



Asphalt mixing plants

# TYPE TBA



# IT'S ALL IN THE MIX.

Leading asphalt mixing plant technology.

State of the art! BENNINGHOVEN has been following this approach for over a century. Through consistent further development, growing from a trade workshop to a globally active company, BENNINGHOVEN is a pacesetter in the field of asphalt mixing plants today. The opening of the world's most modern factory for asphalt mixing plants in summer 2018 was another milestone in our successful history. This allows us to offer our customers the best possible solutions when it comes to producing the highest quality asphalt in an economical process.

BENNINGHOVEN is part of the expanding, worldwide active WIRTGEN GROUP which has been part of John Deere since late 2017.

## BENNINGHOVEN PRODUCT RANGE

**ECO**  
Asphalt mixing plant  
"The multi-talent"

**TBA**  
Asphalt mixing plant  
"The specialist"

**RPP**  
Recycling plant  
"The sustainable one"

## RETROFIT SOLUTIONS

# THE SPECIALIST.

Transportable asphalt mixing plant



HIGH-TECH  
PLANT POWER



PLUG & WORK



RECYCLING\*



OPERATOR  
BENEFIT



SUSTAINABLE  
SOLUTIONS

**The TBA plant type is the BENNINGHOVEN benchmark for a well thought-out asphalt mixing plant with the highest quality standard.**

The BENNINGHOVEN mixing plant type TBA covers the performance ranges 160 – 320 t/h and is suitable for semi-mobile use and stationary use. The design of the main components in container design with plug-in cabling provides ideal transport options and reduced set-up times for the modular system.

The high level of flexibility, available options, large storage capacities of the hot bin section and mixed material loading silo and the continuous retrofitting options for the components turn the TBA into an impressive specialist.

**TBA**  
PERFORMANCE



# THE HIGHLIGHTS

Perfectly positioned.

## > High-tech plant power

- > Wide range of mixing capacities 160 - 320 t/h
- > Hot bin section capacity 60 - 150 t in up to 14 bins
- > Mixed material storage silo capacity 517 t in 7 bins
- > Mixed material storage silo installed in line or parallel

## > Plug & work

- > Fast assembly (installation and dismantling)
- > Modular expansion possible
- > Mobile or stationary foundations - rapid relocation
- > Pre-configured interfaces

## > Recycling+

- > Cold recycling up to 40 %
- > Retrofitting possible at any time

## > User benefit

- > Ergonomics concept
- > Health and safety
- > Maintenance concept

## > Sustainable solutions

**Eco-friendly asphalt production - carbon-neutral, energy-efficient and economical**

- > Reusing asphalt (recycling material)
- > Storing virgin mineral and recycling material correctly
- > Using low-temperature asphalt
- > Electrifying bitumen tanks
- > Using renewable fuels



BENNINGHOVEN SUSTAINABILITY describes innovative technologies and solutions which are consistent with the sustainability objectives of the WIRTGEN GROUP.

# HIGH-TECH PLANT POWER

Pure passion.



## 01 Cold feed system

- > Individual hopper, each 12 m<sup>3</sup>/16 m<sup>3</sup>/20 m<sup>3</sup>
- > Precise pre-classification
- > Flexible installation (I, L or T shape)

## 02 Bitumen system

- > Optimal storage
- > Efficient heat insulation concept
- > Efficient heating
- > Expanded options with intelligent BENNINGHOVEN technologies

## 03 Dust collection system

- > Efficient filter function / dedusting
- > Maximum use of space

## 04 Dryer drum with burner

- > Optimal drying and heating of the mineral
- > Different versions of the drum depending on the requirements
- > Control with frequency converter possible

## 05 Control cabin / control cabinet container

- > Plant control
- > Control of the mixing process
- > Recipe management
- > Control cabinets positioned centrally

## 06 Foundations

- > Stationary concrete foundations
- > Mobile steel foundations

## 07 Filler silo / filler tower

- > Storage of reclaimed filler
- > Optional reclaimed filler loading (loading hose, loading fittings, filler water mixer)
- > Optional storage of imported filler

## 08 Mixed material storage silo

- > Direct loading or storage
- > Flexible positioning
- > Various expansions (in line or parallel expansion)
- > No mixed material storage silo possible
- > Direct loading up to the storage capacity of 517 t (1 - 7 chambers)

