

RoadNews

for new roads

The WIRTGEN GROUP User Magazine for China // N° 02

 WIRTGEN

 VÖGELE

 HAMM

 KLEEMANN

 BENNINGHOVEN

Oscillation rollers from HAMM carry out
compacting job on the longest sea bridge:

Unique technology, spectacular structure




Contents








Editorial





// Top Feature

- 04**  New link between Hong Kong, Zhuhai and Macau: HAMM rollers work on the longest sea bridge in the world.

// Technology

- 12**  Resource-saving road rehabilitation thanks to cold recycling with foamed bitumen – a WIRTGEN technology.
- 20**  Niveltronic Plus: Precision is child's play with VÖGELE's fully integrated System for Automated Grade and Slope Control.
- 28**  MBRG 2000: Turning old asphalt into new raw materials with the BENNINGHOVEN granulator.
- 32**  BENNINGHOVEN EVO JET burner: The impressive retrofit solution.
- 62**  Lock & Turn: Intelligent safety system from KLEEMANN for their MOBIREX EVO2 impact crusher.

// Job Reports

- 36**  Full power ahead: New WIRTGEN W 215 large milling machine in operation in Jiangsu.
- 44**  Cutting-edge VÖGELE tracked paver: Construction of the new Songkun Highway with two SUPER 1880-3 L pavers.
- 52**  Outstanding performance: Two SUPER 1880 L pavers excel on the Xichen Road job site.
- 56**  KLEEMANN close the cycle: Mobile screening and crushing plants recycle rubble in Luoyang.

Dear Reader,

China is a country that continues to lay claim to a host of superlatives. The longest sea bridge in the world is currently being completed between Hong Kong and Macau. We are proud that technology from the WIRTGEN GROUP contributed to the success of this major project. Thanks to HAMM rollers with oscillation drums, it was possible to compact the structure dynamically – a particularly fast and economical solution.

Meanwhile, machines and components from our other product brands are also making their mark in China's road construction industry. For instance, the EVO JET burner from BENNINGHOVEN – a retrofit solution that asphalt mixing plant operators are currently discovering. Or the mobile screening and crushing plants from KLEEMANN, which are processing rubble in Luoyang – achieving a recycling rate of 95%. And the new WIRTGEN W 215 cold milling machine as well as VÖGELE's SUPER 1880-3 L and SUPER 1880 L pavers – innovations which were all unveiled at Bauma China in 2016 – are thrilling users, too.

We also present another WIRTGEN GROUP technology in this edition of RoadNews. It may not be new, but it certainly has an excellent track record worldwide: cold recycling with foamed bitumen. WIRTGEN developed the process in-house and have continued to perfect it year-on-year, with their own machine technology.

We hope you enjoy reading this second edition of the WIRTGEN GROUP RoadNews for China!

Best wishes,

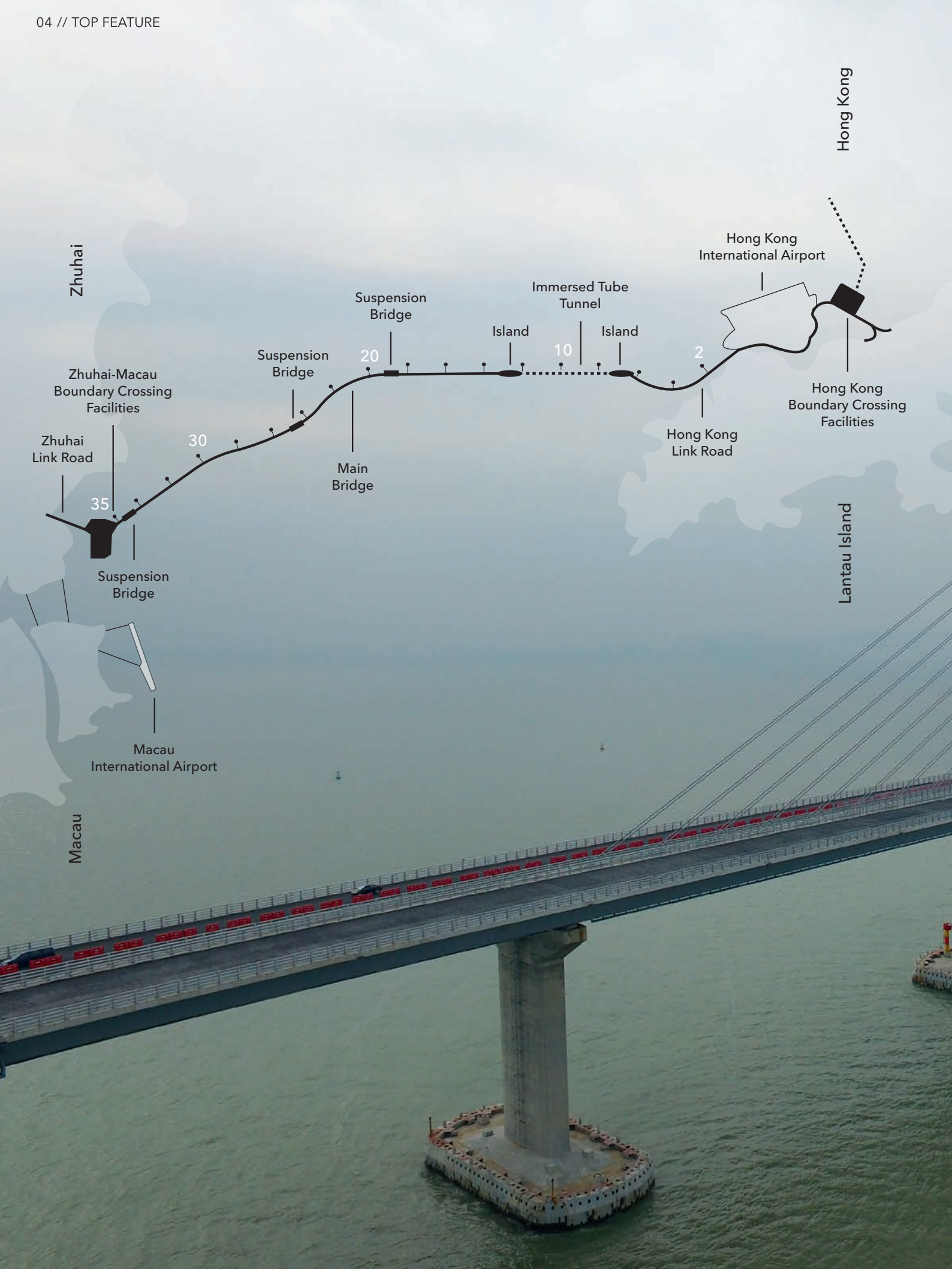


Ulrich Reichert
CEO and Managing Director
WIRTGEN (CHINA)
Machinery Co., Ltd.

PUBLISHING DETAILS

RoadNews for new roads – The WIRTGEN GROUP User Magazine for China | Publisher: WIRTGEN GROUP Holding GmbH, Reinhard-Wirtgen-Strasse 2, 53578 Windhagen, Germany, www.wirtgen-group.com | Editorial office: Roland Schug (editor-in-chief), Simone Ellner, Tim Xie | Foreign languages management: Sylvia Naumann, Christine Gabelmann | In cooperation with: bilekjaeger Werbeagentur, komplus Projektgemeinschaft für Kommunikation und Gestaltung GmbH | Reprints and reproduction of articles and photos are subject to prior consent of the WIRTGEN GROUP.

Unless specified otherwise, all brands mentioned in the magazine of WIRTGEN GROUP Holding GmbH are registered trademarks. WIRTGEN GROUP Holding GmbH protect their intellectual property, including patents, trademarks and copyrights.



Hong Kong

Hong Kong International Airport

Hong Kong Boundary Crossing Facilities

Lantau Island

Hong Kong Link Road

Immersed Tube Tunnel

Island

Island

Suspension Bridge

Main Bridge

Suspension Bridge

Zhuhai

Zhuhai-Macau Boundary Crossing Facilities

Zhuhai Link Road

Suspension Bridge

Macau International Airport

Macau

Oscillation above the Pearl River

Track-proven HAMM technology ensures economical and eco-friendly compaction over 35km on the longest sea bridge in the world.



The highest quality was required when constructing the Hong Kong-Zhuhai-Macau Bridge. Oscillation rollers were specified for gentle compaction of the surface course on this modern reinforced concrete supporting structure of the bridge. The construction company Guangdong Provincial Changda Highway Engineering Co., Ltd. – whose remit included the asphalt construction on the western section of the bridge and the approach roads near Macau – compacted the asphalt to a high standard using HD O128V HAMM rollers with low-vibration oscillation technology. »»

” HAMM oscillation rollers boost productivity and efficiency tremendously.

Liu Guangyun, Fleet Manager
Guangdong Provincial Changda Highway
Engineering Co., Ltd.

”

Stimulus for the economy and tourism

The Hong Kong-Zhuhai-Macau Bridge is scheduled to be opened to traffic in 2018 and will be the third-longest bridge in China. The impressive structure was planned and constructed in just 15 years – with the aim of stimulating the economy and tourism in the Pearl River Delta, the region around Macau, Zhuhai and Hong Kong. With the new link and a connection to the Hong Kong airport, the trip to Zhuhai will only take 30-45 minutes. The trip currently takes at least four hours by car.

Asphalt pavement optimized for the bridge

The bridge, consisting of a supporting structure made from reinforced concrete, will have three lanes in each direction. The reinforced concrete was given a watertight coating of methyl methacrylate (MMA) to protect the supporting structure against corrosion. The asphalt pavement, comprising 3-4cm mastic asphalt (GMA 10) and an approximately 4cm-thick surface course of stone mastic asphalt SMA 13 was then paved on each of the 14.5m-wide carriageways. The approach and exit roads were built with a roadbase over 70cm thick, a base course and binder course of asphaltic concrete as well as a surface course of stone mastic asphalt SMA 13. »»

Asphalt pavement 1

Lanes in the region of the western island with border crossing

Length: 5km
Width: 2 x 14.5m

Roadbase:	71cm	
Base course:	8cm	AC 25 C
Binder course:	6cm	AC 20 C
Surface course:	4cm	SMA 13



Suspension Bridge

Zhuhai-Macau
Boundary Crossing
Facilities



Job site details

Construction of a 50km-long link between Hong Kong and Macau including the 35km-long and 31.1m-wide Hong Kong-Zhuhai-Macau Bridge, western section

Asphalt pavement 2

Lanes in the region of the western bridge section

Length: 13.8km
Width: 2 x 14.5m

Steel structure coated with an MMA water barrier

Mastic asphalt		
course:	3-3.5cm	MA 10
Surface course:	3.8-4.5cm	Polymer modified SMA 13

Suspension
Bridge

Immersed
Tube Tunnel

Island

Equipment:

4 HAMM HD O128V tandem rollers
1 HAMM HD 10 VV tandem roller

Suspension
Bridge

Hong Kong- Zhuhai-Macau Bridge: A 35km-long world record

The Hong Kong-Zhuhai-Macau Bridge lays claim to a number of superlatives: designed to last at least 120 years, the 35km-long bridge will be able to withstand wind speeds of up to 200km/h, earthquakes with a magnitude of up to 8 and collisions with ships weighing up to 300,000t.

