

# RoadNews

for new roads

The WIRTGEN GROUP User Magazine // № 07

 WIRTGEN

 VÖGELE

 HAMM

 KLEEMANN

 BENNINGHOVEN

Innovative technologies from the WIRTGEN GROUP  
at Bauma 2019:

All set  
for  
tomorrow

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# Editorial

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Dear Readers,

Vast dimensions, powerful forces and a diverse array of different machine types – the road construction industry certainly exerts a strong fascination at first sight. And this effect promises to be much in evidence again at Bauma 2019 in Munich. For customers and users, WIRTGEN GROUP technologies have always been worth a closer look, for many of our innovations are not evident at first sight – and in fact, an increasing number of them are even invisible.

Smart technologies is the watchword. For instance, WIRTGEN's new generation of large milling machines can boost the efficiency and quality of milling work and document daily milling output including consumption data and a site plan by means of Connected Milling. As of now, KLEEMANN crushing and screening plants can be equipped with the WITOS FleetView telematics solution.

Meanwhile, BENNINGHOVEN have also integrated the world's leading technology for asphalt recycling, the counterflow recycling drum with hot gas generator, in their TBA plants. And HAMM are now offering their tried-and-tested oscillation technology in split drums, which will be particularly advantageous when compacting on bends. VÖGELE's new Highway Class paver is also brimming with smart innovations, although in this case, the dimensions involved are likely to steal the limelight at first: the new SUPER 3000-3(i) can pave asphalt over a potentially record-breaking width of 18m.

As you will see, we at the WIRTGEN GROUP have once again pulled out all the stops in order to thrill you with countless world firsts, trade fair debuts and innovations at Bauma 2019! If you travel to Munich yourself, we are sure that our stand will be among the highlights of your visit. You can also find out background information and discover many of the advantages of our new developments in this magazine.

We hope you enjoy reading this seventh edition of the WIRTGEN GROUP RoadNews.

Best wishes,



Frank Betzelt  
Senior Vice President – Sales, Marketing, Customer Support  
WIRTGEN GROUP

# Bring on the future

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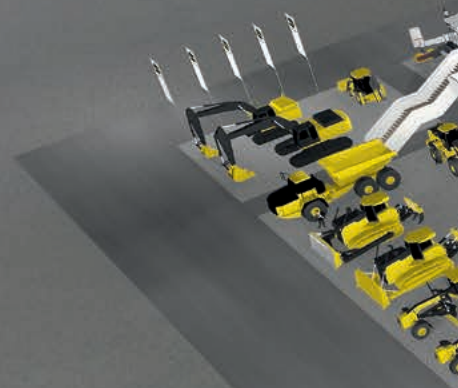
At Bauma 2019 the WIRTGEN GROUP will be presenting SMARTSYNERGIES and Innovations and showing how they benefit customers and users.

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What advantages exactly arise from the WIRTGEN GROUP being a diversified corporate group that covers the entire road construction process chain? The technology leader will be delivering impressive answers to this question at Bauma 2019 in Munich. Numerous innovative machines and smart solutions representing the specialized product brands WIRTGEN, VÖGELE, HAMM, KLEEMANN and BENNINGHOVEN will be on display at Stand FS.1011. Together they lay the basis for synergies that can help tap into additional savings potentials.

SMARTSYNERGIES and Innovations encompass much more than just the product portfolio. In fact, the theme is also synonymous with close customer care, as provided by the global sales and service companies, which provide a rapid-response on-site service and a central contact, harnessing the advantages of a close-knit dealer network to ensure that the Group's commitment to a genuine spirit of partnership is upheld in every region of the world. Thanks to continuous expansion of Group infrastructures and new subsidiaries and service locations, customers can purchase all the products they need for their applications locally. And even more importantly: they also receive service for these products from a single source. With all these advantages, WIRTGEN GROUP customers are well-equipped to meet any challenge in road construction.

The WIRTGEN GROUP team are looking forward to talking to you at our trade fair stand and hearing your views on our numerous world premieres! And if we don't see you in person in Munich, we would be happy to schedule meetings any time after Bauma 2019, because as you know, we are passionate about our pledge to be "close to our customers", and everyone in our group of companies, including the contact responsible for you at your local subsidiary, delivers on it every day.





**Joint presentation:**  
with some 120 exhibits, including numerous world premieres, the combined force of the WIRTGEN GROUP will be on show in Munich. And for the first time at this event, the Group will be teaming up with John Deere at Stand FS.1011.

**bauma**  
Innovation



# Effective in the long term

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Roads require structural rehabilitation to ensure that the road infrastructure remains functional over the long term. WIRTGEN developed the high-performance W 380 CRi cold recycler to meet this requirement.







reuse of the  
existing material



less material to dispose of



reduction in number of  
construction material  
transport operations



lower use of resources



less binding agent

**The figures stated constitute maximum achievable values. Whether they can be attained in practice depends on the specific job-site parameters.**

## Time is of the essence

Road rehabilitation projects have to meet the same requirements all over the world: they must be cost-effective, eco-friendly, and above all, finished quickly. After all, the global road network is showing visible signs of ageing. Patchwork repairs are neither sustainable nor do they address the root cause. The cold recycling process is already popular today, and demand for this solution is set to grow in the future. The recycling of the surface and base course material is a basic requirement in this context. In the in-place cold recycling process, for example, the asphalt surface is processed on site, either in full or in layers depending on the level of damage and the material is then repaved immediately. This task is performed in a single pass by a recycling train operating across the entire width of the pavement. The pace-setters at the heart of this recycling train are tracked recyclers such as the new W 380 CRi. It uses the down-cut process when recycling. This process, in which the milling and mixing rotor rotates in sync, was developed years ago by cold recycling pioneer WIRTGEN. This method has become an essential part of day-to-day recycling operations, as it makes it possible to vary the particle size selectively when processing the material – especially in the case of fragile, thin, old asphalt roads. >>>

## Recycling with integrated rear loading

When recycling with integrated rear loading, cement is first pre-spread where specified. The milling and mixing rotor of the recycler granulates the asphalt layers. At the same time, the cement is mixed in while water and bitumen emulsion or foamed bitumen are injected from the connected water tank and emulsion or bitumen tank truck into the mixing chamber via injection bars. Pavers lay down the new homogeneous construction material and precompact it. Rollers then carry out final compaction.

**A huge asset of the W 380 CRI:  
its simple operation.**





# Durable

Roads rehabilitated by means of cold recycling have to meet the same durability requirements as roads designed and built using conventional methods. With the development of their own laboratory equipment, WIRTGEN have created solutions which guarantee that rehabilitation measures will be cost-effective and sustainable even before they are carried out. As a result, it is not only possible to define the ideal composition of the RAP, but also to analyse its quality and properties. The quality of the foamed bitumen can also be precisely defined in the materials laboratory before starting the rehabilitation project.

## Mix stabilized with foamed bitumen creates the ideal basis

Cold recycling, particularly with foamed bitumen, is becoming increasingly popular with road authorities and contractors. In this process, the foamed bitumen is processed in-place with the existing building material. The newly produced bituminous mix is known as BSM (bitumen-stabilized material). After final compaction, it shows a durable and extremely high load-bearing capacity. Viewed from a long-term perspective, BSM has another advantage: the foamed bitumen which is mixed in leads to selective adhesion within the cold recycling layer and thus prevents cracking. As part of the pavement structure, the permanent layers prepared in this way form the perfect foundation for the final, much thinner asphalt surfacing. >>>

## Recycling with integrated screed

The WIRTGEN W 240 CRi cold recycler can also be equipped with a VÖGELE AB 375 T Variable Screed. When recycling with an integrated screed, cement is pre-spread where specified by a binding agent spreader, which is followed by a water and a binding agent tank truck. The milling and mixing rotor of the W 240 CRi granulates the asphalt layers. At the same time, the cement is mixed in while water and bitumen emulsion or foamed bitumen are injected into the mixing chamber via injection bars. The recycled construction material is transported to the rear of the machine via the primary conveyor. It is then paved true to cross-section, line and level by the VÖGELE screed with auger. HAMM rollers then carry out the final compaction.



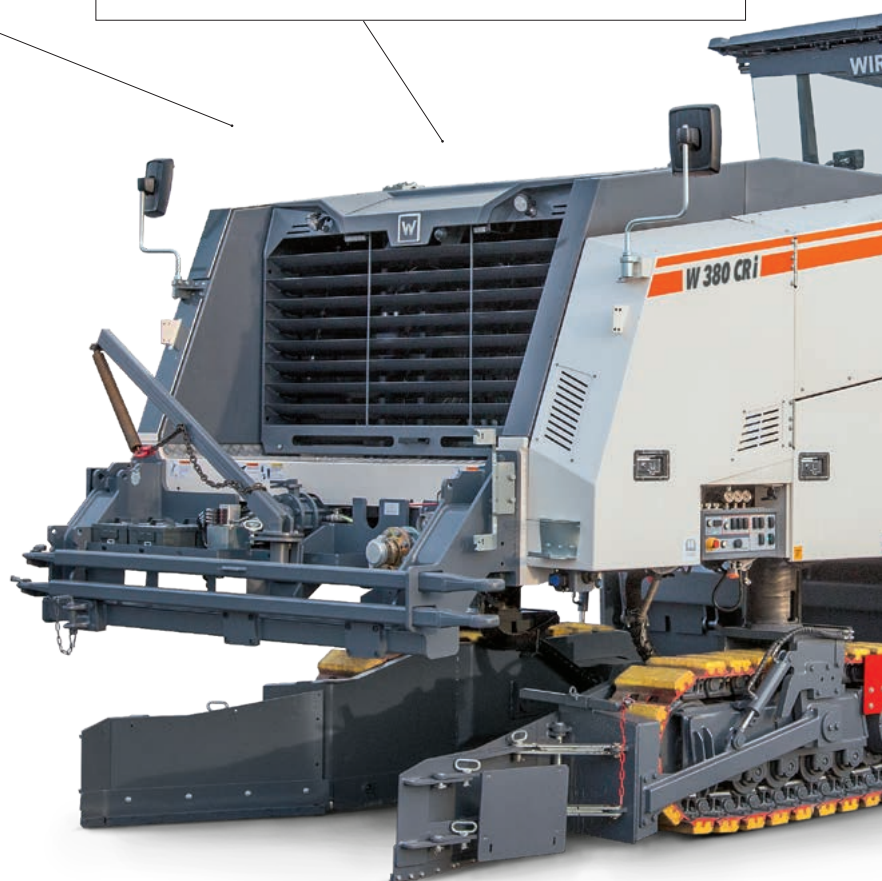
# The most advanced and highest-performance cold recycler in the world

## High-precision, reliable injection systems

- › Integrated injection systems for water, bitumen emulsion and foamed bitumen
- › Metering panel with screen for reliable operation and easy monitoring of binding agent metering
- › Innovative process-water monitoring for the production of foamed bitumen
- › Automatic self-cleaning and flushing feature for high functional reliability of the injection nozzles

## Tremendous performance

- › High-powered, high-torque diesel engine
- › Minimized engine noise emissions allow round-the-clock operations in urban environments
- › All-track drive (ASC) and four-fold full-floating lifting column feature ensure optimum traction



Model	W 380 CR	W 380 CRi
Engine output	708kW/963HP	775kW/1,054HP
Working widths	3,200mm, 3,500mm, 3,800mm	
Working depth	0-350mm	
Exhaust gas category	EU not regulated / US Tier 2	EU Stage 5 / US Tier 4f

### Simple operating concept

- › Flexible positioning of the main control panels in both directions of operation
- › Four large, clearly-structured control panels for operation by the ground crew
- › On-board diagnostic system for quick and easy assistance with maintenance procedures
- › New automated features enhance ease of operation
- › High-precision LEVEL PRO levelling system comprising different sensor models

### Optimum visibility, comfort and ergonomic design

- › New machine geometry ensures perfect visibility
- › High-quality camera system comprising up to seven cameras
- › Easy start-up and quick modification of the machine to match the specific application

### Effective cutting and mixing technology

- › Milling and mixing unit designed for both recycling and front-loading operations (milling)
- › Multiple Cutting System (MCS) for three working widths: 3.2m, 3.5m and 3.8m



Model	W 240 CR	W 240 CRi
Engine output	708kW/963HP	775kW/1,054HP
Working widths	2,350mm	
Working depth	0-350mm	
Exhaust gas category	EU not regulated/US Tier 2	EU Stage 5/US Tier 4f



# Intelligent

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Machines that think independently and always strike a perfect balance between performance, quality and cost. With their new generation of large milling machines, cold milling specialist WIRTGEN are taking milling to a whole new dimension in efficiency.

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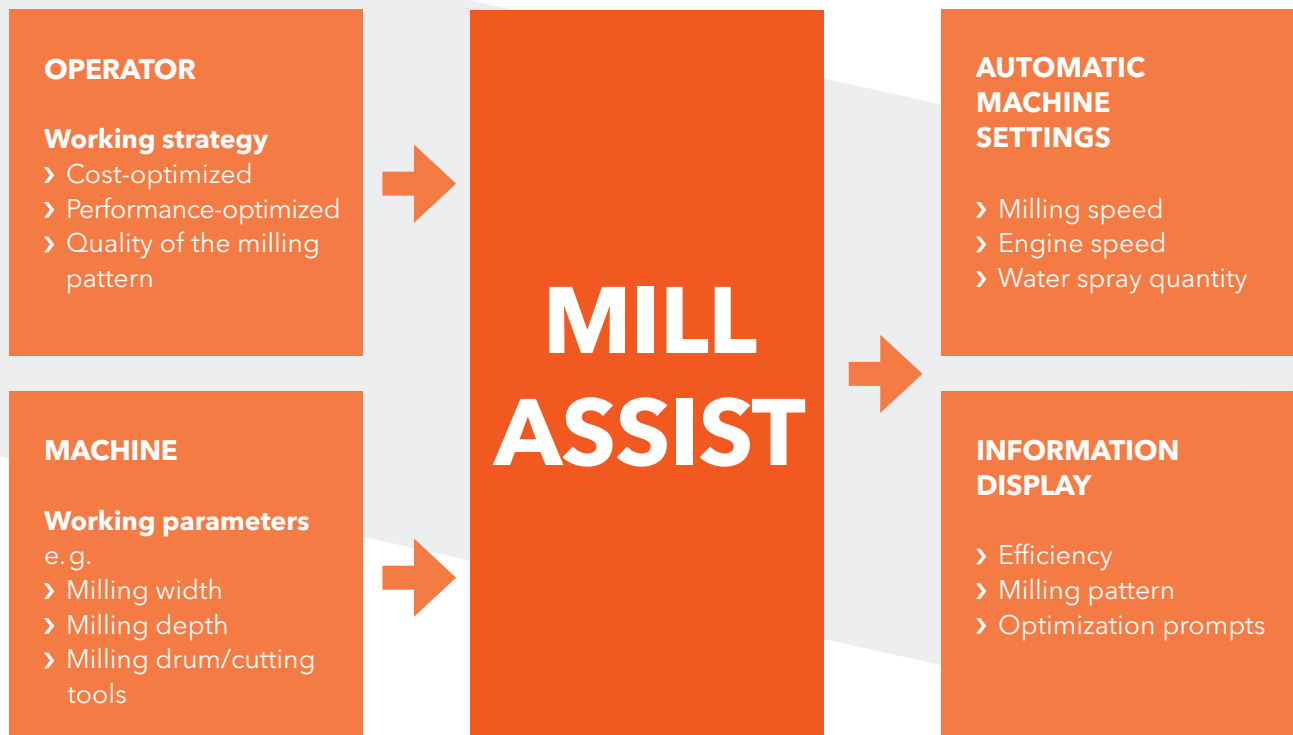
# F series

# Connected Milling

On milling job sites, the demands imposed on man and machine are very high. Because job-site conditions change constantly, a milling machine operator has to keep track of several machine parameters simultaneously, such as drum speed, water volume, milling speed, etc. Consistently achieving optimum results requires repeated manual interventions in the process to cater to the properties of the surface being milled, and this complex multitasking makes the job extremely demanding. But it can be simplified with WIRTGEN MILL ASSIST.

## A huge help to milling machine operators

WIRTGEN's introduction of their new generation of large milling machines marks the launch of the first smart machines capable of independently and optimally executing performance and quality specifications from the operator. The entire milling process is digitally mapped and simulated in real time, based on a comprehensive analysis of all parameters. MILL ASSIST controls and monitors the whole process fully automatically by these means. The machine responds intelligently and dynamically to changing conditions, while maintaining an optimum balance between cost, performance and quality at all times. The milling machine operator can focus fully on driving, loading and levelling, tasks which likewise affect quality and productivity. >>>



**Saves time**



**Increases quality**



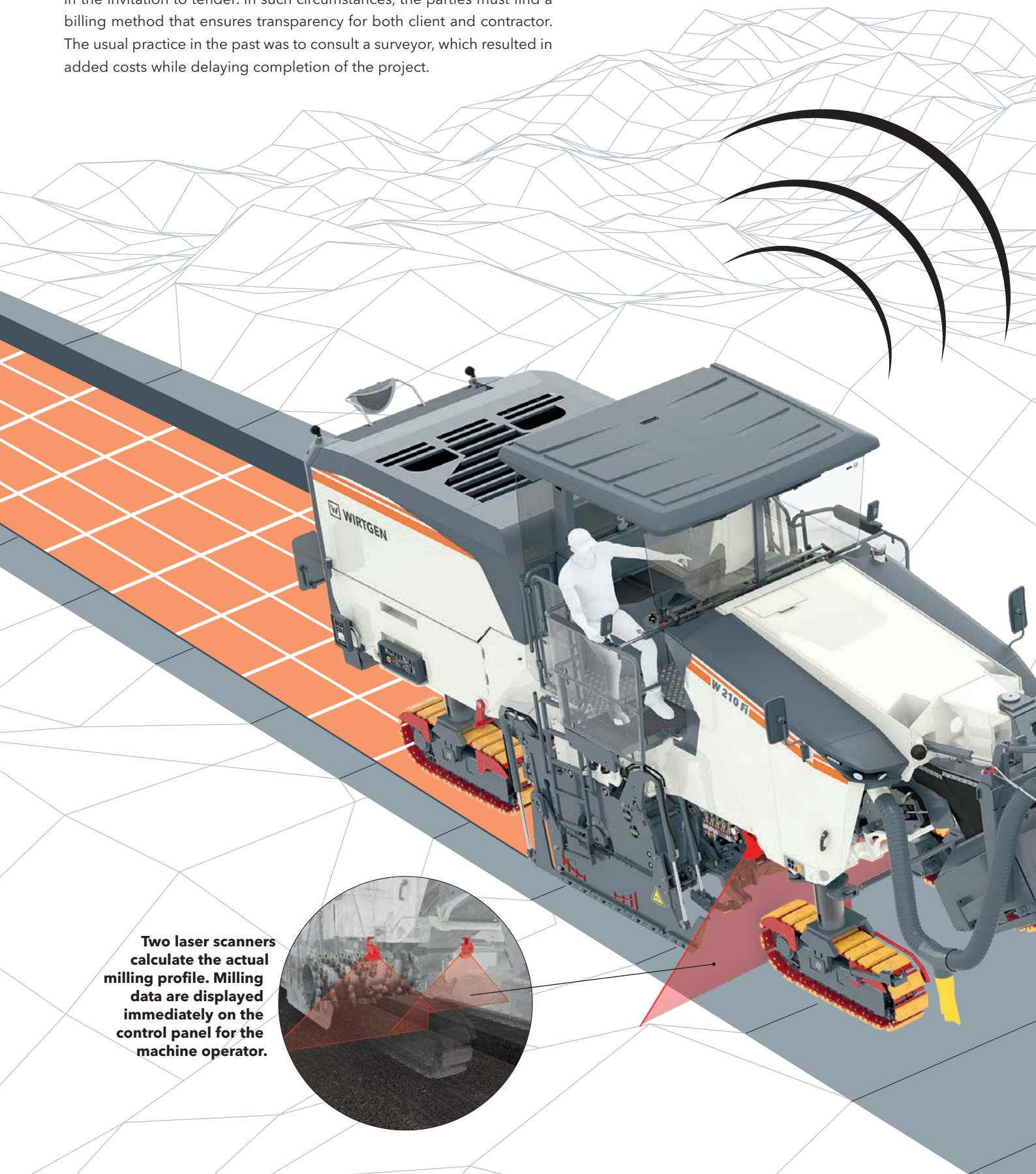
**Saves money**



**MILL ASSIST**

## Every cubic metre counts

All too often, milling service providers find themselves needing to remove more pavement on a road rehabilitation project than specified beforehand in the invitation to tender. In such circumstances, the parties must find a billing method that ensures transparency for both client and contractor. The usual practice in the past was to consult a surveyor, which resulted in added costs while delaying completion of the project.

