

# RoadNews

KLEEMANN and BENNINGHOVEN plants  
create added value

**Technology for teams,  
strong performance**





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Efficient, clean production of asphalt in Sweden using KLEEMANN and BENNINGHOVEN plants





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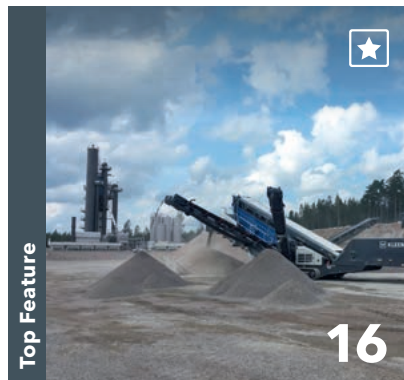
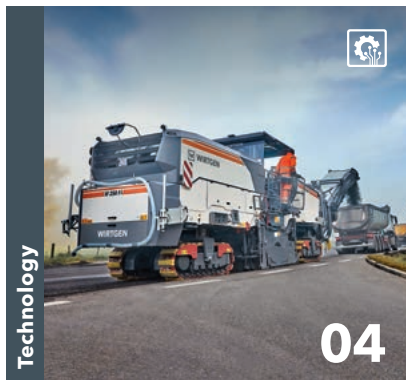
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# Editorial

## Achieving more together.

Willingness to co-operate is a factor in the WIRTGEN GROUP's success, demonstrated more than anything by the partnership we enjoy with customers and users. But our machines and plants, too, are real team players. The added value this can encourage is shown by KLEEMANN and BENNINGHOVEN mobile and stationary plants. In our Top Feature, you will find out how our technology is making rock and stone processing and asphalt production in a Swedish quarry efficient and clean.

Lots of our current innovations are of a digital nature. Evidence that we also have an eye on as smooth and productive a collaboration as possible between human and machine is provided by the Mill Assist feature of the new generation of WIRTGEN large milling machines. This system automatically adopts a large number of settings, increasing economic efficiency as a result.

VÖGELE's WITOS Paving Plus networked system solution also provides huge support to paving teams

and is simple to put into practice – as we show with the example of an airport rehabilitation project. The new HAMM HP series also makes work easier for users with its innovative additive sprinkling system which always supplies the perfect mixture – quite simply at the touch of a button.

We hope you enjoy this ninth edition of RoadNews!

Best wishes from



**Frank Betzelt**

Senior Vice President - Sales, Marketing,  
Customer Support WIRTGEN GROUP



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With the new flagship W 250 Fi and W 220 Fi machines, cold milling specialist WIRTGEN puts the finishing touches to its new generation of large milling machines. The star of the so-called F-series is the Mill Assist machine control system.



# Mill Assist on-board as standard Work in a more efficient yet relaxed way - automatically

All the new-generation large milling machines - W 250 Fi, W 220 Fi, W 210 Fi, W 207 Fi and W 200 Fi - are equipped with Mill Assist machine control as standard. Mill Assist dynamically controls the operating point of the machine; in other words, it automatically adapts the speed of the diesel engine and the milling drum, the advance drive, machine advance rate and water usage to suit changing job site conditions. As a result, the enormous power reserves of the large milling machines are distributed to the various machine components to suit requirements.





## The desired milling result – just set it in advance

On conventional cold milling machines, machine operators have no choice: they continuously have to adapt all the parameters manually in order to achieve consistent optimum settings. Things are different with WIRTGEN large milling machines. Automatic mode provides operators with the “all-round carefree package”, which sees the machine continuously determining the most favourable ratio between milling performance and operating costs.

Depending on the project, the operator can also select between “cost-optimized”, “performance-optimized” or “milling pattern quality” strategies. The entire milling process is simulated in real time (job site analysis) and optimized based on a comprehensive analysis of all parameters. The control screen shows the operator how he can further optimize the milling process, as well as displaying economy and increased efficiency compared to manual machine operation. Experience with the new large milling machines in the field indicates that users work with Mill Assist for over 90% of the time.



### Explained simply: what the job site analysis displays

- > **ACT**  
Potential total cost savings and increased efficiency achieved (ACT stands for “current”)
- >   
Total milling job figures
- >   
Economy/increased efficiency if milling is performed in two passes
- > **LA 25**  
Economy/increased efficiency if a milling drum with a greater tool spacing (Linienabstand - LA) than the current one is used

Economy and increased efficiency compared to manual operation.



# 1

**Project: work on a cost-optimized basis!**

**Strategy: ECO**

**Situation**

On a job site with a daily all-inclusive rate, the machine comes across different material hardnesses during the milling process. The operator has to adapt machine settings accordingly.

**How does Mill Assist help?**

In ECO mode, it automatically always looks for the machine operating point with the most favourable fuel and cutting tool consumption per cubic metre of milled material. In the process, the machine runs primarily in the low milling drum speed range.

**What is the benefit?**

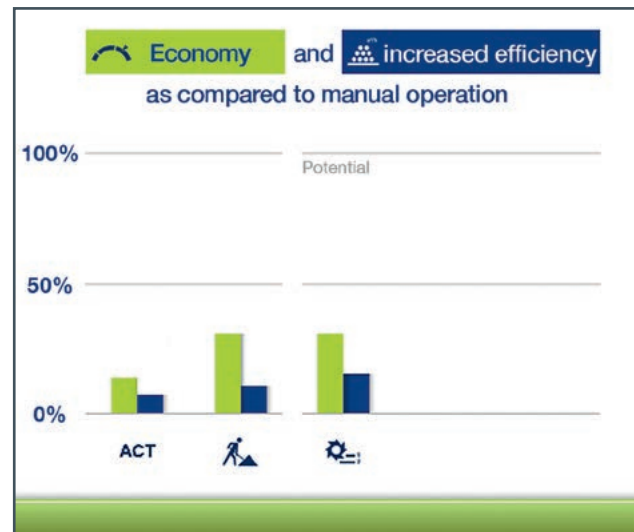
The control panel display indicates that using Mill Assist in ECO mode is currently achieving a 12% saving in fuel and cutting tool consumption compared to manual adaptation. The display furthermore informs the operator that by milling in two passes, he could save around a further 30% of fuel and cutting tool consumption.

**The result?**

The milling job site runs in an extremely economical and environmentally-friendly manner. Diesel, water and cutting tool consumption, as well as CO<sub>2</sub> and noise emissions, can be reduced significantly. Mill Assist simplifies the operator's complex task, allowing him to concentrate on the loading process and steering.

**Primary application:**

job sites with a daily all-inclusive rate



# 2

# POWER

**Project: maximum RAP rate!**

**Strategy: POWER**

### Situation

The schedule for complete removal of a motorway has changed. Milling work needs to be completed in a shorter time frame.

### How does Mill Assist help?

In Power mode, the wizard runs the machine in the operating range with the highest possible RAP rate. Both engine and milling drum tend to run in the higher speed range.

### What is the benefit?

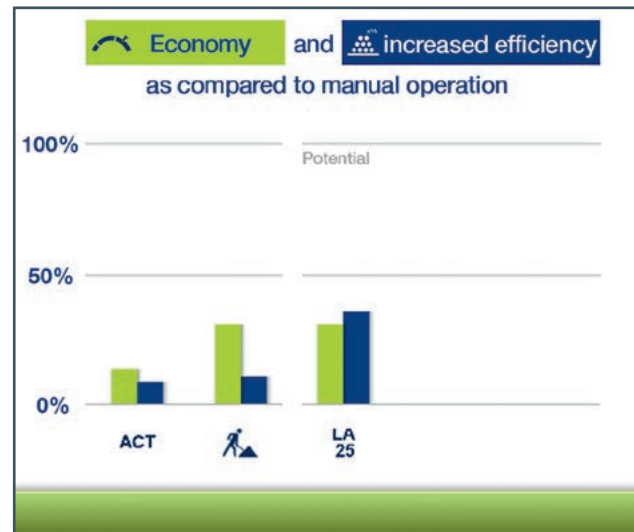
Job site analysis shows that in Power mode, extra output of approx. 8% is currently being achieved. Switching to an LA 25 milling drum, with a tool spacing of 25 mm, would make it possible to increase this another 35%.

### The result?

Milling projects can be completed very quickly and yet economically. In this case, the machine control system also controls advance rate, speed and water automatically. The milling machine operator can concentrate on loading and steering because he has no need to make manual settings.

### Primary applications:

complete removal, time-critical job sites







# 3

**Project: generate a defined milling surface!**

**Strategy: milling pattern**

**Situation**

A specific milling pattern quality is required in the job description for a surface course rehabilitation project.

**How does Mill Assist help?**

In milling pattern mode, Mill Assist continuously adapts milling drum speed to suit machine travel speed. If the large milling machine is travelling too slowly, the operator is requested to increased advance rate - this is limited in the upward direction, because milling pattern quality can obviously not be maintained above a certain travel speed.

If, on the other hand, the machine is travelling too quickly, the operator is notified that he must reduce advance rate. In both cases, he can override the limit if required, though this will alter the milling pattern.

**What is the benefit?**

The machine maintains the preset milling pattern quality – regardless of how quickly milling needs to proceed or how hard the material is. The scale for milling pattern quality ranges from 1 (coarse) to 10 (very fine); the image below shows milling pattern quality 4.