The link between the metropolises of Hong Kong on the one side and Macau and Zhuhai on the other is just over 50km long. Its central element is the bridge structure with a length of 35km. The bridge was designed to allow the passage of even large container ships at three points. In addition, there will be two tunnels, 5km and 5.5km long, artificial islands, border crossings with a transition from right-hand to left-hand traffic and several approach roads. The project will cost around 73 billion CNY.



HAMM machines made in China.

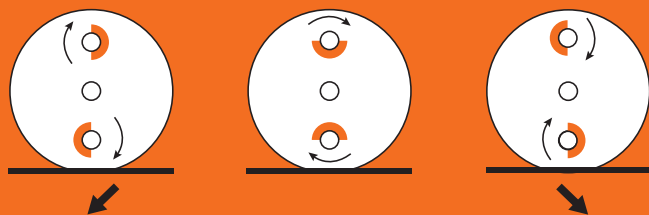
HAMM: The oscillation pioneer

HAMM launched the first oscillation rollers more than 30 years ago and has continued to advance this technology ever since. Today, the HAMM portfolio features more than 30 models with oscillation technology. Apart from the heavy tandem rollers, HAMM is the only manufacturer in the world to produce compact-class tandem rollers as well as compactors for soil compaction with oscillation technology.

Oscillation is the only possible dynamic compaction system which can be used on vibration-sensitive structures such as bridges. This is due to the fact that the oscillation drums do not lift up from the surface during compaction, avoiding vertical impacts.

There are two unbalanced masses in the drum that generate an oscillating forwards/backwards motion. The drum always remains in contact with the surface while transferring additional shear forces into the ground. This has a number of advantages:

- › The degree of compaction rises very quickly as the static and dynamic loads act simultaneously.
- › There are no vertical impacts on the ground. This prevents grain destruction and over-compaction.
- › Very even surfaces are achieved very quickly.





HAMM oscillation technology minimizes vibrations

The construction company Guangdong Provincial Changda Highway Engineering Co., Ltd., opted to use HAMM oscillation rollers to compact the asphalt. The rationale behind this was sound, as Construction Manager Jianguo Lei is aware: "Oscillation was specified as the compaction technology in the project's invitation to tender. This enables us to compact the surface dynamically while ensuring that the surrounding area is only subjected to minimum vibrations. We decided to use HAMM rollers, as we are already familiar with the high quality of this equipment. This quality is evident in all the details, in the machine technology, operation and efficiency."

High quality and wide temperature window

The team from Guangdong Provincial Changda Highway Engineering Co., Ltd. has already worked with HAMM oscillation in the past. They hence know that the degree of compaction rises particularly quickly, and they are aware of another advantage, too: due to their special motion, HAMM oscillation rollers can also be used for compaction without any loss of quality if the asphalt is too cold for vibration compaction. The available time window is therefore perceptibly wider. This in turn means that HAMM oscillation is ideal for compacting thin layers – especially on bridges, where the wind cools the thin asphalt layers very quickly.

Eco-friendly compaction

Fleet Manager Liu Guangyun also highlights another aspect of HAMM oscillation: "In addition to the high efficiency and compaction quality, the environmental friendliness is also important to us. In this respect, HAMM oscillation rollers are also superb, as their noise emission levels and fuel consumption are extremely low." This is very much in line with the vision of the Hong Kong government, which regards the bridge as "one of the most innovative, sustainable and eco-friendly border crossings with advanced technology and an energy-saving design." >>>

HAMM tandem rollers made in China

Guangdong Provincial Changda Highway Engineering Co., Ltd. used their HD O128V articulated tandem rollers, weighing almost 13t, to compact the asphalt on the bridge. These rollers and the sister model HD O138V, weighing almost 14t, are made in Langfang, China. They are true all-rounders – an excellent choice for construction work on motorways and other large areas as well as in city centres. These rollers combine track-proven HAMM compaction technology with a number of clever solutions regarding operation, comfort, safety and services, specially developed for the Chinese market.

Excellent service

In addition to the quality of the machines, the team at Guangdong Provincial Changda Highway Engineering Co., Ltd. also appreciates the outstanding service: "Spare parts support by the WIRTGEN GROUP in China and Guangzhou ESTRONG, the local dealer, is very fast and reliable," explains Liu Guangyun, who as Fleet Manager is very keen to ensure a high level of machine availability. The WIRTGEN GROUP always hit the mark with their applications consulting, too. Product Manager Hans Wang was also on hand for the construction work on the bridge on the Pearl River Delta, providing, for example, support during construction of a test area in which the main parameters and the compaction pattern were specified. Together with Robert Li, Area Service Manager at the WIRTGEN GROUP in China, and Liu Changfu, Service Technician for the dealer, he pointed out numerous details to the operators to enable them to make optimum use of the HAMM roller's potential. ///



Close to our customers: Liu Guangyun, Fleet Manager of Guangdong Provincial Changda Highway Engineering Co., Ltd. having an in-depth discussion with Tim Xie from the WIRTGEN GROUP in China.



”

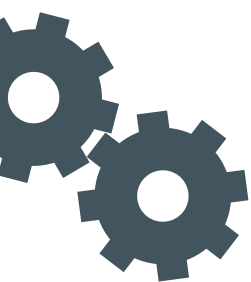
**With HAMM
oscillation rollers, we
can compact the surface
dynamically while
generating minimal
vibrations – an optimum
solution, not only for
bridge structures.**

**Jianguo Lei, Construction Manager
Guangdong Provincial Changda Highway
Engineering Co., Ltd.**

”

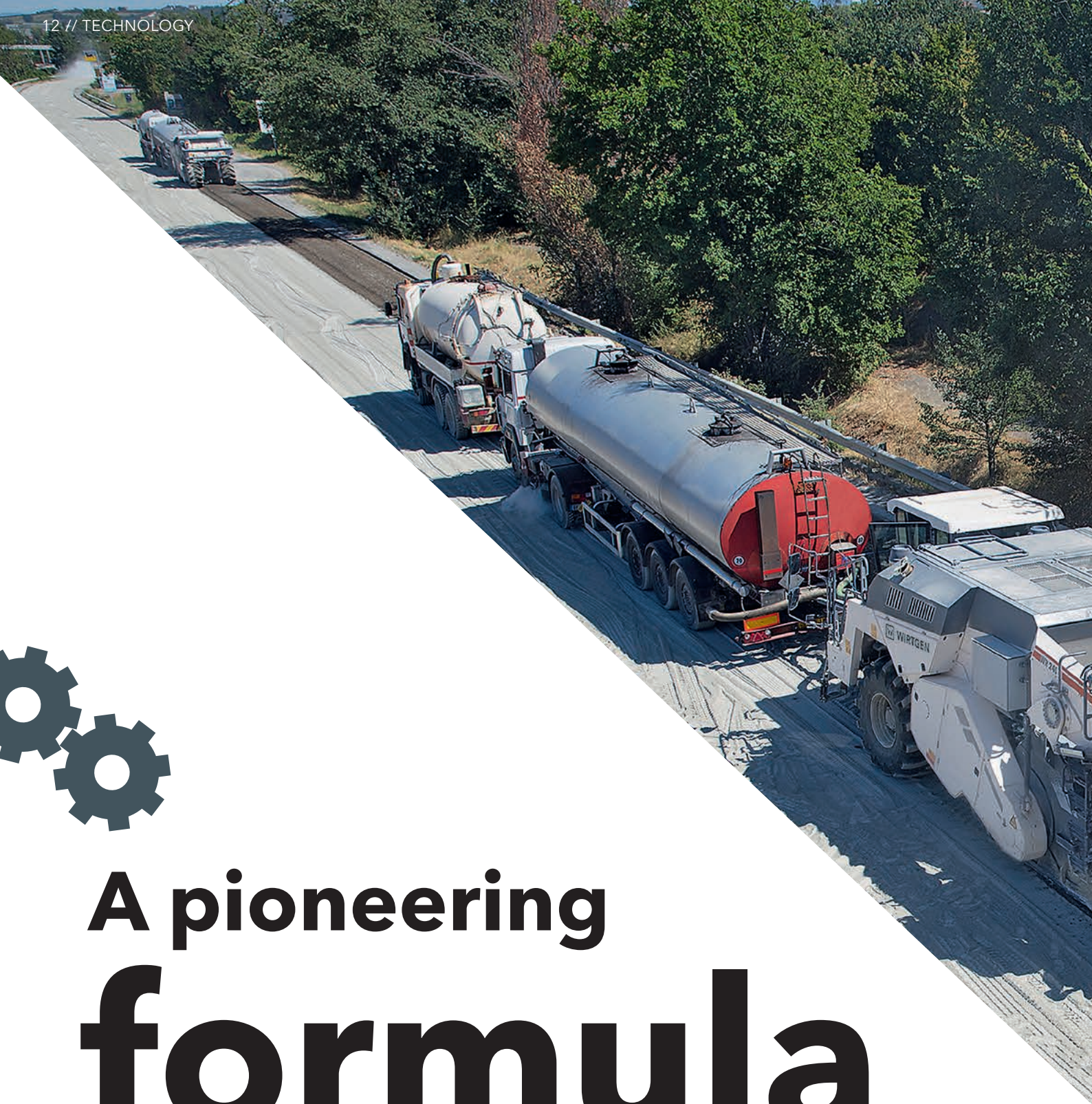


**The wide side clearance – a feature of the
HAMM HD series – permits compaction
right up to the edge.**



A pioneering formula

Cold recycling with foamed bitumen: resource-saving technologies are more in demand than ever before. The WIRTGEN cold recycling process has been proving its credentials for many years - and already meets the demands of tomorrow.





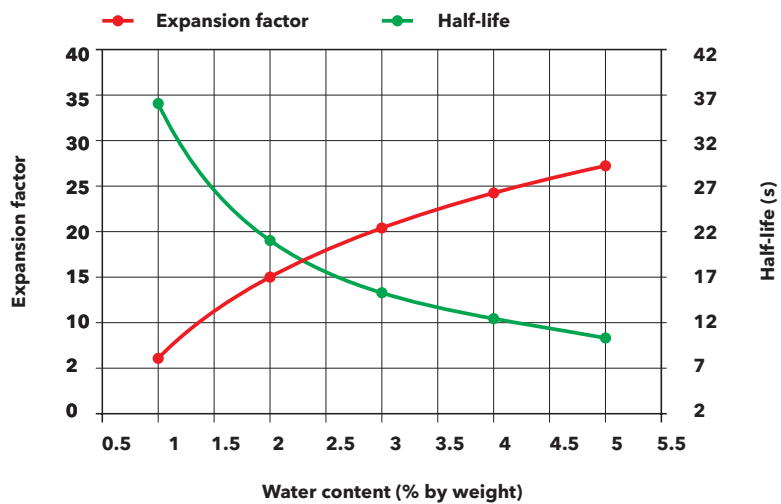
With foamed bitumen, it is possible to pave high-quality base courses cost-effectively using cold mix.



What is foamed bitumen and how is it made?

Foamed bitumen is produced by injecting small quantities of water and air into hot bitumen under high pressure. The water evaporates and makes the bitumen foam up rapidly to between 15 and 20 times its original volume. The foam is then injected into a mixer through injection nozzles and optimally mixed into cold and moist construction materials.