## 09 Asphalt transfer

- > Direct loading
- > Skip track (94 - 517 t mixed material storage silo)

## 10 Weighing and mixing section

- > Fast and precise weighing and feeding
- > Good accessibility
- > 3 t mixer
- > 4 t mixer

## 11 Hot bin section

- > 60 - 150 t
- > In 5 - 14 bins
- > Sand / bypass together / separate

## 12 Screen unit

- > 5-fold / 6-fold screening
- > Adapted to international standards and recipe requirements
- > High performance and compact design

## 13 Mixing tower

- > Optimum wear protection, long service life
- > Trouble-free process

## 14 Slewing crane

- > Lifting capacity 980 kg



# HIGH-TECH PLANT POWER

Good for turnover and the environment.

**TBA plants are impressive specialists. This is where maximum flexibility meets strong plant performance.**

The TBA transportable asphalt mixing plant covers the performance range from 160 to 320 t/h and is suitable for semi-mobile use and for stationary use.

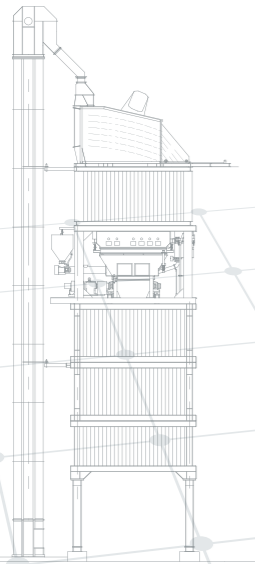
The large storage capacities of the hot bin section and mixed material storage silo offer real added value. Intermediate storage of the dried, heated and sorted virgin mineral is

available in capacities of 60 t to 150 t in 5 to 14 bins. There is still an option of combining or separating sand and bypass.

An integrated mixed material loading silo with dimensions up to 517 t ensures a sufficient buffer while also providing storage capacity for up to seven asphalt types (recipes). Thanks to the modular system, it can be expanded or retrofitted at any time.