**The result?**

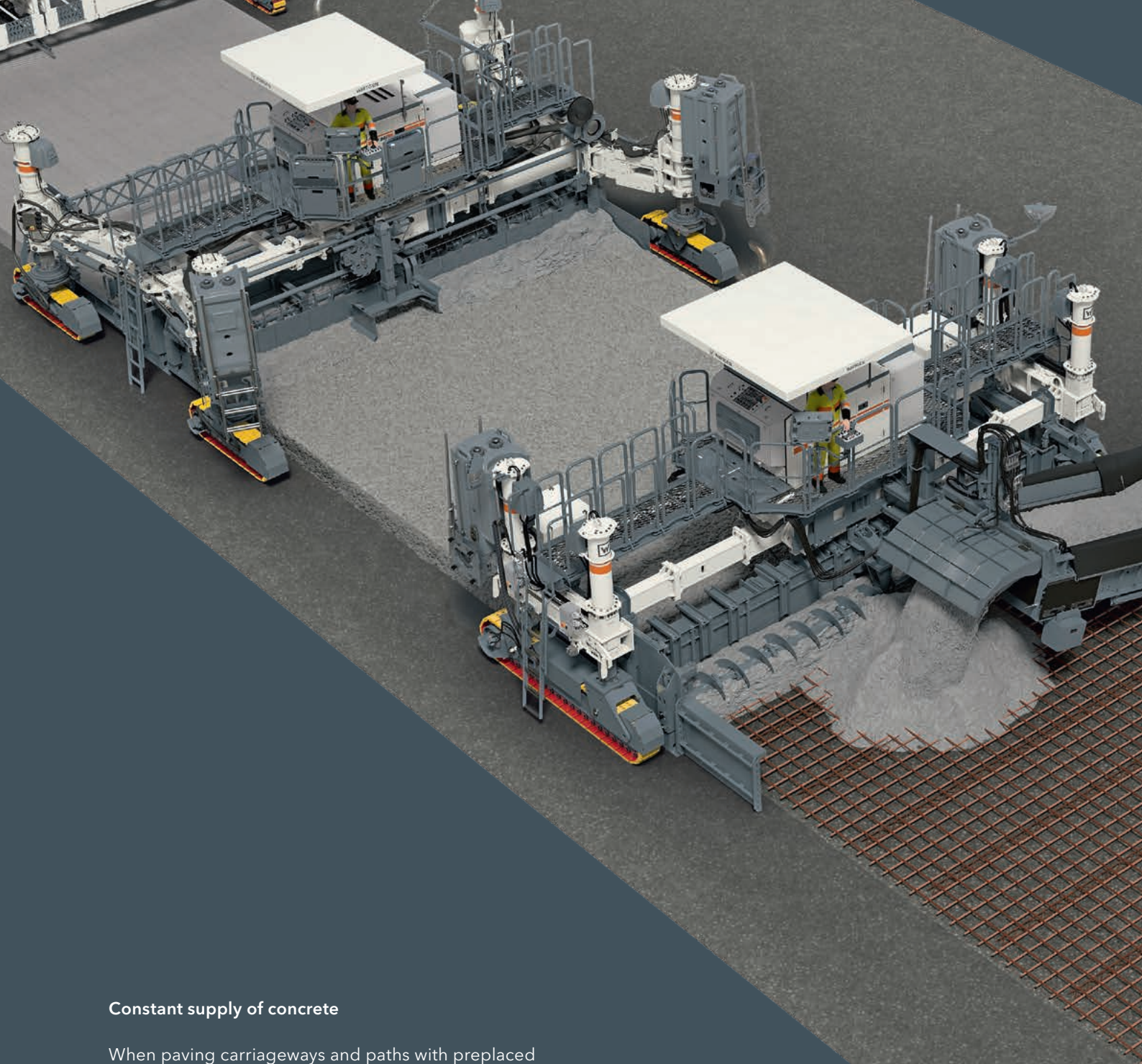
A consistent, uniform milling pattern is generated across the entire milling surface - a clear indicator of quality on a milling job site. Uniform quality also pre-empts any requests from clients for rework. Consistency at this level is very hard to achieve without the computer-assisted system, even for highly experienced machine operators.

**Primary applications:**

surface course milling and fine milling



QUALITY



### Constant supply of concrete

When paving carriageways and paths with preplaced reinforcement, it is frequently possible to supply concrete only from the side. As the first machine in the WIRTGEN paving train, the WPS 62i/WPS 62 side feeder travels along the preplaced reinforcement in front of the slipform paver and the texture curing machine.

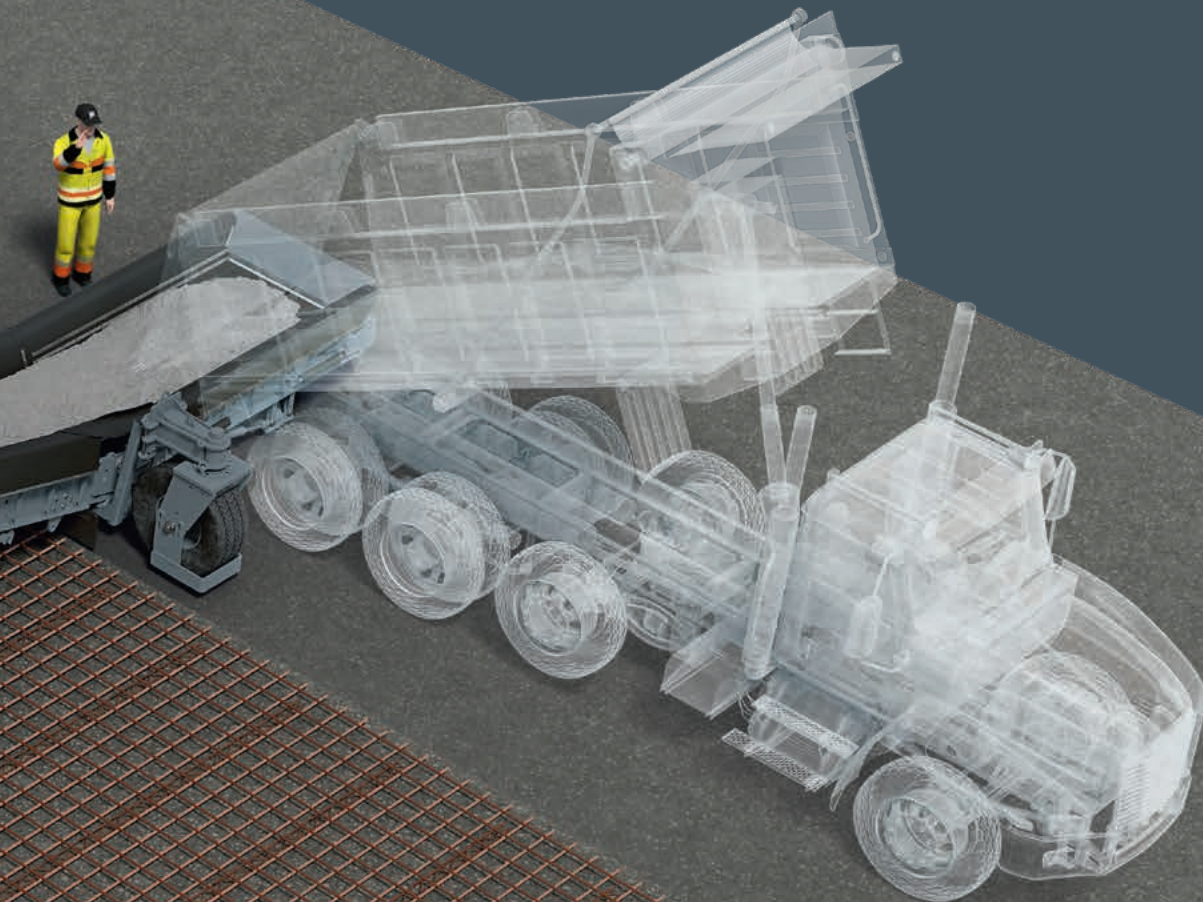
The concrete is supplied from the side by a truck and the side feeder then distributes it evenly across the whole surface to be paved. The slipform paver following on then paves the concrete to the required width, simultaneously compacting and smoothing the concrete. The texture curing machine then generates a defined surface structure and sprays an anti-evaporation agent on the fresh concrete surface.

### Different scraper units

The WPS 62i/WPS 62 is supplied with two different scraper units: in metric dimensions with working widths between 4 m and 7.5 m, and in imperial dimensions between 12 ft and 24 ft wide. The concrete can be predistributed for a paving thickness of up to 500 mm/20 in. The machine's engine output is 180 kW in exhaust emission standard EU Stage IV/ US EPA Tier 4f (155 kW in EU Stage IIIa/US EPA Tier 3).



The WIRTGEN concrete feeder has been available since the beginning of the year.

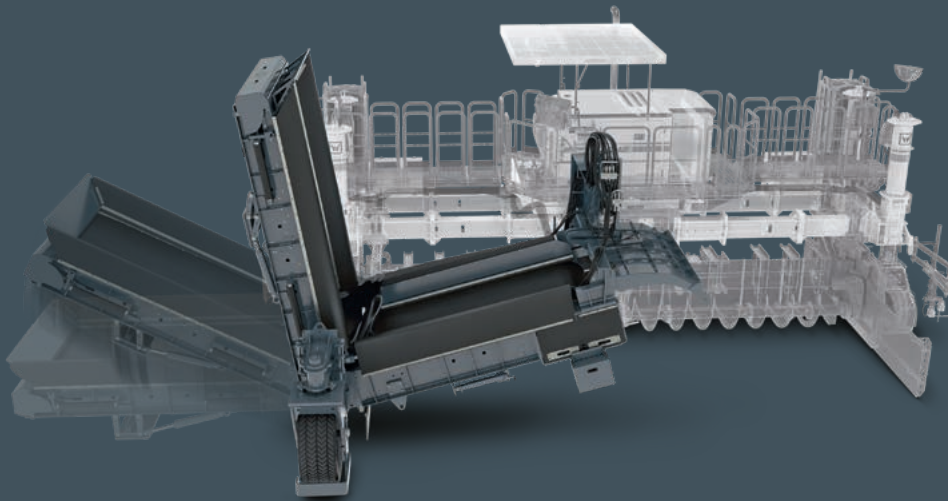


# The Number 1 in the paving train

Powerful supply of concrete from the side and homogeneous distribution in front of the slipform paver - this is what WIRTGEN's new WPS 62i/WPS 62 side feeder can do.