The quality of the foamed bitumen is primarily described in terms of the parameters "expansion ratio" and "half-life". The greater the expansion ratio and half-life, the more easily the foamed bitumen can be processed.



Curves showing half-life and expansion ratio for determining the water content



The foaming process takes place in expansion chambers, where air and water is injected at a pressure of 5 bar into bitumen that has been heated to a temperature of 160 to 180°C.

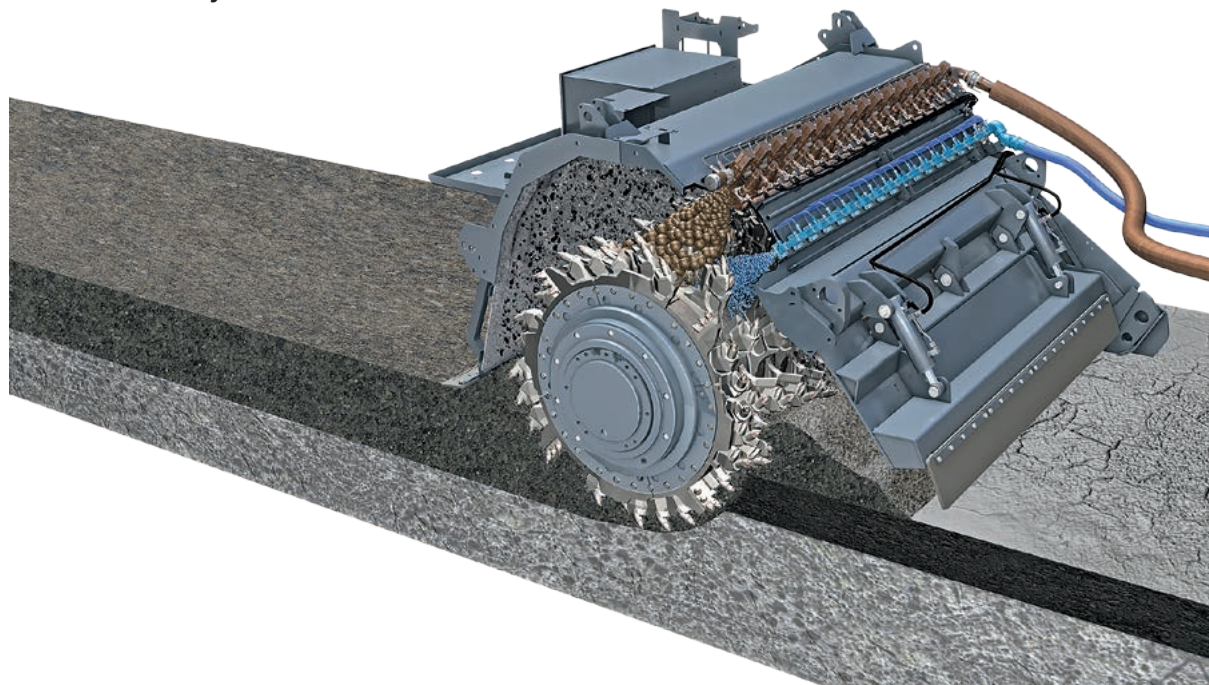


Roads that are subjected to continuous and heavy traffic often show signs of damage that extend down to the roadbase. To eliminate this damage, the entire road needs structural rehabilitation. Full re-use of the milled material as well as its cost-effective treatment make cold recycling with foamed bitumen – a process pioneered and decisively shaped by WIRTGEN over the past 30 years – environmentally friendly and economical.

Asphalt road rehabilitation with a moving job site

Cold recycling with foamed bitumen as a binding agent is a globally established process that is attracting increasing interest from road construction authorities and construction companies for asphalt road rehabilitation. It permits the paving of flexible and durable base layers. As part of the pavement structure, these form the perfect foundation for the final, thinner asphalt surfacing. State-of-the-art technology is used to produce foamed bitumen from normal bitumen which has been heated to approximately 175°C. With the in-situ method, a precisely dosed quantity of binding agent is added to mineral aggregate inside the WIRTGEN 2200 CR or 3800 CR cold recycler or the soil stabilizers of the WR series, using microprocessor-controlled injection systems. The project can hence be carried out as a moving job site. >>>

Addition of foamed bitumen and water to mineral aggregate by means of separate injection systems.



Ancillary cold recycling equipment from WIRTGEN



Both in specialist laboratories for road construction and in research facilities: the WIRTGEN laboratory equipment provides all experts in the field, be they contractors or consultants, with optimum support for cold recycling applications using foamed bitumen.

New WLW 1 laboratory compactor

WIRTGEN developed the new WLW 1 laboratory compactor for the production of test specimens. Developed especially for cold recycling applications, the compaction process permits the production of large test specimens for carrying out triaxial tests as well as small test specimens for indirect tensile strength testing.

WLM 30 laboratory-scale mixer

The WLM 30 laboratory-scale mixer defines the best mix composition and reliably produces different mix formulas in a very short time. The WLM 30 holds some 30kg of material, mixer speed and mixing time are variable.

WLB 10 S laboratory foamed bitumen plant

The foamed bitumen quality can be accurately defined in preliminary tests in the WLB 10 S mobile foamed bitumen plant even before construction starts. With its simple operation, parameters such as the water volume, pressure and temperature can be varied.



Cold recycling on the rise

The cold recycling process has proven its worth around the world. In practical use, there are two different methods: an in-situ approach using wheeled or tracked WIRTGEN cold recyclers, and the in-plant method using the WIRTGEN KMA 220, a mobile cold recycling mixing plant. The methods allow a large number of materials to be recycled such as milled asphalt, crushed asphalt or new material. The application range for foamed bitumen is varied, and it can also withstand very high traffic loads, as two examples in Brazil and Greece show. >>>



For more information on WIRTGEN cold recycling technology, see: www.wirtgen.de/cold-recycling



The bitumen used for production of foamed bitumen is widely available around the world.



The WLB 10 S laboratory-scale foamed bitumen plant can be used to carry out series of tests to determine the foamed bitumen properties.



A key attribute of the WLM 30 twin-shaft compulsory mixer for batches of approximately 30kg is its high mixing intensity.



Depending on the test procedures, the WLV 1 produces test specimens of various heights. Their quality is then examined with the indirect tensile strength test.



Cold recycling with WIRTGEN: Applications expertise included

To achieve such results, extensive preliminary tests must be conducted on the entire pavement structure, while the mix produced with foamed bitumen must pass a rigorous mix design test. WIRTGEN not only supply the right equipment for the job – customers can also make use of their comprehensive range of advisory services

around the world at any time. For instance, WIRTGEN experts and road construction engineers provide on-site support and advice for customer projects. The WIRTGEN training programme also conveys in-depth applications know-how on the topic of cold recycling.



Brazil: **Recycled material exceeds expectations**

The Ayrton Senna Highway in Sao Paulo is used by more than 250,000 vehicles every day, 15% of them lorries. During the rehabilitation project in 2011, milled material from the asphalt pavement was recycled with foamed bitumen in a WIRTGEN cold recycling mixing plant and repaved in two layers (20 plus 10cm) by a road paver. Then a 5cm-thick asphalt surfacing was laid.

Greece: **High load-bearing capacity for more than 10 years**

The cold recycling projects carried out with foamed bitumen back in 2003/2004 on the motorways between Iliki, Korinthos and Athens, Greece, have been demonstrating their strength for more than ten years, withstanding a high traffic volume of 40,000 vehicles per day including a 25% share of heavy vehicles. ///

Cold recycling: Advantages at a glance

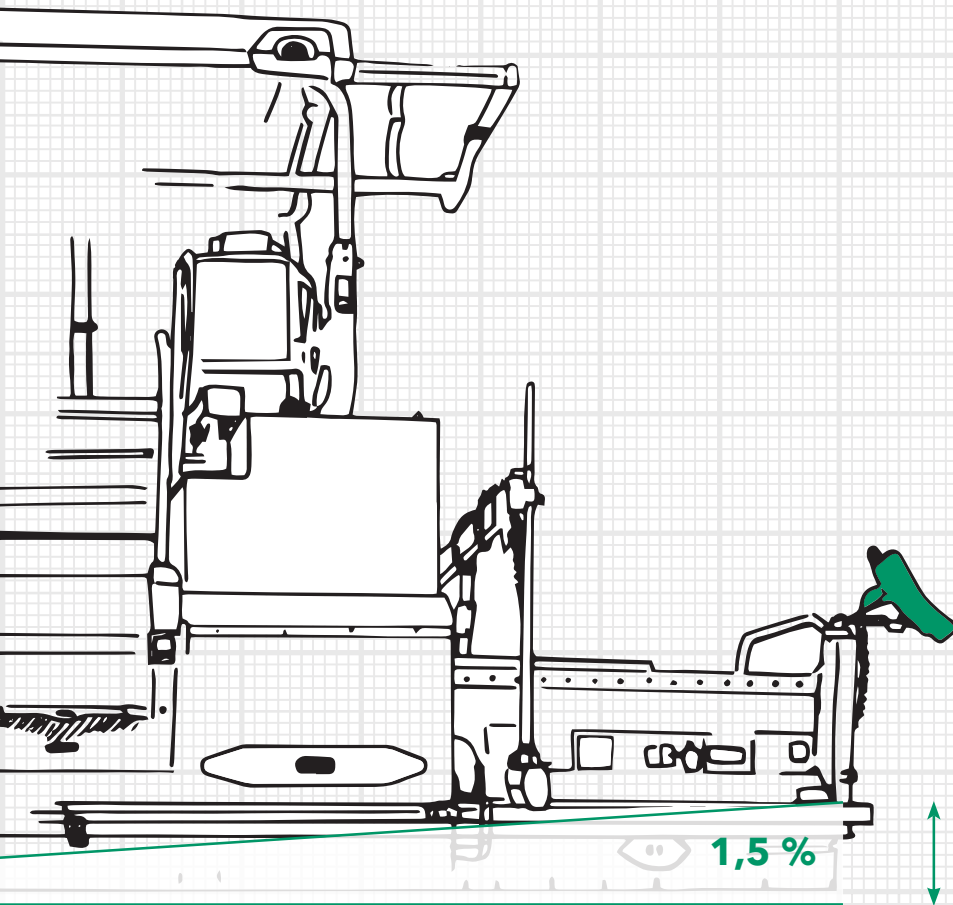
- › Extreme durability of the layers
- › High cost-efficiency
- › Resource conservation by 100% recycling
- › Reduced CO₂ emissions
- › Reduced construction time

Perfectly even down to the last millimetre: The fully integrated VÖGELE Niveltronic Plus System for Automated Grade and Slope Control is easy to handle using the ErgoPlus 3 operating system installed on the SUPER pavers.



Smooth. Simple.

The leading-edge VÖGELE Niveltronic Plus System for Automated Grade and Slope Control speeds up work on the job site while simplifying operation and processes.



Efficient.