CLEAR COMPETITIVE ADVANTAGE  
THANKS TO VERSATILITY

UP TO  
**320 t**  
PER HOUR



Large storage capacities for individual requirements

- > 60 - 150 t hot bin section
- > Up to 517 t mixed material storage silo



 **up to 320 t/h**  
Top performance

**Large storage capacities**  
Hot bin section + mixed material storage silo

**Parallel / in line installation**  
Mixed material storage silo

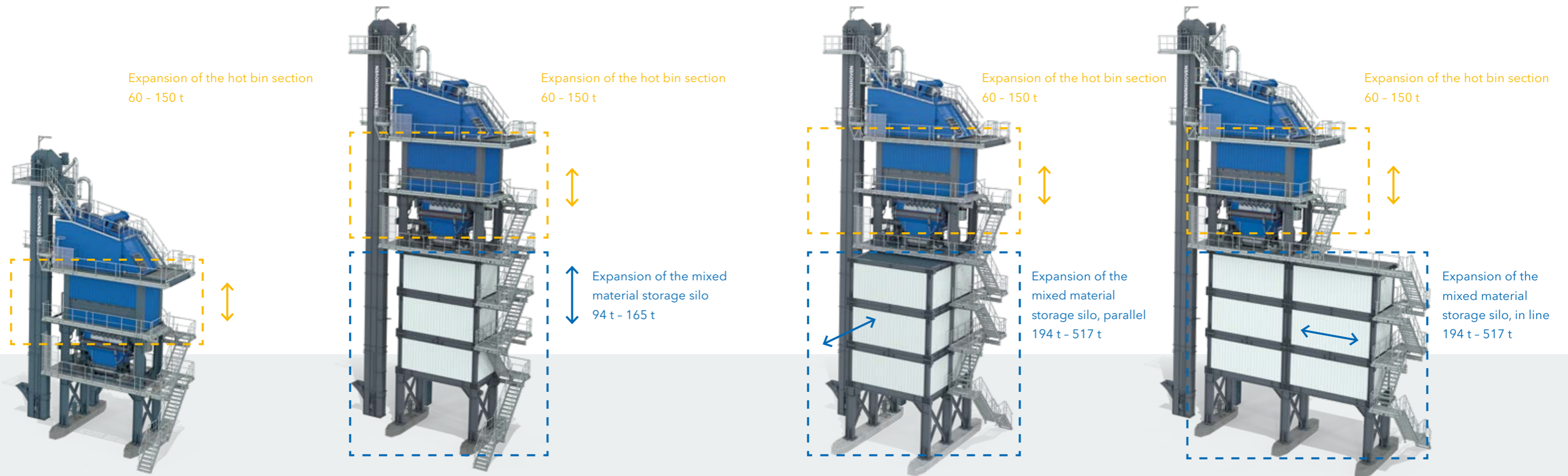
# THE TBA VARIETY OF OPTIONS

Thought further.

## A clever modular system - composed of modules and adaptable at any time.

The modular BENNINGHOVEN design also enables the integration of a large number of high-tech components which can be quickly and easily adapted to the specific needs of the plant owner, even at a later stage. BENNINGHOVEN ensures this with its pre-configured interfaces (plug & work) which can be activated at any time. Individual configuration of the hot bin section or the expansion options for the loading silo - installed

in line or parallel - are other examples for this. Space constraints that require a highly compact plant, a large variety of recipes that necessitate a large number of storage chambers or the requirement for only one weighing bridge - customer requirements are always individual. With the BENNINGHOVEN modular system, these can be achieved at any time, for future-proof plants that are a reliable investment.



## BENNINGHOVEN > GOOD TO KNOW

### Asphalt optimisation with feed systems - plug & work

Additives can be introduced into the mixture to optimise the properties of the asphalt. BENNINGHOVEN offers various feed systems for this.

Feed options:

- > Granulate dosing system
- > Powder / granulate dosing system
- > Bag dosing unit
- > Liquide additive system
- > Additional customer requests



**Flexible configuration**  
Hot bin section

**Flexible expansion**  
Mixed material storage silo

**Individual adaptation**  
depending on requirements

**Time-optimised loading**  
of a variety of recipes

# SUSTAINABLE BURNER TECHNOLOGY

Still burning in the future.



**BENNINGHOVEN**  
SUSTAINABILITY

**When it comes to the highest possible level of eco-friendly and sustainable operation of asphalt mixing plants, the innovative BENNINGHOVEN burners are the first choice for safe and reliable use of renewable and future-proof energy sources.**

Many markets are now preparing to exit from coal, while systems running on oil or gas are also increasingly subject to tighter regulations and restrictions. With burner technology from BENNINGHOVEN, plant owners can modernize their plants and safeguard the continued operation of their business.

EVO JET multi-fuel burners, which can use renewable fuels such as biomass to liquid (BtL) and wood dust, contribute to this. Both fuels are carbon-neutral and are also attractive when it comes to their availability, as fossil fuels are not only limited, but are becoming increasingly more difficult to obtain.

## Fuel change at the press of a button

This turns the burner into a combination burner, which means that different variants of oil, natural gas, liquid gas and all gaseous substances (DME, etc.) available on the market, coal dust, BtL and wood dust can be combined as fuels. This eliminates plant downtime due to lack of raw material or delivery problems. In the event of price fluctuations for any particular fuel, the cheapest fuel can always be selected.

## Best service for smooth operation

The world's largest and most modern factory for asphalt mixing plants offers optimum conditions for production at the highest level. As the manufacturer of the plants, BENNINGHOVEN can offer best possible customer service that is perfectly tailored to the respective asphalt mixing plants. Our specialists have extensive process know-how and are familiar with every little detail of the plants.

Before delivery from the factory, all burners are tested thoroughly and all basic settings are made. The optimum settings for energy-efficient and effective operation are made on site - to save CO<sub>2</sub> and comply with emission limits.



**Innovative multi-fuel burner**  
up to four fuels

**Modular structure**  
Easy retrofitting and expansions

**Strong performance**  
Highly efficient consumption



Retrofitting solid fuel burner (wood)



# INTELLIGENT MODULAR SYSTEM

Quickly to work.

PLUG &  
WORK



**Thanks to the intelligent modular system, the TBA asphalt mixing plant features easy assembly and fast readiness for operation.**

All sections of this compact plant are already pre-wired at the factory, greatly facilitating handling on site. This allows fast and effective installation. The connections can also be dismantled within a short period of time, transported and re-assembled at a new location. This added value becomes particularly evident at mobile construction sites and large temporary construction sites.