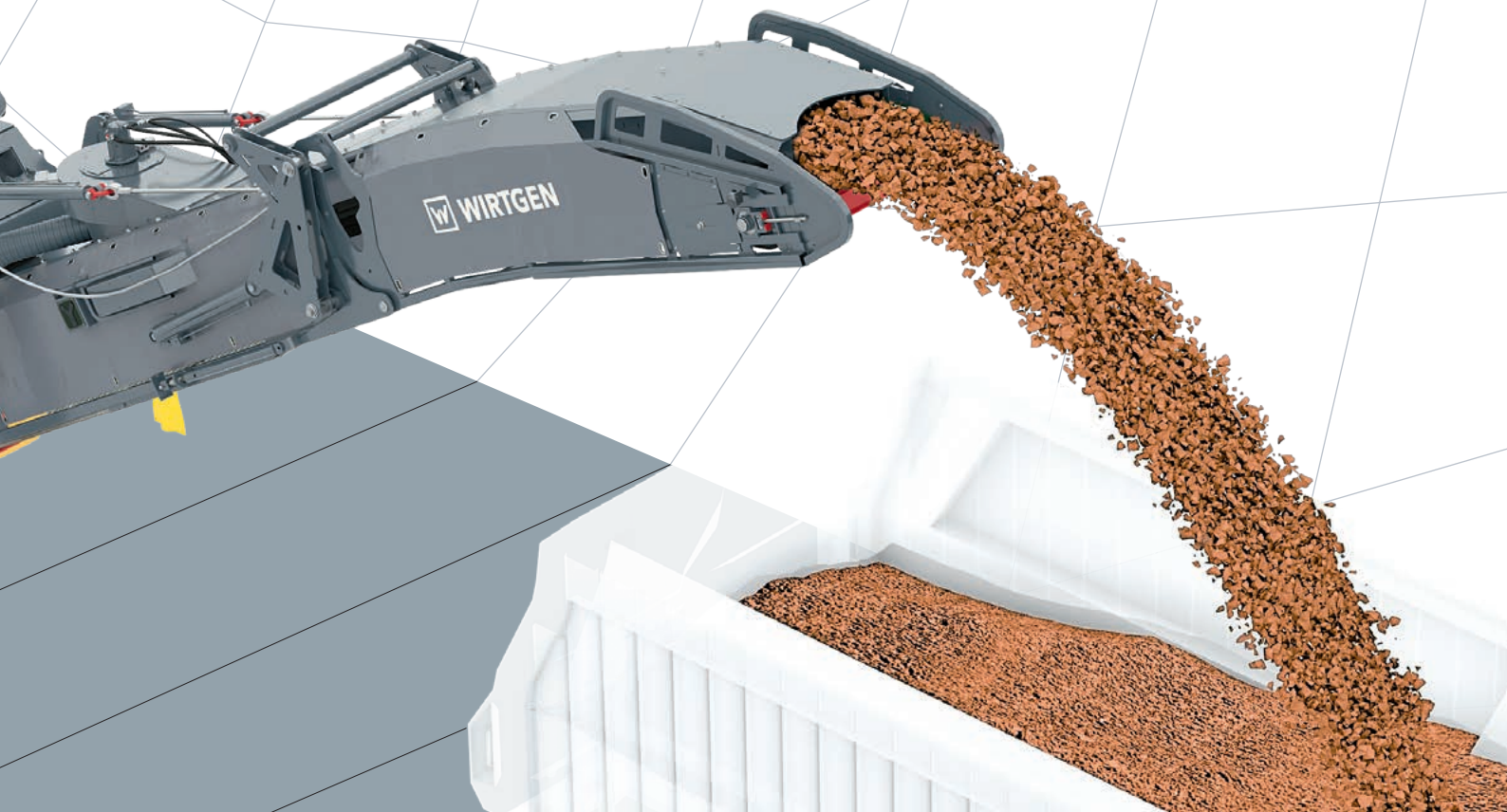


Two laser scanners calculate the actual milling profile. Milling data are displayed immediately on the control panel for the machine operator.

## WPT for planning security

WIRTGEN have now developed a solution that leaves no questions unanswered: their new Performance Tracker (WPT). As an innovative element of Connected Milling, a term that refers to the flow of diverse information between machine, operator, service workshop and scheduling department, the WPT calculates the cross-sectional profile to be milled with the help of a laser scanner. The precise area output and milling volume are determined by means of GPS positioning and various sensors. The machine operator is continually supplied with the most important real-time information on his control panel. An automatically generated site-measurement report, encompassing the daily milling output, other key performance and consumption data, a precise site plan and other information, is then sent directly to the scheduler and visualized in Excel and PDF files. The result: with the new large milling machines from WIRTGEN, the actual amount of work performed can be documented precisely and reliably, enabling milling service providers to plan their milling jobs reliably. >>>

**The measurement reports include precise data on milling volume, milled area and milling depth. They also contain detailed job site documentation and an extensive job report.**



## Intuitive man-machine interface (MMI)

Flexible control panel concept for maximum machine control: thanks to this new concept, different control panels can be configured to meet specific customer needs. The main requirement for WIRTGEN's design engineers was to incorporate an extensive and clear display of status, diagnostic and other information for the machine operator. The new, easy-to-understand and intuitive control panel concept optimally fulfils this objective. >>>

**Control panel: operator's stand, centre**

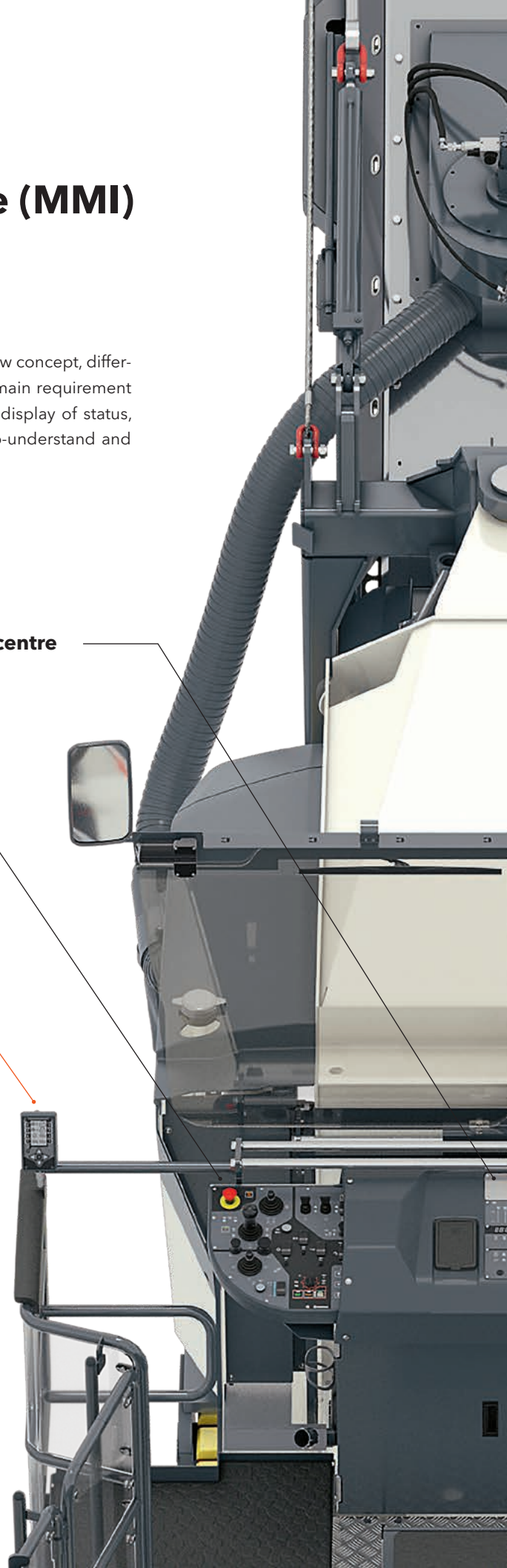
**Control panel: operator's stand, left**

**2" control panel  
with "favourites" buttons**

Two additional panels mounted on the right and left outer railings of the operator's stand support simpler and more effective operation. Each panel can be programmed with up to 21 individual, favourite functions, such as "Slew discharge conveyor".

● **Standard control panels**

● **Optional control panels**



### 5" control panel for levelling

Up to two 5" control panels can be mounted on the right and left-hand sides of the machine for ground crews to operate the LEVEL PRO ACTIVE levelling system.



### 7" control panel for conveniently displaying important information

Whether on the operator's stand or at the lower-level operating positions, the new control panel concept provides clear, comprehensive information. The 7" control panel, for example, displays the following information to all users: machine load status, temperatures, hydraulic pressures, filling levels for diesel fuel and water, levelling control, status and diagnostic messages and general information, such as the current time of day.



### Robust, high-quality camera system with 10" control panel

An optional camera system with two, four, or eight cameras can be selected for excellent visibility and direct views of critical working areas. If more than two cameras are integrated, the images are displayed on an additional 10" control panel with split-screen function for showing several camera images simultaneously.



Control panel: operator's stand, right

## Wide selection of different MCS milling drums



### ECO Cutter

Milling width: 2,000mm  
Milling depth: 0-330mm  
Tool spacing: 25mm



### Standard milling drum

Milling width: 2,000mm  
Milling depth: 0-330mm  
Tool spacing: 18mm



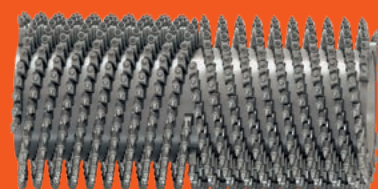
### Standard milling drum

Milling width: 2,000mm  
Milling depth: 0-330mm  
Tool spacing: 15mm



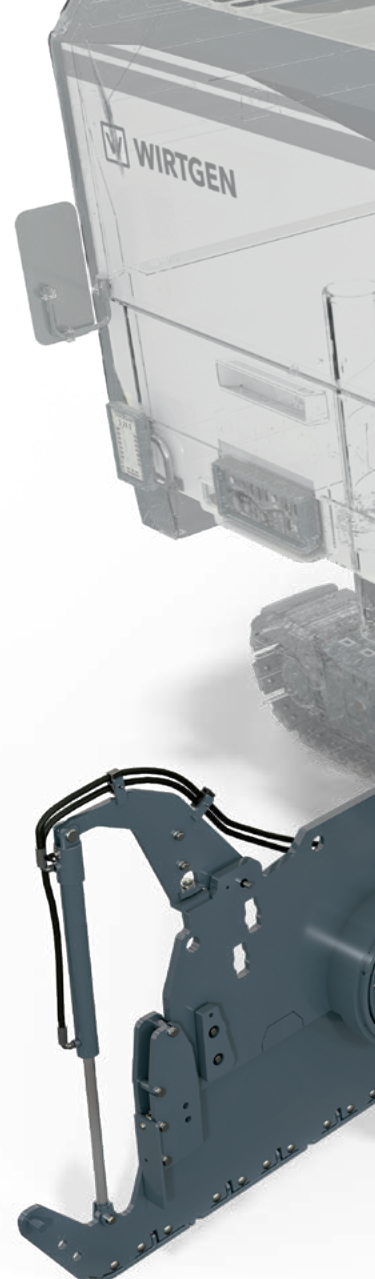
### Fine milling drum

Milling width: 2,000mm  
Milling depth: 0-100mm  
Tool spacing: 8mm



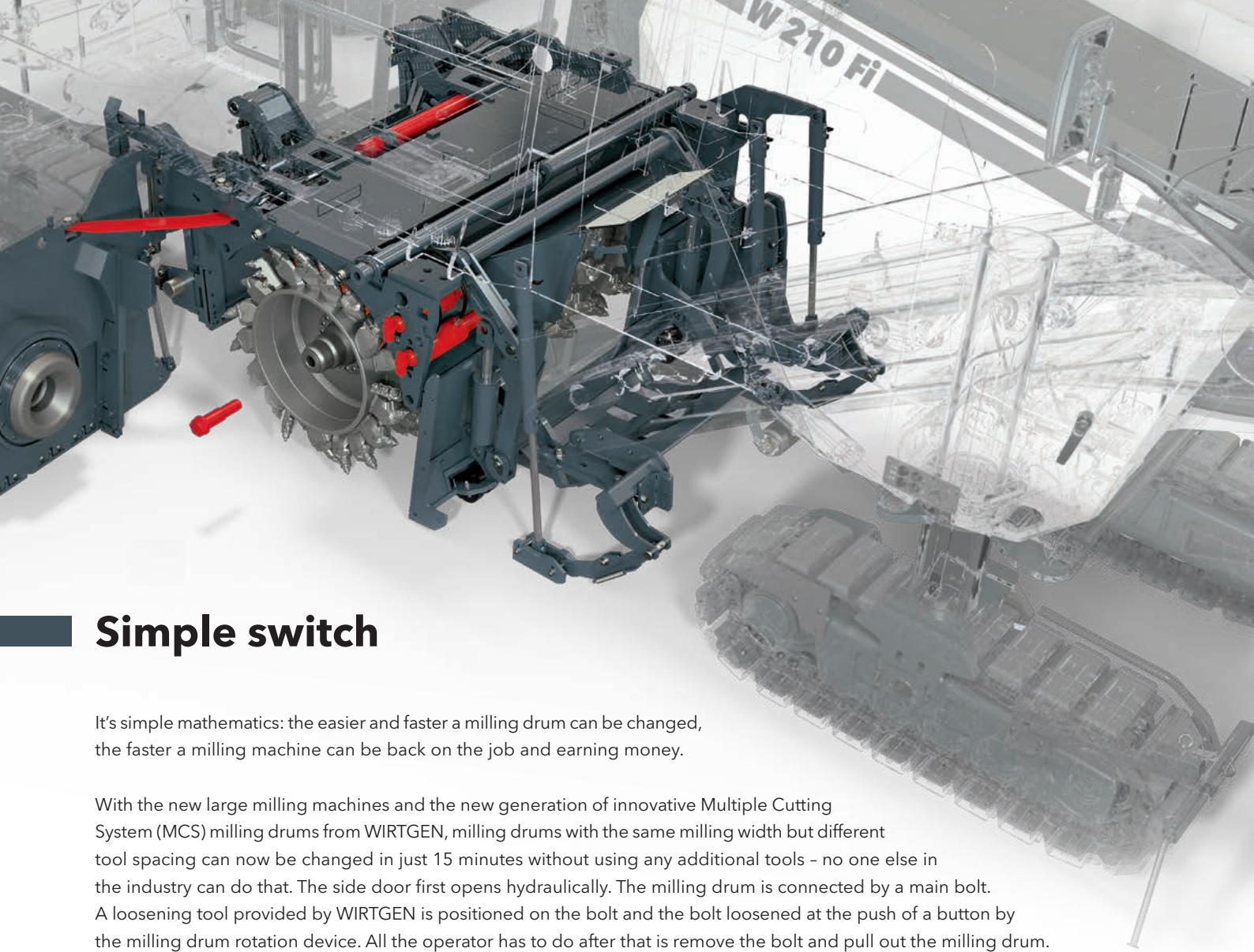
### Micro-fine milling drum

Milling width: 2,000mm  
Milling depth: 0-30mm  
Tool spacing: 6 x 2mm



# 15 minutes

is all it now takes to change milling drums thanks to the Multiple Cutting System.



## Simple switch

It's simple mathematics: the easier and faster a milling drum can be changed, the faster a milling machine can be back on the job and earning money.

With the new large milling machines and the new generation of innovative Multiple Cutting System (MCS) milling drums from WIRTGEN, milling drums with the same milling width but different tool spacing can now be changed in just 15 minutes without using any additional tools – no one else in the industry can do that. The side door first opens hydraulically. The milling drum is connected by a main bolt. A loosening tool provided by WIRTGEN is positioned on the bolt and the bolt loosened at the push of a button by the milling drum rotation device. All the operator has to do after that is remove the bolt and pull out the milling drum.

## Changing milling drums enhances efficiency

The ease with which milling drums with different tool spacings can be changed to suit specific applications offers numerous advantages. It not only increases machine productivity: switching to the ideal milling drum for each job also significantly reduces the costs associated with wear. In addition, WIRTGEN customers can respond quickly and flexibly to the changing application requirements encountered in day-to-day job-site operations. >>>

## New operator's stand delivers on comfort and convenience

WIRTGEN have also redeveloped the operator's stand for their new generation of large milling machines. The hydraulically height-adjustable weather canopy can be moved into the ideal position to suit the prevailing job-site and weather conditions. The height can be adjusted during milling at the push of a button, for example to avoid low-hanging branches on a tree-lined street. The outer panels of the canopy can be positioned individually for additional protection in rainy weather. For transport, the canopy can also be fully lowered. ///

**User-centric developments:** the ergonomically designed operator's stand is a comfortable workplace. The railings are equipped with wind guards.



**The height-adjustable canopy offers flexibility on the job and facilitates transport.**



New SP 124i/SP 124 from WIRTGEN:

# The mobile road construction factory

Producing high-quality concrete pavements economically – that's where the WIRTGEN SP 124i/SP 124 inset slipform paver truly shines. It will be celebrating its world premiere at Bauma 2019.

## The latest engine technology

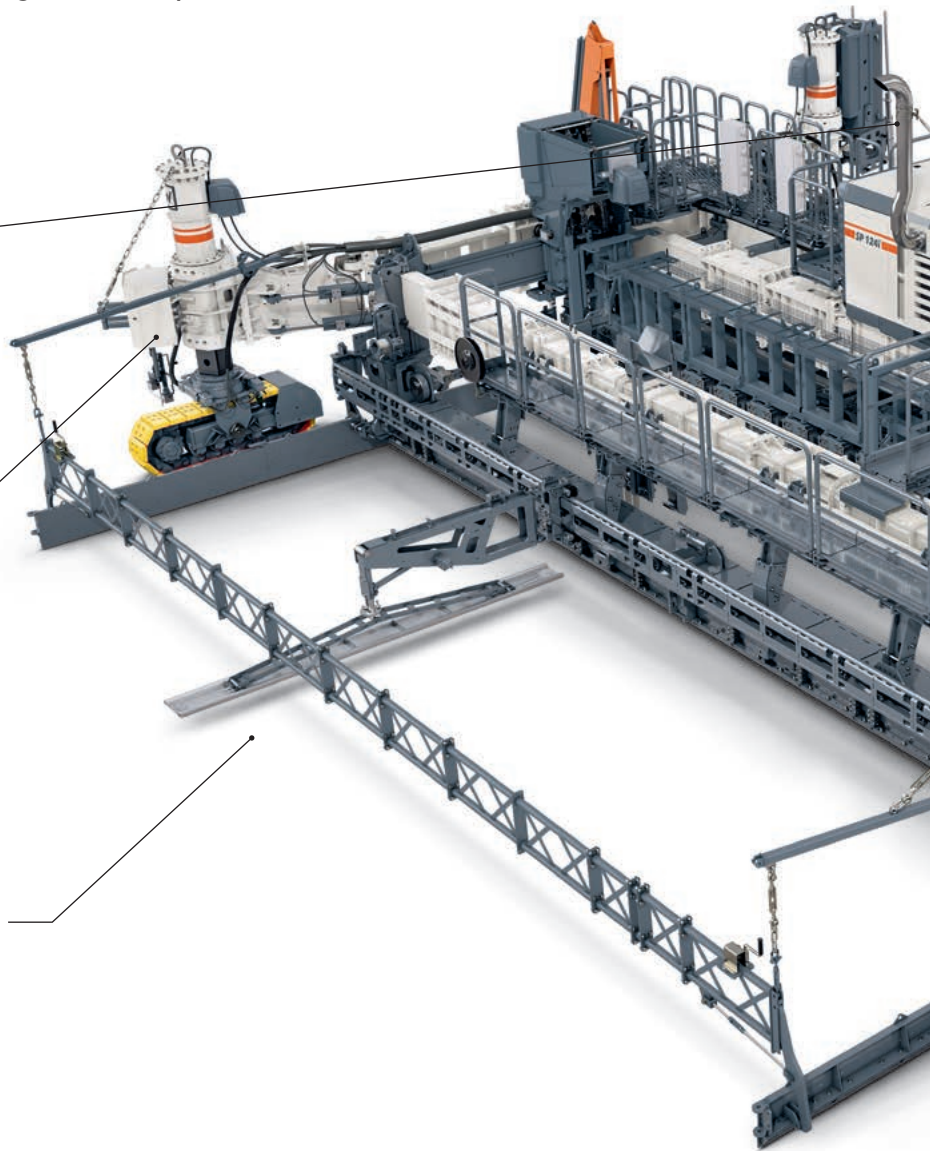
Advanced engine technology reduces diesel consumption and the 321kW/436PS engine complies with exhaust emissions standards EU Stage 5/US Tier 4f (SP 124i) while the 272kW/370PS engine complies with exhaust emissions standards EU Stage 3a/US Tier 3 (SP 124).