## High-performance supply of concrete

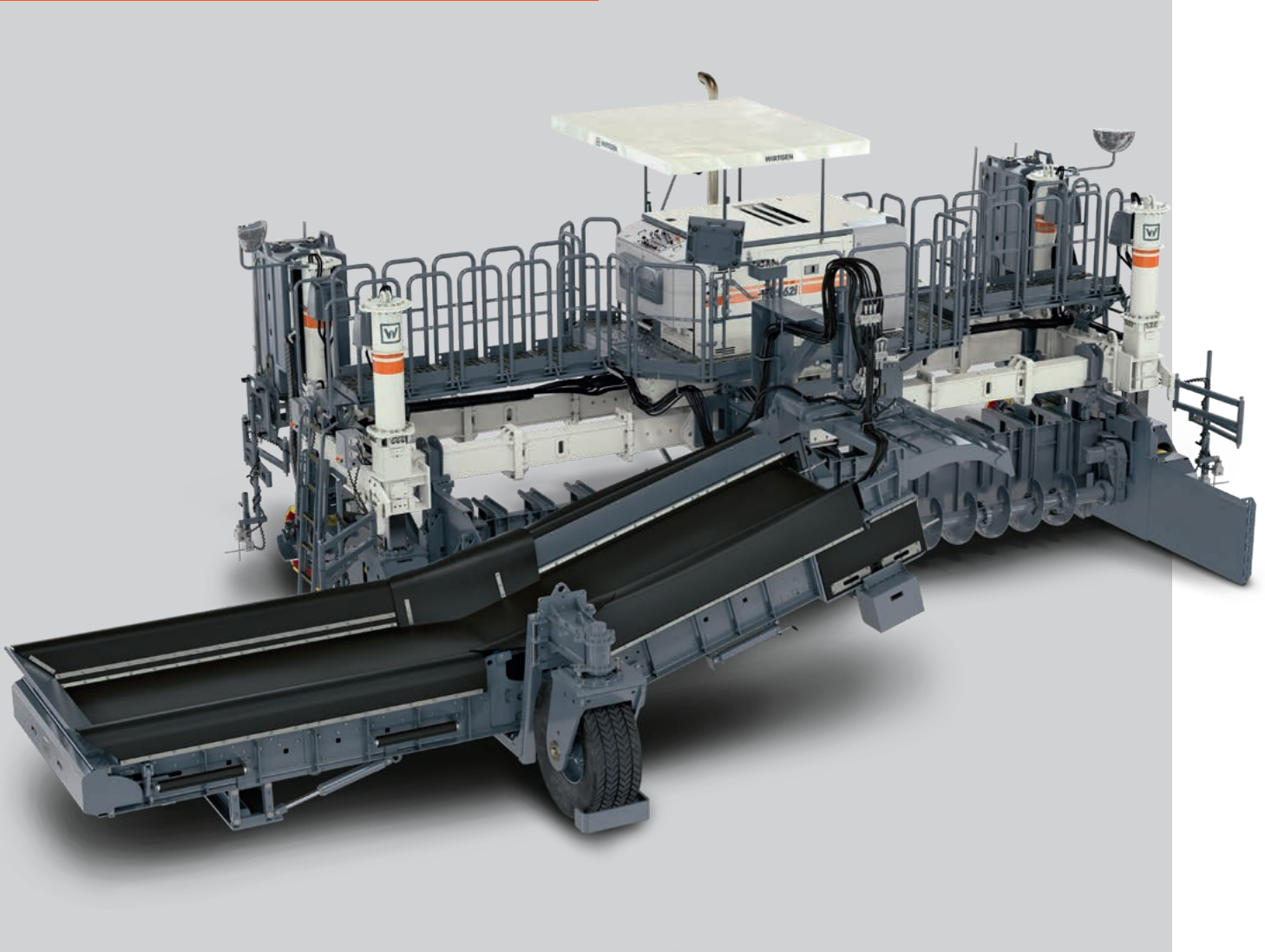
The 94 kW drive motor on the conveyor guarantees a high belt speed of up to 3 m/s and a high conveying capacity. The process of folding the material unit takes a maximum of just 6 seconds, so concrete transport vehicles do not have to wait.



WPS  
62i

### Concrete supplied quickly and reliably

The intelligent control system of the powerful, rapidly folded supply belt and the high speed of this 1.6 m-wide belt ensure continuous conveying of the concrete. What is more, many of the concrete feed functions are hydraulic as standard, with the result that concrete can be supplied to the following slipform paver quickly and reliably.



### **Flexible conversion for high machine availability**

The machine frame (which telescopes hydraulically) and the concrete scraper unit enable the two-chain side feeder to be adapted to suit any job site situation. Its fully modular structure with hydraulic quick-fit couplings as standard also make the WPS 62i/WPS 62 easy to convert and quick to prepare for transport to the next job, increasing machine availability.

### **Uniform operating concept - for the whole WIRTGEN paving train**

Users furthermore benefit from simple, uniform operation of the whole paving train. This is because the development experts at WIRTGEN adopted the operating concept for the WPS 62i/WPS 62 from the current series of slipform pavers and texture curing machines. As a consequence, machine operators can control any of the three paving train machines as a matter of routine, without further instruction being necessary.

# Highlights

## WPS 62i

### 1 Intelligent machine concept

- > Homogeneous distribution of large quantities of concrete fed from the side
- > Two-chain side feeder based on the tried and tested SP 62/SP 62i slipform paver
- > Fully-modular machine setup for pave widths from 4-7.5 m/12-24 ft
- > Machine frame telescopes hydraulically

### 2 High-performance supply of concrete

- > 1.6 m-wide conveyor belt
- > High drive output means high belt speed of 3 m/s
- > Material unit folds extremely rapidly (max. 6 sec)
- > Hydraulically height-adjustable material unit



2

4

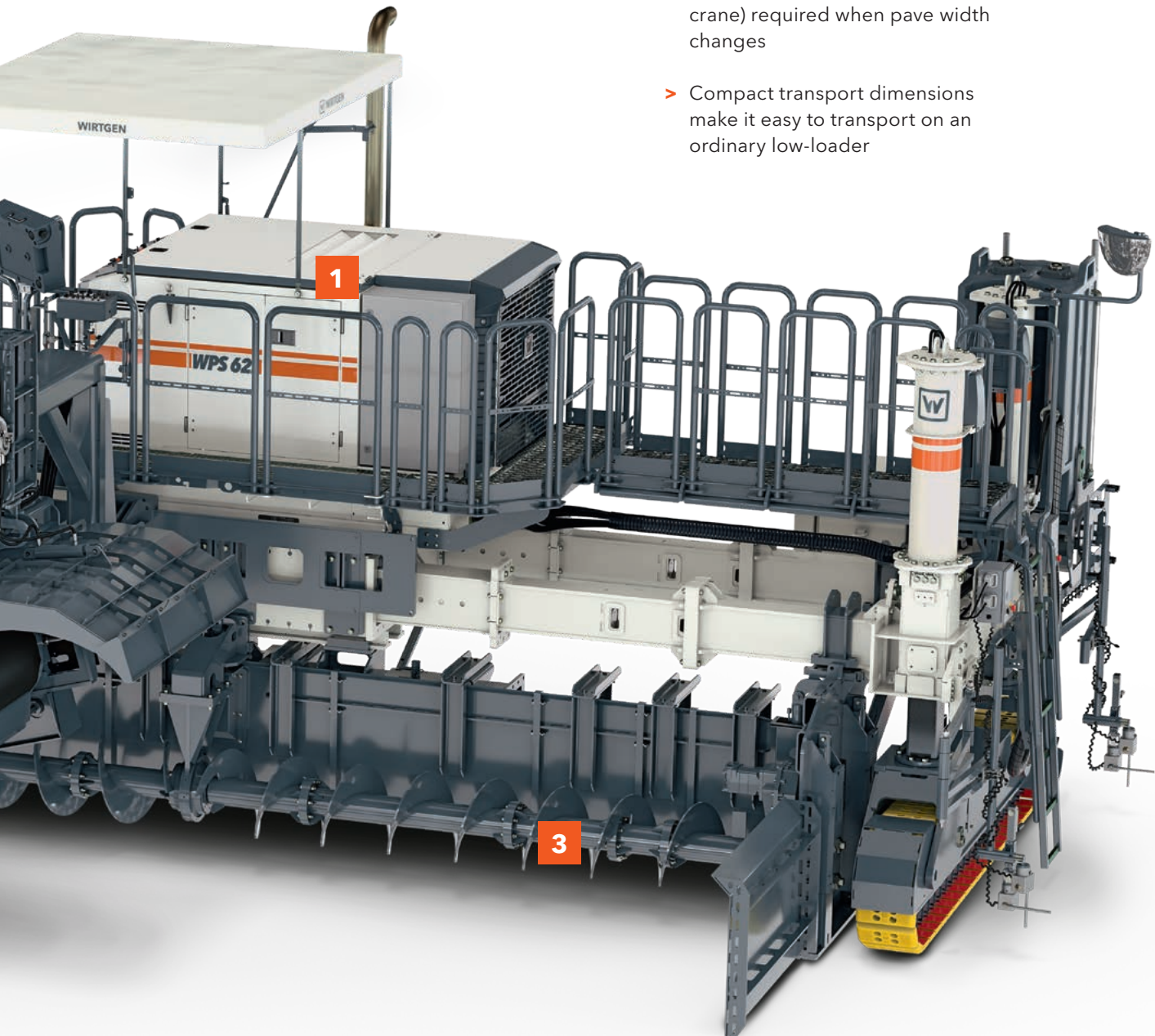


### 3 Rugged features for concrete

- > High-performance auger for powerful distribution of concrete
- > Side headers which can be adjusted in height by up to 500 mm for reliable operation
- > Stable scraper wall with self-supporting telescoping system
- > Height of scraper wall can be adjusted manually or by means of an extra remote control

### 4 Simple to convert and transport

- > Scraper wall and auger are simple to convert if pave width changes
- > Minimum modification to concrete supply if pave width changes
- > No other auxiliary equipment (e.g. crane) required when pave width changes
- > Compact transport dimensions make it easy to transport on an ordinary low-loader



WPS 62i

A success from the start: KLEEMANN and BENNINGHOVEN plants work together perfectly in Furuby near Växjö in Sweden. Just like the teams from Asphaltbolaget and the WIRTGEN GROUP in Sweden, who co-operated to ensure smooth commissioning of the crushing and screening plants.



Sweden | **Furuby (Växjö)**





# High-quality asphalt production with KLEEMANN and BENNINGHOVEN plants in Sweden Green technology which sets standards



In a quarry with an asphalt mixing plant attached, Swedish company Asfaltbolaget Sverige AB shows how state-of-the-art technology and a sophisticated process chain combine to increase quality and efficiency: in future, KLEEMANN track-mounted crushing and screening plants will run on electricity in this quarry, producing top-class output materials. KLEEMANN offers the ex works option of electric operation on PRO line plants. The majority of the mineral obtained is then immediately turned into various formulas of top-quality asphalt in an on-site BENNINGHOVEN TBA 3000 asphalt mixing plant which runs on biodiesel. In combination with extremely short transport routes, these innovative energy sources ensure an outstanding level of efficiency.



Quick change: a team from the WIRTGEN GROUP in Sweden handed over the KLEEMANN plant train and supplied instruction about its technology to the Asfaltbolaget team.



## PRO LINE

### Mobile efficiency: rock and stone processing with KLEEMANN PRO line plants

At Asfaltbolaget Sverige AB, they don't do things by halves. Having commissioned a BENNINGHOVEN TBA 3000 asphalt mixing plant in Furuby about two years ago, the construction company is now also using KLEEMANN mobile crushing and screening plants. Specifically, these are a jaw crusher and a cone crusher from the KLEEMANN PRO line, together with MS 15 Z screening plants plus two MS 953 EVO plants. The plants work in different configurations, linked together to form a plant train. Depending on the aggregate required, the plants thus ensure an ideal final product in precisely classified fractions.

#### Decision made easy by real-life customer proximity

"A whole raft of expectations accompanies an investment like this one," says Frederik Lindblad, the salesman responsible from the WIRTGEN GROUP in Sweden. Which was why delivery of the KLEEMANN products was accompanied by a team who gave on-site instruction to those responsible at Asfaltbolaget to familiarize them with the plant and demonstrate how to operate it efficiently.

