechanical milling drum drive, ensures the very best cutting and mixing performance – a basic requirement for perfectly homogeneous mixes. In addition to this, the wear-resistant toolholder system ensures that the picks are able to rotate optimally, can be easily replaced, and are able to work for long periods of time. The versatile Generation Z^2 picks can be used for any cold recycling and soil stabilization application.

Cutting Edge Technology
Unique WIRTGEN know-how

Wear-Resistance and Long Service Life
HT22 ***PLUS HD***

Due to their optimized carbide tip geometry with a reinforced carbide base and an adapted shaft design, the picks of this product series are designed to withstand high impact loads, making them the ideal solution for soil stabilization applications. The WCC PLUS milling tool is also a useful alternative in soil stabilization. Its strengths become particularly evident when working with large pieces of rock due to its enormous impact resistance.

02

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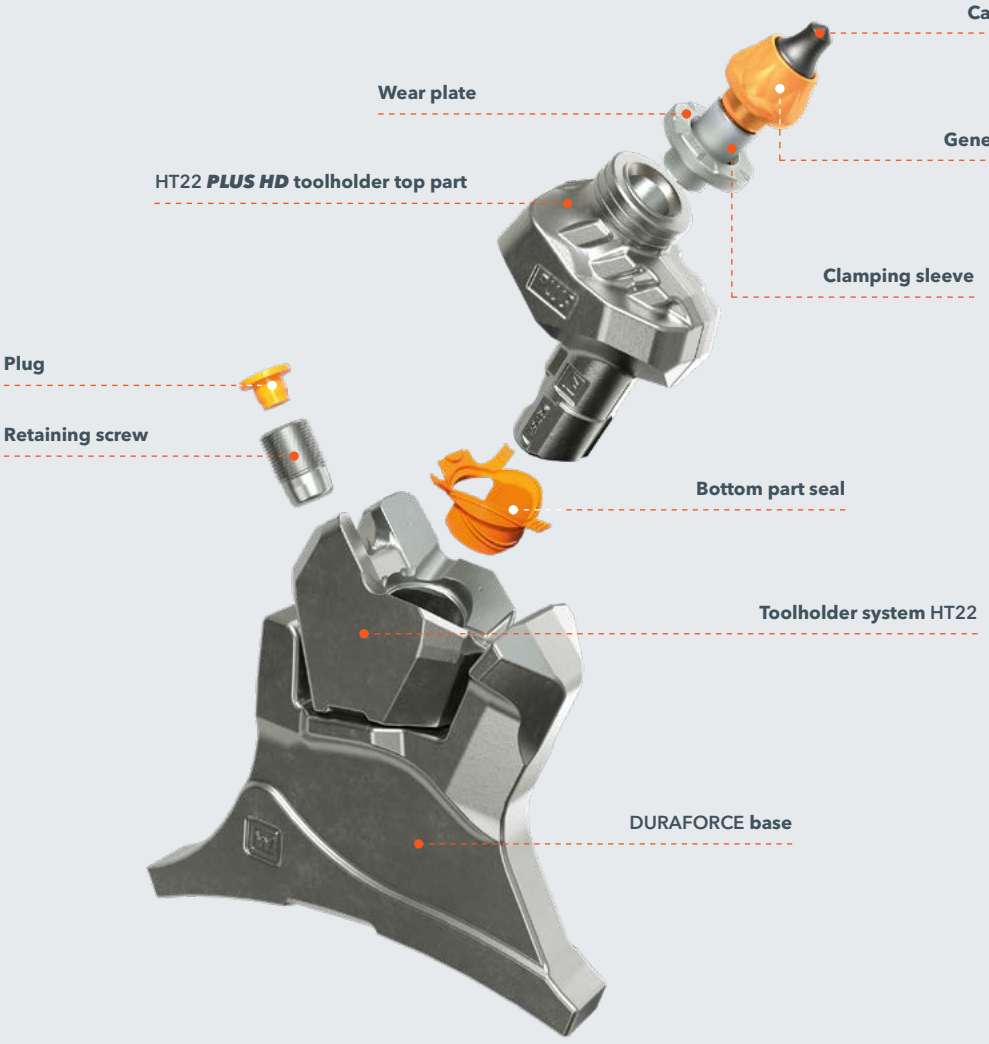
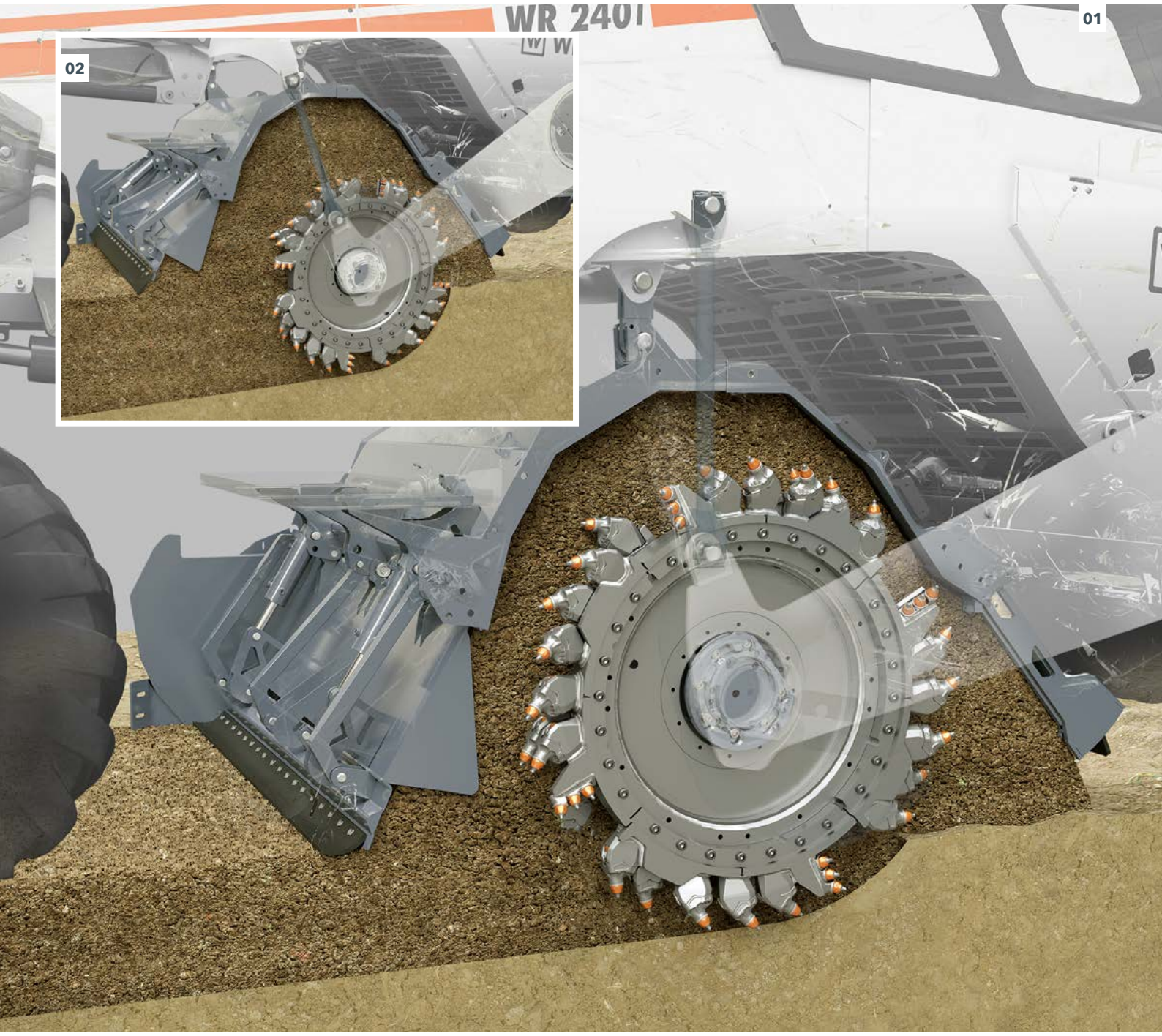