## Completely modular design

Flexible conversion and simple retrofitting of options ensure adaptation to the conditions prevailing on job sites.

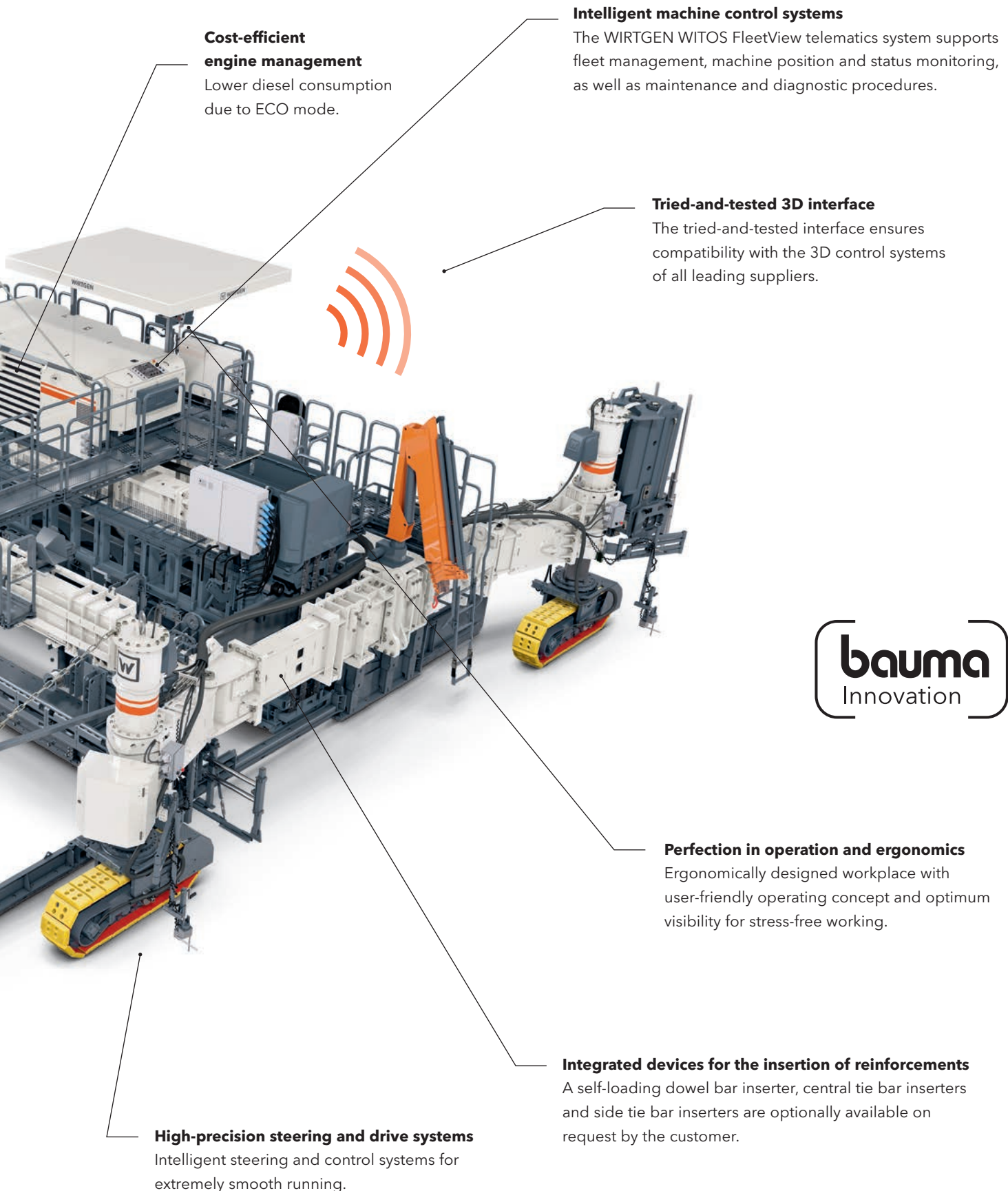
## Highly flexible concrete paving

The slipform paver paves concrete slabs between 4.5m and 12m wide and up to 450mm thick with absolute precision.



Inset slipform pavers are ideal for the precise production of large concrete pavements, for instance on highly resilient motorways and runways. WIRTGEN offer 14 machine models in various performance classes for this paving method alone. With their modular design, the machines can be individually configured and virtually all conceivable structures are possible, including special shapes. By launching the new SP 124i/SP 124, WIRTGEN are equipping their class of machines featuring pave widths up to 12m with the

state-of-the-art technologies of the already commercially successful SP 60 (pave width up to 7.5m) and SP 90 (pave width up to 9.5m) series. That means the SP 124i/SP 124, which is also available as an L-version, i.e. without swivel arms and supplied with hydraulic rotational drives as standard, now bridges the gap to the larger WIRTGEN slipform pavers, which can pave concrete over a maximum width 16m. ///

**Cost-efficient engine management**

Lower diesel consumption due to ECO mode.

**Intelligent machine control systems**

The WIRTGEN WITOS FleetView telematics system supports fleet management, machine position and status monitoring, as well as maintenance and diagnostic procedures.

**Tried-and-tested 3D interface**

The tried-and-tested interface ensures compatibility with the 3D control systems of all leading suppliers.

**Perfection in operation and ergonomics**

Ergonomically designed workplace with user-friendly operating concept and optimum visibility for stress-free working.

**Integrated devices for the insertion of reinforcements**

A self-loading dowel bar inserter, central tie bar inserters and side tie bar inserters are optionally available on request by the customer.

**High-precision steering and drive systems**

Intelligent steering and control systems for extremely smooth running.

New SUPER 1000(i) and SUPER 1003(i) Classic Line pavers:

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# Concentrating on the essentials: high quality paving

Compact dimensions, easy handling and excellent value for money - that's what the new VÖGELE SUPER 1000(i) tracked paver and SUPER 1003(i) wheeled paver have to offer. These representatives of the Classic Line feature a range of functions which is focussed on the essentials required by paving teams for successful operations.

The screed is a crucial criterion for high-quality paving. This prompted VÖGELE to combine the SUPER 1000(i) and the SUPER 1003(i) with the AB 340 Extending Screed, offering it in the version with vibrators and tamper (AB 340 TV) in addition to the version with vibrators (AB 340 V).

What is more, both pavers are available in two different versions. Models with the "i" suffix - the "i" stands for "intelligent emission control" - meet the European exhaust emissions standard Stage 4 and US EPA standard Tier 4f, while those without the "i" conform to the exhaust emissions standards Stage 3a and Tier 3. >>>



**Long tracks with extensive ground contact ensure high traction and precision: the new Classic Line SUPER 1000(i) tracked paver.**



### Highlights of the SUPER 1000(i) and SUPER 1003(i)

- › Maximum pave width 3.9m
- › Laydown rate  
SUPER 1000(i): up to 270t/h  
SUPER 1003(i): up to 230t/h
- › Transport width 1.85m (without side plates fitted)
- › Powerful and economical diesel engine delivering 55kW
- › AB 340 Extending Screed in the V version (with vibrators) and in the TV version (with tamper and vibrators)
- › Electric screed heating
- › Simple to handle thanks to the innovative and easy-to-understand ErgoBasic operating concept
- › Integrated and intuitively operated Niveltronic Basic System for Automated Grade and Slope Control with wide range of VÖGELE sensors

### **Compact dimensions, large range of applications**

The SUPER 1000(i) and the SUPER 1003(i) pavers are perfect for small and mid-sized construction jobs. The two compact pavers are very much in their element on municipal job sites in particular, but they also lend themselves to landscaping projects and the construction of small areas, operating cost-efficiently and to a high quality. And they do so in all topographical conditions and in every climate zone in the world.

### **Laying the basis for ease of operation: ErgoBasic**

The new Classic Line pavers are operated with ErgoBasic. VÖGELE developed the operating concept on the basis of the ErgoPlus 3 operating system with which the Premium Line pavers are controlled, tailoring it specifically to the needs and requirements of Classic Line users. As a result, operation is just as fast, accurate and intuitive, while the range of functions is confined to the essentials.

### **Also on board: Niveltronic Basic System for Automated Grade and Slope Control**

To go with the ErgoBasic operating concept, VÖGELE are also offering the Niveltronic Basic System for Automated Grade and Slope Control on their Classic Line pavers. Its particularly simple and intuitive handling is a winning feature. This means that even relatively inexperienced operators can quickly learn the correct way to operate the system. A wide range of VÖGELE sensors ensures paving true to line and level on any base. ///

**Travel speed of 20km/h under its own power: the SUPER 1003(i) wheeled paver is available in the 6x2 and 6x4 drive versions.**



## New Classic and Premium Line product classification

# Rock solid machines versus leading technology

VÖGELE are restructuring the wide and varied world of SUPER pavers: the introduction of the Classic Line and Premium Line product classification helps users and customers find their way around the range. While Premium Line pavers boast all the innovations and features of the advanced "Dash 3" generation, Classic Line machines hit the mark with a rock solid machine concept. The two lines can be easily and clearly distinguished by their operating concept. VÖGELE supply the Premium Line with ErgoPlus 3 and the Classic Line with ErgoBasic. Within the lines, the world market leader further differentiates between the five well established classes: Mini, Compact, Universal, Highway and Special Class.



**New Classic Line pavers with rock solid machine technology and the ErgoBasic operating concept.**



**The Premium Line comprises all "Dash 3" machines with the ErgoPlus 3 operating concept.**

VÖGELE present their new flagship paver, the SUPER 3000-3(i):

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# The new SUPER Star





**Tremendous power combined  
with innovative excellence:  
the SUPER 3000-3(i) incorporates  
a wide array of practical features.**



A striking appearance, unmatched performance and numerous innovations that help you get ahead: road construction professionals are absolutely blown away by the new SUPER 3000-3(i), and indeed VÖGELE's new flagship paver defies superlatives. The pave width extends to a potentially record-breaking 18m, material throughput is as high as 1,800t/h and the powerful engine that drives this new Highway Class paver to such top performances boasts an output of 354kW. The engineering team at VÖGELE also redesigned the SB 350 Fixed-Width Screed, which enables the paver to reach its maximum pave width. >>>

## Highlights of the SUPER 3000-3(i) Highway Class paver

Forged from the most valuable insights acquired by world market-leader VÖGELE during their decades of experience in road construction and asphalt processing, the SUPER 3000-3(i), a member of VÖGELE's new Premium Line, is ideal for mid-sized construction jobs as well as motorway rehabilitation and construction and airport runway construction. The Premium Line paver can also be used right from the start to place crushed-stone bases, because VÖGELE equip their Highway Class paver with a standard Heavy Duty kit. >>>

> ErgoPlus 3 operating system with numerous additional ergonomic and functional advantages

> Combines with the AB 600 Extending Screed and the new SB 300 and SB 350 Fixed-Width Screeds—all screeds can optionally be equipped with high-compaction technology

> Laydown rate up to

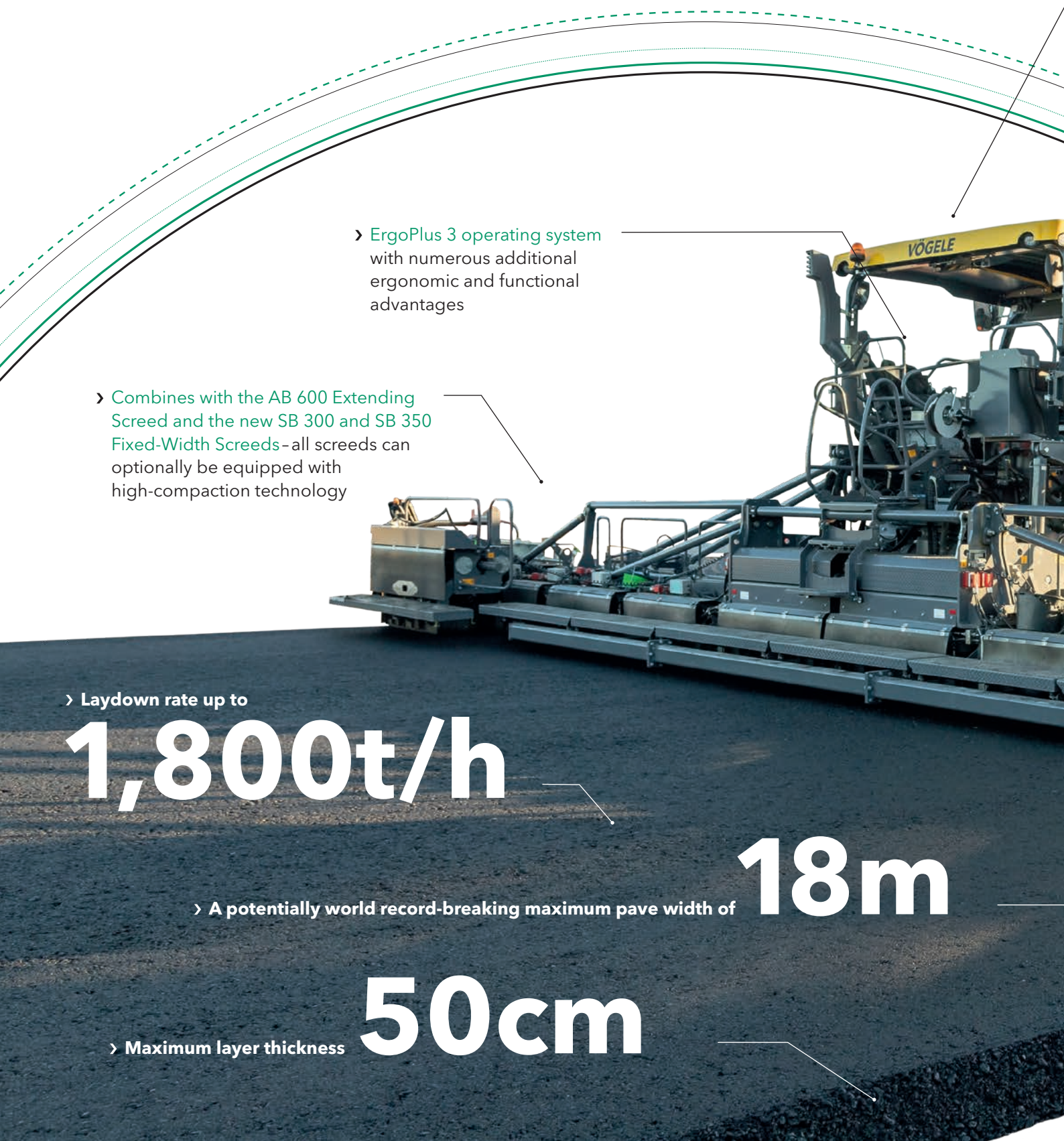
**1,800t/h**

> A potentially world record-breaking maximum pave width of

**18m**

> Maximum layer thickness

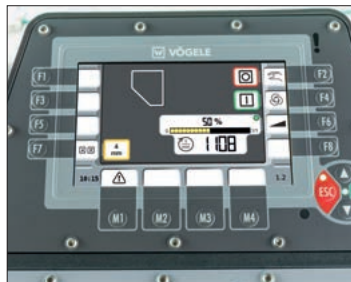
**50cm**





## Choice between 4 and 8mm: The hydraulic tamper-stroke adjustment system is a world first

The correct setting of the tamper stroke has a key impact on the compaction results achieved by a screed, especially since one and the same screed is capable of paving different layer thicknesses. When they developed the hydraulic tamper-stroke adjustment system, VÖGELE's engineers hence made another great leap towards the even easier achievement of premium paving results. With this system, operators can set the optimum tamper stroke of 4 or 8mm on the paver operator's ErgoPlus 3 console or the screed operator's console, easily adapting it to the current paving job at the push of a button. Tamper-stroke adjustment is available for the two fixed-width screeds that can be combined with the SUPER 3000-3(i): the SB 300 and the SB 350 Fixed Width Screeds.



Find out just how hydraulic tamper-stroke adjustment works - see the animation at [www.voegel.info/tamper](http://www.voegel.info/tamper)

## Strong performance for high quality

To achieve great feats, you need a reliable source of power, which is why the SUPER 3000-3(i) has a modern 6-cylinder diesel engine rated at 354kW. With this immense output, the paver is capable of processing 1,800t/h of mix and placing bitumen-bound base courses or crushed-stone bases 50cm thick. When it comes to paving the surface course, VÖGELE's flagship achieves a potentially world record-breaking pave width of 18m. These capabilities make the SUPER 3000-3(i) highly versatile.

Apart from performance, VÖGELE also focussed on efficiency when developing the paver. For example, the VÖGELE EcoPlus low-emissions package ensures that an optimum level of efficiency is maintained at all times. Together with a whole series of features, such as a splitter gearbox with the ability to disengage hydraulic pumps or an energy-optimized tamper drive, VÖGELE EcoPlus significantly reduces both fuel consumption and noise emissions.

## Flagship paver is a credit to the Premium Line

As the new flagship, this Highway Class paver naturally is a member of the Premium Line (find out more about VÖGELE's new Premium Line and Classic Line product classes on page 31), meaning among other things that the SUPER 3000-3(i) is equipped with the ErgoPlus 3 operating system. In this way, VÖGELE make sure that paving teams who have already worked with another Premium Line paver can get to grips with the new paver in no time.

The automatic functions of AutoSet Plus are particularly useful on a paver like the SUPER 3000-3(i). They encompass a Repositioning function that saves currently set machine parameters at the push of a button. In addition, individual paving programs can be saved and retrieved. These AutoSet Plus paving programs ensure that layers that are planned to be identical are paved using the same parameters every time. This enhances the efficiency, ease and quality of job-site processes. >>>

### Innovative material handling concept: Optimum supply of mix at all layer thicknesses

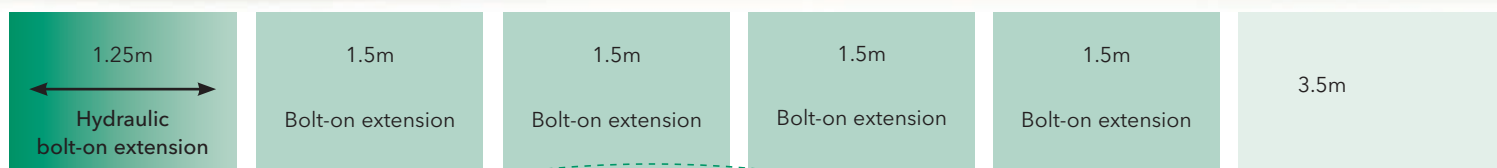
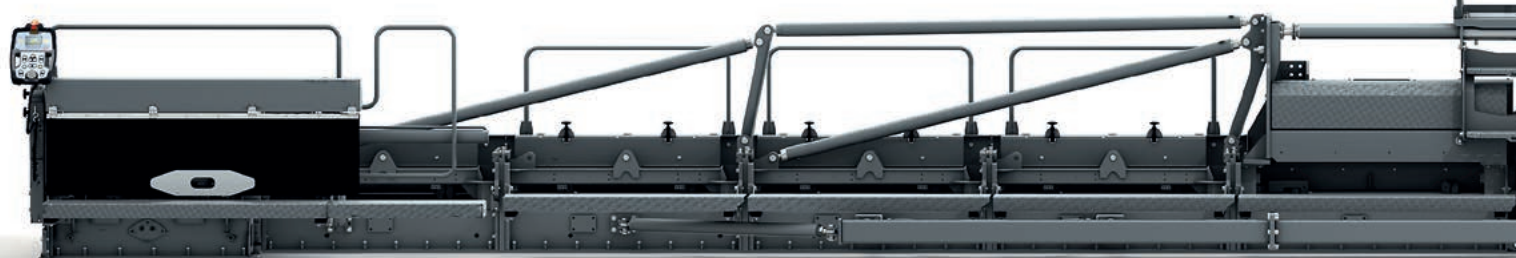
With the SUPER 3000-3(i), powerful performance is not confined to the engine alone. In a move to set standards in terms of laydown rate, too, VÖGELE developed an innovative material handling concept. The key development is a function that enables not only the augers, but the entire rear section of the chassis to be raised when switching to a different layer thickness. The conveyor's discharge point onto the auger remains the same in every vertical position and therefore at every layer thickness. The advantages of this innovation become most apparent when paving thick layers: the SUPER 3000-3(i) can place layers up to 50cm thick without the screed having to be converted in any way. Another advantage is the fixed connection between the augers and the rear wall of the chassis, which increases stability.