When it comes to quality in road construction, the demand for maximum evenness has always been a top priority. Automated functions that control both grade and slope assist paving teams, enabling them to build paths, roads and squares as true to line and level as possible. Developed by VÖGELE's engineers, Niveltronic Plus equips paving teams with an effective, high-tech tool that reliably meets the highest demands on evenness. What is more, the VÖGELE System for Automated Grade and Slope Control offers convincing advantages: it is simple to handle using the ErgoPlus 3 operating consoles, it is a fully integrated system and it automatically detects sensors according to the "Plug & Play" principle. Ultimately, this means that Niveltronic Plus makes an active contribution to improving evenness and enhancing efficiency on any and all terrain. >>>

Highlights of Niveltronic Plus:

- › Wiring and connections are integrated into tractor unit and screed
- › Wide and varied selection of sensors supports the flexible use of Niveltronic Plus in all fields of application
- › Automatic detection of connected sensors according to the "Plug & Play" principle simplifies set-up
- › Particularly easy and user-friendly operation and monitoring of all Niveltronic Plus functions via the ErgoPlus 3 screed consoles
- › Logical, intuitive, language-neutral symbols support quick learning of all functions
- › Integration in the paver's control system makes additional training unnecessary
- › In addition to the Niveltronic System for Automated Grade and Slope Control, VÖGELE also offer Niveltronic Basic - to go with the ErgoBasic operating system for the VÖGELE Mini Class pavers and the SUPER 1880 L





Advantage 1

SUPER compatible: Fully integrated system, perfectly tuned to the machine

The fruit of VÖGELE's decades of experience with this technology, Niveltronic Plus is a highly sophisticated and reliable automated grade and slope control system. A key factor here is the fact that Niveltronic Plus is integrated into both the SUPER road pavers and VÖGELE screeds, and tuned to their functions. In other words, all cabling and connections are installed in the tractor unit and screed, which virtually rules out any damage to these components. Niveltronic Plus is therefore ready to get to work at any time, wherever a SUPER paver is equipped with the VÖGELE System for Automated Grade and Slope Control. >>>

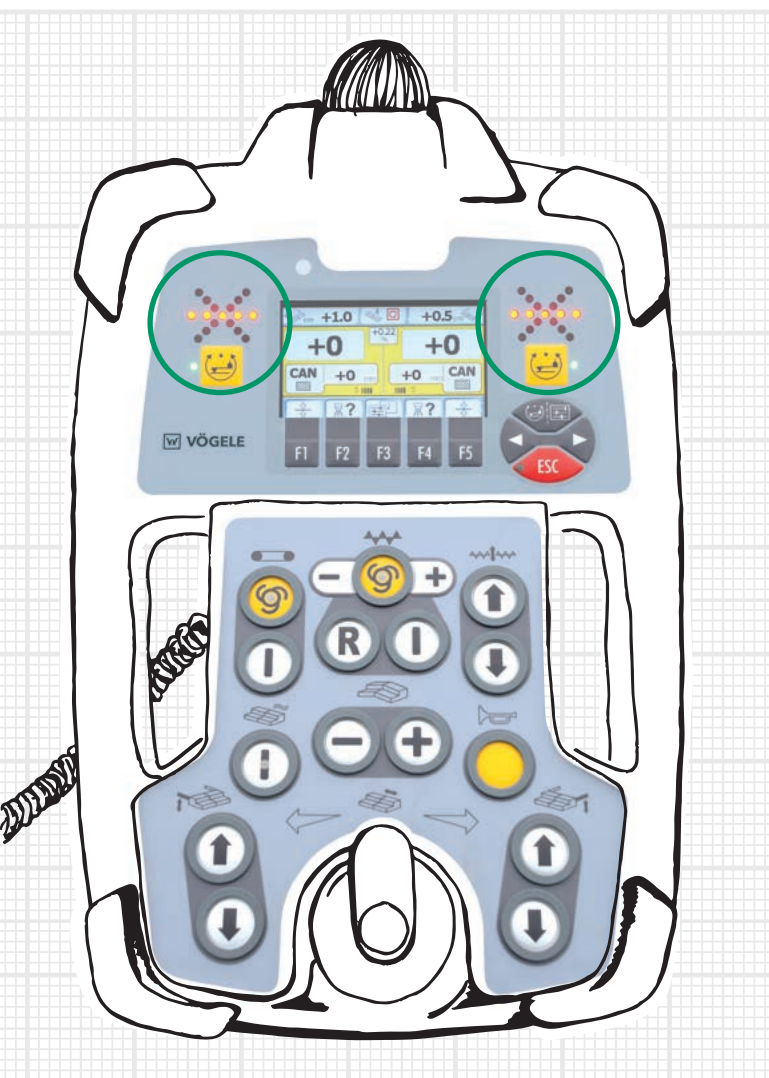
**Total concentration on the job site:
the VÖGELE System for Automated
Grade and Slope Control improves
evenness and above all operating
comfort for the screed operator.**

— 8
—
— 7
—
— 6
—
— 5
—
— 4
—
— 3
—
— 2
—
— 1
—
— 0
—
— -1
—
— -2
—
— -3
—
— -4

Advantage 2

High-tech and intuitive: Integrated in the ErgoPlus 3 operating system

Another advantage that helps paving teams worldwide get ahead is the remarkably simple control of the VÖGELE System for Automated Grade and Slope Control via the ErgoPlus 3 screed consoles. In other words, there is no need to have a separate, external control unit just for the automated grade and slope control system, as is so often the case with other manufacturers. As a result, screed operators are in a position to quickly understand and safely operate Niveltronic Plus with all its critical functions. No additional instruction or training is required. Furthermore, all pavers in the "Dash 3" series, starting with the Compact Class, incorporate Niveltronic Plus - and all have the same range of functions.



Giving screed operators confidence: LED crosses on the screed console

The red LED crosses on the left and right indicate if there is any deviation from specified values.

.....
Actual value = Specified value

.....
Actual value < Specified value

.....
Actual value > Specified value

The two yellow buttons on the left and right are used to activate or deactivate Niveltronic Plus on the respective side of the screed. When activated, the start page of the automated grade and slope control system is displayed as standard.



Total control in every paving situation

On the ErgoPlus 3 console, all push-buttons are easily identifiable by touch even when wearing work gloves. Once a button is pressed, off you go. That is due to the "Touch and Work" principle. In other words, a function is executed directly – without a need to confirm. On the high-contrast, clearly legible colour display, all functions relating to grade and slope control are shown on menu level 1 so they can be quickly read and changed.

When the ErgoPlus 3 screed console was developed, the aim was to make the work of screed operators as simple as possible. After pressing the F3 key, the following settings can easily be made: calibrate sensors, select sensor sensitivity and set display brightness. >>>



“

Anyone who has worked with ErgoPlus appreciates the integration of the grade and slope control system into paver operation. It doesn't get any simpler!

Caiyong He, Screed Operator
Kunming Tongtu Road Construction Co., Ltd.

”

Reliable operation: The pave width can be set sensitively and precisely using the SmartWheel on the ErgoPlus 3 screed consoles. Niveltronic Plus then automatically regulates the grade.

1.

F2 F4

Connect sensor

Before commencing paving, position the sensor and plug it into the screed console. Niveltronic Plus automatically recognizes the type of sensor connected. Switch between connected sensor types using the F2 and F4 keys.

3.

F1 F5

Quick Set-Up

By pushing the keys for Quick Set-Up for the right and left sides of the screed, the screed operator defines the entered values made for the screed's tow point rams as specified values.

2.

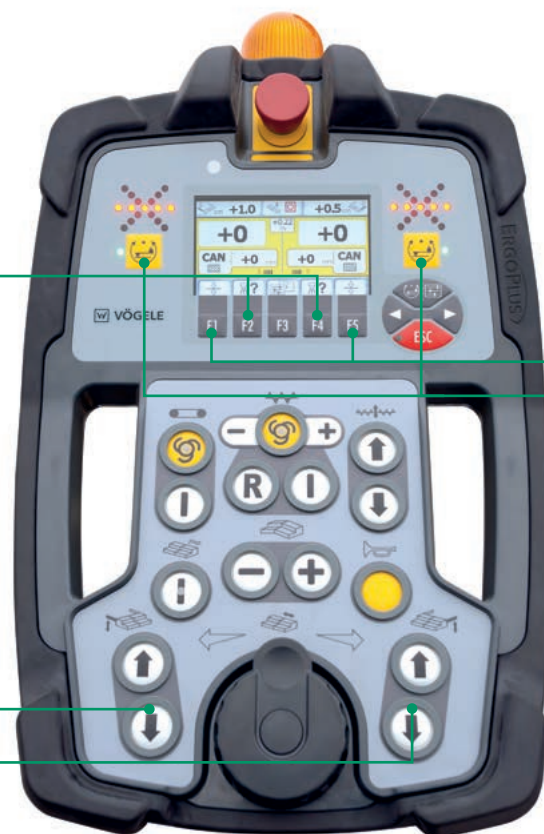
**Adjust tow point rams**

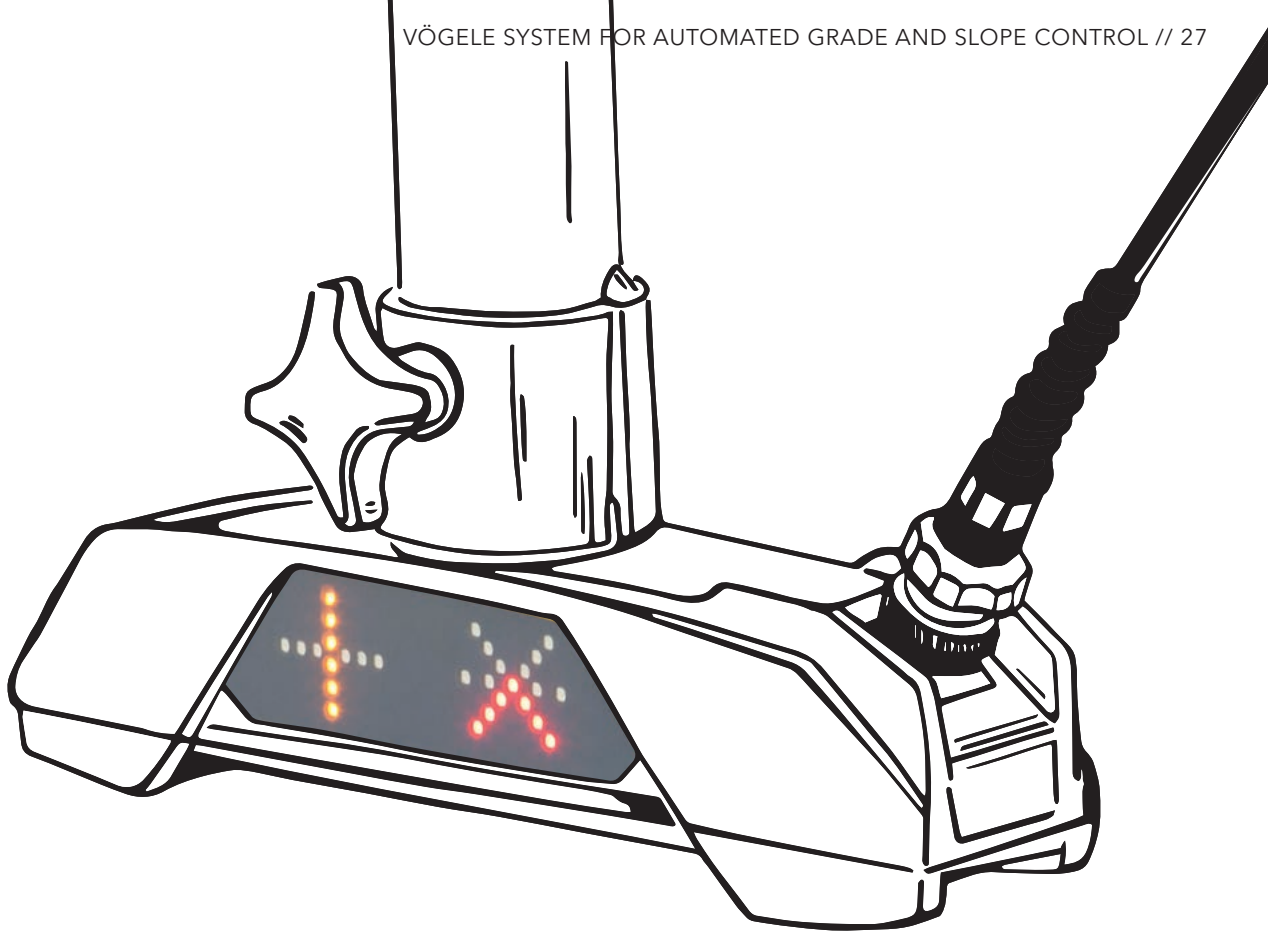
On his console, the screed operator sets the screed's tow point rams to the desired layer thickness.