The plant can be installed either on mobile steel foundations or permanent concrete foundations.



**Modular expansion possible**  
with pre-configured interfaces

**Fast installation**

Assembly / disassembly and relocation

**Cost-efficient and flexible**

thanks to mobile steel foundations

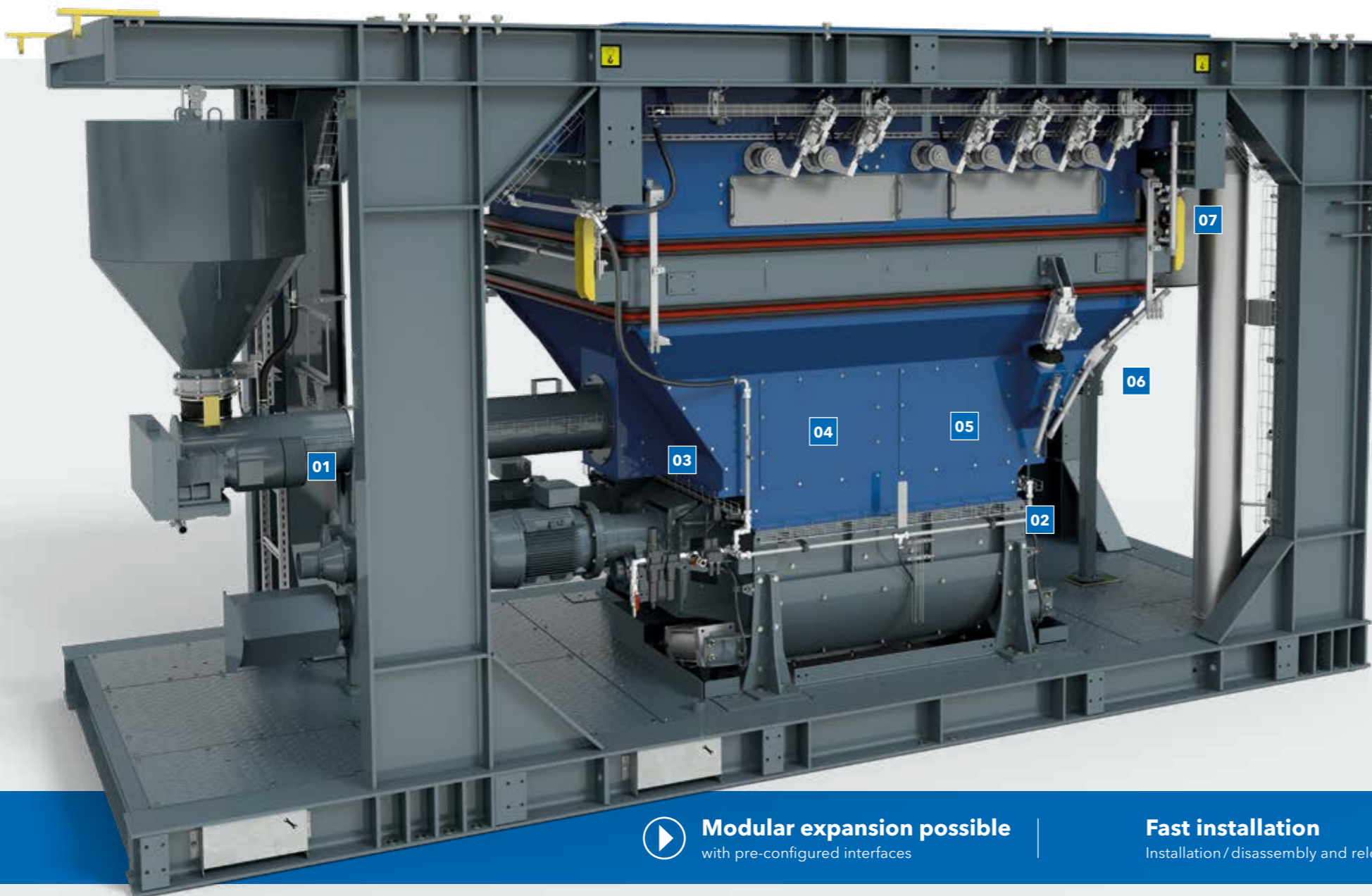
# PRE-CONFIGURED INTERFACES

Added value right from the start.