Find out just how the innovative material handling concept works – see the animation at

[www.voegel.info/SUPER3000-3i](http://www.voegel.info/SUPER3000-3i)

## A byword for uncompromising paving quality: SB 300 and SB 350 Fixed-Width Screeds from VÖGELE

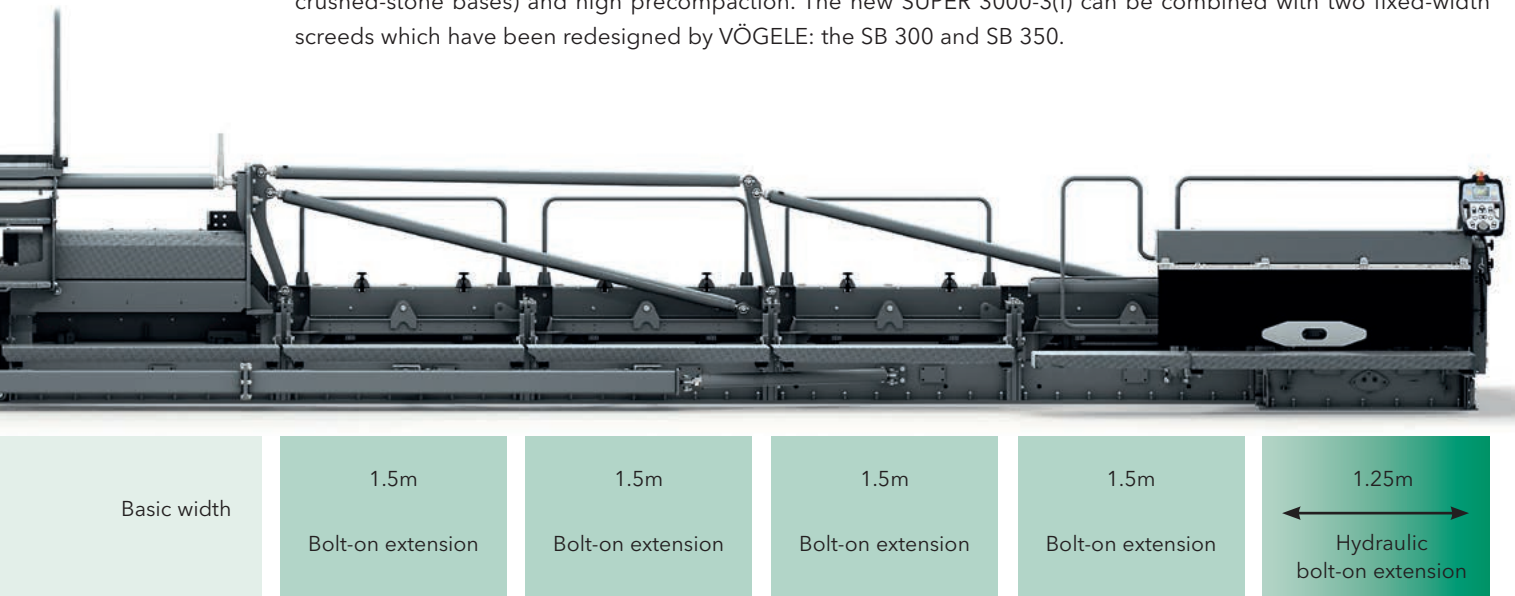


### Highlights of the SB 350 Fixed-Width Screed

- › Basic width 3.5m
- › Maximum pave width 18m
- › New telescoping and positioning system for ergonomic and time-saving set-up
- › Hydraulic bolt-on extensions with unique variability of 2 x 1.25m
- › Excellent evenness thanks to high stability across the entire pave width
- › Tamper stroke can be adjusted hydraulically at the push of a button (choice between 4 and 8mm)
- › Screed versions: TV (tamper and vibrators), TP1 (tamper and one pressure bar) and TP2 (tamper and two pressure bars)
- › Efficient electric heating with innovative monitoring system for rapid heating and optimum temperature control of all compacting and smoothing components
- › Manufactured in accordance with the highest quality standards and using leading technologies, such as induction hardening, at the world's most modern paver production facility
- › Low noise emissions

# 18m

Fixed-width screeds from VÖGELE deliver absolutely premium quality, perfectly even results and are the company's hallmark technology. They come into their own on all projects requiring large pave widths and layer thicknesses (e.g. crushed-stone bases) and high precompaction. The new SUPER 3000-3(i) can be combined with two fixed-width screeds which have been redesigned by VÖGELE: the SB 300 and SB 350.



### New SB 350 Fixed-Width Screed: Exclusively for the SUPER 3000-3(i)

Paving 18m without any longitudinal joints is a potentially record-breaking feat that can be achieved with the new SUPER 3000-3(i): this paver can place surface courses up to 5cm thick when working at maximum width. Or to put it more accurately, it can do so thanks to the new SB 350 Fixed-Width Screed, developed by VÖGELE exclusively for their new flagship paver. The screed also does an outstanding job placing the underlying layers. For example, with both the SB 350 and SB 300, the machine can pave base courses up to 50cm thick. To make sure the fixed-width screed remains stable even when working at large widths, the basic screed is 3.5m wide, i.e. wider than that of all other VÖGELE screeds. The maximum pave width is achieved with eight bolt-on extensions of 1.5m each, plus two hydraulic bolt-on extensions measuring 1.25m each.

### Previously unattained variability of $\pm 2.5\text{m}$

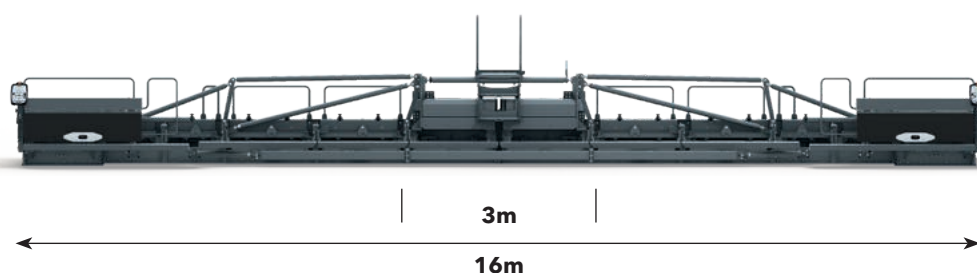
The best of both worlds: with the newly developed hydraulic bolt-on extensions, the pave width of the SB 300 and SB 350 Fixed-Width Screeds is infinitely variable up to 2.5m. VÖGELE have combined the advantages of their extending screeds with those of their fixed-width screeds: high flexibility and maximum evenness. >>>

 Experience the SUPER 3000-3i in action - starting on page 94

**potentially world record-breaking pave width  
in world market-leader quality**

## New SB 300 Fixed-Width Screed: Proven technology reloaded

The SB 300 is a fixed-width screed with a wide application range from 3m to 16m. Like the SB 350 with its maximum pave width of 18m, the SB 300 Fixed-Width Screed is equipped with a new heating system: the screed plate, tamper and pressure bars heat up twice as fast and much more uniformly than before – and are up and running in no time. “The new fixed-width screeds are not only designed for maximum pave width and performance, but also for maximum flexibility and efficiency,” says Björn Westphal, Product Manager at VÖGELE. “Apart from the latest screed technology, the SB 300 and SB 350 also incorporate user-friendly functions that, among other things, reduce set-up times and considerably accelerate the paving process, even when working with varying pave widths and layer thicknesses.”



### Highlights of the new SB 300 Fixed-Width Screed

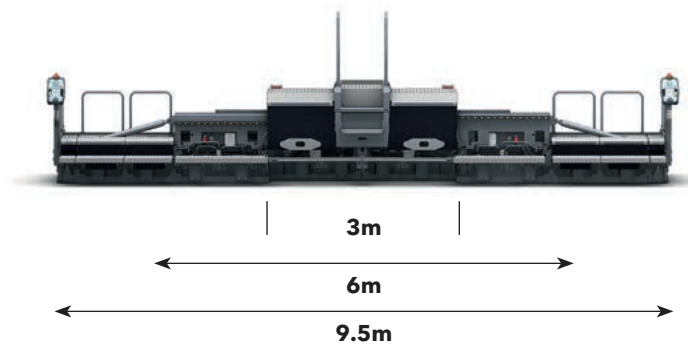
- › The SB 300 Fixed-Width Screed has a basic width of 3m and masters pave widths of up to 16m
- › Not only can it be combined with the SUPER 3000-3(i), but also with the SUPER 1800-3(i), SUPER 1900-3(i) and SUPER 2100-3(i)
- › The SB 300 Fixed-Width Screed is available with the same innovations as the SB 350, including the new telescoping and positioning system for short set-up times, the hydraulic tamper-stroke adjustment system and the hydraulic bolt-on extensions for a unique variability of  $\pm 2.5\text{m}$
- › Available in the versions with tamper and vibrators (SB 300 TV) as well as in high-compaction versions with tamper and one or two pressure bars (SB 300 TP1 and SB 300 TP2)

### For time-saving and ergonomic screed set-up: New telescoping and positioning system for fixed-width screeds

VÖGELE have developed a new telescoping and positioning system for the bolt-on extensions to keep set-up times for the new SB 350 and SB 300 Fixed-Width Screeds to an absolute minimum. One welcome side effect: setting up the fixed-width screed for paving across large widths is now considerably more ergonomic and therefore more user-friendly.

# AB 600 Extending Screed: For frequent changes in pave width

The SUPER 3000-3(i) gives users the choice: in addition to the SB 300 and SB 350 Fixed-Width Screeds, VÖGELE also offer the AB 600 Extending Screed for their Highway Class pavers. This extending screed has a basic width of 3m. Equipped with the high-stability 3-point telescoping system, it can be infinitely extended up to 6m. With the addition of bolt-on extensions, even strips as wide as 9.5m can be paved without joints. This screed is therefore perfectly suited to a wide variety of applications, including motorway construction and rehabilitation. ///



## Highlights of the AB 600 Extending Screed

- › The AB 600 Extending Screed has a basic width of 3m and can be variably extended up to 6m thanks to its high-stability 3-point telescoping system
- › The maximum pave width with extensions is 9.5m
- › Outstanding paving properties thanks to optimized tamper and screed plate geometry
- › Safe, convenient screed footstep



# Ready for today, equipped for tomorrow

Sophisticated, field-proven - and continuously improved: at Bauma 2019, VÖGELE are presenting the added functions of WITOS Paving, WITOS Paving Plus, and the entry-level WITOS Paving Docu.

## 1. Control module

Planning and control module with assistant function for convenient planning and monitoring of a current construction project



## 5. Analysis module

Analysis module for documentation and analysis of the construction job



## WITOS Paving Plus from VÖGELE

WITOS Paving Plus is the innovative, IT-based process management solution for enhancing quality and efficiency in road construction. The system from VÖGELE, the global Number 1 for road pavers, is fully integrated into the machine technology, offering customers and users unique benefits. It can be used to plan, monitor and analyse construction jobs, all with the aim of making ongoing improvements in quality, productivity and efficiency. For this purpose, the system integrates not only the site manager and paving team into the process, but also other participants, such as the supervisor at the asphalt mixing plant and the mix lorry drivers. Even data from HAMM rollers can be integrated in the system. »»

# Paving

## 2. Materials module

Mixing plant module for supplying the job site with material just in time, on the basis of dynamically cycled delivery

## 3. Transport module

Transport module updating the mix lorries' estimated arrival times on the basis of current lorry positions

## 4. JobSite module

Job site module for efficient process management throughout the construction period

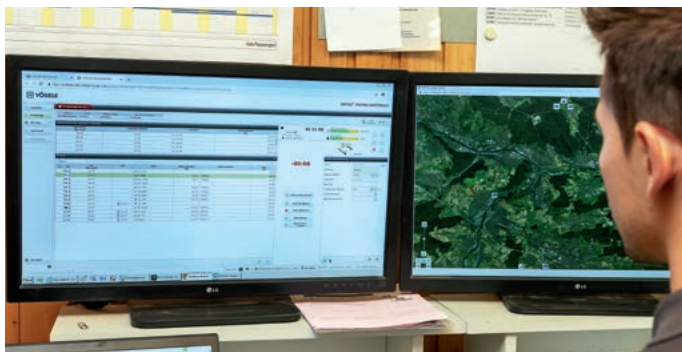


Learn more about WITOS Paving Plus and WITOS Paving Docu in our web special – also available as an animation:  
[www.voegele.info/witospaving](http://www.voegele.info/witospaving)

## New in WITOS Paving Plus

### New interface with asphalt mixing plants further improves process management

VÖGELE have developed a new interface for integrating asphalt mixing plants in the system – both BENNINGHOVEN plants and those from other manufacturers. The interface supports the digital exchange of delivery notes between the WITOS Paving and mixing plant servers. Delivery notes can still be entered manually, with or without QR code scanning.



The new WITOS Paving Plus interface with the mixing plant eliminates the need to enter paper delivery notes manually and reliably documents how many lorries are transporting what quantity of mix to the job site from which mixing plant.

### Communication is maintained even where there is no mobile phone connection

Because mobile network coverage is patchy in some regions, VÖGELE have developed a convenient solution to overcome this challenge. The SUPER paver creates a WLAN with a range of about 50m and functions as a server on the job site. The paving team and machine can exchange critical machine and paving data even when they do not have a mobile signal. The system can automatically calculate and display data on the area paved, the asphalt volume and layer thickness – precisely and conveniently. As soon as the VÖGELE paver reaches an area with a GSM or LTE signal, it then transmits all the data and parameters it has recorded to the WITOS Paving server.



SUPER paver as a WLAN server: the challenge of poor mobile network coverage, as encountered on remote road job sites, hardly affects the use of WITOS Paving at all.

## HCQ data from HAMM integrated in WITOS Paving Plus

WITOS Paving also documents the compaction process by collecting HAMM Compaction Quality (HCQ) data from HAMM rollers, which can likewise be analysed and optimized by the Analysis module. This analysis option underscores another key advantage: the system provides end-to-end documentation, from the mixing plant all the way to compaction.



HCQ stands for "HAMM Compaction Quality": via an interface, collected data can be analysed by means of the Analysis module.

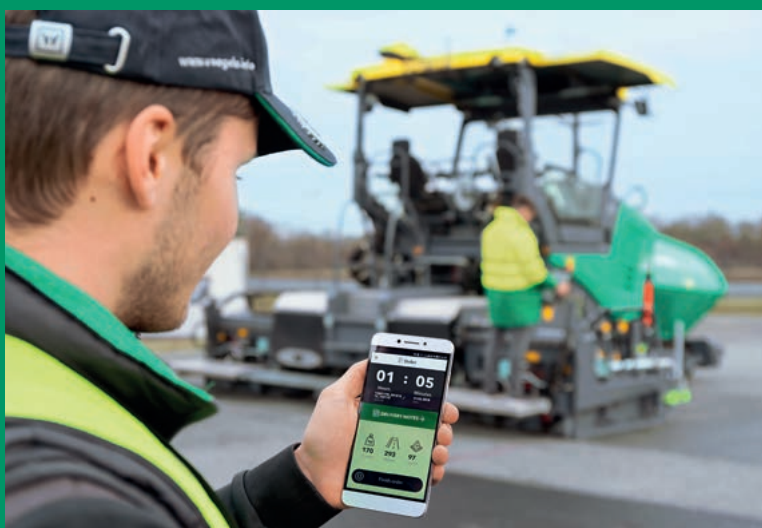
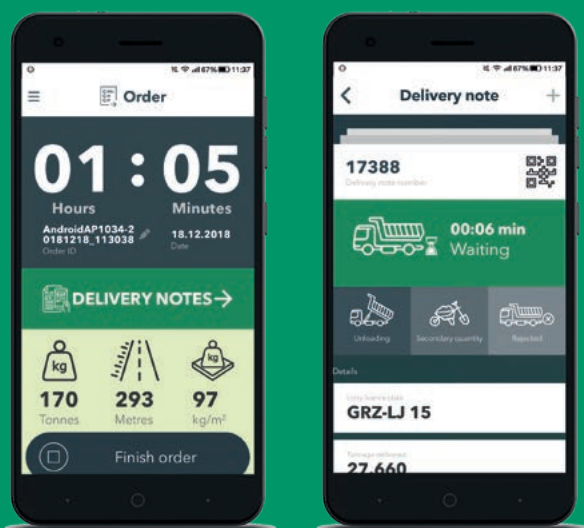
## See in the evening what went on during the day - automatically in the job-site report

In the Control module, users with access authorization, such as a construction company's managing directors or site managers, can see in real time how a planned project has progressed. Thanks to a new function, they can now also receive summarized information on a completed work day directly from the system, without having to take any action. To do so, users need only activate the daily job-site report option to have reports sent by e-mail, e.g. to company executives, site managers or the paving team. Monitoring active job sites has never been easier or more convenient. The job-site report consists of a PDF file with job-site data, such as the job site, the most important paving parameters and the work progress (including a comparison of specified and actual values). If a RoadScan system is in use, thermography data compiled from the asphalt temperatures are also transmitted immediately after paving, along with the process data. >>>



Daily proof of progression of the construction work and paving quality: job-site reports are optionally available via e-mail.

## New member of the WITOS Paving product family: WITOS Paving Docu



**WITOS Paving Docu and user interface of the “JobSite Go” app: construction companies and paving teams can upgrade at any time from the entry-level to the comprehensive solution, WITOS Paving Plus - all it takes is an activation code.**

VÖGELE previously only offered WITOS Paving Plus with the full range of functions. Users who only wished to measure and document the temperature of a paved asphalt layer could use RoadScan, the non-contacting temperature measurement system from VÖGELE, as a stand-alone solution.

But as of now, VÖGELE are offering WITOS Paving Docu, an additional solution for digital job-site documentation that is unique in terms of how easily and quickly it can be integrated into daily workflows.