4.

**Activate Niveltronic Plus**

All that remains to be done is to push the button that activates Niveltronic Plus, and paving can begin.





Advantage 3

Plug & Play: Connect sensor and adjust with push-buttons

When things get hectic at a job site, Niveltronic Plus helps out with yet another practical advantage: Quick Set-Up. Pushing the F1 key for the left side of the screed or F5 for the right activates the Quick Set-Up function. It defines the actual value currently picked up by the sensor as the new specified value for grade or slope control. When grade and slope control is activated, the specified value for the sensor for grade and slope control can be adjusted on the respective side using the arrow keys. Even setting up the grade and slope control sensors is easy and convenient – it takes only four, simple steps thanks to the “Plug & Play” principle. ///

In the next edition of RoadNews: VÖGELE sensors for grade and slope control

For maximum precision, VÖGELE offer a number of different mechanical, acoustic and optical sensor systems for Niveltronic Plus and Niveltronic Basic to help road construction companies achieve absolute precision in every paving situation imaginable. Learn more in the next edition of RoadNews – in particular all you need to know about the new Big MultiPlex Ski for perfectly levelling extended irregularities.

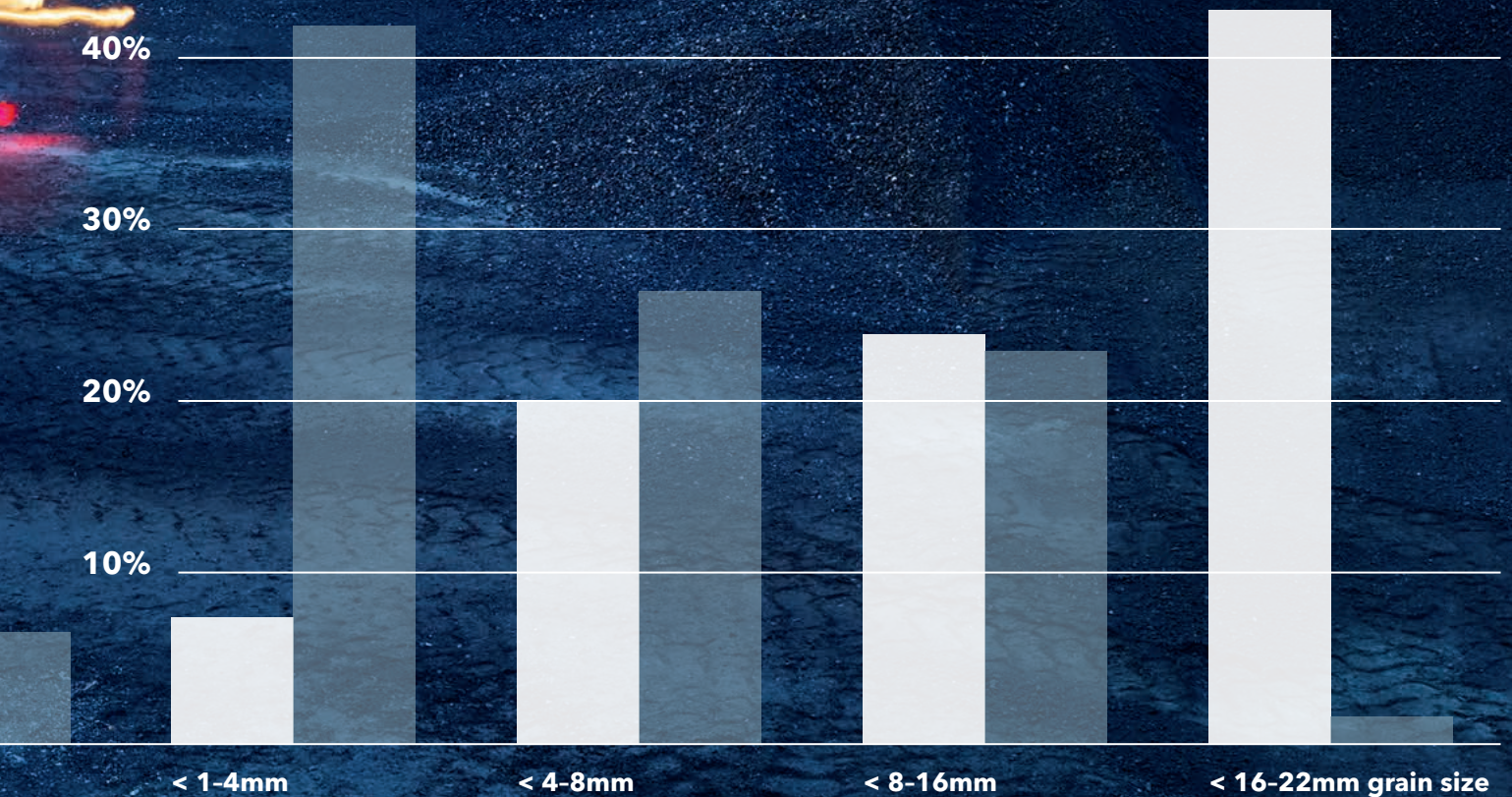


Turning old roads into hard cash

The BENNINGHOVEN MBRG 2000 granulator helps customers earn back costs by turning old roads into new raw materials.



< 1mm



Granulator

Crusher

MBRG 2000 granulators: A matter of "coarse"

Coarse instead of fine: The BENNINGHOVEN MBRG 2000 granulator has a clear advantage over crushers, especially when it comes to the largest grain size of < 16-22mm. It also generates significantly fewer fines, which frequently have to be disposed of at high cost.



“

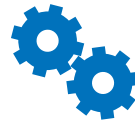
**The BENNINGHOVEN
MBRG 2000 makes it
possible to recycle
old asphalt 100%.**

Ralf Port, Product Manager
BENNINGHOVEN

”

Increases quality and performance in one-man operation: The highly efficient BENNINGHOVEN MBRG 2000 granulator runs autonomously.

The principle is plausible and highly lucrative: recycling not only saves on limited raw materials, it also significantly reduces costs while increasing efficiency. One of the leaders in this kind of approach is the mobile BENNINGHOVEN MBRG 2000 granulator, which grinds asphalt layers removed by a cold milling machine or asphalt blocks dug out by an excavator, for instance. (Read more about the new WIRTGEN W 215 milling machine on page 36.) What is special about the granulator is its very careful grinding method: blocks with an edge length of up to 1.8m are broken down into their individual components without destroying the original grain structure of the material.



Careful grinding for 100% reuse

This method creates the ideal basis for the 100% reuse of reclaimed asphalt pavement (RAP material). Classified grain sizes greatly increase the quality of the ground asphalt, because the more carefully the granulate is processed, the less white mineral (new material) needs to be added during the preparation process in the asphalt mixing plant, and the more RAP can remain in the cycle. As much as 100% of the material ground by the BENNINGHOVEN MBRG 2000 can be reused. The reason lies in the unique technology with its gentle grinding process: in the first grinding stage, the asphalt blocks are broken down into smaller pieces by tampers and pressed down onto a milling shaft that further grinds the asphalt, generating an output of 0-70mm. A magnetic separator then removes any residual iron fractions and the material is broken down into various grain sizes by the secondary granulator shafts, which have hard cast lug shells. The result is that very few fines are produced.

MBRG 2000 protects asphalt mixing plants

Together, these are major advantages, particularly in view of the potential damage that can be caused to an asphalt mixing plant. The absence of fines minimizes the sticking of material and the clogging of the transport paths and parallel drums. The parallel drums are fundamental components of an asphalt mixing plant when it comes to recycling. Thus, with the MBRG, customers reap benefits in every respect and can process 200t/h of RAP material into new mix. Various RAP feed rates are possible depending on the recycling technology of the asphalt mixing plant and the formula for the mix. Thanks to its wheeled chassis, the granulator can also be quickly moved to different sites where the asphalt mixing plants are located. In other words, it offers the ideal prerequisites for turning old roads into hard cash! ///



Retrofit with EVO JET: A burning passion for greater cost-efficiency

BENNINGHOVEN are the global leader in combustion equipment, both in terms of market shares and technology.

Accordingly, the efficient and flexible EVO JET burner is highly attractive to asphalt mixing plant operators, especially as a retrofit solution that can be used in any make of asphalt mixing plant.

**BENNINGHOVEN EVO JETs
are the ultimate in combustion
technology worldwide.
Over 100 customers in China
are already benefitting from it.**

**Peter Koltes, Head of Combustion Technology
BENNINGHOVEN**

”

Much like the engine of a jet plane, the burner is the heart of an asphalt mixing plant. With one important advantage: a burner can easily be updated and replaced regardless of the make of the plant, increasing flexibility, performance and quality. What is more, it helps plant operators to generate greater profit from their investment. This is where BENNINGHOVEN come into play. »»



The EVO JET delivers top performance, broken down into various capacity classes ranging from 5.9 to 35.6MW.

Close to our customers: BENNINGHOVEN are a member of the WIRTGEN GROUP

BENNINGHOVEN are the newest member of the WIRTGEN GROUP. The product brand for asphalt mixing plants, combustion technology, asphalt granulators and mastic asphalt technology has been active in China for many years.

Their integration into the WIRTGEN GROUP delivers decisive advantages for customers and users:

- › A solid presence in China through the WIRTGEN GROUP's Langfang and Hong Kong sales and service companies
- › Specialists can respond quickly to requests for service throughout China

Retrofit in Hong Kong: BENNINGHOVEN replace both burner and rotary dryer in an asphalt mixing plant.