01 The **DURAFORCE** milling and mixing rotor for the WR series stands out thanks to its outstanding wear resistance, impact resistance, and resistance to breakage.

02 When treating soil that contains a large quantity of stones, the powerful WCC PLUS milling tool is an excellent alternative.

03 **HT22** toolholder system in combination with Generation Z² picks.

WIRTGEN KEY TECHNOLOGY: MIXING PROCESSES



Homogeneous Mix Quality at all Working depths
Variable mixing chamber

Hardware For All Applications

Producing a soil mixture that can be easily compacted and has a high bearing capacity is the most important aspect of soil stabilization. Even at high machine advance rates, the shape of the **DURAFORCE** milling and mixing rotors is ideal for achieving perfectly homogeneous mixes with low diesel consumption, in turn guaranteeing high daily output rates. In addition to this, the rotor is automatically lifted or lowered in order to adjust the mixing chamber volume to the current working depth and material quantity. The size of the variable mixing chamber increases with the working depth, thus ensuring maximum performance and outstanding mixing results, even when operating at the maximum depth.

Be it cement or lime, pre-spread or applied as a suspension, the WR never fails to deliver unparalleled results and construction material of the highest quality. The unique shape of the forged holder bases is designed for maximum durability, even when working with abrasive materials. In addition to this, the **HT22** toolholder systems stands out due to its particularly high impact resistance against large stones in the soil. Coupled with its exceptional cutting performance, the **DURAFORCE** milling and mixing rotor is the universal tool for soil stabilization worldwide.

01 The WR 240's adjustable rotor plate creates a perfectly homogeneous mixture of binding agent and soil.

02 Large mixing chamber when operating at a large working depth.

03 The WS 250's adjustable rotor plate creates a perfectly homogeneous mixture of binding agent and soil.

04 The "S-Pack" (short for "spreader pack") binding agent spreader optionally built into the soil stabilizer is used for dust-free binding agent discharge.

WIRTGEN KEY TECHNOLOGY: MACHINE CONTROL

Innovative Human-Machine Interaction
The ability to carry out operations in an intuitive and flexible manner with the help of reliable information systems is a top priority for performance-driven operators of construction machinery. For this reason, WIRTGEN machines feature innovative and user-friendly assistance systems that are designed to make the operator's job easier. The intelligent machine control system integrated into our soil stabilizers facilitates the interaction between the machine and the operator.

The WR's state-of-the-art, high-torque diesel engine is perfect for stabilization operations requiring maximum performance. But in addition to the muscle, it also uses its "brains" – the intelligent, fully electronic engine management system optimizes engine performance, maintaining torque at a constantly high level, even in the event of extreme engine lugging. High torque reserves mean that, should any further increases in power output be required, they can be achieved without any issues. On top of this, diesel consumption is reduced thanks to the automatic engine speed adjustment.

01

Absolute Precision
Microprocessor-controlled addition of binding agents

Fast and Efficient
Smart automatic functions

The WIRTGEN soil stabilizer is equipped with an intelligent automatic system that is used to initiate and end the milling process. At the start, the milling and mixing rotor and the front and rear rotor plates are shifted into their predetermined position. When closing the cut, the WR reverses, the rotor is lifted simultaneously with the required movement of the chamber doors to subsequently create an even material surface.

01 The injection system is controlled via microcontroller and, depending on the recipe, injects water into the mixing chamber in order to achieve the ideal level of moisture.

02 Automatic end-of-cut feature: The milling and mixing rotor as well as the rotor plates at the front and rear move to the preselected position. When closing the cut, the WR reverses, the rotor is lifted simultaneously with the required movement of the chamber doors to subsequently create an even material surface.

03 The control panels can be positioned to optimally fit the job requirements at hand.

WIRTGEN KEY TECHNOLOGY: LEVELING

High Machine Stability
Four-fold full-floating axle system

Precise Cross-Slope Profiling
Electronic cross-slope sensor

Stable Handling and Ample Ground Clearance

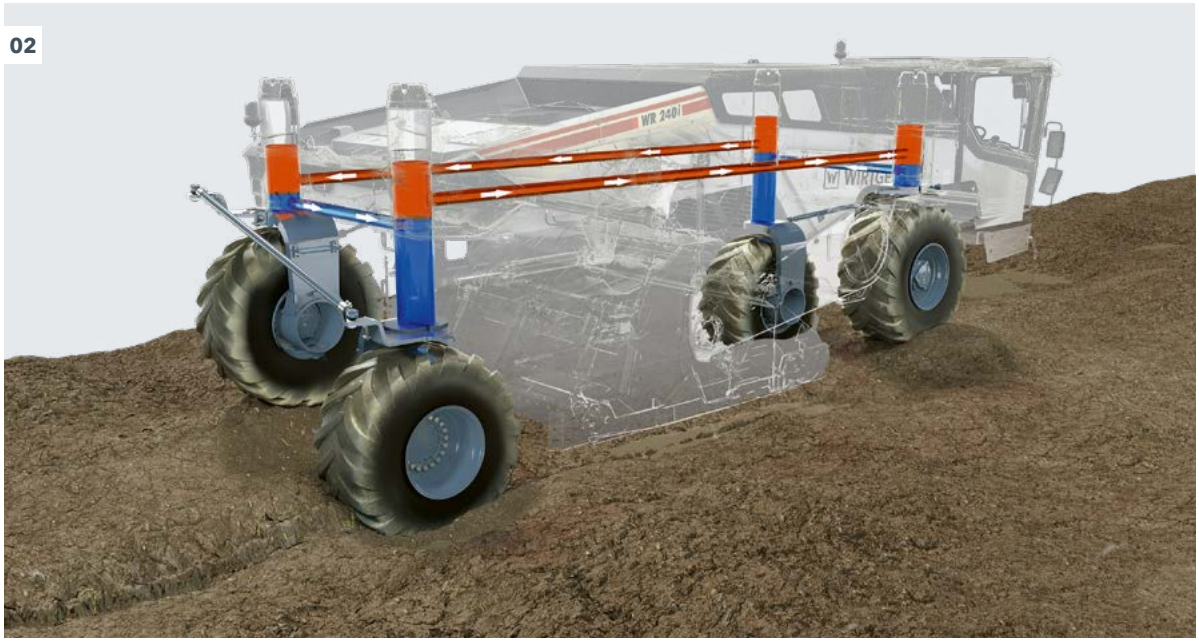
The WR has no issues handling even the most uneven surfaces while maintaining a horizontal alignment at all times. The machine's automatic four-way pendulum axle and electronic cross-slope sensor are key features when it comes to maintaining machine stability and balance. With the help of the sensor, the WR is able to work in horizontal alignment to the surface or at a specified cross slope. The tried-and-tested lifting column design with a 4-fold full floating height adjustment system quickly and dynamically compensates for any uneven ground. It ensures that the milling and mixing rotor maintains the desired depth on both the left and right side, ensuring precise working results.