"We find our partnership with the WIRTGEN GROUP very beneficial," says Patrik Magnusson, production manager, whose company Asfaltbolaget has for years also been running a fleet of WIRTGEN cold milling machines, VÖGELE road pavers and HAMM rollers. "Which is why KLEEMANN crushers were a natural choice for us, as it were. We've never had any problems



with WIRTGEN GROUP products. This applies particularly to the Service department. Whenever we need support, a specialist service engineer comes out. We are very happy."

Customer satisfaction takes the lead role at the WIRTGEN GROUP in any event, as Matthias Johansson, managing director of WIRTGEN Sweden AB, explains: "Our value promise 'Close to our customers' relates to any support we can give to our customers. Of course, rapid, professional service is very important for this, but we take it as read that application advice and the communication of process expertise are part of the picture too."

#### **MC 120 Z PRO mobile jaw crusher: made for harsh quarry operation**

With a feed capacity of up to 650 t/h, the MOBICAT MC 120 Z PRO is a convincing product for natural stone applications. The powerful jaw crusher with its 1,200 x 800 mm crusher inlet is equipped with an extra-long, movable crusher jaw. To guarantee the best possible material flow, the Continuous Feed System (CFS) adjusts conveying speed to suit the fill level and degree of loading of the crusher.

On most jaw crushing plants, the operator has a tedious time emptying the crushing chamber in the event of material congestion. Not so on the MC 120 Z PRO, whose optional crusher unblocking system remedies this situation. If the jaw crusher becomes congested, the electric crusher drive can be used to shift the crusher into reverse and clear the blockage quickly.

### Benefit from the option of powering with electricity

Another important factor in the decision was the subject of energy efficiency in general – and electrification in particular. In this regard, mobile PRO line crushers are equipped with efficient, powerful diesel-electric drives. These drive the crusher unit and the conveyor belts of the MC 120 Z PRO and MCO 11 PRO by electric, not hydraulic means, ensuring environmentally-friendly, low-consumption operation.

KLEEMANN crusher plants can furthermore be operated with high-voltage current – just like the screening plants and thus all the plants in the train. “This gives us flexibility and allows locally emission-free operation,” commented production manager Patrik Magnusson. The option of an external power supply is an even more economical and environmentally-friendly solution which allows the plants to be operated purely with electricity, independent of the diesel system – reducing energy costs and exhaust gas emissions.



### The MCO 11 PRO mobile cone crusher: perfect in combination with the MC 120 Z PRO jaw crusher

The MOBICONE MCO 11 PRO mobile cone crusher is the perfect plant for applications from the secondary crushing stage onwards and in combination with the MOBICAT MC 120 Z PRO jaw crusher. This is because the size and capacity of both these PRO line products are harmonized. The maximum feed capacity of the MCO 11 PRO, for example, is a convincing 470 t/h. In addition, the mobile plant provides ideal linking options to other KLEEMANN crushing and screening plants. With the CFS system providing automatic crushing gap setting, the plant can be adapted to suit aggregate in a flash. The entire plant train can also be

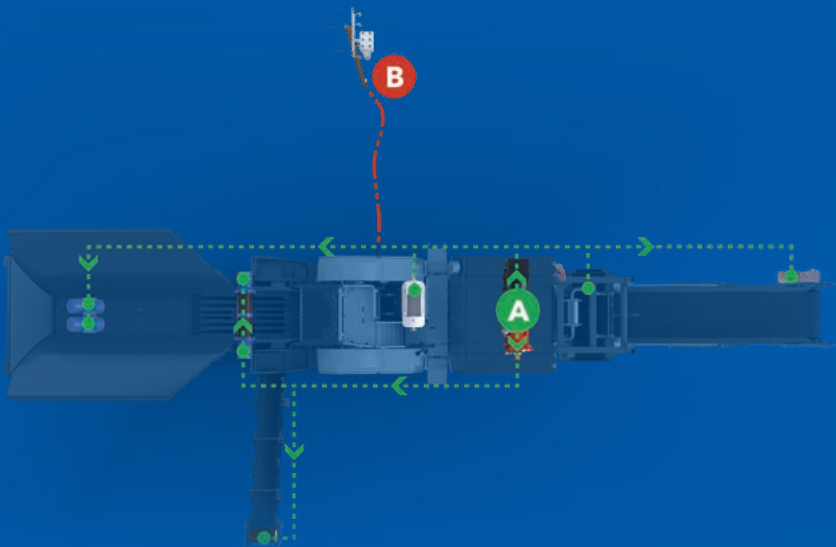
run safely and efficiently by just one machine operator. Likewise a member of the PRO line, this crusher too is designed to be uncompromisingly rugged, suitable for continuous duty in the quarry. Practical innovations make a further contribution.

Even the basic models of the MCO 11 PRO and MC 120 Z PRO, for example, contain jets at various transfer points as well as LED lighting. Premium lighting available as an option allows even better illumination of all the key working positions.



We find our partnership with the WIRTGEN GROUP very beneficial.

Patrik Magnusson, Production Manager  
Asfaltbolaget Sverige AB



For more power: the PRO line's efficient drive concept illustrated by the MC 120 Z PRO

- A | Power:** up to 410 kW  
**Drive:** diesel-electric  
**Advantage:** reduced consumption compared to hydraulic drives
- B | Energy supply:** external power supply  
**Advantage:** even more economical use in quarries

# High quality: asphalt production with the BENNINGHOVEN TBA 3000

After the KLEEMANN plant train has crushed and processed the mineral, wheel loaders transport it a few metres to the asphalt mixing plant. To be more accurate, they transport it to the cold feed units of a BENNINGHOVEN TBA 3000 transportable asphalt mixing plant. The plant automatically draws down the required stone from these cold feed units to suit the asphalt formula in question and conveys it to its dryer drum where it is heated and thus prepared for asphalt production.

## Test run for the world's first EVO JET multi-fuel burner for biodiesel

A special feature of the combustion technology of the Furuby plant is BENNINGHOVEN's EVO JET multi-fuel burner. This prototype is currently being trialled and for the first time, can use biodiesel as well as heating oil for heat recovery. As the biodiesel is relatively viscous, it is initially heated to processing temperature and transported through heated and insulated pipelines. The option of switching fuels at the touch of a button gives Asfaltbolaget great flexibility. The biodiesel is obtained from wood, making it a renewable energy source which the Swedish state actually supports and subsidizes.

That Asfaltbolaget is prepared to use this form of energy shows that the company is forward-looking and willing to improve. "We want to be out in front. The innovative technologies of the WIRTGEN GROUP make an important contribution by helping us work efficiently with high quality. What is more, biodiesel has given us an amazing opportunity to be even cleaner," explained production manager Patrik Magnusson.

### Key facts about the TBA 3000 in Furuby

Mixing capacity	240 t/h
Mixer capacity	3 t
Screening	6-fold
Hot bin section	80 t
Dryer drum	TT 11.26 (11 x 2.6 m)
Burner output	18.9 MW
Capacity of storage silos	341 t

# EVO

TBA 3000 in Furuby:  
BENNINGHOVEN's transportable  
asphalt mixing plant produces  
asphalt in the quarry itself.





### Wood to biodiesel: how it's done

The principle of obtaining biodiesel from wood is as follows: the fuel is a biomass to liquid (BTL) fuel, in other words, involves the liquidization of biomass. The high temperature and high pressure of pyrolysis, a thermochemical conversion process, produces so-called pyrolysis oil from the cellulose-rich wood. The remaining process steps are cleaning, synthesizing and refining the pyrolysis oil into biodiesel. In Sweden, the energy to complete this process is provided by emission-free hydroelectric plants.

The challenge for the process technology is the natural source product, wood, as its chemical composition can vary. These variations have an effect on the final product. The consequence of this would be increased operating effort, as the parameters for the burner would keep having to be changed.

To enable the correct basic parameters for the burner to be set at the BENNINGHOVEN factory, the customer sends his heating medium to Germany in a stainless steel container. BENNINGHOVEN tests the fuel and makes the optimum settings on the burner to allow the values to be adopted 1:1 on site in Furuby.

# JET



BENNINGHOVEN's burner test bench at its new headquarters in Germany: parameters for the tried and tested EVO JET burners can be set here to suit different types of fuel perfectly.



### Green technology increases economic efficiency

BENNINGHOVEN's EVO JET burner for biodiesel once again underlines the company's role at the vanguard of green technology. The recycling technology for the world's highest quota of RAP fed into the mixing process (90 + x%) is also a BENNINGHOVEN innovation. Its name: recycling drum with hot-gas generator with counterflow action. This technology is not part of the TBA 3000 in Sweden, because in this market, the quota for RAP feed rates is currently limited to 30%. Multivariable feed is adequate for quotas of this type and is also fitted in the Asfaltbolaget plant. An advantage of the modular concept of BENNINGHOVEN plants is that hot recycling technology to meet higher recycling quotas is quick and easy to implement should it prove necessary in future.

With multi-variable feed, up to 40% of RAP can be added cold to the production process. This means that even small quantities of mixed material from 2 t can be produced, giving mixing plant operators great flexibility. With multi-variable feed, recycled material is fed to the mixer in cycles; this is kinder to the plant because it avoids rapid steam expansions. BENNINGHOVEN's patented recycling technology allows maximum feed quotas within the cold feed systems.



### HIGH-TECH PLANT POWER

- > Wide range of mixing performance 160-320 t/h
- > Hot bin capacity 60/80/130 t in up to 7 bins
- > Capacity of mixed material storage silo up to 517 t





Ready to deliver a top performance: the TBA 3000 in Furuby has large storage capacities. The mixed material storage silo can stock five types of asphalt simultaneously and has a capacity of 314 t.



**PLUG & WORK**

- > Quick assembly and installation (assembly and disassembly)
- > Modular extension possible
- > Transportable or stationary foundation – quick relocation
- > Built-in interfaces



**RECYCLING<sup>+</sup>**

- > Cold recycling up to 40%
- > Hot recycling up to 80%
- > NEW - recycling drum with hot-gas generator with counterflow action
- > Retrofittable at any time



**OPERATOR BENEFIT**

- > Ergonomic concept
- > Workplace safety
- > Maintenance concept

WITOS Paving Plus ready for take-off, rehabilitating an airport

# Digital paving, actual progress



Germany | **Wilhelmshaven**



With some 60 flights a day, Jade-Weser Airport is of great significance in the Friesland/Wilhelmshaven area, so it was important to deliver high quality for the asphalt pavement.