BENNINGHOVEN are the world market leader in combustion technology

Burners for asphalt mixing plants from the world market leader are the ultimate in combustion technology. When existing plants need to be modernized or upgraded for greater cost-efficiency or flexibility, EVO JET burners are the retrofit solution of choice. As the high-tech “hearts” of a plant, they reliably deliver optimum drying results and guarantee maximum mix quality.

Unique advantage: Combination burner for four fuel types

Powering up existing asphalt mixing plants with an EVO JET retrofit is worthwhile in two respects: both economically and ecologically. The system’s maximized energy efficiency with top combustion values is based on state-of-the-art control and frequency converter technology. Furthermore, it offers the unique advantage worldwide of being able to run on up to four different types of fuel. Depending on the burner model, and on which fuel currently has the lower price or better logistical availability in the market, everything from oil (in various forms, such as heavy fuel oil) to natural and liquid gas, all the way to solids like coal dust, can be used as fuel. At the push of a button, EVO JET burners

can easily and significantly minimize the high costs resulting from price fluctuations, delivery bottlenecks and downtimes.

EVO JET burners in five capacity classes

The perfect interplay between technology, experience and science: retrofitting avoids complete replacements because it is based on cost-saving upgrades or modifications. It makes sense because asphalt mixing plants have a long service life of up to 40 years, but technology makes tremendous advancements during such periods. BENNINGHOVEN therefore offer the option of retrofitting virtually all plants with the EVO JET, which they manufacture in-house. Over 100 customers in China alone are already benefitting from BENNINGHOVEN’s decades of global experience, their continuous investments in research and development and their ultra-high level of quality. Thanks to its modular design, all components of the EVO JET are easily accessible. Maintenance is also exceedingly simple thanks to the burner’s installation on a chassis. In the five different capacity classes from 5.9 to 35.6MW, the burner delivers only as much power as is needed for the drying process, while the innovative silencer minimizes noise and optimizes combustion efficiency. ///

Professional top performer

WIRTGEN large milling machine W 215 sets new standards
in road rehabilitation in China.



The milling drum forcefully penetrates the 25cm-thick pavement. Moments later, the old pavement lies on the loading conveyor of the new 2m high-performance milling machine, broken down into its components. The lorry is ready and waiting. >>>





With the W 215, we can create an excellent basis on which to pave the new cement-treated base and asphalt surfacing. And the operating costs are low, too.

**Wang Weibo, General Manager
Kunshan Feituo Construction Engineering Co., Ltd.**

Quick and reliable

Wang Weibo keeps a close eye on the process, his gaze fixed on the milling drum housing, behind which the milling drum is continually producing new milled material. A few seconds later, the W 215 moves on, revealing the freshly milled surface. Wang Weibo takes a satisfied look at the results: "The productivity of the new WIRTGEN large milling machine is impressive. It surpasses our expectations," says the General Manager of Kunshan Feituo Construction Engineering Co., Ltd. Turning back toward the machine, he sees the lorry already leaving the job site, filled to the brim with milled material.



Intelligent machine management system: Milling output up, costs down

This morning, the milling machine advances metre by metre along the main traffic route in Taicang. Many heavy goods vehicles transporting timber for the local industry, have caused serious damage to the road pavement. There was no other option than to rehabilitate the carriageway in both directions across a width of 18.5m on each side. This meant that the work had to proceed quickly. Another key objective was to increase the durability of this important road in the east of the People's Republic of China. High productivity and quality – this is just what the new flagship on the Asian market was designed for. “With the W 215, we can create an excellent basis on which to pave the new cement-treated base and asphalt surfacing. And the operating costs are low, too,” says Wang Weibo. »»



Job site details

Rehabilitation of the main traffic route in Taicang,
District of Suzhou City, Jiangsu province

Length of section:	13km
Width of section:	18.5m in each direction

Working parameters

Milling depth:	250mm
Milling width:	2,000mm

Material

Asphalt
Cement-bound base material

Equipment

WIRTGEN W 215

Cutting technology

Milling drum:	FB 2000 HT22 LA 18 FCS
Point-attack cutting tools:	148 point-attack cutting tools of type W6/20X

”

The W 215 can be operated intuitively thanks to its clearly arranged controls.

Cao Dianjun, Milling Machine Operator
Kunshan Feituo Construction
Engineering Co., Ltd.

”

Improved surface quality with LEVEL PRO PLUS

Newly developed by WIRTGEN and completely integrated in the machine management, the LEVEL PRO PLUS levelling system creates a particularly even milled surface. In this case, fewer interfaces mean shorter signal paths within the control systems and shorter response times between those interfaces. This makes for an efficient and precise levelling process. The preset target milling depth, which is accurately controlled by robust displacement sensors in the hydraulic rams on the side plates, is shown on a high-resolution colour display. This provides the operator with all the requisite information on the levelling process, enabling him to control the milling depth precisely from the operator's stand.



Engineered by experts

The large milling machine has a high engine output of 470kW. Thanks to the intelligent interlinking of the most important machine functions - diesel engine, traction drive, milling drum drive, conveyor drive, water system and the LEVEL PRO PLUS levelling system - the WIDRIVE machine management system ensures a high milled area performance. As soon as the operator moves the drive lever, WIDRIVE is switched on and assumes the automatic speed control of the diesel engine and the traction drive. When milling work begins and the milling drum is lowered into working position, the machine management system switches to the engine's operating speed with no need for manual execution of the function.

At the end of the section to be milled, the speed is automatically lowered. This automated function, along with the automatic adaptation of the idling speed when required, reduces noise levels.

Built for professionals

Milling machine operator Cao Dianjun is thrilled with the smart machine management concept, as it eliminates around half of the manual interventions formerly required for him to control the machine and coordinate the individual work steps in the milling process: "And thanks to the clearly arranged controls, the W 215 can be operated easily and intuitively." »»



W 215 - At home with every application

Since it was first unveiled at Bauma China 2016, the WIRTGEN high-performance milling machine has been setting new standards in terms of productivity, economic efficiency and flexibility – and not just on the job site in Taicang. When it milled off 4-6cm-thick asphalt layers on a 60-km stretch of the G45 Expressway in Hebei province or when it completely removed the pavement to a depth of 28.5cm on a country road near Lanzhou, the W 215 provided the right solution for every application. When milling off concrete in the mountains of Fengdu, Asia's flagship even tackled steep inclines. Removing a 6-9cm-thick asphalt course followed by a 1cm concrete foundation? No problem for the high-performance milling machine.



For more information on WIRTGEN W 215 see:
www.wirtgen.de/W215video-en

25% higher milling output - 20% lower tool costs - 15% less fuel

Besides ample horsepower, the milling performance is of crucial importance for a high daily performance on the job site. With this in mind, the 2m high-performance milling machine is equipped with "Delta18", a new milling drum technology, specially developed by WIRTGEN to cater to the high performance requirements made on large milling machines. The W 215 achieves an even higher milling output due to the optimized arrangement of the cutting tools in the outer ring and in the conveying and ejecting areas of the milling drum. Thanks to the additionally selectable milling drum speeds, the machine operator can also set the appropriate speed for the application directly from the operator's stand using a selector switch. This ensures that even when dealing with widely varying requirements, the ideal milling output can be achieved by means of a direct intervention in the milling process. For instance, in Taicang, Cao Dianjun selected the low engine speed of 1,600rpm, sufficient for the complete removal of the pavement. This speed guarantees a maximum milling output while reducing tool wear and fuel consumption per cubic metre milled. The milling machine operator can continually monitor just how economically the W 215 is working: "I can always see the current fuel consumption on a display."

Flexible Cutter System Light: High machine utilization cuts operating costs

On the subject of economic efficiency: this high-HP performance class has a particularly varied range of applications, and these powerful machines are hence designed for flexible use. WIRTGEN included the Flexible Cutter System Light, or FCS Light for short, in the standard equipment of the W 215 to boost machine utilization, increasing the economical operation of the large milling machine. Milling drums with different line spacings can be changed quickly as a result, so that a range of different milling tasks can be carried out by the same machine. The 2m high-performance milling machine can thus be used for a very varied range of applications, from standard jobs through to fine milling for the creation of new, level carriageway surfaces and combination with the so-called Eco Cutter for particularly high milling outputs.

In Wang Weibo's view, WIRTGEN's overall package is perfect. "With the W 215, we have even been able to surpass the expected 25% boost in milling output, raising it by an additional 5%." As he surveys the main road in Taicang, the General Manager comes to a positive conclusion about the rehabilitation work: "The economic efficiency of the machine and the milling results just speak for themselves." ///



New SUPER pavers pave the way to Songming





Two new cutting-edge VÖGELE SUPER 1880-3 L tracked pavers fitted with the AB 600 Extending Screed are delivering a top performance in the construction of a new 8km-long section of the Songkun Highway.



Yunnan // Kunming

The emerging economy and the resultant increase in traffic volumes make new roads and transport routes absolutely essential in the urban area of the 7-million-strong city of Kunming. The new SUPER 1880-3 L is tailor-made for new construction projects like these. Two of the new VÖGELE tracked pavers operated by the Chinese company Kunming Tongtu Road Construction Co., Ltd. are proving their prowess in the building of a new 8km-long section of the Songkun Highway. The new Songkun Highway is one of the main transport arteries between Songming and Kunming and also serves as a link to one of China's biggest airports – Kunming-Changshui Airport. The new section will greatly reduce congestion and ease traffic in the area. The greatest challenge in the construction project is building several carriageways on virgin ground – achieving a consistent quality and perfect evenness. >>>



The two SUPER 1880-3 L pavers worked in perfect synchrony to place the 145,000t of asphalt mix used for the paving. That equates to up to 600t per hour of operation. The maximum laydown rate of the VÖGELE tracked paver is 1,000t/h.

145,000t



Job site details

Construction of a new 8km-long section of the Songkun Highway between Songming and Kunming, Yunnan

Length of section: 8km
 Width of section: Main highway: 2 x 16m
 Parallel secondary road: 2 x 9.5m

Working parameters

Paved material quantity: 145,000t (approx.)
 Pave width: 2 x 8m "hot to hot"
 (main highway)
 Pave speed: 4-5m/min

Layer thickness
 Surface course: 4cm
 Binder course: 6cm
 Base course: 8cm

Material

Surface course: AC 13
 Binder course: AC 20
 Base course: AC 25

Equipment

2 VÖGELE SUPER 1880-3 L pavers
 with AB 600 TV Extending Screed
 and AB 600 TP1 Extending Screed
 3 HAMM HD 128 tandem rollers

”

**I greatly appreciate
the tremendous
cost efficiency
and productivity it
brings - and my team
loves the simple
and easy operation.
The SUPER 1880-3 L
is a real high-tech
machine.**

**Jun Wu, Vice President
Kunming Tongtu Road Construction Co., Ltd.**

”





Evenness is crucial for pavement quality

When it comes to quality in road construction, the evenness of the surface is a key criterion. The term evenness refers to a uniformly levelled asphalt surface – regardless of whether it is to be perfectly flat or, as is more often the case, the surface is to have a defined crossfall. If they are to meet the requirements on evenness, paver and screed operators must be able to rely fully and entirely on their machine technology, particularly on grade and slope control. The new SUPER 1880-3 L tracked paver counts on the VÖGELE Niveltronic Plus System for Automated Grade and Slope Control. Jun Wu, Vice President of the building contractor Kunming Tongtu Road Construction Co., Ltd., is a firm believer in the technology: “With Niveltronic Plus, you can pave perfectly even asphalt surfaces at the press of a button.”