The height of the wheels can be adjusted in pairs, either at the left, right, front or rear in order to fully adapt the machine to the site conditions at hand. When moving sideways across sloping terrain, the operator can use the "roll" feature to adjust the machine to a more comfortable horizontal position. This means the operator also benefits – by being able to work in a relaxed manner while enjoying a comfortable ride.

01 The WR can easily compensate for uneven ground.

02 Thanks to the combination of a cross-slope sensor and a four-way pendulum axle, the WR is able to handle even the most uneven of surfaces with no issues at all.

03 The wheels of the WR can be adjusted in pairs.



A COMPREHENSIVE RANGE OF MACHINES FOR SOIL STABILIZATION

The perfect solution for every application
WIRTGEN offers a wide range of products for soil stabilization. The series feature a variety of different models and seamlessly cover all performance classes, meeting every challenge in impressive fashion. In addition, the machines offer a unique variety of equipment options to meet individual specifications depending on the application or the construction contract being bid on.

To further increase the potential range of applications, WIRTGEN offers its customers a complete range of soil stabilization products through the exclusive distribution of STREUMASTER binding agent spreaders and JOHN DEERE graders.

WHEELED RECYCLERS / SOIL STABILIZERS

> Working width from 2,000 mm to 2,400 mm > Working depth from 0 mm to 560 mm

WR 200

WR 200 i

WR 200 XL i

WR 240

WR 240 i

WR 250

WR 250 i

TRACTOR-TOWED STABILIZERS

> Working width from 2,150 mm to 2,500 mm
> Working depth from 0 mm to 500 mm

WS 220

WS 250

JOHN DEERE MOTOR GRADERS

> Operating weight: up to 20,500 kg
> Max net power: 205 kW
> Blade pull: 22,453 kg

620 / 622 GP

670 / 672 GP

770 / 772 GP

STREUMASTER BINDING AGENT SPREADERS

> Container volume: from 3 m^3 to 20 m^3 > Spread rate: from 1 l/m^2 to 60 l/m^2 > Spreading width: from 720 mm to 2,500 mm