A paving team used WITOS Paving Plus for the first time at Jade-Weser Airport: the team from Georg Koch GmbH used the construction project in Wilhelmshaven as an intensive opportunity to get to know VÖGELE's networked system solution for process optimization and documentation. The asphalt work consisted of paving the runway, approximately 1,500 m long. A SUPER 1900-3i - equipped with WITOS Paving Plus - was used as the primary paver to pave two asphalt base courses (pre-profile and base course). Three SUPER pavers worked "hot to hot" for the final paving operation, the surface course.

The highlight of the project for all those involved was the advance in productivity achievable with WITOS Paving Plus, as the innovative VÖGELE solution enabled the pavers to operate continuously. The experienced paving team was delighted to find that fewer mix trucks than planned were actually required. WITOS Paving thus very quickly demonstrated the scale of the optimization potential it opens up for customers and users.

"When you see how you can get a little bit better every day, it's incredibly motivating," said senior site manager, Tim Gassmann.

# WITOS PAVING PLUS

## WITOS Paving Plus networks all those involved in the process in real time

The positive impression made on the Georg Koch GmbH team is not surprising, as the five different WITOS Paving modules network the supervisors at the asphalt mixing plant, the truck drivers from the transport company and the whole paving team on site. The system gives planning engineers and site managers a full overview of the current project.

Potential disruptions and obstacles to the construction process are picked up more quickly, which gives those involved more options for dealing with them. Staff are put in a position where they can take immediate measures to optimize the job site and remedy deviations from the planned workflow in real time.



"When you see how you can get a little bit better every day, it's incredibly motivating," said Tim Gassmann, senior site manager at Georg Koch GmbH, who is convinced of the benefits of WITOS Paving Plus.

## Asphalt paving without joints and with crown

The asphalt runway at Jade-Weser Airport consists of two asphalt base courses and one surface course. The lower courses were paved by a SUPER 1900-3i. This tracked paver was equipped with WITOS Paving Plus. The primary paver was supported by a SUPER 1600-3i and a SUPER 1800-3i for the final paving stage, the surface course. The machines worked "hot to hot" with an overlap of around 20 cm - and thus without joints.

The paving strips were selected so as not to create a centre joint: the SUPER 1900-3i worked a width of 7.5 m in the centre of the runway and paved a crown. Beside it, the two other VÖGELE pavers paved two strips with a transverse slope, creating a width of 15 m.

The primary paver finally paved the outer strips, making a total width of 30 m. The fact that it was possible to work practically continuously throughout was due not least to the use of WITOS Paving Plus.

## Valuable support, simple to operate

"The system impressed us a lot right back at the planning stage, because it simply calculated a lot of the values itself - for example, the quantity of asphalt required. If the capacity of the planned mixing plant is too low, the system issues a warning," said Tim Gassmann. This was also the case with a number of the planned strips in Wilhelmshaven. It was demonstrated by the calculation completed by the WITOS Paving Control planning and control module - and was why the senior site manager arranged a second mixing plant in good time to cover peak demand.



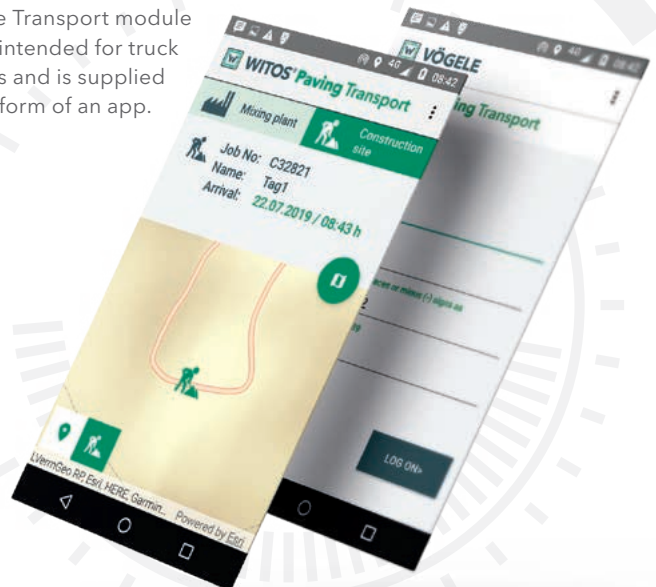
### Added value with a cash value

A particularly clear example of the value WITOS Paving Plus adds for users and clients is improved planning of the trucks required: according to the system, 13 mix trucks were needed on the first paving day to supply the three VÖGELE pavers with mix. The Koch team initially trusted in its own experience and used 15 trucks. The evaluation then followed. On WITOS Paving Plus, this is carried out in the Analysis module, the statistics and documentation tool. This enables construction projects to be assessed objectively and enables contractors to learn from each day's paving operations and gain information for the next day.

Valuable extra information for Georg Koch GmbH derived from the statistics was that 13 trucks really would have been sufficient - two less than were actually used. For the next day's paving operations, therefore, site management ordered only the number of mix trucks calculated by WITOS Paving Plus - saving cash every day as a result of this step alone. Despite the reduced number of trucks, there were no interruptions.

Ease of operation is at least as important as accurate function. "WITOS Paving is extremely practical. It can simply be used, whatever the weather. The software functions are easy to understand. As a result I was quickly able to see what key added value the system offers. I wouldn't want to be without it now," insisted works supervisor Theo Hülsmayer, who operated the WITOS Paving Plus JobSite module on an outdoor PC on the job site itself. This visualized all the key paving parameters for him on a tablet or outdoor PC.

The Transport module is intended for truck drivers and is supplied in the form of an app.



# The job site reports from Jade-Weser Airport: precisely documented progress

## Job site report 1: situation on Day 1 using WITOS Paving Plus

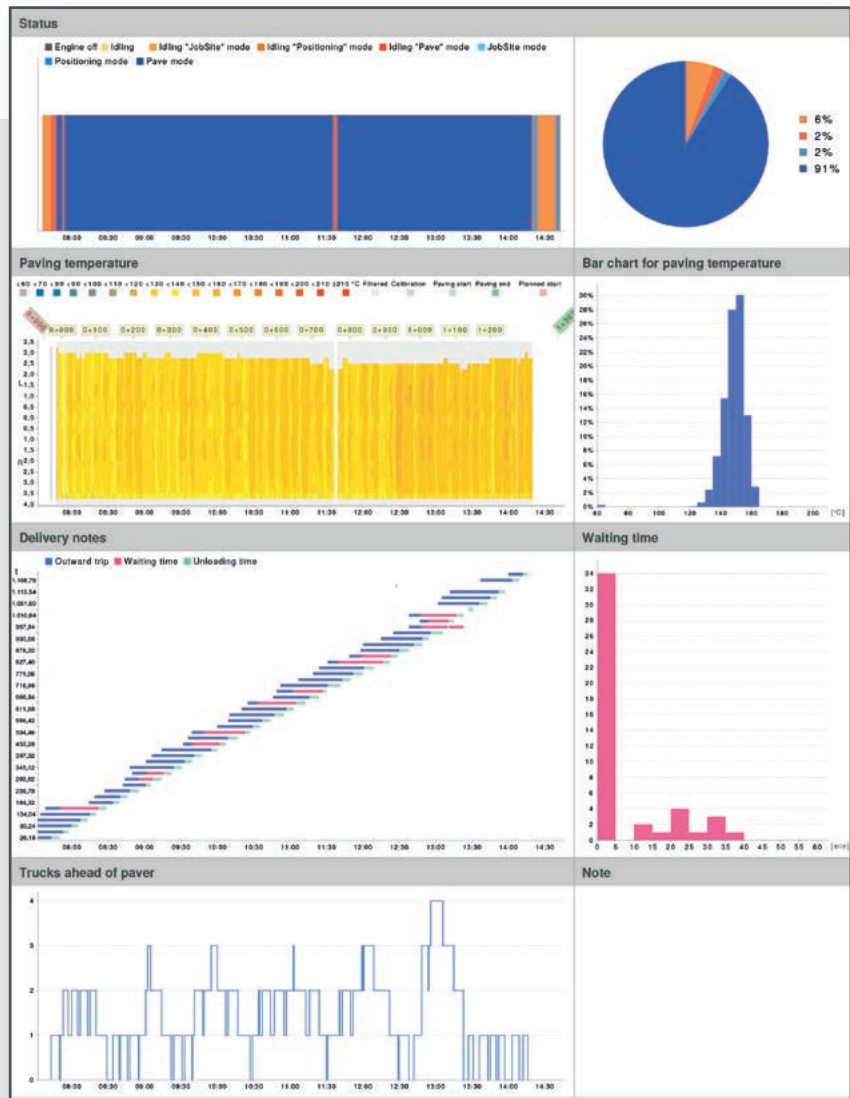
- > **Status view of paving operations**  
Paver productivity is at 78%, the machine spends 17% of its time idling
- > **View of paving temperature**  
The temperature measuring system records consistently adequately hot paving temperatures
- > **Truck waiting times**  
27 trucks were unloaded immediately, 47 trucks had to wait five minutes or more
- > **Trucks in front of the paver**  
Up to six trucks at once were waiting to unload





**Job site report 2: situation on Day 7 using WITOS Paving Plus**

- > **Status view of paving operations**  
Paver productivity is at 91%, the machine spends 2% of its time idling
- > **View of paving temperature**  
The temperature measuring system records a virtually identical heat level to that of Day 1
- > **Truck waiting times**  
34 trucks were unloaded immediately, 12 trucks had to wait five minutes or more
- > **Trucks in front of the paver**  
Up to four trucks at once were waiting to be unloaded



**Conclusion**

- > With WITOS Paving Plus, the paving team from Georg Koch GmbH achieved the following productivity increases:

	Day 1	Day 7	Progress
Productivity	78%	91%	<b>+13%</b>
Paving temperature	- Broadly identical heat level* -		
Truck waiting times on the job site			
Total trips	74	46	
Waiting time > 5 minutes	47	12	
Immediate unloading	27	34	
Immediate unloading in %	36%	74%	<b>+38%</b>
Trucks ahead of paver	max. 6	max. 4	<b>+50%</b>

\*Using insulated dump trucks in combination with short transport routes meant that the longer waiting time on Day 1 had no negative impact on paving temperature.



Paving a width of 11.6 m with the SUPER 3000-3i

**Impressively wide,  
incredibly accurate**



Germany | **Marktredwitz**





Asphalt as far as the eye can see:  
working on the A93 motorway in Bavaria at a width  
of 11.6 m, the SUPER 3000-3i and SB 350 screed were  
still operating way below their maximum pave width.

Rehabilitating the A93 motorway at Marktredwitz, Bavaria: the SUPER 3000-3i tracked paver demonstrated its astounding qualities, accurately paving a surface 11.6 m wide. The SB 350 Fixed-Width Screed was responsible for the impressive surface quality. The product duo from market leader VÖGELE can manage a maximum pave width of 18 m and celebrated its world premiere at the Bauma 2019 trade fair in Munich.