For more about the VÖGELE Niveltronic Plus System for Automated Grade and Slope Control, read the technology article starting on page 20.

Maximum stability across a pave width of up to 10m: AB 600 Extending Screed

Needless to say, the machine technology must act in concert with the grade and slope control systems if the resultant surface is to be perfectly level. And this is especially true of the screed. The two new SUPER 1880-3 L pavers used in the construction project in Yunnan province are fitted with extending screeds of type AB 600. “The VÖGELE screeds are very stable and deliver stunningly precise work,” reports Jun Wu. That is down to the robust guiding system with the infinitely variable single-tube telescoping system. It stabilizes the screed even when paving across large widths, since each tube section is extended by no more than half, even when the screed is operating at maximum width. >>>

ErgoPlus 3: The operating concept of the “Dash 3” generation

The VÖGELE operating concept puts the focus on the operator, making complex technology easy to use and thereby preventing paving errors.

On the ErgoPlus 3 console, all push-buttons are easily identifiable by touch even when wearing work gloves. Once a button is pressed, off you go. That’s due to the “Touch and Work” principle. The VÖGELE Niveltronic Plus System for Automated Grade and Slope Control is also integrated into the operating concept of the SUPER pavers of the “Dash 3” generation.

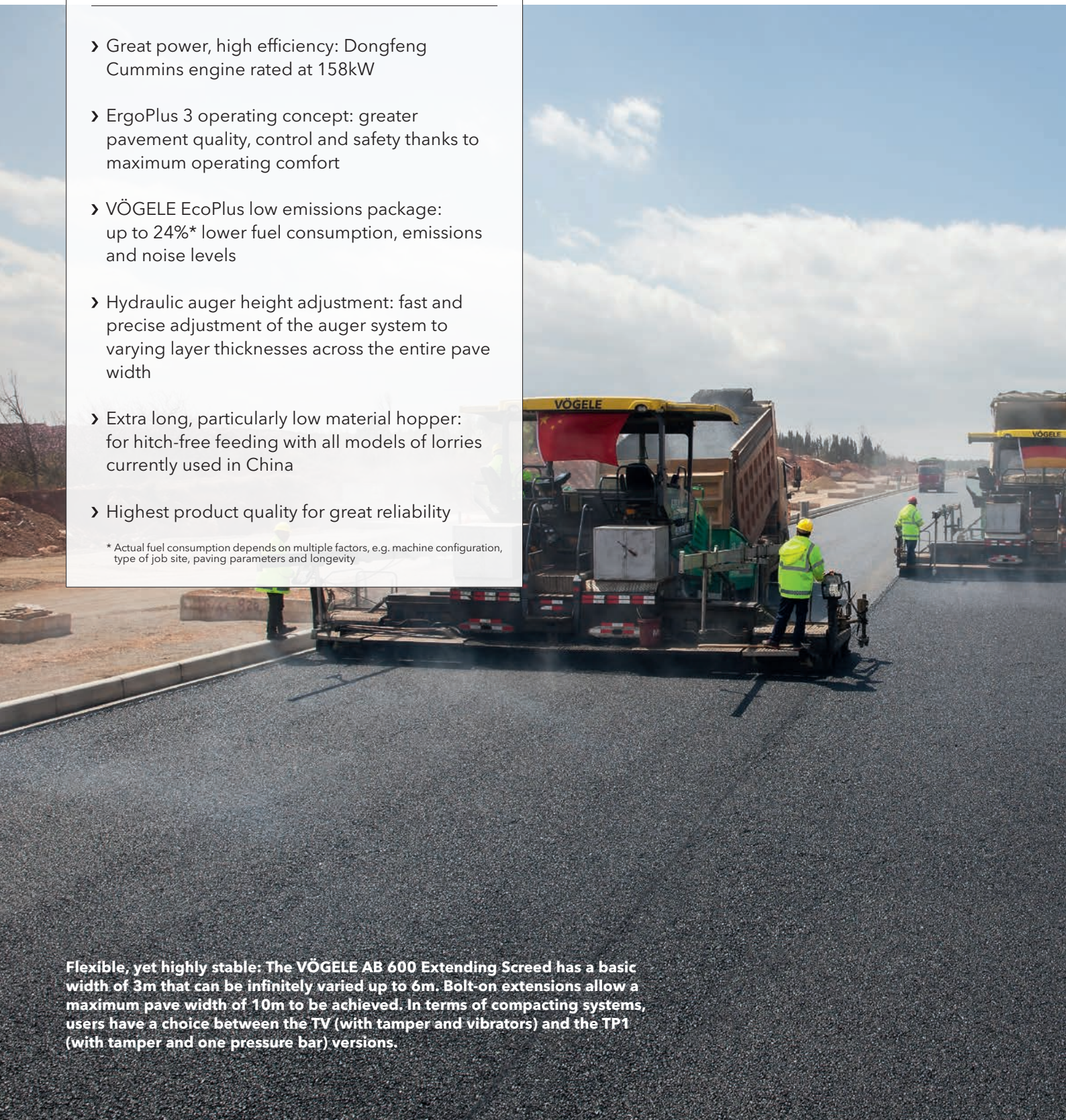


Highlights of the SUPER 1880-3 L high-grade asphalt specialist

- › Great power, high efficiency: Dongfeng Cummins engine rated at 158kW
- › ErgoPlus 3 operating concept: greater pavement quality, control and safety thanks to maximum operating comfort
- › VÖGELE EcoPlus low emissions package: up to 24%* lower fuel consumption, emissions and noise levels
- › Hydraulic auger height adjustment: fast and precise adjustment of the auger system to varying layer thicknesses across the entire pave width
- › Extra long, particularly low material hopper: for hitch-free feeding with all models of lorries currently used in China
- › Highest product quality for great reliability

* Actual fuel consumption depends on multiple factors, e.g. machine configuration, type of job site, paving parameters and longevity

Flexible, yet highly stable: The VÖGELE AB 600 Extending Screed has a basic width of 3m that can be infinitely varied up to 6m. Bolt-on extensions allow a maximum pave width of 10m to be achieved. In terms of compacting systems, users have a choice between the TV (with tamper and vibrators) and the TP1 (with tamper and one pressure bar) versions.





AB 600 Extending Screed: A variety of compacting systems to choose from

The AB 600 Extending Screed covers a wide field of applications, handling pave widths from 3m to 10m. This VÖGELE screed can be combined with all SUPER pavers featuring a basic width of 2.55m or 3m. Depending on the paver type, it can also be equipped with a variety of compacting systems: in addition to the TV version with tamper and vibrators, the high-compaction TP1 version with tamper and one pressure bar is also available. There is another highlight of the AB 600 Extending Screed that plays a major role in delivering outstanding surface quality: the electric screed heating.

High quality: "Hot to hot" paving

On the job site, the two SUPER 1880-3 L pavers were fitted with a AB 600 TV and a AB 600 TP1 Extending Screed. The paving work was carried out "hot to hot" over a total width of 16m in each direction on the main highway. This also enabled the pavers to create the optimum working conditions for the HAMM HD 128 rollers that were used for final compaction. The machine technology of the WIRTGEN GROUP thus joined forces to ensure that the quality of the asphalt pavement and the surface were impressive.

Cutting-edge SUPER 1880-3 L asphalt specialist is a sensation

Not only were the paving team of Kunming Tongtu Road Construction Co., Ltd. thrilled with the paving results and the perfect evenness, but also with their new SUPER 1880-3 L high-grade asphalt specialists. A German-Chinese engineering team from VÖGELE developed the cutting-edge tracked paver specifically for the Chinese market. "Our new SUPER 1880-3 L will meet our needs perfectly. Especially in terms of performance, with a maximum laydown rate of 1,000t/h. VÖGELE technology is absolutely first class," says Project Manager Wei Su. ///



Job site details

Construction of the new 7km-long Xichen Road between Xipu and Chencheng, Fujian

Length of section: 7km
Width of section: 2 x 12m

Working parameters

Pave width: 2 x 6m
"hot to hot"

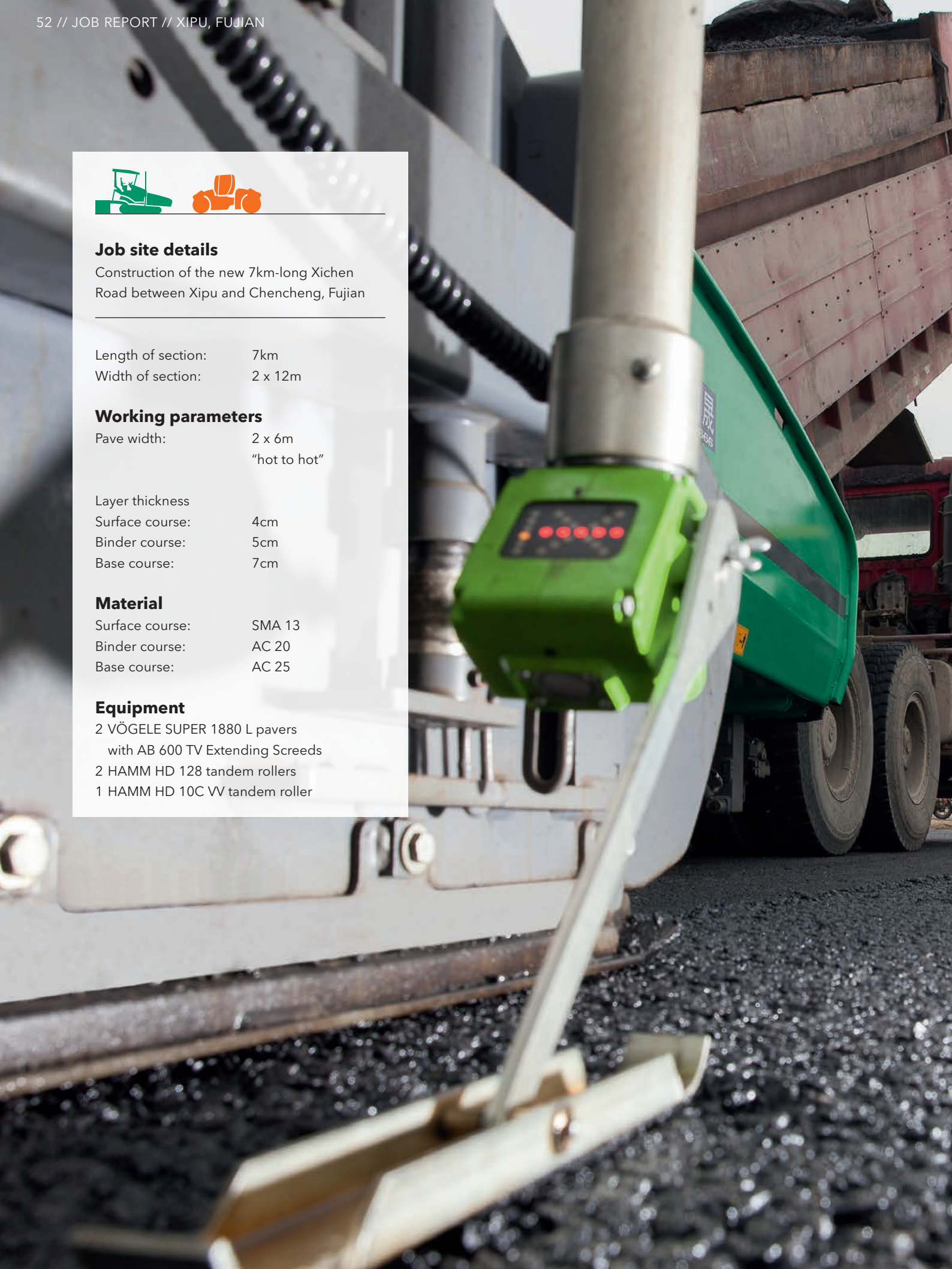
Layer thickness
Surface course: 4cm
Binder course: 5cm
Base course: 7cm

Material

Surface course: SMA 13
Binder course: AC 20
Base course: AC 25

Equipment

2 VÖGELE SUPER 1880 L pavers
with AB 600 TV Extending Screeds
2 HAMM HD 128 tandem rollers
1 HAMM HD 10C VV tandem roller



"The SUPER 1880 L is a real workhorse."