**With their intelligent design, BENNINGHOVEN plants can be adapted in a modular structure at any time to offer added value right from the start.**

An interface is provided on the plant for each additional technical component. This allows all subsequent retrofitting requests to easily be flanged onto the weighing and mixing section.

Only the blind cover needs to be removed and the connection attached - no further welding or structural changes required.



## BENNINGHOVEN > GOOD TO KNOW

### The BENNINGHOVEN mixer for the best mixture quality

- > Wide dimensioned mixer design
- > Pre-configured interfaces for adding recycling material, bags, foam bitumen, granulate, powder, fibres and liquide additive
- > Optimum fill level (< 60 %) - no overfilling
- > Highest quality materials for extreme conditions
- > Optimum wear protection, long service life
- > Stable and reliable process
- > Key transfer system for high level of safety



## PLUG & WORK

- 01** Granulate dosing system
- 02** Powder dosing system
- 03** Recycling extraction
- 04** Cold recycling dosing system
- 05** Hot recycling dosing system / bag dosing unit
- 06** Foam bitumen
- 07** Liquide additive system

**Modular expansion possible**  
with pre-configured interfaces

**Fast installation**  
Installation / disassembly and relocation

**Cost-efficient and flexible**  
thanks to mobile steel foundations

# OPTIMUM RELOCATIONS

Just carry on.

PLUG &  
WORK

**TBA plants master fast relocations without quality loss, providing a crucial advantage for large temporary construction sites.**

Due to the high quality of the components, the plants can be assembled and dismantled as often as required without restrictions.

Despite frequent component movements, this does not cause any warping of the steel supports. This is achieved with a high-quality powder coating and clever designs based on the load classes (earthquake, wind loads, snow loads).

The TBA plants also stand for a high level of reliability and a strong performance without downtimes, which is especially important for prestige projects and large construction sites with very tight schedules.

Installation of a TBA plant



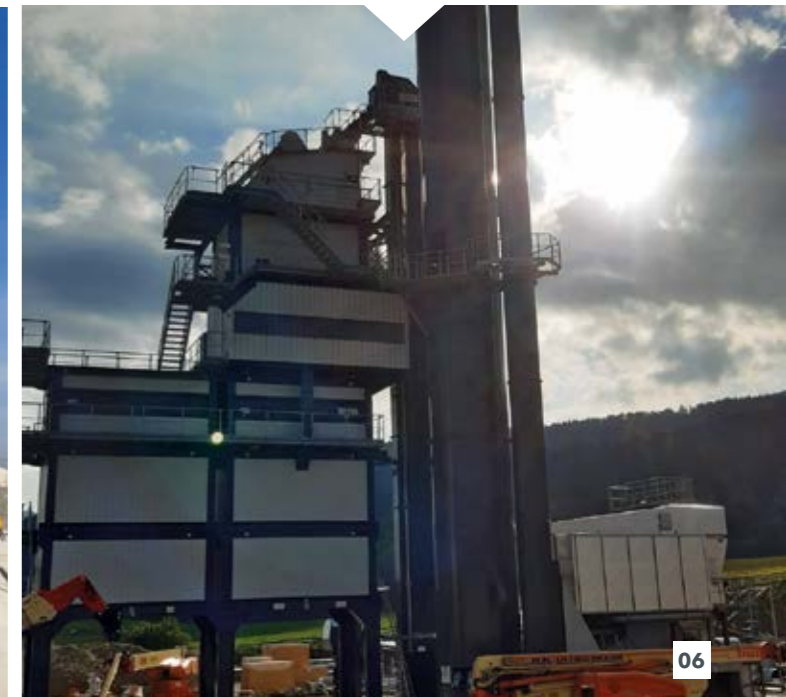
01



02



03



06



04



05



**High level of flexibility**  
for changing locations

**No downtime**  
thanks to reliable performance

**Efficient and quick**  
planning and execution

# TBA RECYCLING SYSTEMS

Economical and environmentally friendly.