Paving teams now have access to an app at the job site. They can easily connect to the paver's WLAN by scanning a QR code on the paver display. Once the app has been installed and connected

to a SUPER paver, the paving foreman or paver operator can initiate and document jobs via the WITOS Paving Docu app or the paver operator's ErgoPlus 3 console. In this context, a “job” is the planned daily laydown rate of a specific paving project. The range of functions also includes the entry of delivery notes, either by scanning the QR code or manually, the documentation of paving temperatures (if working with RoadScan), the possibility of online data transfer and the e-mailing of job-site reports, the latter also being one of the new functions in the comprehensive solution, WITOS Paving Plus. The system greatly facilitates the work of site managers and foremen, because they no longer have to calculate distances, widths and quantities. ///

### RoadScan, WITOS Paving Docu and WITOS Paving Plus: Overview of functions

	RoadScan	WITOS Paving Docu	WITOS Paving Plus
Documenting of paving temperatures	<b>X</b>	<b>X</b>	<b>X</b>
Documenting of process and machine data		<b>X</b>	<b>X</b>
Control and optimization of processes			<b>X</b>
Online data transfer		<b>X</b>	<b>X</b>
Automated job-site reports by e-mail		<b>X</b>	<b>X</b>
Possibility of real-time monitoring			<b>X</b>
Possibility of analysing and acquiring findings which can benefit future projects (post-processing)	<b>X</b>	<b>X</b>	<b>X</b>
Players involved:			
Site managers	<b>X</b>	<b>X</b>	<b>X</b>
Asphalt mixing plant supervisors			<b>X</b>
Lorry drivers			<b>X</b>
Paving team	<b>X</b>	<b>X</b>	<b>X</b>

**Only the comprehensive solution, WITOS Paving Plus, includes the Control, Materials and Transport modules. The Control module, for instance, supports simple project planning by means of an assistant that guides the site manager step-by-step through the planning process. With RoadScan and WITOS Paving Docu, a site manager only has access to the Analysis module (for analysis and documentation).**

# The next generation

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In the 1960s, HAMM made a pioneering achievement in the compaction industry by inventing the pneumatic-tyre roller, and ever since then the company has continued to improve on this class of machine. To coincide with Bauma 2019, the compaction specialist based in Tirschenreuth, Germany, is launching a new generation of this roller type: the HP series.

**The HP series  
is made for  
earthworks  
and asphalt  
construction.**





### Unique machine design

The new series unites proven advantages with attractive innovations: for example, the HP series offers simple and intuitive operation and an ergonomically optimized operator's platform. Thanks to the machine's overall geometry with asymmetrical frame, the operator can keep an eye on the outer flanks of the wheels at all times. What is more, with its numerous well-engineered details, the machine ensures optimum compaction on every job. The advanced, innovative water and additive sprinkling system is a brand new feature. HAMM have also optimized visibility and expanded the machine's unique ballasting flexibility.

### Designed for use worldwide

HAMM will be supplying these models worldwide in line with both the weight classes and equipment options typically in demand in the various regions and with local emissions regulations. HAMM additionally offer a wide variety of options to perfectly equip the pneumatic-tyre rollers for any application. >>>

#### Basic versions of the HP series rollers

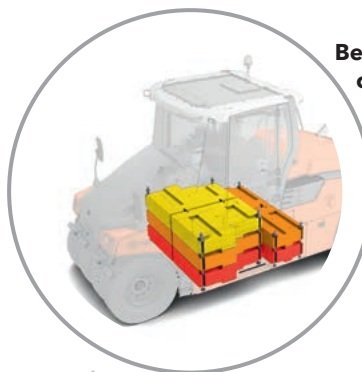
Models	Minimum operating weight	Maximum operating weight
HP 180 and HP 180i	8t	18t
HP 280 and HP 280i	9t	28t

#### Highlights of the HP series: Pneumatic-tyre rollers for every application

- › Very good visibility
- › Simple, intuitive operation
- › Large, comfortable cabin or operator's platform
- › Flexible ballasting concept
- › Innovative additive sprinkling system
- › Quick, convenient maintenance
- › Maximum safety



# Attractive innovations - combined with proven advantages



Because the ballast chambers are located at the centre of the machine, the weight is always evenly distributed, establishing the perfect conditions for optimum compaction quality.



The asymmetrical frame on HP series machines is a trademark feature and quality advantage in one.



## Flexible ballasting included

The HP series rollers incorporate a highly flexible ballasting concept, which makes it possible to quickly adapt the machine's weight to the asphalt type, layer thickness or application. Depending on the basic weight, the ballast can be increased by up to 17t. The principle: prefabricated ballast bodies made of steel, magnetite or concrete are simply inserted or removed from the large ballast chambers between the sets of tyres. HAMM offer various ballast body kits for achieving different weights.

## Outstanding visibility

As always on HAMM machines, operators can look forward to a modern, spacious workplace on the new HP series pneumatic-tyre rollers. It gives them a maximum overview of the machine and the job site. What is more, all models meet the strict new standard on the operator's field of view. The smart machine design with asymmetrical frame provides for excellent visibility. The contour of the frame is in line with the track offset between the front and back sets of tyres, giving the operator a clear view of the outer flanks of the front and rear wheels at all times.



Numerous details in the operator's cabin (here: inside view of the HP 280) maximize comfort and promote a healthy working posture for operators.



Intelligent and safe: maintenance platform access. The steps can simply be folded out. Because the extended steps disrupt the contour of the machine, operators will be sure to notice them and remember to fold them in again.



Cast from the same mould: the different models in HAMM's HP series (from left to right: HP 180, HP 280, HP 280i) are all based on the same operator's platform.

## Clear operating concept

On the operator's platform, everything is clear and comprehensible. For instance, all models boast an entirely language-neutral operating system that is fast and easy to master. The few buttons on the operator's platform are intelligently arranged. Colour-coded grouping supports user guidance. A joystick, which is ergonomically positioned in the armrest, is used for drive control.

## Innovative water and additive sprinkling system

There have also been new developments in the water and additive sprinkling system of the HP series. In addition to large tanks with a standard pressurized refilling system, HAMM have developed a new, convenient and very efficient additive preparation system. The additive concentrate is filled into the system without any pre-mixing. The operator can regulate the dosing process by selecting different mixing ratios right from the operator's platform. Additive is automatically mixed during compaction, according to the specifications. ///

# For the highest demands: Split oscillation drums from HAMM

More than 35 years ago, HAMM introduced the first tandem roller with oscillation. Since then, the company has worked continuously to advance this efficient and intelligent compaction technology. The current innovation in this product segment is being showcased at Bauma 2019: a split oscillation drum. It combines the advantages of oscillation with the added value of a split drum. To master this complex challenge, HAMM developed a patented premium solution that is unique in the market.



## Ideal for winding roads

The advantages of split drums come to bear primarily in compacting winding sections of road or roundabouts. The drum half on the inside of a bend travels a shorter distance than the one on the outside, meaning that the drum halves rotate at different speeds. The result: material displacement and cracking are dramatically reduced. This applies in particular when compacting asphalts that are more susceptible to displacement, such as stone mastic asphalt or polymer-modified mixes.

## Patented technology

In the split oscillation drum, one independent, mechanically separate oscillation unit operates in each half. An integrated control system quickly and precisely adjusts the position of the imbalance masses to suit the position of the drum halves. As a result, the two drum halves are synchronized to vibrate in phase at all times, despite their different rotational speeds when travelling on a bend. The two halves are synchronized electrohydraulically.

With these features, oscillation technology from HAMM offers a real quality advantage. ///

**Split oscillation - a real quality advantage: with their split oscillation drum, HAMM offer a premium solution for demanding jobs. The patented system is unique in the market.**



### **Highlights of the split oscillation drums: Premium solution for high-quality compaction**

- › Combines the advantages of oscillation with those of a split drum
- › Generates high-quality surfaces with no cracking or material displacement
- › Patented solution
- › Wear-resistant and maintenance-free
- › Ideal for compacting
  - asphalts susceptible to material displacement
  - thin overlay
  - at critical temperatures
  - in vibration-sensitive areas
  - on tight bends and roundabouts



# A fresh approach in asphalt recycling

The versatile asphalt mixing plants in the TBA range are true all-rounders and can integrate numerous recycling feed systems, including the counterflow recycling drum system with hot gas generator. This leading technology for the world's highest RAP material rates was previously confined to the flagship BA series.

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At Bauma 2019, BENNINGHOVEN are showcasing a transportable asphalt mixing plant, a TBA 4000, to be precise. As of now, the counterflow recycling drum system with hot gas generator is available for all TBA plants. This leading "green" technology from BENNINGHOVEN enhances cost-efficiency and reduces emissions.

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Find out all about "BENNINGHOVEN's green technology":  
[www.benninghoven.com/recycling](http://www.benninghoven.com/recycling)





## Asphalt recycling: From cost factor to valuable raw material

The streets are paved with gold. This saying is particularly apt when applied to asphalt recycling: after the damaged pavement is milled off a road, the RAP becomes a raw material that can be 100% recycled to produce new mix, a process which

### The recycling circuit at a glance:

#### › BENNINGHOVEN RAP hot feed systems

Parallel drum:	70 %
Counterflow recycling drum with hot gas generator:	90 %



#### › BENNINGHOVEN RAP cold feed systems

Middle ring feed system:	25 %
System for dosing into the mixer:	30-40%
Multivariable feed:	40 %



#### › Combination of RAP hot and cold feed systems

A combination of BENNINGHOVEN recycling technologies can also be integrated in the mixing plants:

RAP cold feed system for dosing into the mixer, or multivariable feed + parallel drum RAP hot feed system, or recycling drum with hot gas generator



represents a positive step towards a resource-conserving recycling economy. Operators of asphalt mixing plants benefit from this effect in two ways: they need not bear the cost of disposal and can spend less on crushed aggregate (or "white mineral") and bitumen. For these reasons, asphalt recycling is gaining ground worldwide. Legally permissible RAP feed rates differ from one market or region

to the next and vary depending on load class and the layer of asphalt pavement. Despite all the differences, however, one thing is the same everywhere: BENNINGHOVEN have the perfect recycling technology to meet any and all requirements. >>>



### Developed and made in Germany: Advantages of the counterflow recycling drum with hot gas generator from BENNINGHOVEN

#### Eco-friendly

- › Responsible resource management
- › Low emissions,  $C_{total} < 50 \text{ mg/Nm}^3$
- › A significant percentage of the residual hydrocarbons in the exhaust gas stream are burned in the hot gas generator
- › System meets the requirements of the revised German technical instructions on air quality control (Technische Anleitung zur Reinhaltung der Luft)
- › RAP material is automatically heated to processing temperature by this method ( $160^\circ\text{C}$ )

#### Cost-efficient

- › Up to 90% + X RAP feed rates possible
- › Delivers a significant competitive edge
- › Interim jobs involving no RAP material can be processed, because the material temperature is at the same level

#### Energy-efficient

- › Less energy in total is required to operate the plant
- › Load on the filter unit is reduced
- › Because the BENNINGHOVEN EVO JET burner is designed as a combination burner, the plant can use whichever fuel costs less at any given time (oil, liquid gas, natural gas, coal dust)
- › Operator can switch between different fuels at the push of a button

# Leading BENNINGHOVEN recycling technology - Available for TBA mixing plants for the first time

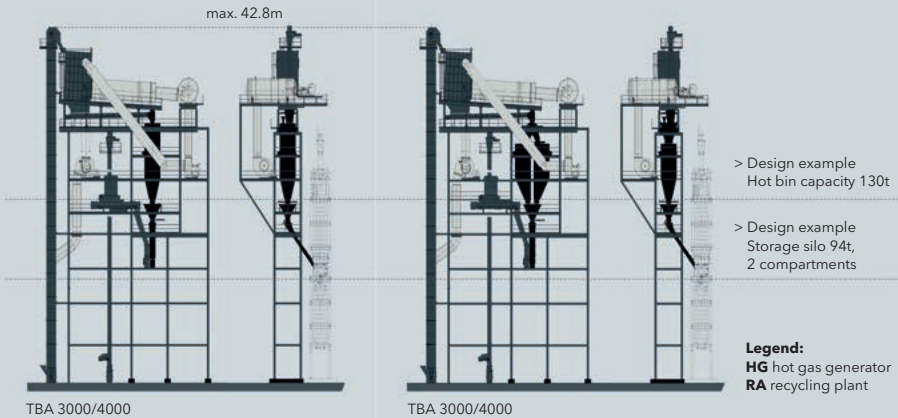
BENNINGHOVEN presented their innovative and as yet unsurpassed technology based on the counterflow recycling drum with hot gas generator at the last Bauma. Now this leading technology is available for an additional mixing plant series: our TBA transportable mixing plants. This type of mixing plant covers a performance range from 160 to 320t/h and is suited to both semi-mobile and stationary applications. Because the TBA plants can likewise be equipped with a counterflow recycling drum with hot gas generator, it means that all BENNINGHOVEN RAP cold and hot feed systems are now available for the TBA mixing plants.

## Less energy and emissions: Asphalt recycling is on the way up worldwide

While the focus in the early days of asphalt recycling was on the raw material cycle, it now has shifted to two additional factors: the total energy required for asphalt production and the resultant emissions, i.e. two directly related parameters. With BENNINGHOVEN's recycling technology, both can be influenced in the right - i.e. the "green" - direction. The counterflow recycling drum with hot gas generator in particular is a milestone in asphalt recycling: indirect firing reduces emissions for reasons inherent in the system. In addition, the white mineral fraction need not be processed at elevated temperatures. In

### BENNINGHOVEN TBA recycling plant:

#### >> RA-180 HG



#### RA-180 HG

Capacity of recycling plant:	180t/h
Dimensions of recycling drum:	RT 10.24 (10 x 2.4m)
Volume of RAP storage silo:	1 x 45t or 2 x 30t
RAP weigher:	4t
Mixer volume:	4t



contrast, RAP hot feed systems require elevated temperatures because, for process engineering reasons, the RAP material cannot be heated to the necessary final temperature of 160°C. The resulting delta of 30 to 50°C between the RAP material and the white mineral must be induced to a certain extent by overheating the white mineral. Consequently, the counterflow recycling drum with hot gas generator results in an even better energy balance. ///



### Highlights of the BENNINGHOVEN TBA mixing plants

- › Transportable or stationary
- › Intelligent modular system – fast set-up
- › Large storage capacities  
(hot bin section, mixed material storage silo)
- › RAP material rate up to 80% (cold and hot)
- › Large components
- › Reliable plant performance
- › Performance range 160–320t/h

### Achieves the world's highest RAP material rate: Counterflow recycling drum with hot gas generator from BENNINGHOVEN

This unique BENNINGHOVEN innovation takes into account that many markets are looking to achieve an RAP material rate in excess of 90% (80% when combined with TBA plants). The challenge here is to bring the RAP material to the processing temperature of 160°C while keeping emission levels within the normal range and taking care not to burn the bitumen.

To achieve even higher RAP material rates while minimizing the level of emissions, BENNINGHOVEN are going their own way: heating the RAP material in the counterflow, which results in higher material and lower exhaust gas temperatures.

This is achieved by using a hot gas generator: while with direct firing the RAP material, with its bitumen content, would “burn”, the hot gas generator only heats it indirectly.

# TBA

Available now: WITOS FleetView

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# KLEEMANN's smart systems

The reliable technology and high maintenance-friendliness of KLEEMANN's machines already make for a high availability. But this availability can be raised even further - with WITOS FleetView. This telematics solution from the WIRTGEN GROUP helps to keep equipment in top condition at all times, because with WITOS FleetView, customers and users can keep an eye on all their machines virtually in real time, no matter where they are located. The system-supported processing, transmission, visualization and evaluation of machine and position data makes fleet and service management even more efficient in day-to-day operations. Even users with just one plant can benefit from WITOS FleetView. It offers a wide range of functions, from supporting maintenance and diagnosis processes, all the way to targeted machine inspection. >>>



# WITOS



### Advantages of WITOS FleetView

- › Provides information any time and anywhere on the location and operational status of KLEEMANN and other WIRTGEN GROUP machines
- › Simplifies scheduling and planning processes and avoids unnecessary machine transport operations
- › Intuitive user interface for efficient scheduling
- › Simplifies the entire maintenance process and saves time and effort in day-to-day workflows
- › Minimizes downtimes by facilitating efficient and timely service appointments
- › Faster response times in the event of machine faults
- › Detailed and targeted analysis of the operational behaviour and usage patterns of machines simplifies servicing and maintenance and guarantees that machines retain their value long-term



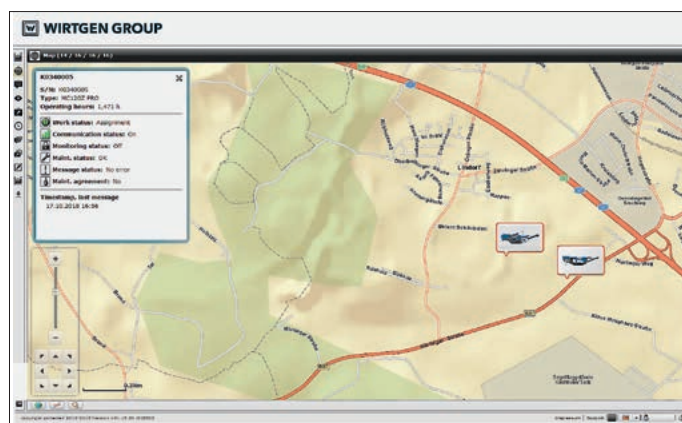
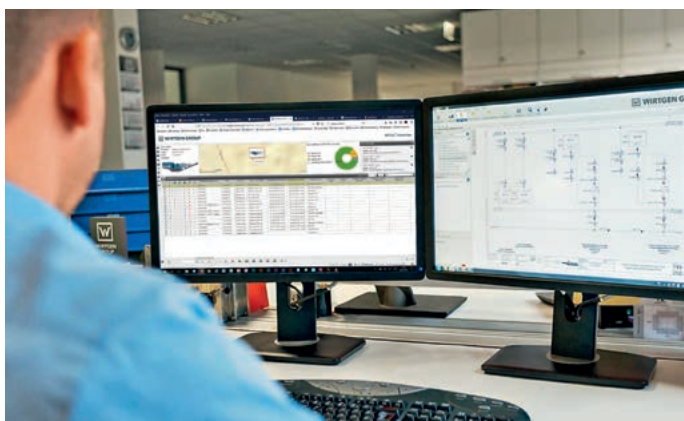
# S FleetView

## How data are provided

To integrate the collected data in your systems, WITOS offers a standard server-to-server interface called the FleetManagementInterface (FMI). It measures and records machine data and transmits them to the WITOS Server. From there the data can easily be imported to and analysed in your own telematics or ERP systems.

## Everything under control

Digital solutions lay the groundwork for sustainable business models and deliver any number of user-friendly analysis and control options for increasing operating and economic efficiency. As a manufacturer, our mission is to offer our customers exceptional products and services. In partnership with customers, we are constantly searching for new tools to help them achieve lucrative and above all sustainable workflows. Digitalization offers tremendous potential in this context, which is why KLEEMANN are now also introducing the WITOS FleetView telematics system.