Robust, powerful, reliable: two new SUPER 1880 L pavers do a sensational job of constructing the new Xichen Road from Xipu to Chencheng. The multifunctional pavers for cement-treated base course material and asphalt are suitable for all layers - from the base course to the surface course.



High achievers: With their 158kW diesel engines and a laydown rate of 1,000t/h, the two SUPER 1880 L pavers are a match for even the toughest of challenges.

Dongshan Island

Xipu

“

The technology of the SUPER 1880 L is better than anything we have ever used before. We were especially impressed by the ErgoBasic operating concept.

**Mr Shang, Equipment Manager
Fujian Qiangsheng**

”



Fujian // Xipu

“The SUPER 1880 L is our first WIRTGEN GROUP machine. I am particularly impressed with the tremendous performance. This paver is making a stir on the market,” says Shang Yiheng, Equipment Manager at Fujian Qiangsheng. That is hardly surprising, given that the new VÖGELE SUPER 1880 L and SUPER 1880-3 L pavers were specifically tailored to the demands of the Chinese market. They were produced in the WIRTGEN GROUP’s local production facility in Langfang. The SUPER 1880 L, a multifunctional paver for cement-treated base and for asphalt, showed off its outstanding qualities on the Xichen Road when it placed every layer – from the 7cm-thick base course right through to the 4cm-thick surface course consisting of stone mastic asphalt, a material that makes high demands on paving.

A 158kW powerhouse

The SUPER 1880 L comes with a powerful 6-cylinder Dongfeng Cummins diesel engine, which delivers 158kW of power to the road. The highly efficient drive concept ensures that costs are cut thanks to the low fuel consumption. In ECO mode, which delivers ample power for the majority of applications, the engine operates particularly economically by reducing the speed from 2,000 to 1,700rpm. This simultaneously reduces emissions. The separate cooling systems for hydraulic oil, engine coolant and air allow the latest-generation engine to keep the temperature at the optimum level. This ensures that the paver can deliver a top performance in every climate zone and helps to prolong the life of the machine. The SUPER 1880 L pavers are thus ideally powered for the job site on the Xichen Road project, too.



Fast and effective: VÖGELE screeds are heated electrically

"The evenness we achieve with this machine is outstanding. With the easy-to-use Niveltronic Basic System for Automated Grade and Slope Control, screed operators are always in full control of the paving process," says Mr Shang. The reason for this lies in the system's integration into the ErgoBasic operating concept. But besides grade and slope control, the screed, of course, is crucial for the evenness. This is where the AB 600 TV Extending Screed comes into its own – even when tackling varying pave widths. Another highlight of the AB 600 TV also plays a key role in delivering outstanding surface quality: the electric screed heating. This system heats all areas of the screed that come into contact with material, such as the tamper and the screed plates, helping to prevent material from sticking. ///

SUPER 1880 L: Multifunctional paver for cement-treated base and asphalt

- › Great power, high efficiency: Dongfeng Cummins engine rated at 158kW
- › ErgoBasic operating concept: super-easy paver and screed operation and excellent overview of the entire machine and job site
- › Heavy-Duty kit: reinforced guards for the conveyor tunnel and chassis as well as modified auger blades counteract abrasive wear
- › SB 300 HDT Fixed-Width Screed: with Heavy-Duty kit and Heavy-Duty tamper – ideal for paving CTB – as well as electric screed heating for rapid warming of the screed plates when paving asphalt
- › Extra long, particularly low material hopper: compatible with all models of lorries currently used in China
- › Highest product quality for great reliability and durability



KLEEMANN close the cycle



Breaking new ground in Luoyang: mobile screening and crushing plants from KLEEMANN can process 95% of rubble for recycling. Thanks to three, precisely classified fractions, the recycled material can subsequently be directly reused as an aggregate for concrete.



Feed capacity 500t/h (approx.)

Feed material 0-40mm

Final product 0-5mm
5-10mm
10-20mm
> 20mm

Feed capacity 350t/h (approx.)

Feed material 31.5-600mm

Final product 0-40mm

MS 19 D classifying screen

MR 110 Z EVO2 impact crusher



Henan // Luoyang

The Chinese economy has been growing steadily for years. One of the drivers of this development is the construction industry. Not only are many new buildings being erected, but tremendous volumes of rubble are also being generated. In densely populated regions, construction rubble today makes up 30-40% of total waste. These were good reasons for the government in Luoyang to promote technologies and industries specialized in recycling. Recycling construction rubble and thus reducing stockpiling and transport to local landfills reduces the pressure on the minimal space available for residential building and infrastructure projects. This step, at the same time, closes the cycle, because the material can be re-used in new projects. >>>

Feed capacity 400t/h (approx.)

Feed material 0-600mm

Final product 0-10mm
10-31.5mm

MS 15 Z scalping screen



Job site details

Pilot project for recycling construction rubble in Luoyang, China

Material

Feed material:
Brick and reinforced concrete

Feed size:
0-600mm

Final products:
Classified grain sizes
0-5, 0-10, 5-10, 10-20, 10-31.5
and > 20mm

Equipment

Linked combination of plants
comprising 3 mobile screening and
crushing plants:

MOBISCREEN MS 15 Z
with two screen decks for prescreening

MOBIREX MR 110 Z EVO2
for crushing rubble

MOBISCREEN MS 19 D
with three screen decks for classifying
grain sizes

Breakthrough and new horizons thanks to KLEEMANN

Luoyang Zhongye Heavy Industry Machinery Co., Ltd. have succeeded in demonstrating the great social and financial benefits of recycling. Originally a brick manufacturer, the company today operates in five different business segments. After merging with a local construction contractor, Luoyang now cover the entire recycling process for construction rubble and plan to grow this segment in future. A total of 3 mobile screening and crushing plants from KLEEMANN play a crucial role in this plan. The decision to invest in these machines was prompted by the robustness, reliability and longevity of the plant technology, and their outstanding performance and efficiency. What is more, the machines can be used flexibly at changing locations thanks to their transport-friendly design. The plants are therefore available directly on site for recycling tasks.

Prescreening optimizes the recycling process

The material to be recycled mainly comprises brick and reinforced concrete. As it has a fines content of 30-40% after demolition, a scalping screen is used for prescreening. This increases the efficiency of the crushing process. Only oversize grain continues through to the crushing plant, the fines are not led through the system. The result is a high throughput rate combined with low wear costs.

These plants work together as follows: the feed material of 0-600mm in size is sent to the MOBISCREEN MS 15 Z for prescreening. The upper deck of the scalping screen is equipped with a punched plate, which is particularly ideal for processing sandy material. The fine material of 0-10mm is free from contamination, e.g. wood, and can go directly to further processing. The 10-31.5mm grain is removed by way of the medium grain conveyor and the oversize grain of 31.5-600mm transported to the mobile impact crusher.

The MOBIREX MR 110 Z EVO2 impact crusher has a double-deck prescreen (a punched plate with 40mm in the upper deck and a false bottom in the lower deck). The fine grain is fed via the crusher bypass directly to the discharge conveyor, without passing through the crusher. Only the oversize grain is crushed as a result, which reduces wear of the impact crusher.

The crushed material is then transferred together with the prescreened material to the MOBISCREEN MS 19 D mobile classifying screen, where three precisely classified fractions are collected - 0-5mm, 5-10mm, 10-20mm and > 20mm - which are ideal for processing into new material.





Prescreening with the MOBISCREEN from KLEEMANN: Advantages at a glance

- › The scalping screen – in this case a MOBISCREEN MS 15 Z screening plant – effectively removes the fines
- › As a result, only the oversized grain is crushed in the subsequent crushing stage
- › This increases the output and reduces wear in the downstream processing stages, particularly in the MOBIREX MR 110 Z EVO2 impact crusher
- › A worthwhile investment: using a scalping screen reduces the cost of processing recycling material

The future has already begun in Luoyang

The pilot project is running successfully for Luoyang Zhongye Heavy Industry Machinery Co., Ltd. Based on the high demand, the company expects it will need 12 more mobile and stationary machine sets over the next few years to process residual construction materials. ///



Luoyang will have 50 million tonnes of rubble on its hands in the next five years. We therefore want to play a pioneering role in rubble recycling.

**Yanan Zhang, Chairman of the Board of Management
Luoyang Zhongye Heavy Industry Machinery Co., Ltd.**



The key to greater safety

Lock & Turn, the safety system from KLEEMANN, ensures that MOBIREX EVO2 impact crushers can now be serviced without risk.

The rotor of an impact crusher must be easily accessible in order to change highly stressed wear parts, such as rotor ledges, or to eliminate any material blockages. KLEEMANN have introduced Lock & Turn, a safety system for the MOBIREX EVO2 impact crusher, which minimizes the risk of accidents by securely locking the 4t rotor in every position during maintenance work.

Superior safety concept

This system is superior to previous safety precautions, as the rotor can now be turned manually without the machine operator entering the hazard zone. Safety and convenience have improved as a result.

Lock & Turn: Step-by-step to greater safety



1 // Execute the "Lock rotor" command on the touch panel.



2 // This releases the rotor Lock & Turn mechanism; with the help of a crank, the rotor can be securely locked.



3 // Then insert the auxiliary tool in the system's release station, thus unlocking the keys to open the hazard zones.



4 // Inserting the key in the crusher housing enables it to be opened; the key cannot be withdrawn until the housing is closed again.



5 // Using the crank, the operator turns the rotor into the optimum position for replacing the rotor ledges or eliminating any blockage.



6 // After finishing his work, the operator inserts all keys back into the rotor Lock & Turn mechanism and removes the auxiliary tool. The crusher can now be restarted.

Key transfer system prevents errors

The system is based on an innovative key transfer system, a safety mechanism that cannot be bypassed. Mechanical locking devices secure access to the hazard zones, i.e. the drive belt cover, crusher housing and service panel. In order to access these parts of the crusher, the following steps must be observed without fail. ///

A superlative structure:

The Hong Kong-Zhuhai-Macau Bridge is the longest sea bridge in the world.