SW 3 FC

SW 5 RC

SW 10 TA

SW 16 TA

SW 10 TC

SW 16 TC

SW 16 MC

SW 18 MC

SW 20 MC

SW 18 SC

SW 18 SC i

TRIED AND TESTED AROUND THE GLOBE

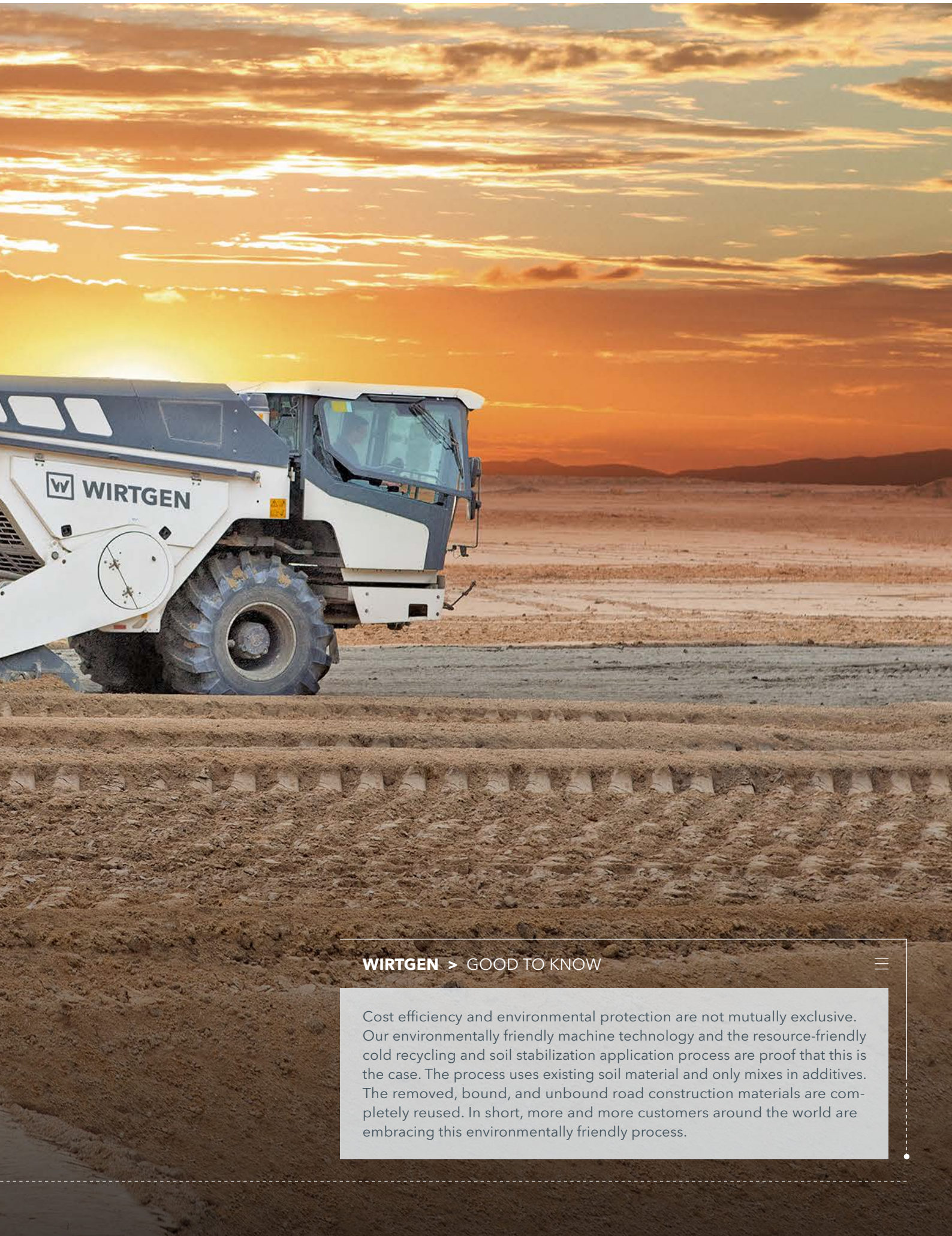
Four Powerful Arguments in Favor of WIRTGEN Soil Stabilizers

> Soil stabilization can significantly reduce emissions such as CO_2.

> WIRTGEN stabilizers can be used to mix soils with insufficient bearing capacity into a high-quality construction material in a single operation.

> WIRTGEN is the technology leader in dosing and mixing technology and is committed to continuously developing this technology.

> We leverage our experience in the tried-and-tested cold milling process to perfect our cutting technology across all of our product lines.



WIRTGEN > GOOD TO KNOW

Cost efficiency and environmental protection are not mutually exclusive. Our environmentally friendly machine technology and the resource-friendly cold recycling and soil stabilization application process are proof that this is the case. The process uses existing soil material and only mixes in additives. The removed, bound, and unbound road construction materials are completely reused. In short, more and more customers around the world are embracing this environmentally friendly process.

WE AT WIRTGEN

As the global market leader, here at WIRTGEN we strive to meet our own high standards each and every day. This is why we are particularly proud of the fact that all of our machines are fully developed and manufactured in-house. From the idea to the design and production through to sales and service, our products are supported exclusively by extremely well-trained WIRTGEN employees. In the process, our customers' opinions and interests play a particularly important role. This is because in addition to providing excellent after-sales service after the purchase of a machine, receiving feedback from customers – which we incorporate into the development of new products – is extremely important to us.

WIRTGEN

WIRTGEN GmbH

Reinhard-Wirtgen-Str. 2
53578 Windhagen
Germany

T: +49 2645 131-0
F: +49 2645 131-392
M: info@wirtgen.com

www.wirtgen.de

For further information, please scan the code.