# WITOS FleetView

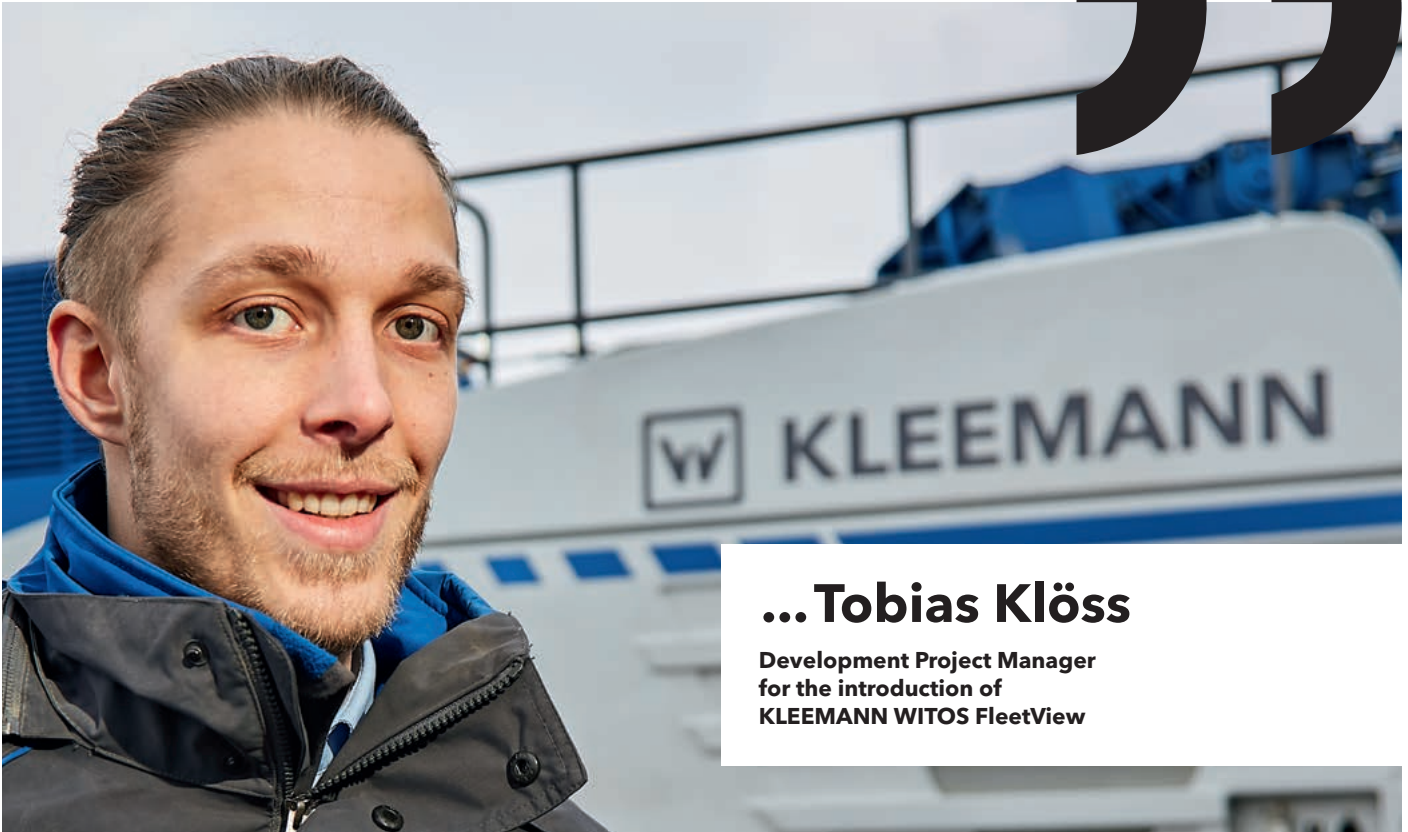
## WITOS FleetView at a glance

WITOS stands for "WIRTGEN GROUP Telematics and On-Site Solutions" and is the name given to the WIRTGEN GROUP family of software products which supports customers, operators and users above and beyond the machine hardware. WITOS FleetView enhances the efficiency of fleet and service management for machines from WIRTGEN, VÖGELE, HAMM and – as of now – also KLEEMANN: because thanks to the system-supported visualization and evaluation of machine and position data, it gives operators an overview of their machine fleet at all times. While the Smart Service agreement provides for regular inspections in accordance with the instruction manual, WITOS FleetView additionally supports proactive maintenance planning and a rapid response in the event of faults.



For more information on WITOS FleetView, go to: [www.wirtgen-group.com/fleetview](http://www.wirtgen-group.com/fleetview)

## 3 questions for...



### ...Tobias Klöss

**Development Project Manager  
for the introduction of  
KLEEMANN WITOS FleetView**

***Mr Klöss, as project manager, you are best-placed to answer this question: what does WITOS FleetView offer KLEEMANN customers and users?***

The biggest thing they can look forward to is the feeling of finally being able to forget about servicing. With WITOS FleetView, every unexpected fault and every upcoming service interval is displayed in a web application to both the customer and our subsidiary. That allows the central contact at the relevant WIRTGEN GROUP subsidiary to arrange service appointments proactively. What is more, the customer has an up-to-date overview of the condition of his or her entire machine fleet at all times.

***What does WITOS FleetView keep track of exactly?***

KLEEMANN customers and users can simply go online to get a targeted overview of their fleet. In other words, they can log onto the WITOS FleetView portal from anywhere in the world and check the condition and location of their KLEEMANN plant. By means of time fencing, for example, users can define a period in which a machine should not be working and, if it is switched on during this

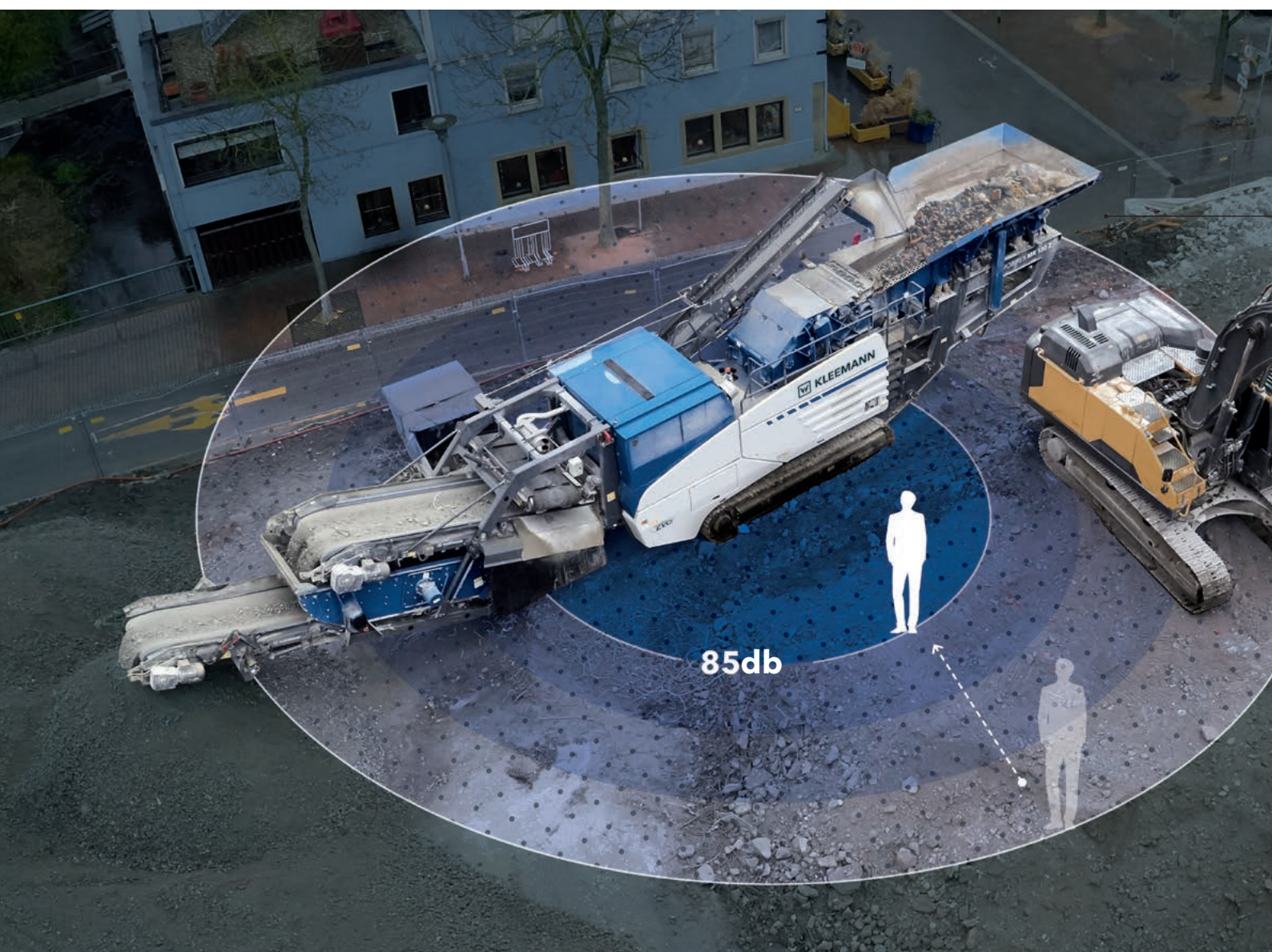
time, the system issues a notification. That's a very helpful function especially in urban areas, where noise levels must be kept down during the night.

***What kind of feedback have you been getting from customers and users?***

A customer just recently told me how much he is looking forward to being able to keep a constant eye on maintenance intervals and the condition and servicing status of his machines, so that he does not miss service appointments any more. Based on the WIRTGEN GROUP Smart Service agreement, the responsible subsidiary can contact him directly to make a service appointment and will automatically have all the right spare parts, filters and lubricants needed for the scheduled maintenance visit. Furthermore, all service data can be viewed over a machine's entire lifetime. This historical view is of particular interest when it comes to preserving the value of the machines. It gives customers transparent information on the operational behaviour and usage patterns of a plant, all the way back to its very first hour of operation. All this data is also displayed graphically in WITOS FleetView and can easily be exported. ///

KLEEMANN solutions for eco-friendly operation:

# Less noise ...



The demands on construction machinery are rising as people increasingly share living space with one another in urban settings: cities and towns both large and small increasingly have regulations in force to reduce nitrogen oxides, for example, and improve air quality. Public authorities are now also homing in on other emissions. This has led to the emergence of regulations that differ widely from region to region governing how loud job sites can be in urban areas or how much dust may be emitted. Their common purpose, however, is to protect the affected population, because noise and dust have negative impacts on people and the environment. KLEEMANN plants are frequently operated within urban residential areas, and this poses new challenges for crushing stone or processing rubble in mobile applications. In response, KLEEMANN's development engineers resolved to reduce the noise and dust emissions of the company's mobile plants to make them more "resident-friendly" and thus also more user-friendly. >>>



Minimum distance from machine without using ear defenders reduced by up to 60% (at 1,800rpm).

### The challenge

The main cause of noise in mobile crushing plants – apart from the crushing process itself – is the engine. The air routing, cooler and turbulent air flow in the area of the open bottom beneath the engine generate noise emissions. As a result, users have to wear ear defenders when working close to the machine.

### The solution

With the optional new noise-reduction package, sound-suppressing flaps are mounted laterally at the height of engine which direct the noise upwards. The flaps are collapsed against the machine for transport, meaning they have no effect on the overall transport width. Furthermore, the open bottom beneath the engine has now been closed off and soundproofed. By taking these steps, KLEEMANN have significantly reduced both the noise level and the radius of perceptible sound. With the reduced noise level, crews can now also work near the machine in a noise-reduced environment.



**–6dB**

**Less noise, same performance: the optional noise-reduction package reduces the sound pressure level, i.e. the volume perceived by the user, by 6 decibels. As a comparison, a reduction of just 3 decibels reduces the human ear's perception of noise by half.**

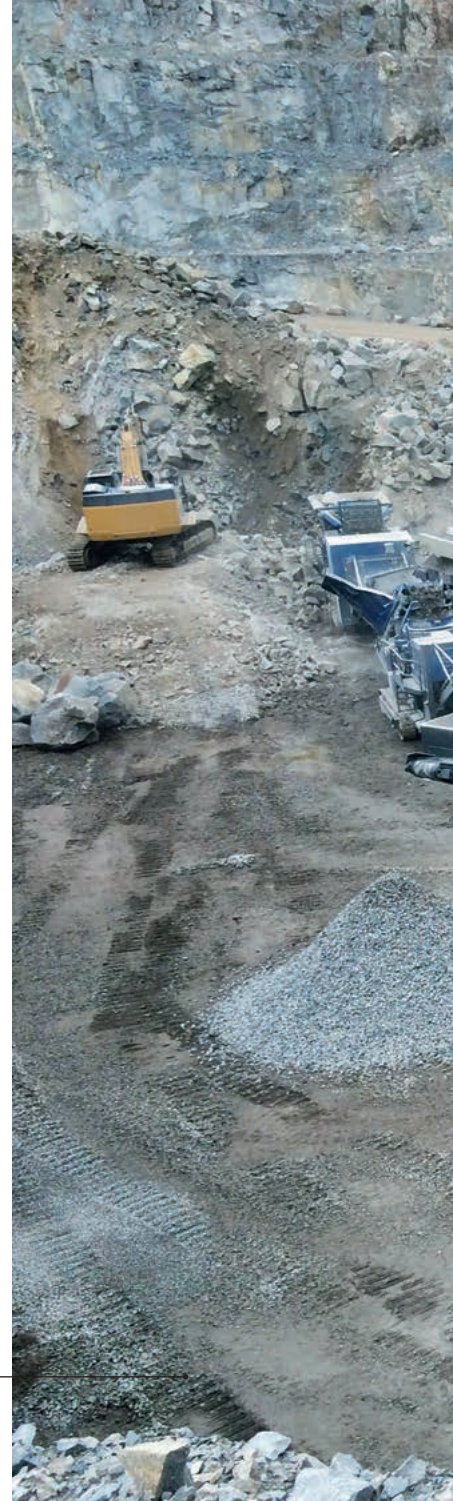
## The challenge

Recycling building materials and processing natural stone are two processes which by nature generate relatively high levels of dust. The main sources of dust emissions are the material discharge and transfer points, and the crusher unit.



## The solution

With the optional new dust-reduction package, KLEEMANN minimize dust right where it is generated. The spraying of water at various points on the crushing and screening plant, e.g. at the crusher inlet, crusher discharge conveyor, fine grain conveyor, lateral discharge belt and secondary screening unit (on the MOBIREX EVO2), binds most of the dust and prevents it from spreading. The machines have an infrastructure for spraying water, to which various water-pump systems can be connected. In this way, the spray system can also operate with standing bodies of water or tank systems. Optional belt covers further promote better air quality when working with all KLEEMANN crushing and screening plants. ///



# ... less dust ...

The spraying of pressurized water effectively binds dust at the very point it is generated, keeping air clean for the benefit of users and local residents.

## The KLEEMANN solutions for noise and dust reduction

The eco-friendly operation of crushing and screening plants is especially important on urban job sites. For these applications, KLEEMANN are showcasing an optional package at Bauma 2019 for reducing noise in MOBIREX EVO2 impact crushers. Part of the package of measures for reducing dust emissions in crushing and screening plants is included as standard equipment. Both solutions will better protect users and local residents, as well as promote the acceptance of urban job sites.

# ... greater acceptance




# New WIRTGEN surface miners - **Compact powerhouses**

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Two WIRTGEN surface miners are the new specialists for windrow applications. While the 220 SMi is used for raw material extraction and routing operations, the 220 SMi 3.8 reveals its strengths in soft rock.

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A large, dark-colored tracked surface miner is shown at dusk. The machine is positioned on a dark, uneven ground. The operator's cab is illuminated from within, and the operator is visible through the glass. The machine has a complex structure with various components, including a large cutting head at the front. The background shows a sunset sky with orange and blue hues.

The operator always has  
a close eye on the results:  
one of the highlights  
of both surface miner  
models is the spacious  
ROPS/FOPS operator's  
cabin, which can  
be heated and  
air-conditioned and  
is soundproofed and  
vibration-isolated.

# 220 SMi: Surface miner for raw material extraction and routing operations

The 220 SMi was designed especially for use in small and medium-sized mining operations as well as for routing work and infrastructure projects. Thanks to its compact dimensions and smooth, hydraulic, all-track steering, the smallest WIRTGEN surface miner has a tight turning radius, which is particularly beneficial in small mining fields.

## Freedom of movement for high capacity utilization

The W 220 SMi can also be used for routing work and infrastructure projects. Where excavators or other machinery reach their performance limits, the 708kW powerhouse can cut even the hardest rock, reduce it to the desired maximum grain size and create stable and even surfaces with extreme precision. The excellent manoeuvrability of the 220 SMi also makes it ideal for routing narrow sections such as ramps.

### Highlights 220 SMi/220 SM

- › Engine output: 708kW/963HP
- › Working width: 2,200mm
- › Working depth: 0-300mm
- › Exhaust emissions category:

220 SMi: EU Stage 4/US Tier 4f

220 SM: EU not regulated/US Tier 2
- › Material: Medium hard rock (up to 50MPa)



Areas of application of the WIRTGEN 220 SMi and 220 SMi 3.8 surface miners	
Model	220 SMi
Use in small and medium-sized mining operations	●
Extraction of raw materials	●
Routing operations (road or track construction)	●
Infrastructure projects (channels, water reservoirs)	●

## 220 SMi 3.8: Maximum performance in soft rock

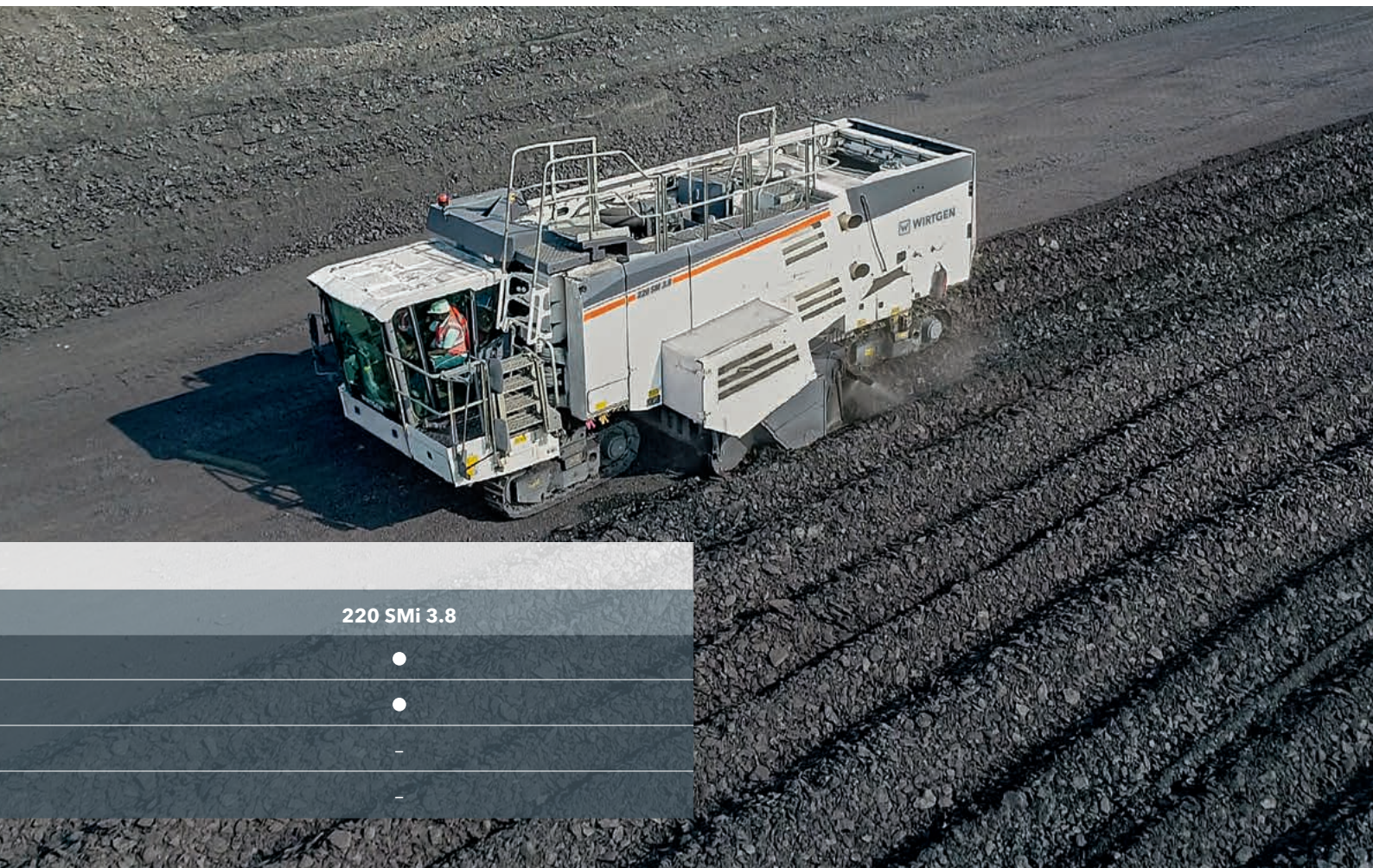
The 3.8m-wide cutting drum unit is optimally designed for soft-rock mining, allowing the compact surface miner to achieve maximum productivity at low operating costs. As a result, the 220 SMi 3.8 is perfect for soft-rock mining in operations of all sizes.