**The processing of recycled asphalt is a high priority when it comes to conserving natural resources. This fundamental drive for re-using materials is only one of many.**

Country-specific requirements, the reduction of emissions and increased economic efficiency are important points in favour of recycling and environmentally friendly asphalt production, because green asphalt is possible only with the use of recycling materials.

BENNINGHOVEN offers a wide range of products and services in the field of recycling feed systems. The main advantage of these technologies is how they work to combine sustainability and efficiency in a profitable way.

### Advantages of using recycling materials

- > Saving natural resources (mineral/bitumen)
- > Highest possible re-use based on recycling concept
- > Reducing CO<sub>2</sub> emissions in the entire process: Use of RAP material from the environment of the plant, short travel distances, processing of mineral (quarrying/breaking) and bitumen (refinery) are required less.
- > Flexible reaction to bitumen availability
- > Increased economic efficiency



Cold recycling  
up to 40 % RAP addition rate



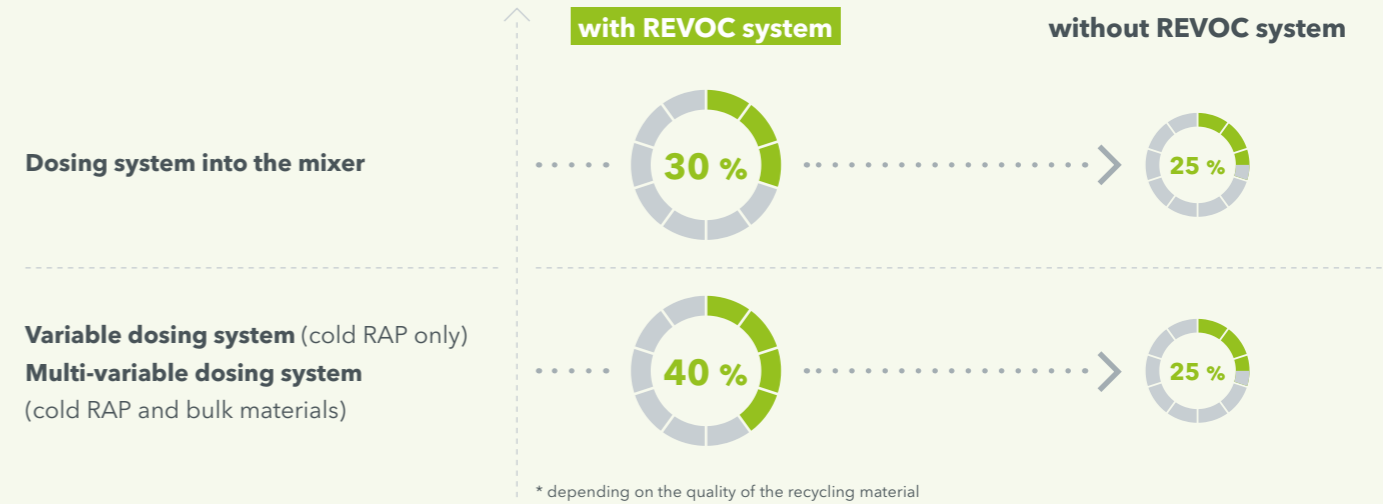
#### Without mixed material storage silo

- > Optional lateral mixed material storage silo

#### With mixed material storage silo

- > With multi-variable dosing system

Feed rates compliant with the emission limits VOC < 50 mg/m<sup>3</sup> \*



- > REVOC system as an add-on for complying with emissions regulations
- > Supplements existing cold and hot recycling systems



**BENNINGHOVEN**  
SUSTAINABILITY

# ERGONOMICS, MAINTENANCE, AND HEALTH & SAFETY CONCEPT

Always right in the middle.

The development and design of the BENNINGHOVEN asphalt mixing plants are based on a high level of functionality while prioritising reliable operation and functioning as well as optimum accessibility.