#### Highlights of the VÖGELE SUPER 3000-3i

- > Maximum pave width 18 m
- > Laydown rate up to 1,800 t/h
- > Powerful and fuel-efficient 6-cylinder diesel engine rated at 354 kW
- > Innovative material handling system ensures optimum transfer of mix, even at layer thicknesses of up to 50 cm
- > Heavy-Duty kit effectively counteracts abrasive wear

Go extreme: find out more  
about VÖGELE's flagship, the SUPER 3000-3i, at  
[www.wirtgen-group.com/super3000-3i-voegele](http://www.wirtgen-group.com/super3000-3i-voegele)



**Generous width, no-compromise quality: highlights of the SB 350 Fixed-Width Screed**

- > Basic width 3.5 m
- > Maximum pave width 18 m
- > Hydraulic bolt-on extensions with unique variability of 2 x 1.25 m
- > Tamper stroke hydraulically adjustable at the touch of a button
- > Screed versions: TV (tamper and vibrators), TP1 (tamper and one pressure bar) and TP2 (tamper and two pressure bars)

**Paving without joints across a width of 11.6 m**

A high-quality material was used to resurface a section of the A93 motorway. Leading technology, too. A VÖGELE SUPER 3000-3i tracked paver with the TP1 version of the SB 350 screed processed the SMA 8 S stone mastic asphalt material. The surface course was paved 11.6 m wide without joints, meaning that two lanes, including hard shoulder, were produced in just one paving pass.

Even so, the powerful VÖGELE combination was still operating way below the maximum possible. On a section of around 6 km, the VÖGELE flagship was supported by an MT 3000-3i Offset material feeder - as is specified on such large job sites in Germany to ensure as continuous as possible a supply of material.





### Tolerance range of $\pm 2$ mm mastered

Over and above the benefits of paving without joints, the precision of VÖGELE engineering is a particularly convincing feature. Accuracy of  $\pm 2$  mm had to be maintained. "It was incredible to see how sensitively this huge machine works. The screed weighs tonnes and yet still does everything exactly as it is supposed to," says Uwe Münzel, senior foreman for asphalt paving at Josef Rädlinger Bauunternehmen GmbH based in Cham. For grade and slope control, the paving team was able to rely on the interaction between VÖGELE's Niveltronic Plus System for Automated Grade and Slope Control and the Big MultiPlex Ski sensor system - especially as a Big MultiPlex Ski was fitted to both the left and right-hand sides of the paver. Three multi-cell sonic sensors on each side scanned the roadbase - in this case the newly-paved binder course - and formed a mean value. This allowed a tolerance range of just  $\pm 2$  mm to be maintained on the A93 job site.



- 1 | Reliable feed, first-class material: an MT 3000-2i Offset PowerFeeder uncoupled the mix supply from the truck to the paver. The material feeder transferred the material to the SUPER 3000-3i using a pivoting conveyor.
- 2 | Master of 354 kW - and a complete overview of the job site: like all VÖGELE Premium line pavers, the SUPER 3000-3i is controlled by the ErgoPlus 3 operating system.
- 3 | Tried and tested combination: HAMM tandem rollers of the HD+ and DV series were responsible for compaction.

New HP Series

# Tried and tested on the job

The pneumatic-tyre rollers of the HP series have been on the global market for a few months, demonstrating their prowess in the field. You can recognize the new pneumatic-tyre rollers of the HP series by their newly-designed large water tank. Just like the diesel tank, this is generously proportioned to give the machine enough capacity for a working day without filling stops being necessary. This feature alone makes the rollers highly productive, something demonstrated during their maiden operations on job sites in Ankara (Turkey) and Friedrichshafen (Germany).



Like most pneumatic-tyre rollers in Turkey, the HP 280 used near Ankara was fitted with thermal aprons.

### Simple operation, efficient drive

An HP 280 was used in the course of rehabilitation work on a 3.5-km stretch of four-lane motorway near Ankara. Construction manager Gökçe Tokul from Onur Contracting Inc. enthused about the new pneumatic-tyre roller and confirmed that it is extremely simple to operate: "The operator was able to operate the machine immediately, without a great deal of instruction." He was also convinced by the economic efficiency of the HP 280, as "colleagues from the workshop reported back to me that its fuel consumption is extraordinarily low." The hydrostatic drive of the HP 280 which, in combination with a sensitive control system, can be adjusted to the correct speed in any job situation was another positive feature in the steep landscape around Ankara.

### Diesel-operated tyre heating ex works

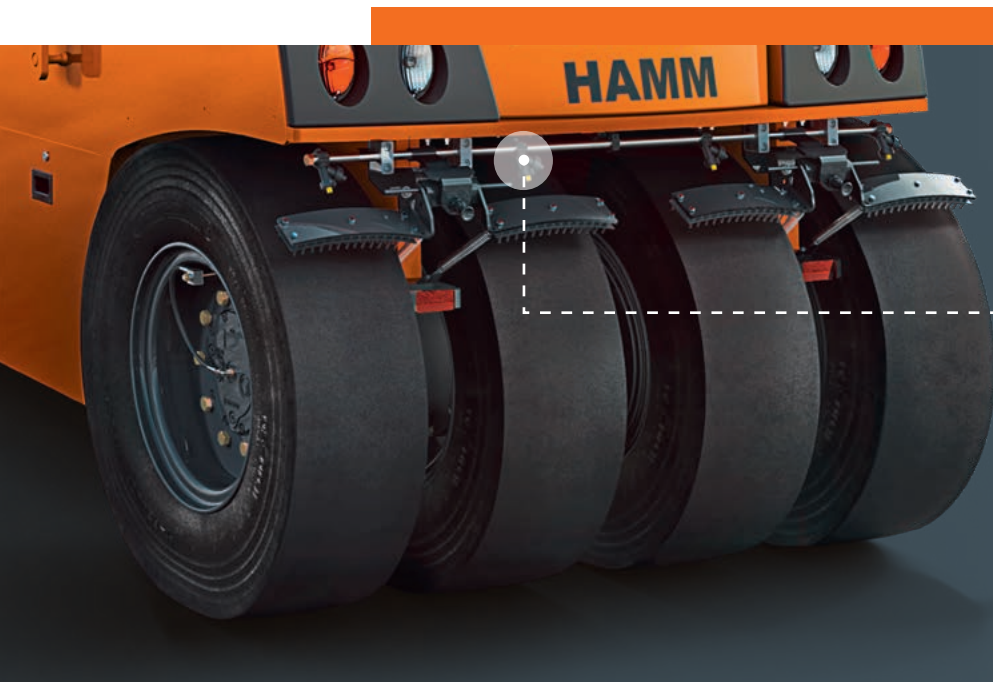
A new feature is the integrated diesel-operated tyre heating. Its key benefit: the integrated tyre heating is operated with diesel, not gas. The fuel simply comes from the tank, making the irritating and complex requirement for transporting and replacing gas cylinders superfluous. This HAMM solution furthermore eliminates a hazard source, as there is no naked flame to cause ignition on contact with oil or the additive.

A standard component of the new tyre heating feature is also automatic temperature control. Once a minimum and maximum value have been preselected, the control system keeps the temperature in this range. The operator can view the current temperature on the control panel.



## The fuel consumption of the HP 280 is extraordinarily low.

Gökçe Tokul, Construction Manager  
Onur Contracting Inc.



### Innovative additive sprinkling system

When paving certain asphalts which tend to be difficult to process, it is essential to sprinkle the pneumatic tyres with additive in order to get high-quality compaction. To achieve this, HAMM has overhauled the additive sprinkling system of the HP series. This delivers five key benefits – see opposite page.



HAMM offers diesel-operated tyre heating as an ex works option with immediate effect. The photo shows an HP 180i with new tyre heating compacting a 9 m-wide base course for a bypass near Friedrichshafen.



# HP SERIES

## Highlights:

- > The additive concentrate can be filled in less time - no premixing required
- > Metering from the operator's platform in different feed stages - water and additive are mixed automatically
- > Always the ideal mixing ratio; the mixture is prevented from separating
- > Filling level monitoring via display on control panel
- > The operator can switch sprinkling from water to additive from the platform at any point



HAMM's new split oscillation drum allows contractors to achieve outstanding compaction results in a short time - even on demanding projects - especially when compacting on bends.





HAMM, always at the vanguard of oscillation technology, has once again significantly pushed the boundaries of this technology with a new drum. The result is the split oscillation drum, available for rollers of the DV+ series since early 2019.

In the field, it is already very clear that this premium solution delivers surfaces with first-class compaction. This applies in particular to projects in which compaction is especially demanding due to sharp bends, a high number of steering movements or asphalts susceptible to material displacement.



# Increase compaction quality

Split oscillation drums meet the most discerning requirements

### Split oscillation drums for the DV+ series

In order to achieve maximum compaction quality, even on demanding projects, HAMM has developed a split oscillation drum for the market. Before launching the project, product developers interviewed lots of customers on the subject in great depth and incorporated their responses and requests in the development process.

The result is a patented premium solution for the DV+ series, because it is users of these pivot-steered rollers, especially, who expressed a need for a split drum with oscillation. HAMM accordingly now has the models DV+ 70i VS-OS and DV+ 90i VS-OS in its range, with the "OS" part of the name (O for "oscillation" and S for "split") indicating the split oscillation drum.

### Two oscillation units per drum

A complete oscillation unit works in each half of HAMM's split oscillation drum. These two units are mechanically independent of one another.

To ensure that both halves of the drum still oscillate synchronously, despite their differing speeds on bends, HAMM integrated electrohydraulic control. This quickly and precisely adjusts the position of the imbalance masses to suit the position of the drum halves. It is precisely this feature which is key for high-quality compaction, because it minimizes shear stresses in the asphalt to be compacted. This in turn prevents material displacement and cracks in the final result.



The DV+ series rollers are equipped with a split drum front and rear as standard. On the "OS" models, the rear drum is an oscillation drum.



# DW+

## First-class compaction with split drums

Non-split drums can cause material displacement and surface cracks during compaction of asphalt on bends and roundabouts. But that's not the only problem: any pronounced steering movement – switching roller passes, for example – can theoretically give rise to cracking of this kind. This is caused by the geometry of the roller, because the part of a drum on the inside of the bend always completes a shorter curve than the part on the outside of the bend.