### Efficient use of fuel and cutting tools

The cutting drum is designed specifically for demanding windrow applications in soft rock, such as coal or salt. Maximum cutting performance combined with the ideal use of engine power and low specific fuel consumption allows raw materials to be mined cost-effectively. Six different adjustable cutting drum speeds ensure that the machine can be perfectly adapted to the material being extracted. This leads to a significant reduction in cutting tool wear, minimal diesel consumption and increased productivity, which translate into an impressive daily output and low cost per tonne of extracted material. ///

### Highlights 220 SMi 3.8/220 SM 3.8

- › Engine output: 708kW/963HP
- › Working widths: 3,800 mm
- › Working depth: 0-350mm
- › Exhaust emissions category: 220 SMi 3.8: EU Stage 4/US Tier 4f  
220 SM 3.8: EU not regulated/US Tier 2
- › Material: Soft rock (up to 35MPa)



220 SMi 3.8

They combine outstanding plant quality with productivity and take frequent relocations in their stride: little wonder that ECO asphalt mixing plants from BENNINGHOVEN are in successful operation worldwide. Apart from their ease of transport, another key contributor to their success is their high flexibility, which enables customers and users to produce a variety of asphalt formulations – at mixing outputs of up to 320t/h. >>>

**ECO 4000, Świecie, Poland:**  
**The BENNINGHOVEN ECO**  
**mixing plant offers excellent**  
**value for money and is in**  
**great demand worldwide.**

BENNINGHOVEN ECO plant:

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**All  
roads  
lead  
to**





## ECO 3000 in Provadia, Bulgaria: Globetrotter and all-rounder

Every investment a company makes is geared to specific objectives. PIM PRO, a construction company specializing in asphalt production and paving that operates its own quarry, asphalt mixing plants, polymer-modified bitumen plant as well as milling machines, pavers and rollers, had a highly ambitious objective in mind: the company wanted a new asphalt mixing plant at its Provadia site in Bulgaria that is capable of working more energy-efficiently while producing advanced, high-quality asphalt mixes. BENNINGHOVEN took on the challenge and, based on an ECO 3000 equipped with a number of innovative technologies, delivered a solution that even exceeded PIM PRO's demands.

### **Maximum flexibility: Low-temperature, roller-compacted and mastic asphalt from a single plant**

Sustainable resource management and energy-efficiency are issues that are gaining importance all over the world, as well as in Bulgaria. To meet these demands and additionally offer diverse and high-quality mixes, PIM PRO rely on groundbreaking technology from BENNINGHOVEN. With one and the same asphalt mixing plant, the company can supply and pave an extremely wide range of asphalt types, from cold or low-temperature asphalt and premium roller-compacted asphalt, to stone mastic and mastic asphalt. This also means the plant has to operate in a temperature range from 100 to 220°C (relative to the end product) and produce sophisticated formulations with precision. When it comes to BENNINGHOVEN plants, even the standard versions can handle this extreme range. In other words, customers need not pay extra for optional heat-resistant components, because the screen media can withstand temperatures in the region of 400°C, such as are required to produce mastic asphalt. This clearly demonstrates the extreme robustness and high fabrication quality of BENNINGHOVEN equipment. PIM PRO's BENNINGHOVEN ECO 3000 is the very first plant in Bulgaria to produce low-temperature asphalt with foamed bitumen and mastic asphalt.

**140% higher output: with its plant production of 240t/h, the ECO 3000 surpasses the former plant by far.**



“

**High-quality  
road construction  
requires modern  
technologies.**

Rosen Koleliev, Managing Director  
PIM PRO

”

### **For RAP material rates of up to 30%: Cold recycling system for dosing into the mixer**

As an all-rounder in road construction, PIM PRO also do a lot of road rehabilitation. The granulated RAP produced by WIRTGEN milling machines when removing asphalt pavements in need of rehabilitation serves as an input for new mix. Thanks to the BENNINGHOVEN cold recycling system for dosing into the mixer, this process is cost-effective and resource-conserving, because it enables 30% RAP to be fed directly into the mixer.

### **Low-temperature asphalt saves 0.9l of heating oil per tonne**

PIM PRO have gained a real competitive edge with a foamed bitumen module likewise integrated in the ECO 3000. With this innovative technology, which BENNINGHOVEN can easily retrofit in existing plants thanks to preinstalled interfaces, the temperature required to produce low-temperature asphalt can be reduced by about 50°C to 110°C, as opposed to the 160°C required for conventional asphalt. This reduces energy consumption for asphalt production by around 9kWh/t, which equates to 0.9l of heating oil. CO<sub>2</sub> emissions are also reduced. >>>

### **Specifications of the ECO 3000 in Provadia, Bulgaria:**

#### **› Basic plant type**

Mixing output:	240t/h
Drying output:	220t/h
Cold feed system:	5-fold cold feed system, 14m <sup>3</sup> each
Dryer drum:	TT 9.23 (9 x 2.3m)
Burner:	EVO JET 3
Screen:	5-fold screening with hot bin capacity of 17t in 6 bins
Mixer:	3t
Mixed material storage silo:	109t (2 compartments, 48t each + 13t direct loading)
Bitumen supply:	2 tanks, 80m <sup>3</sup> each, one with agitator

#### **› Options**

- Cold recycling system for dosing into the mixer for a 30% RAP material rate
- Foamed bitumen module for producing low-temperature asphalt

ECO 2000, Bogotá, Colombia



ECO 2000, Tbilisi, Georgia



ECO 3000, Leszno, Poland



ECO 4000, Świecie, Poland



ECO 2000, Yurovka, Russia



ECO 3000, Alegria-Dulantzi, Spain





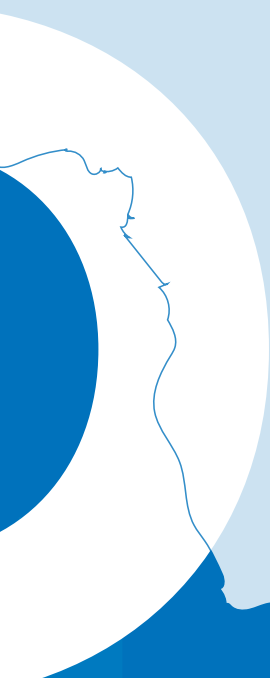
ECO 4000, Istanbul, Turkey



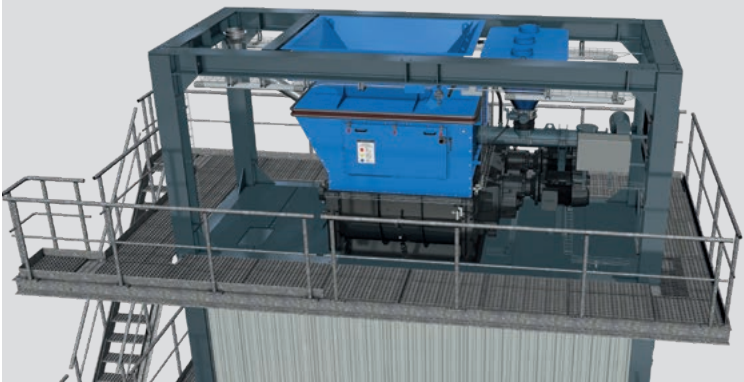
ECO 2000, Lubojenka, Ukraine



ECO 3000, Hajdusamson, Hungary



# Two newly developed highlights for the ECO line of plants



Find out all about the new weighing and mixing section of the ECO plants: [www.benninghoven.com](http://www.benninghoven.com)



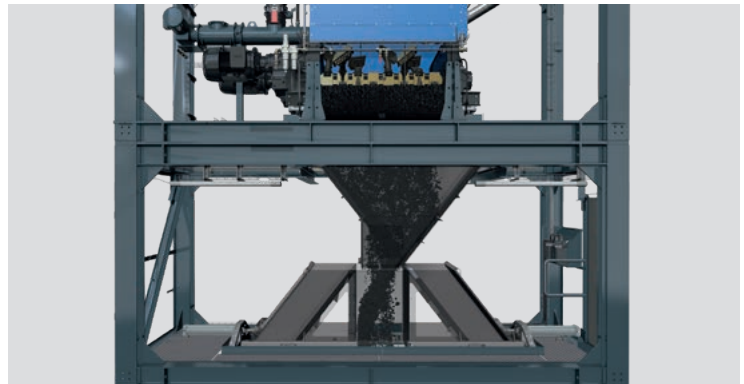
## Highlight 1: New weighing and mixing section - The heart of every ECO plant

An optimum fill level in the mixer, together with thorough mixing as a result of the generous geometry of BENNINGHOVEN's new weighing and mixing section, ensures premium mix quality. Starting with the ECO 2000 plant size, all weighing and mixing sections have the following preinstalled interfaces as standard for recycling feed, foamed bitumen feed, granulate feed, powder feed, fibrous material feed, adhesive feed or bag feed. With this feature, the ECO plants are ready for future retrofits. Further advantages of the new weighing and mixing section include, among other things, very good accessibility in all areas, plug & play connections for quick set-up, and optimum illumination with LED technology.



## Highlight 2: Asphalt transfer within the plant by means of diverter chute unit

BENNINGHOVEN have always relied on loading skip technology as the link between mixer and mixed material storage silo. For their ECO asphalt mixing plants, BENNINGHOVEN have now developed a new, more cost-efficient alternative to the skip track and had it patented. The new diverter chute unit features a purely mechanical design that is not at all susceptible to malfunctions. The intelligent design means that no sensor systems, engines, brakes, etc. are required, thus ensuring functional reliability worldwide. Another key improvement is fast and load-free positioning for silo selection. Segregation effects in the end product are minimized by active cross-mixing in the material transfer system while the proven geometry of the BENNINGHOVEN mixed material storage silos counteracts segregation in the mix. ///



Find out all about the new diverter chute unit:  
[www.benninghoven.com](http://www.benninghoven.com)

### Further highlights:

- › Key transfer system for increased occupational safety when servicing the new diverter chute unit – a tamper-proof safety system
- › Large service openings on the mixer unit provide ergonomic access to the mixer for maintenance purposes
- › Intuitive lubrication schedule (colour-coding of lubrication points indicates the maintenance intervals)



**Remote compacting:** the operator can stand at a safe distance of at least 10m from the quarry wall, while the roller compacts the material in the danger zone.

# Safe compacting thanks to remote control

A remote-controlled series H compactor with a number of extra features supports cost-efficient recultivation at a quarry in southern Germany.



A highly specialized HAMM H 20i C P compactor is one of the key pieces of equipment being used to recultivate Wilhelmsglück Quarry. It fills the quarry with material generated by various construction projects in the region and compacts it. For this job, LEONHARD WEISS GmbH & Co. KG had two 20t padfoot rollers specially equipped by HAMM with special dozer blades for heavy earthworks applications. HAMM also developed a remote control for the rollers, because of the risk at the quarry of stones in the rock face being loosened by the vibration of compaction and falling on the machine. With the remote control, the roller can safely perform high-quality compacting even of the ground immediately in front of the up to 35m-high quarry face, without personnel having to sit in the cabin, i.e. in the danger zone. >>>



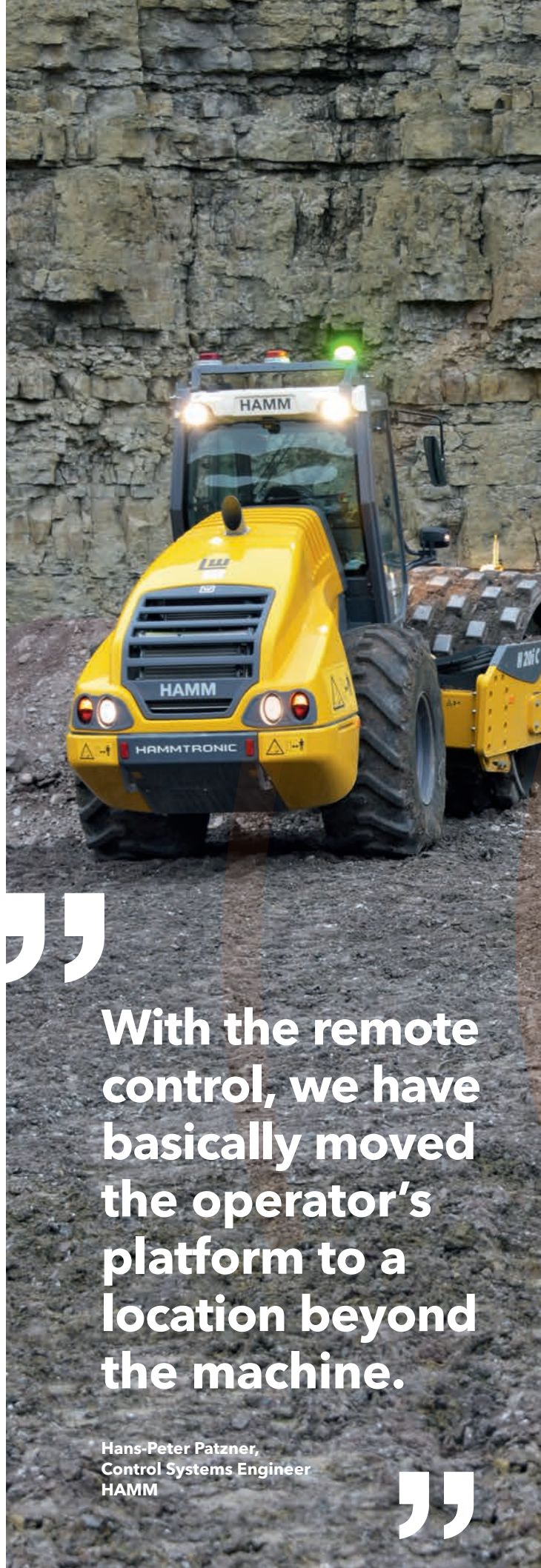
## Compacting safely at a quarry

The compactors with remote control have already been at work in Wilhelmsglück Quarry, near Schwäbisch Hall, since 2017. The LEONHARD WEISS company is using them to refill the quarry with large volumes of material generated by various construction projects in the region. The goal is to totally recultivate the quarry, with its impressive capacity of some 5 million tonnes, while optimally exploiting the available space. For this purpose, the backfill has to be compacted as effectively as possible over the entire surface area, including along the edges. This particular requirement was something of a challenge, because when compacting the ground near the quarry face, up to 35m high in places, by means of vibration, rocks could break out of the face and fall onto the roller, posing a threat to the operator.

## Partners in the development process

"We have very strict safety regulations, so assigning crews to work right at the quarry face was not an option. Our road construction team therefore collaborated with colleagues in our Special Technology department to find alternatives for filling and compacting these critical areas," explains Site Manager Daniel Horcher. "After doing a lot of research, we decided that using a remote-controlled compactor was the simplest and most versatile solution." Staff from the Special Technology department at LEONHARD WEISS then approached HAMM with their request. In just three short months, HAMM developed a complete remote-control system for its series H compactors. "We stayed in close contact with LEONHARD WEISS at all times in order to coordinate the details with them," reports Reiner Bartsch, Product Manager at HAMM.

**A flashing green signal lamp on the console above the cabin indicates that the roller is ready for operation. To control the roller, the operator must have visual contact with the console above the cabin, but can be standing over 50m away from it.**



**With the remote control, we have basically moved the operator's platform to a location beyond the machine.**

Hans-Peter Patzner,  
Control Systems Engineer  
HAMM

## All functions under control

The controls are identical to those on the operator's platform: as soon as the remote control is activated, a specially designed lamp console above the cabin indicates if the roller is ready for operation. When the lamp lights up green, the roller can be started, stopped and steered with the remote control. The vibration frequency and travel speed can also be adjusted, and the dozer blade operated. "A large screen on the remote control displays the direction of travel and the speed at all times. The operator can also see all operating data relating to the drum and engine, so that he can ensure safe operation of the roller. With the remote control, we have basically moved the operator's platform to a location beyond the machine," explains Hans-Peter Patzner, Control Systems Engineer at HAMM and head of this special project. Since its introduction, additional applications for the remote-controlled roller have emerged: for example, it is occasionally used in areas in which there is a likelihood of underground cavities due to mining operations or special geological conditions. >>>



**All vibration, dozer blade, lighting, travel speed and steering functions can be operated to the full extent with the remote control. What is more, the operator can keep an eye on machine status at all times.**



### Process optimization with a new compactor with dozer blade

The two H 20i C P compactors at Wilhelmsglück Quarry have even more to offer, since HAMM also developed a new dozer blade for this project. The reason: at peak periods, as much as 6,500t of material are delivered to the quarry and spread by crawler dozers. To handle this tremendous amount of material, the company normally would have had to purchase another crawler dozer and another compactor. But two machines also mean two operators and this is where problems arise, because, according to Sabine Voss, Compacting Equipment Scheduler in the Construction Machinery division at LEONHARD WEISS: "Qualified employees are in short supply these days. Above all, it is difficult finding new people to operate special machines. That's why it was important to us to manage the filling work with a single machine that our current employees can operate."

**With the combination roller, we can sometimes eliminate one of the crawler dozers at smaller quarries.**

Daniel Horcher, Site Manager  
LEONHARD WEISS



## Targeted development thanks to close communication

This led to the idea of modifying the standard dozer blade in HAMM's product range for the new compactors. The main goals were to increase the volume it could push and adapt its geometry to suit the heavy material. A prototype was quickly built. LEONHARD WEISS tested it at several jobs sites and with different operators. "We maintain a lively dialogue with HAMM, communicating on an equal footing. The developers channelled feedback from our operators and logistics specialists into the design. In the end, they came up with the exact tool we needed for our quarries," say representatives of the Special Technology department. "The roller operators are happy. They like working with the H 20i C P dozer compactor."

## Over a million tonnes of material already compacted

The two compactors with dozer blades have now been in operation at the quarry for over two years. Site Manager Daniel Horcher summarizes his experiences as follows: "This combination roller can place and compact small volumes of material without the help of an additional crawler dozer. With just the compactor, an operator can spread and compact between 500 and 1,000t a day. If higher volumes in the region of 3,000t or more have to be processed daily, as in Wilhelmsglück, the compactor with a dozer blade can support the on-site crawler dozer. In this case, a compactor with a smooth drum is used in addition, except near the quarry face. Thanks to the special design, dumping heights from 50cm to 1m can easily be achieved." And he should know: his team has already compacted millions of tonnes of material from various sources with this compactor.

## From remote control to in-cabin operation in seconds

In response to the question as to how he would approach this task a second time around, Site Manager Daniel Horcher says spontaneously: "I would do it exactly the same way. The compactors with a dozer blade are a big help to us, because with them we can sometimes eliminate one crawler dozer when working in fairly small quarries. Wherever safety dictates, we can use the machine that is equipped with a remote control. In all other areas, the second compactor without a remote control is first up. And naturally, we always operate the remote-controlled compactor from inside the cabin as usual whenever we are working far away from the quarry face. Switching from one mode to the other couldn't be easier. A push of a button is all it takes." >>>



"Queen Sabine I" is the name given by the team at LEONHARD WEISS to the new compactor, in honour of their colleague in scheduling.



## Even greater climbing ability and traction: New C models from HAMM

At LEONHARD WEISS, the new compactors are to be used mainly in quarries and on rough terrain. The company therefore decided to acquire the "C" versions of the machines. These units are equipped with a reinforced hydrostatic drive and deliver up to 30% more torque. As a result, the traction and climbing ability of the machines are even higher than those of the standard models.

And although these compactors were specifically designed for heavy earthwork, landfill construction and compacting cohesive soils, they are still very fuel-efficient: The fuel consumption of models with and without a higher-powered drive is virtually on a par, because the same diesel engine is installed in the rollers. ///



# 2 in 1

### Greater added value thanks to high-performance dozer blade

The new dozer blade is now optionally available in two versions. The design of the high-visibility cross-member ensures that the operator has a clear view of the area in front of the compactor and especially of the head of bulk material.



up to  
**30%**  
more torque



Material can be pushed and compacted in a single pass thanks to the dozer blade: the compactor and dozer blade are operated by remote control near the quarry face. When working in non-hazardous zones, an operator sits in the cabin and operates the compactor in the usual manner.

MOBIREX 130 Z EVO2 impact crushing plant on a recycling job

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# High capacity and great flexibility make the difference



High-precision technology: In addition to crushing and screening the mineral-based rubble, foreign matter, such as iron reinforcements, wood, plastic, aluminium, etc., also have to be separated. The MR 130 Z EVO2 handles this task using a height-adjustable magnetic separator with discharge option and an oversize grain return conveyor to remove unwanted lightweight materials from the circuit.