Very good accessibility to all areas with 800 mm wide surrounding access/working platform

## Ergonomics and maintenance concept

- > At BENNINGHOVEN, maintenance access openings always have a size of at least 600 x 600 mm
- > Large expansion space above the mixer allows upright working during service tasks
- > Clever layout of components - easy maintenance, ensured escape routes, health & safety, large installation space
- > Option of forced ventilation (entry into tight spaces) - mixer box, dryer drum
- > Anchor points for PPE
- > Wear parts are mostly bolted on - for good accessibility
- > Most lubrication points are in a central, ergonomic position, with colour coding
- > Power and compressed air connection for tools and maintenance work
- > Central compressed air maintenance unit for oiler and separator, plus filters
- > Platform loads are designed so that even accordingly large spare parts (drive motors above 500 kg) can be stored temporarily
- > Central location of control cabinets in the control cabinet container - air conditioned, high system stability, weather protection, no negative influence from hot components



**01** Large service openings ensure ergonomic access to the mixer for service and maintenance work

**02** Intuitive lubrication plan thanks to colour coding of the maintenance intervals (daily - weekly - monthly)

**03** In most cases, additional inspection covers on large covers for a high level of flexibility



**Very good accessibility**  
for safe maintenance



**Health and safety concept**

- > Design and implementation of the health and safety measures in compliance with the standards (Machinery Directive 2006/42/EC, DIN EN 536 Road construction machines - Mixing plants for road construction materials)
- > Emergency stop button
- > Contact protection on the complete drivetrain of the mixer and on all pneumatic cylinders
- > Encapsulated material transfer areas
- > Optimum illumination of the work and maintenance areas with LED technology
- > Safe access to all service and maintenance points (guard rails, ventilation openings, etc.)
- > Key transfer system for increased safety
- > Cable guiding in compliance with standards (clamps provide strain relief for cables)
- > Fall protection
- > Anti-slip surfaces (R12)
- > Escape routes ensured - headroom and sufficient width
- > Automatic venting of the pneumatic units for maintenance
- > Elevators with creep drive according to CE regulations
- > Extraction of bituminous vapours during loading (option)

**BENNINGHOVEN > GOOD TO KNOW**



**Key transfer system for increased safety**

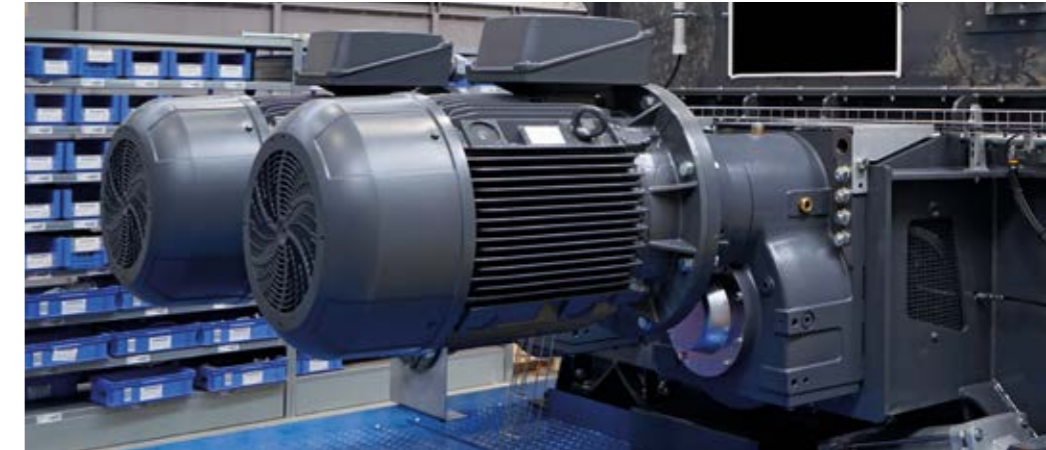
- > Key-operated mechanical system
- > Based on the premise that a key cannot be in two places at the same time
- > The key can only be removed in the safe state if there are no hazards present
- > Safety concept with highly intuitive operation
- > Purely mechanical interlocking device - robust and not prone to malfunctions
- > No manipulations possible



# HIGHEST PRODUCT QUALITY

Sustainability ex works.

**BENNINGHOVEN** has the objective of continuously making improvements across divisions and plants - from design engineering and final assembly to commissioning at the customer site.



Mechanical and electric test run at the factory



## Test run at the factory

All core components undergo a test run at the factory. This means that all components are started up "dry" and the mechanical and electrical systems are tested thoroughly. Even for the screen, the factory has a dedicated, decoupled area.

The high level of competence of the specialists at the factory is a crucial factor in preventing faults - before assembly and commissioning in the field.