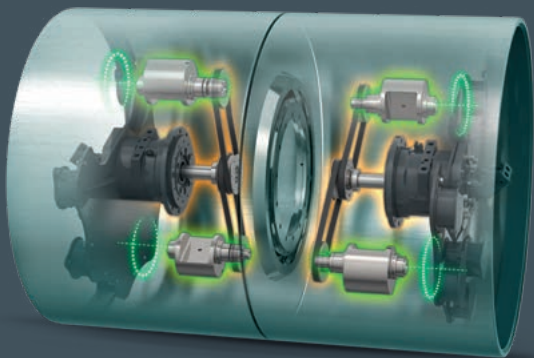
This effect can be significantly reduced with a split drum, as long as the two halves of the drum move at different speeds as they travel around the bend. Both halves of the drum then move at a speed adapted to suit the curve travelled. This minimizes shear stresses in the asphalt to be compacted and prevents undesired material displacement and cracks.

The same positive effect is also achieved when split drums are used to compact materials susceptible to material displacement, such as stone mastic asphalt or polymer-modified material mixes.

### Quiet compaction

In the field, one of the reasons the DV+ 90i VS-OS scores with operators is because of its low noise level. This is an aspect which on the one hand, contributes to environmental protection and on the other, is also important for creating attractive jobs for the new generation of job-seekers.

One of the reasons for the reduced noise emission is an optimized drive concept. HAMM is also using a new kind of toothed belt in all its oscillation drums - in both split and non-split models. This has rendered toothed belt replacement, which used to have to take place every 2,000 operating hours, superfluous. This delivers yet another benefit, as the oscillation drums are not only much quieter than they used to be - they are also completely maintenance-free.



### Success using split oscillation drums

On various job sites in Central and Northern Europe, numerous customers have already experienced the benefits of compacting with a split oscillation drum. An outstanding example of success using the split oscillation drum was the compaction of a paved asphalt roundabout on a junction of the A7 motorway in North Germany: "Despite the very sharp curves, the DV+ 90i VS-OS produced a crack-free and consequently high-quality surface on the roundabout," says contractor Ferdinand Kalinowsky from Ewald Kalinowsky GmbH & Co. KG in Bad Bevensen.

A real advantage of oscillation is the rapid increase in compaction. On an actual job site, this means that compaction with oscillation is completed quickly and thus extremely economically. When the split oscillation drum is used, this characteristic is now combined with the higher quality when compacting on bends and with every steering movement.

A further benefit: highly wear-resistant fine-grained steel and great material strength make all HAMM's oscillation drum roller shells extremely rugged.



A96 motorway near Lindau: each time the rollers switch roller passes immediately behind the paver, the rollers steer sharply. The split oscillation drums of the DV+ 90i VS-OS effectively prevented potential cracking.



## SPLIT OSCILLATION




**We achieved outstanding compaction results in a short time with the split oscillation drum. We found the drum especially convincing during compaction on bends.**

**Arnold Rijper, Roller Operator  
BAM Infra, Netherlands**

A variety of tools for MOBICONE cone crushers

# It pays to use them properly

A large mobile cone crusher, branded with the KLEEMANN logo, is shown in operation at a quarry. The machine is white with blue accents and is discharging a large volume of crushed material into a large pile. The background shows a steep, rocky quarry face.

In order to obtain a steady large quantity of material of high final product quality from a cone crusher, mobile cone crushers should be operated within the ideal range. KLEEMANN cone crushers have a high degree of process reliability built in at the factory and KLEEMANN's expertise in practical operations means that users can also optimize the crushing process. This starts with selecting and assembling the correct tool consisting of a cone and bowl.



# MOBICONE

## Designed for harsh tasks: mobile cone crushers of the MOBICONE series

Like all KLEEMANN plants, MOBICONE mobile cone crushers feature high performance, low consumption and a sophisticated machine concept.

KLEEMANN furthermore splits its product portfolio into two lines: EVO and PRO. MOBICONE EVO plants are versatile in use and easy to transport, have short set-up times and a high degree of machine availability. MOBICONE PRO crushers are made for the demanding conditions which prevail in quarries. To meet this requirement, they are especially rugged and low-maintenance, very powerful and can be operated purely electrically using an external power supply.

An important characteristic shared by the MOBICONE PRO and EVO lines is that the tools for the crusher unit are available in a variety of designs and qualities. This is because using the correct tool is the key to a high-quality final product and maximum possible hourly output.

# 1

## A variety of crusher tools to choose from: the tools for MOBICONE cone crushers

- > Depending on the project in question, a KLEEMANN cone crusher delivers high tonnages for road sub-base construction or high-quality final products for the concrete or asphalt industry.
- > Depending on requirements, the crusher chamber is equipped with a variety of crusher tools. Both standard and short head tools are available for KLEEMANN cone crushers of the EVO and PRO lines.



# 2

## Selecting the correct tool: when should standard and short head tools be used?

- > The crusher tools are selected to suit the feed size and the desired final product so that the entire wearing surface is used and the desired performance is achieved throughout tool service life.
- > Standard crusher tools cover the secondary range for feed sizes up to 240 mm.
- > Short head crusher tools cover the tertiary range for feed sizes up to 120 mm.

**Notes for operation in the field: the distinction in crushing stage is determined by the final product. This means that secondary applications on the cone crusher can be calculated roughly using a final product measuring 25-80 mm. Roughly speaking, tertiary applications include all final products <25 mm.**

**Important note: consult your application expert! Extended, continuous applications can be analysed in detail and optimized if necessary. KLEEMANN application experts and Customer Support will be delighted to give advice and can help fit and remove the tools.**







# 3

**Tool assembly is key:**  
combine standard or short head tools correctly

- > The cone and bowl must both be either standard or short head: the two versions must not be combined.
- > The bowls for both variants - standard and short head - are available in three designs: coarse, medium and fine. They are used depending on the required size of the final product - expressed in technical terms, in accordance with "Closed Side Setting" (CSS).
- > KLEEMANN also supplies a range of crusher tool qualities to suit the abrasiveness of the material for crushing: XPERT with a manganese fraction of 18% or XTRA with 20% manganese.

**Notes for practical application - the following can be recommended as an approximate rule of thumb: XPERT for moderately abrasive applications and XTRA for highly abrasive applications; wear characteristics are highly dependent on material properties, moisture and the proportion of fines.**

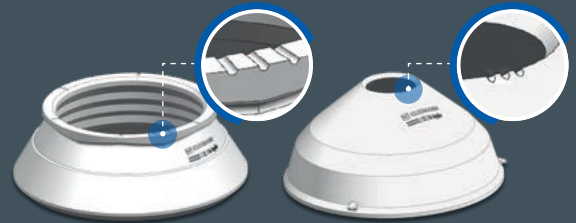
Good to know

## How are standard and short head tools distinguished?

Once the tools have been fitted, they are indistinguishable in terms of shape, so KLEEMANN has marked both the cones and the bowls.

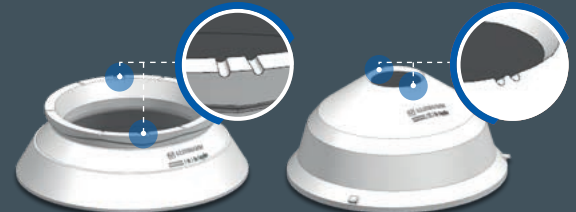
**Standard:**

- > always has **one** mark (to distinguish it from short head)
- > three notches: coarse
- > two notches: medium
- > one notch: fine



**Short head:**

- > always has **two** marks opposite one another (to distinguish it from standard)
- > three notches: coarse
- > two notches: medium
- > one notch: fine



When selecting crusher tools, the following dimensions are key for cone crusher size and feed material:

- A** | CFO (Closed Feed Opening)
- B** | CSS (Closed Side Setting)

# MOBICONE



Development in Romania is progressing. Now that expansion of the telecommunications network of this south-eastern European country into one of the highest-performing in Europe is complete, investment is increasingly being made in its road infrastructure.



Romania | Timisoara, Bistrita, Blejoi



# Commissioning of three ECO and TBA asphalt mixing plants

## BENNINGHOVEN technology – the driver for Romania's infrastructure

Three asphalt producers in Romania have invested in state-of-the-art technology from BENNINGHOVEN. The mixing plants are working at different locations in the country, but all are united by one great objective: to build and expand this EU member state's long-distance road network. They decided to purchase ECO and TBA plants – for convincing reasons.

## Investment in the long-distance road network

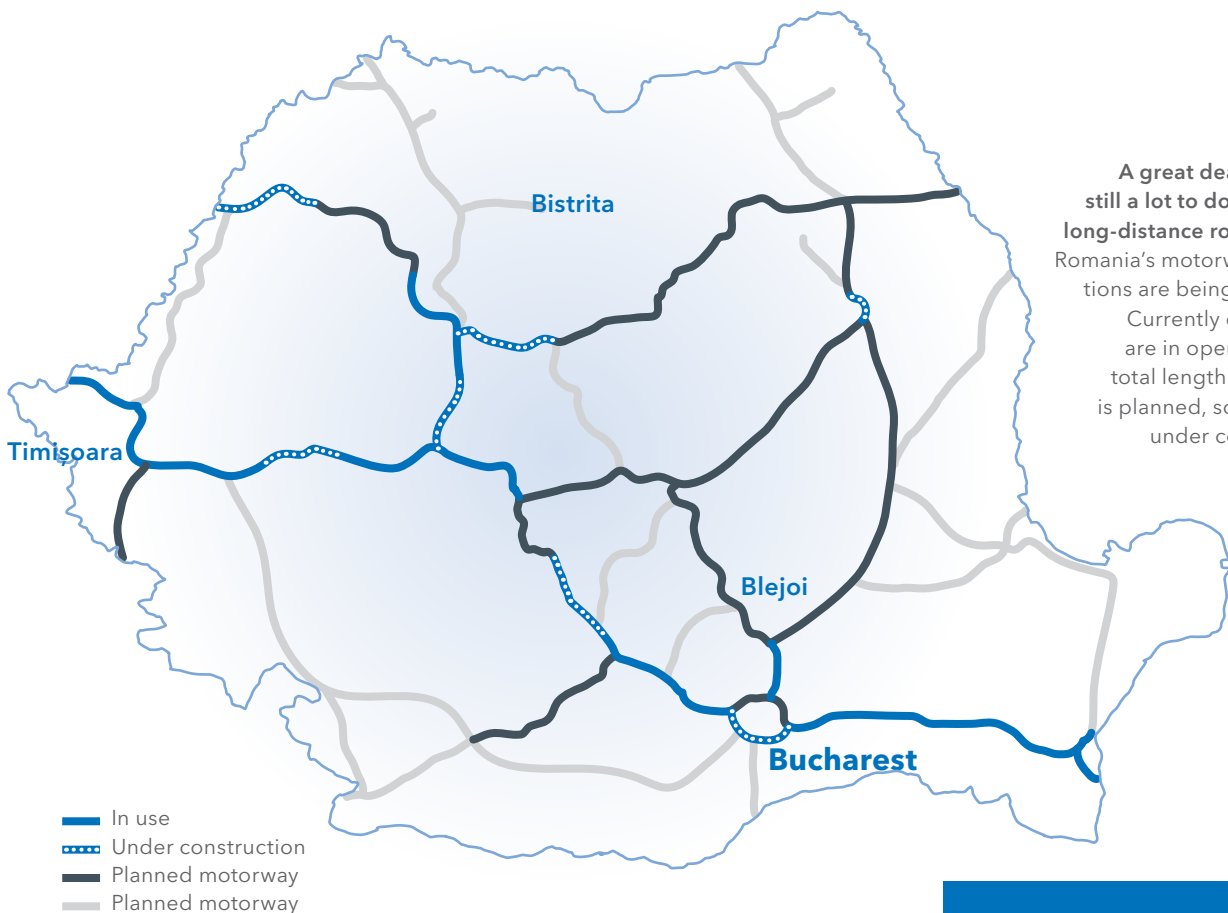
Roads connect people, markets and countries. At the same time, they are a key factor in economic success. In Romania, these are important reasons to invest in expanding the motorway network - not least also to promote economic growth and in some cases, make it possible in the first place. An important pan-European goods route with the corresponding heavy traffic passes through this south-east European country, but these long-distance roads are in need of rehabilitation, even though at just 750 kilometres, the network is comparatively small.