## Germany // Göppingen

Demolition projects in urban environments are a challenge in themselves. If the resulting rubble additionally has to be processed on site, the crushing and screening equipment has to meet the highest standards, especially in terms of noise and dust emissions. This was the case on a job in Göppingen. In the southern German town, home of KLEEMANN brand headquarters, CK Abbruch & Erdbau GmbH deployed a mobile MOBIREX MR 130 Z EVO2 impact crushing plant to crush rubble from a demolished department store with a multi-storey car park and separate it into classified grain sizes while keeping dust levels to an absolute minimum. On this typical urban job, the KLEEMANN crushing plant impressed users above all with its flexibility. Markus Christadler, Managing Director of CK Abbruch & Erdbau GmbH, explains why it is an advantage for demolition companies. >>>

**Medium-sized company specializing  
in demolition:  
About CK Abbruch & Erdbau GmbH**

Established in 2003, CK Abbruch & Erdbau GmbH engages primarily in demolition and earthworks. The team headed by Managing Director Markus Christadler has acquired high-level competence particularly in processing rubble. The company today processes some 250,000t of recycled feed material annually. Use of the innovative KLEEMANN crushing plant illustrates the changes taking place in the industry: a wrecking ball used to be the classic symbol of demolition companies, but environmental policies have long since changed the framework conditions for this work. Today, different types of building materials have to be recycled separately, which calls for the use of precise and efficient equipment.

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**KLEEMANN  
plants are  
perfectly geared  
to our recycling  
needs.**

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### **Mr Christadler, what kind of work do CK Abbruch do and which KLEEMANN machines do you use?**

We are primarily active in building demolition, including waste recycling and earthworks. Most of the time we handle these tasks for our own construction projects, but we also get hired on job sites as a contract demolition company. As such we are frequently involved in demolishing residential and industrial buildings. Recently, we were hired to take down a shopping centre with multi-storey car park in central Göppingen and to process the material on site. In applications of this kind, we use our mobile MOBIREX MR 130 Z EVO2 impact crushing plant. With its very high output, this plant has always done an impressive job, despite often having to operate on difficult job sites and process a wide range of material. Our fleet also includes a mobile MOBISCREEN MS 13 Z screening plant, which is mostly used to screen rubble and soil.

### **Do you modify the KLEEMANN plants for different jobs?**

Yes we do. For example, we always adapt the rotor ledges on our MR 130 Z EVO2 impact crusher. We have a rotor ledge set for hard material like concrete rubble and natural stone, and another for soft material like asphalt. But since we usually feed the plant with hard stone, we actually don't have to change sets very often. Together with our contact at the WIRTGEN GROUP sales and service company in Augsburg, we have set up a schedule for the provision of wearing parts, so we are automatically supplied every three months with new rotor ledges for our MOBIREX impact crushing plant. And if we occasionally see more extensive wear, they get the corresponding spare part to us right away. In addition, our employee who operates the plant always keeps a set of rotor ledges and the most important wearing parts on hand at every construction site.

### **How often does your MR 130 Z EVO2 change operation sites?**

That naturally varies greatly and depends on the volume of material to be processed. I would say it changes sites up to 20 times a year on average, meaning of course that easy transport is very important to us.

### **What are the greatest challenges you face on a daily basis as a demolition company?**

Quality is the deciding factor in processing the material. It is very important to deliver a perfect product to customers, because we – and by that I mean the entire mineral-based rubble recycling industry – compete with natural products like crushed stone and gravel. In other words, our final product has to be processed to be as cubic and as accurately classified by grain size as possible. Another challenge is the obstacles that still exist to on-site processing. For example, some municipalities have regulations that strictly forbid processing within town limits. Some developers don't allow processing in urban areas at all in their invitations to tender. In such cases, the material has to be hauled to a recycling yard for processing, requiring additional transport. However, the most ecological and economical alternative is to process the material on site.

### **How do local residents react to KLEEMANN's crusher equipment in their neighbourhood?**

We get some resistance from local residents at first. They're afraid of the noise and the dust. But once we get started, we very frequently hear that the crushing activity did not bother people at all and was much quieter than expected. Often, the noise of the excavators and lorries travelling back and forth is much more of a nuisance. And we really have dust under control thanks to the spray system integrated in the crushing plants. »»



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**Efficiency is a very important point in favour of KLEEMANN in general and of the MR 130 Z EVO2 in particular.**

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***Why do you have a KLEEMANN MOBIREX 130 Z EVO2 impact crushing plant in your fleet of machines? What are the advantages of an impact crusher in your opinion?***

Apart from the quality requirements I mentioned before – the keyword here being a cubic final product – we also attach great importance to efficiency. Every drop of fuel and every kilowatt of electricity counts in our work, because these savings add up over every hour of operation. This is a very important point in favour of KLEEMANN in general, and of the MR 130 Z EVO2 in particular. My team and I also see safety as a top priority. Systems such as the Lock & Turn, with its key transfer system, are a real improvement in safety and they make sure our employees can return home safe and sound after a day at work.

***What do your employees like most about the MOBIREX 130 Z EVO2 plant?***

What my guys are truly thrilled about is the SPECTIVE control system. It is very intuitive and simple to operate. That's what I hear over and over. It's also incredibly practical that operating statuses like fuel level are so easy to check. From the standpoint of cost-efficiency, I like the high productivity combined with low fuel consumption and the short set-up times associated with SPECTIVE. And there is one more technical detail that workers always praise: the air classifier. We used to do the final sorting of crushed material by hand. Now the air classifier handles most of that job by separating oversized grain from lightweight foreign material with a blower. That increases quality and saves time.

### **Advantage of the MOBIREX 130 Z EVO2 impact crusher: Impressive mobility**

The MOBIREX 130 Z EVO2 series boasts high mobility: the track-mounted impact crushing plants can easily be transported on low-bed trailers thanks to their compact design, and set up again for operation in a few minutes. With the integrated secondary screening unit – with double-deck screen in the case of the MR 130 Z EVO2 – an additional screening plant can be eliminated on a lot of jobs. That makes positioning the plants easy, even when faced with tight space constraints, and saves time and transport costs, too.



***Is the MOBIREX 130 Z EVO2 impact crushing plant suitable for all your demolition applications?***

Basically yes. But it is a bit oversized sometimes. For example, we recently had to process rubble from a hotel in an inaccessible area right in a town centre. Thanks to our good relationship with WIRTGEN AUGSBURG, we were quickly provided with a plant that was better suited to the job, in this case the mobile MOBICAT MC 110 Z EVO jaw crusher. It's smaller, more compact and was more than adequate for the job.

***What do you appreciate most about KLEEMANN equipment and your collaboration with the WIRTGEN GROUP?***

The spirit of partnership more than anything! You can really sense their willingness to make anything possible. The plants are perfectly tailored to meet all requirements and deliver an impressive performance. The MOBIREX MR 130 Z EVO2 was originally a demonstration machine presented to us by our contact at WIRTGEN AUGSBURG. We were so impressed with it that we kept it! Even subsequent requests we had were handled smoothly. They really deliver on their pledge: "close to our customers". ///



**Advantage of the MOBIREX 130 Z EVO2 impact crushing plant: Award-winning Lock & Turn safety system**

Users are exposed to some risk when changing the rotor ledges or clearing material blockages on an impact crusher because of the machine's typical design. With its award-winning Lock & Turn safety system, KLEEMANN have made it safe to perform such tasks on the MR 130 Z EVO2 impact crushers, even in the immediate vicinity of the rotor, by implementing an innovative key transfer system combined with a lock and turn device for safely positioning the exposed rotor.



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**What my guys are truly thrilled about is the intuitive SPECTIVE control system.**

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Berlin •

Germany

Munich •

A job for the new SUPER 3000-3i with the SB 350 TP1 Fixed-Width Screed:

**This machine is  
awesome!**

! Read more about the new SUPER 3000-3(i)  
• in our Top Feature on page 32



Paving across a large working width while laying down a premium quality asphalt pavement that can withstand high traffic loads: the challenges facing the new SUPER 3000-3i on one of its first jobs could hardly have been tougher. On the A96 motorway, the new flagship paver from VÖGELE teamed up with the likewise new SB 350 Fixed-Width Screed, paving across widths that varied between 14 and 16m. Even at this impressive range, the SB 350 Fixed-Width Screed is still some 2m short of its potentially record-breaking maximum width of 18m. VÖGELE's new cutting-edge technologies easily delivered impressive results – across the entire pave width. >>>

## Strong performance, extensive range of application

The A96 motorway connects Munich's ring road – the A99 – with the Lake Constance region to the southwest and is integrated in the European motorway network. The stretch of road located within greater Munich is particularly heavily travelled with up to 78,300 vehicles per day (figure for 2015). This made it necessary to expand the A96 from two to three lanes in each direction along an 8.9km section. The construction project also includes numerous associated civil engineering structures, most of which serve the purpose of noise control in Munich's densely populated outskirts. In its invitation to tender, the Southern Bavarian Motorway Authority specified for the asphalt work that both lanes had to be paved without joints, making this an ideal job for the new SUPER 3000-3i from VÖGELE operated by Richard Schulz Tiefbau GmbH & Co. KG. Based in Neuburg, Bavaria, this construction company specializes in paving across large widths and prefers this method over paving several strips "hot to hot". "Totally jointless paving contributes to pavement quality," says Senior Site Manager Eyup Kandemir.

## 16m-wide paving with the new SB 350 Fixed-Width Screed

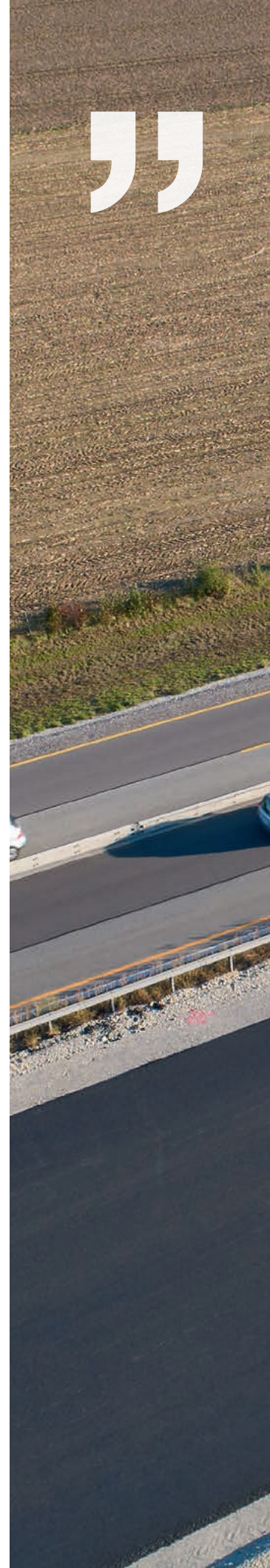
For the construction job on the outskirts of Munich, Richard Schulz Tiefbau was supplied with a SUPER 3000-3i for testing purposes. Normally the paving team works with a SUPER 2500, a predecessor by two generations of the new VÖGELE flagship paver. Equipped with the SB 350 Fixed-Width Screed, this leading innovative paver delivered an advantage on the job site that saved many hours of work: the new bolt-on extensions for the SB 350 Fixed-Width Screed increase variability to as much as 2.5m (1.25m on each side). "We didn't have to convert the screed at all, even though the pave width varied between 14 and 16m. That wouldn't have worked with our existing equipment," says Kandemir. Constructing this asphalt pavement showcased only a fraction of the feats the new screed is capable of: the base course was paved in two 11cm-thick layers while the binder course was 8.5cm thick. The surface course will not be paved until construction of various noise barriers has been completed. "Even though the project on the A96 was very impressive, the SB 350 was not working to its full potential. It can pave anti-freeze layers 50cm thick and surface courses up to 18m wide," reports Björn Westphal, the product manager responsible for the SUPER 3000-3(i) at VÖGELE.

## Smooth construction workflow even on its first job

Logistics play a key role on large job sites. On the A96, teams had to pave 2,500t per shift while minimizing the disruption to traffic along this main traffic artery in greater Munich. To fulfil such requirements, Richard Schulz used a VÖGELE MT 3000-2i Offset PowerFeeder as specified and moved the paving work to the evening and nighttime hours: while the material feeder made sure the mix was unloaded rapidly, starting the work shift late in the day at 4 pm reduced the time required for the lorries to travel between the mixing plant and the job site from about 70 to 40 minutes. "We paved at a rate of 2-3m/min and paved about 2,500t of asphalt in each work shift. It was more than evident to us that the SUPER 3000-3i still had substantial power reserves," explains Kandemir. This was a convincing indication that VÖGELE's flagship paver can handle considerably bigger challenges. The section paved by the SUPER 3000-3i was interrupted in three places by bridges. But VÖGELE developed their AutoSet Plus precisely for such situations. Using the Repositioning function, the paver operator can save all currently set paving parameters. All he has to do is push the "Execute" button and the paver is quickly and safely prepared for repositioning. Another push of a button returns it to the previously stored working position. That saves valuable time and effectively prevents damage to the paver. >>>



Experience the SUPER 3000-3i in action at:  
[www.voegel.com/SUPER3000-3i-A96](http://www.voegel.com/SUPER3000-3i-A96)



**The new hydraulic bolt-on extensions gave us a lot of variability so we didn't have to convert the SB 350 at all. That wouldn't have worked with our existing equipment.**

Eyup Kandemir, Senior Site Manager  
Richard Schulz Tiefbau GmbH & Co. KG

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The entire pavement of the A96 was removed followed by repaving and widening on both sides of the motorway: the SUPER 3000-3i brought many of its assets into play at the job site on the A96 motorway - paving at large widths of 14 to 16m being a notable example.



***Mr Kandemir, you are Senior Site Manager at Richard Schulz Tiefbau GmbH & Co. KG, a medium-sized construction company with years of experience in paving across large widths. What are the advantages of the method?***

It is clear to us that this method contributes to pavement quality. We believe jointless paving has the edge over paving several strips "hot to hot", because there are no joints at all. That's why we always pave a single strip wherever possible, even if we have to work at large widths. Pave widths of 10m and more are routine for me and my paving team!

***Which aspects are crucial when paving across large widths?***

It starts with preparing the job site, which is very important. How many mixing plants and how many lorries will it take to ensure smooth job-site logistics? You have to make sure things go right at

this planning stage. On the A96, we decided to work from evening to early morning. That way, we reduced the total round-trip time of the lorries by 30 minutes. At the job site itself, the most important thing is to ensure surface accuracy across the entire roadway. This can only be achieved if the screed is very stable, and that means right out to the very ends. The new SB 350 Fixed-Width Screed raises the bar in this respect. Once again, VÖGELE have clearly demonstrated their technological leadership with this screed. To us, the immense hydraulic bolt-on extensions were a revolutionary development. You can use these to vary the pave width by a total of 2.5m, which was a huge help to us on this construction job. The working width varied frequently between 14 and 16m within one partial section of the road, but we were able to pave continuously with the new screed without any conversion work. That wouldn't have worked with our existing equipment. We saved a lot of time and what's more, non-stop paving enhances the evenness of the paved surface, which was outstanding in this case.

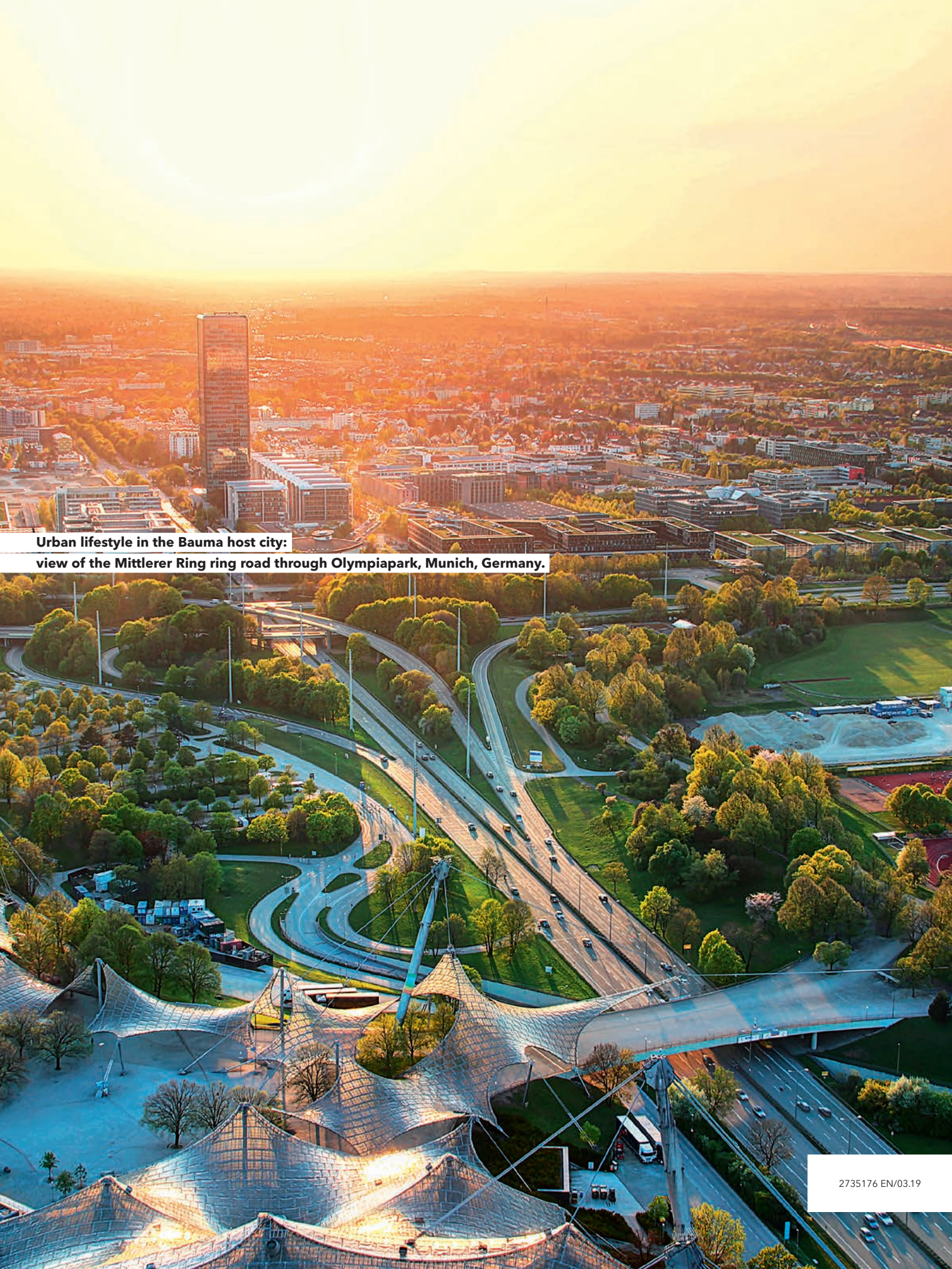


# Unbelievable that such a gigantic machine can work so precisely.

**Eyup Kandemir, Senior Site Manager  
Richard Schulz Tiefbau GmbH & Co. KG**

***In other words, the demands on the equipment are very high. In addition to the new SB 350 Fixed-Width Screed, were you also impressed by the new SUPER 3000-3i?***

I most certainly was, and so was my team. We were thrilled with its powerful performance, and by that I don't just mean the engine output. The SUPER 3000-3i is totally precise when it comes to material flow, too; it always doses the mix perfectly. The new material transport system, which allows you to adjust the height of the entire chassis, ensures a perfect head of mix in front of the screed, regardless of the layer thickness. Compared to the largest paver in our fleet – a SUPER 2500, which is a predecessor by two generations – the SUPER 3000-3i is a shining example of progress. Our paver and screed operators were thrilled with their “new workplaces” and above all the intuitive ErgoPlus 3 operating system with its easy-to-use consoles. Thanks to them, we had the paver under control right from the start. And that is undoubtedly a deciding factor. Employees come and go more frequently today and a machine therefore has to be easy for operators to find their way around, so they can concentrate on essentials, meaning the paving. Particularly when you're paving across such large widths, minor operating errors can have a major impact on the schedule. My team and I were absolutely thrilled with the new SUPER 3000-3i. This machine is awesome! ///



**Urban lifestyle in the Bauma host city:**  
**view of the Mittlerer Ring ring road through Olympiapark, Munich, Germany.**