## Surface quality

All components of a BENNINGHOVEN asphalt mixing plant are subject to a defined coating standard with at least corrosion protection class C3M or C4M for steel parts and containers.

## Use of renowned suppliers

Design and manufacturing of BENNINGHOVEN asphalt mixing plants and components are carried out at the factory in Wittlich. Only high-quality components and parts (drive systems, sensor systems, electrics, etc.) from renowned, established and reliable suppliers are used to ensure continuous quality assurance.

# MAXIMUM CUSTOMER FOCUS

The best recipe: more than 100 years of experience.

**Our service does not start only when the order is signed or end with commissioning. The comprehensive customer support at BENNINGHOVEN already starts much earlier on during the preparation phase of a project.**

Most importantly, this includes complete and competent support to help you find the best possible plant solution. We believe it is important to take into account technical as well as location-related requirements and to develop an appropriate logistics concept.



## Technical support

- > Fault diagnosis/troubleshooting
- > Application consulting
- > Training
- > Operator days
- > Spare parts
- > Prevention and inspection
- > Retrofit
- > Energy optimisation



## Logistics concept

- > Logistics paths/infrastructure on the plant and mixing station
- > Ship and HGV loading
- > Transport planning
- > Links between transport and installation
- > Approval process



## Plant engineering

- > Technical plant and operating descriptions
- > Installation and layout plans
- > Emissions measurement
- > Safety devices
- > Structural calculations
- > Advice on current standards



## Environmental requirements

- > Topography
- > Industrial area/nature reserve
- > Municipal restrictions
- > Colours/housing





# SUSTAINABLE SOLUTIONS

Green technology for a golden future.

**BENNINGHOVEN is also state-of-the-art in all areas where "being green" matters - from the economical use of resources to an overall environmentally friendly production process at our state-of-the-art main factory.**

Working more efficiently with sustainable and economical technologies is the challenge of today and tomorrow. BENNINGHOVEN offers a variety of innovative solutions for reducing emissions and securing the future of asphalt mixing plant sites. State-of-the-art technologies ensure that stringent legal requirements are met or even overfulfilled.

Considering the entire road construction process from material acquisition and asphalt production to building the roads, companies can save up to 60 % CO<sub>2</sub> with these technologies (60 % recycling input rate, carbon-neutral fuel).



**BENNINGHOVEN**  
SUSTAINABILITY



> Reusing asphalt

> Storing correctly

> Low-temperature asphalt

> Electrifying bitumen tanks

> Using renewable fuels

# YOUR WIRTGEN GROUP CUSTOMER SUPPORT

Service you can always rely on.

Place your trust in our reliable and fast support during the complete life cycle of your machine. Our wide service offer includes suitable solutions to meet all of your challenges.



## Service

We keep our service promises - with fast and uncomplicated assistance both on the building site and in our professional workshops. Our Service team has received expert training. Thanks to special tools, repair, care and maintenance work is completed quickly. Upon request, we can support you with tailored service agreements.

> [www.wirtgen-group.com/service](http://www.wirtgen-group.com/service)



## Spare parts

Original parts and accessories from WIRTGEN GROUP can ensure the high reliability and availability of your machines in the long term. Our experts will be glad to advise you on application-optimised wear part solutions. Our parts are available worldwide, at any time and are easy to order.

> [parts.wirtgen-group.com](http://parts.wirtgen-group.com)



## Training

Staff responsible for the WIRTGEN GROUP's product brands are specialists in their areas and have decades of application experience. Our customers also greatly benefit from these experts. In our WIRTGEN GROUP training courses, we gladly pass on our knowledge to operators and service personnel.

> [www.wirtgen-group.com/training](http://www.wirtgen-group.com/training)



## Telematics solutions

Construction machines with leading technology and perfected telematics solutions work hand-in-hand in the WIRTGEN GROUP. Intelligent monitoring systems such as WITOS or JD Link\* not only facilitate the maintenance planning of your machines but also increase productivity and economy.

> [www.wirtgen-group.com/telematics](http://www.wirtgen-group.com/telematics)

\* WITOS and JD Link are not currently available in all countries. Please consult your responsible branch or dealer if you have any questions in this area.



# BENNINGHOVEN



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