Romania has set itself the goal of catching up Europe - and also of launching an infrastructure programme. Overall, the aim is to extend the country's motorways to a total length of 2,710 kilometres. An impressive 223 kilometres are currently under construction.

## BENNINGHOVEN asphalt mixing plants are modernizing the construction industry

In order to be able to benefit from this investment, a great many public and private road construction companies are positioning themselves as looking to the future. As part of this process, more and more mixing plant owners are relying on efficient, user-friendly technology from BENNINGHOVEN. Not without reason ... the WIRTGEN GROUP company has been involved in Romania for decades and is firmly anchored in the construction industry. In addition to quality and ruggedness, the customer proximity and user-focussed service which people experience play a key role in the company's great market success.

Three companies have currently invested in state-of-the-art ECO and TBA asphalt mixing plants in various regions of Romania. There was a wide variety of arguments in support of "Made in Germany" engineering.



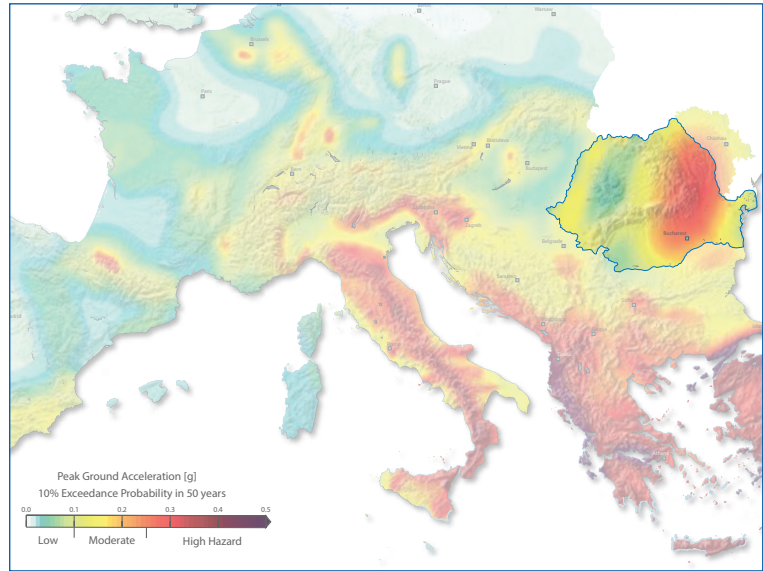


**WIND LOAD**

High level of safety in use, even in earthquake zones

A number of special considerations apply when planning and erecting asphalt mixing plants operated in a country with a high level of seismic activity. In areas like these, standard designs of plant cannot be supplied; it is far more the case that specific designs of plant and safety precautions are necessary for these structures which range from 20 to almost 50 m tall.

This is not new territory for BENNINGHOVEN. All three plant types - ECO, TBA and BA - are split into various load classes from the outset. The company's internal static calculations then show which load class (earthquake, wind, terrain category) has to be met. The higher this is, the more solid reinforcements and foundations, for example, need to be. This is how BENNINGHOVEN guarantees a high level of safety in use.



Earthquake risk visualized in the form of a map: Romania is a country with one of the highest levels of seismic activity in Europe. As recently as 2014, the east of the country was shaken by an earthquake measuring 5.6 on the Richter scale.

Source: Giardini, D., J. Woessner, L. Danciu (2014) Mapping Europe's Seismic Hazard. EOS, 95(29): 261-262.



**EARTHQUAKE**

The Indemanarea company's new ECO 2000 in Bistrita, Romania: By their nature, BENNINGHOVEN mixing plants satisfy a range of load classes.



## ECO 2000 in Timisoara: tailor-made technology, a look for the individual customer

In the west of Romania, SDM Timisoara replaced an existing plant. A business relationship with the WIRTGEN GROUP going back some thirty years drew the attention of this local authority construction company to the BENNINGHOVEN portfolio. SDM requires asphalt primarily for rehabilitation projects in and around Timisoara. The decision in terms of plant technology was eventually made in favour of an ECO 2000. This transportable asphalt mixing plant in a container design has made fans of its owners: "There are lots of different options which enable BENNINGHOVEN to satisfy perfectly customer requirements and above all the objectives of the plant," said Valentin Martanov, general manager at SDM.

### **New BENNINGHOVEN factory ensures high production quality**

In addition to plant technology, these options also cover the plant's appearance. A specific colour can be required for different reasons, whether local authority specifications to integrate the plant more harmoniously in the environment or a customer's requirement to implement specific corporate colours. The ECO 2000 in Timisoara is orange. These are the kinds of customer requirement which BENNINGHOVEN can easily satisfy because in its new factory, the WIRTGEN GROUP company has implemented high production standards - and commissioned a new powder-coating facility among other things.



For workpieces up to 13 m long and 4 m tall:  
new powder-coating facility at BENNINGHOVEN.



**Quality and ruggedness for surfaces:  
new BENNINGHOVEN  
powder-coating facility**

More than a free choice of colour: the new powder-coating facility enables BENNINGHOVEN to create surfaces with maximum resistance to chemical and mechanical attack. The corrosion protection is especially durable, the surface also resistant to scratches and impact, weathering and abrasion. Furthermore, the surface is UV-resistant - all without any clear varnish finish. Now no need for concessions on colour, either.



## ECO 2000 in Bistrita: clean asphalt production in a nature reserve

Another ECO 2000 transportable asphalt mixing plant in a container design was also recently commissioned in the north of Romania. Here, new state-of-the-art BENNINGHOVEN engineering is replacing an old plant. Its special feature is that it is located in the middle of a nature reserve in one of the most beautiful regions of the country. Local authority conditions were correspondingly stringent. "With BENNINGHOVEN as a partner, we were able to satisfy all the conditions," reports Alexandru Simionca, general manager at Indemanarea.

This is because the EVO JET burners, tried and tested for decades and continuously further developed, feature a high level of efficiency in operation. The latest frequency control technology means that emissions are minimal. At the plant in Bistrita, the single-fuel burner in question is an EVO JET 2 for heating oil.

### Tidy compressed air supply: compressor containers from BENNINGHOVEN

A great many of the components in asphalt mixing plants are operated using compressed air. In terms of supply, BENNINGHOVEN leaves the choice to the customer: it is possible to choose between a compressor unit and a compressor container.

The premium solution is the compressor container - with clear benefits: in this case, the screw compressor is fitted inside a standard 20-foot container, opening up a further, useful workshop space for operators, including lighting and a power supply socket.

### Worldwide logistics concept: simple transport and set-up

ECO plants are based on a transport-optimized container system - with the following benefits for users and customers:



**TRANSPORT  
CONCEPT**





**With BENNINGHOVEN as a partner,  
we are able to meet all the requirements,  
even in a nature reserve!**

**Alexandru Simionca, General Manager**  
(shown here with his Technical Manager, Marius Borodi)  
Indemanarea

- > simple and cost-effective to transport all over the world
- > simple to load
- > enormous time saving
- > rapid commissioning thanks to the "plug & work" principle

TBA plants are likewise quick to move, as primary components are designed in container form with plug-in cabling and transportable foundations.

Indemanarea's ECO 2000 is in the middle of a nature reserve and satisfies stringent local authority conditions.





### More than just new plants: retrofit solutions from BENNINGHOVEN

In addition to new asphalt mixing plants with all their benefits, BENNINGHOVEN also supplies retrofit solutions for existing plants. Adding power to existing asphalt mixing plants by retrofitting them with EVO JET burners, for example, is worthwhile in both economical and ecological terms.



## TBA 2000 in Blejoi: 80 t mineral store for flexibility

A TBA 2000 in Blejoi, about 50 kilometres north of the capital, Bucharest, has recently started producing high-quality asphalt. The transportable BENNINGHOVEN plant or TBA for short is the benchmark for a sophisticated asphalt mixing plant of an outstanding quality standard. TBA plants cover a capacity range from 160 to 320 t/h and are suited to both semi-mobile and stationary applications. "Our TBA 2000 is very well equipped," reports Andrei Burlacu, general manager at Strabenbau. This is important, because the ready asphalt mix is not stored, but is mixed and loaded directly to order.

Strabenbau is an ambitious company in the Romanian construction industry. "We have had very good experience with WIRTGEN GROUP machines," says Andrei Burlacu. The machine fleet also includes VÖGELE road pavers and HAMM rollers. The young management team sees potential for growth in asphalt production in particular: a further TBA is already being planned.

### High-tech facilitates rapid production of asphalt for direct loading

Two BENNINGHOVEN highlights are particularly valuable for completing direct loading as quickly as possible: the generous hot bin which can hold 80 t of white mineral and the BENNINGHOVEN BLS 3000 control system. The latter controls the TBA via an article-based formula and order system.

This means that as many formulas as the customer wishes can be entered and managed. When orders come in, the suitable formula then usually just needs calling up. The mixing supervisor of the TBA 2000 in Blejoi can react flexibly to delays in the day's operations by splitting orders into part-orders or interrupting orders to give priority to others. The residual quantity is then stored automatically and taken into account when the order in question is resumed.

Quite a crowd: the TBA 2000 supplies mixes of various recipes for job sites in the area around Bucharest.

BENNINGHOVEN accordingly offers the option, unique in the world, of being able to burn 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, anything from 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.





Impressive views and spectacular bends:  
the 35 km Nockalm road  
in Carinthia, Austria.