

PERFORMANCE TBA | 05

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



It's all in the mix

Asphalt mixing plants must be designed to provide all compounds in the right quantities and with the correct temperature, at the right time and in the right place. In addition to this, the processes must be safe, economical and environmentally friendly.

With our wide range of products and the large variety of options, any customer can find the right plant for their site, to meet all requirements and conditions.



Optimum configuration from the start.

Maximum flexibility and economic efficiency

The powerful TBA plants guarantee optimum quality of the mixture a nd can be operated as stationary systems, but can also handle rapid location changes without problems.

The TBA plants are equipped with "RECYCLING+" and feature a particularly high recycling addition rate of up to 80 % – an absolutely unique selling point in the segment of transportable asphalt mixing plants.





- > Wide range of mixing capacities 160 - 320 t/h
- > Hot bin section capacity 60/80/130 t in up to 7 bins
- > Loading silo capacity 517 t in up to 7 bins



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



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



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

PERFORMANCE

TBA | **07**

Good for turnover and the environment.

TOP PERFORMANCE WITH LOW EMISSIONS

The TBA plants present themselves as impressive all-rounders. This is where maximum flexibility meets strong system performance.

>> Exploit the full potential

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

The large storage capacities of the hot bin section and mixed material loading silo offer real added value. The intermediate storage of the dried, heated and sorted virgin mineral is available in capacities of 60 t, 80 t and 130 t in 5, 6 or 7 bins. There is also an option of combining or separating sand and bypass, discharging oversize aggregate to the outside or collecting it in the final bin.

An integrated mixed material loading silo with dimensions from 42 to 517 t ensures a sufficient buffer while providing storage capacity for up to seven asphalt types (recipes). Thanks to the modular system, this can be expanded or retrofitted at any time.

YOUR BENEFITS:

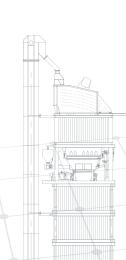
- + High hourly output
- + Large storage capacities (hot bin section/mixed material loading silo)
- + Increase of cost efficiency
- + Lowest emission rates
- + Large variety of options
- + Robust design, therefore resistant to earthquakes and strong wind loads

COMPETITIVE ADVANTAGE FROM VERSATILITY

320 t

ECO-FRIENDLY:
Cges < 50 mg/Nm³





PLUG & WORK TBA | 09



Get going.

THE INTELLIGENT MODULAR SYSTEM

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 completely pre-wired and equipped with pipes at the factory, greatly facilitating handling on site. This allows easy relocation of the plant as well as easy release and connection of the components.

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

YOUR BENEFITS:

- + Fast assembly (installation and dismantling)
- + Easy relocation
- + Modular expansion possible
- + Pre-configured interfaces
- + Installation possible without concrete foundations



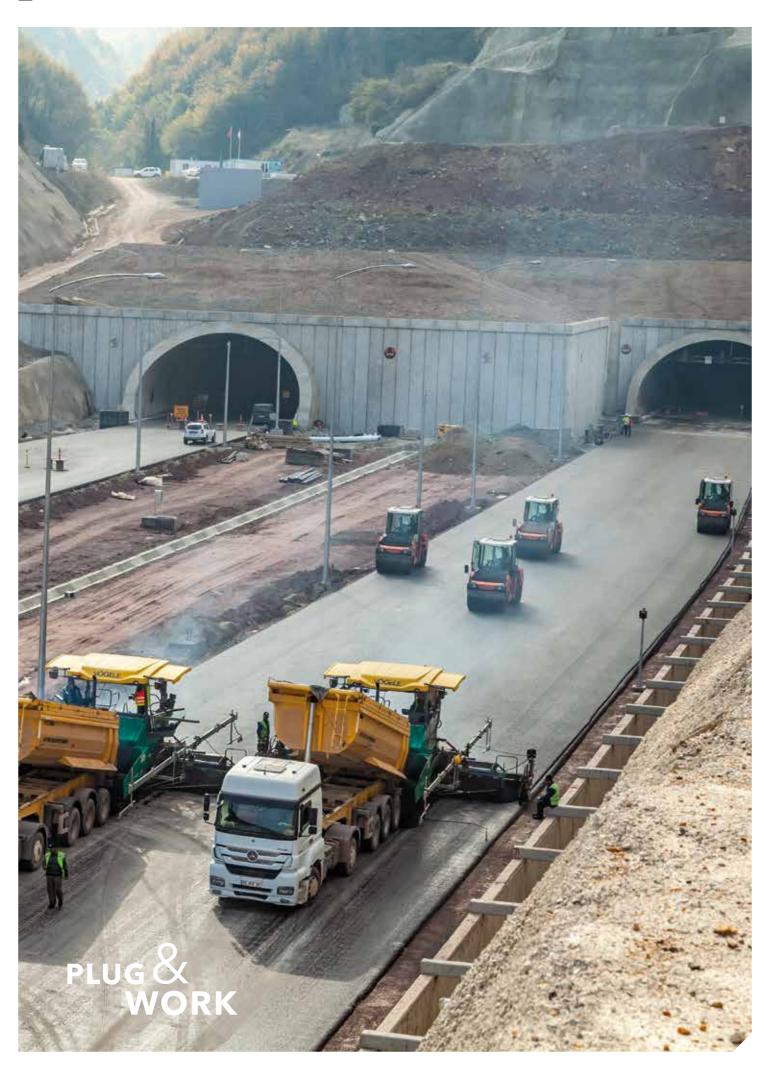
Transportable steel foundations increase your flexibility.







PLUG & WORK



Just carry on.

OPTIMUM RELOCATIONS

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





Guaranteed reliability

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 highquality powder coating and clever designs based on the load classes (earthquake, wind loads, snow loads).

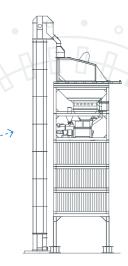
The TBA plants also stand for a high level of reliability and a strong performance without downtimes, which is especially important for prestige projects and large construction sites with very tight schedules.

YOUR BENEFITS:

- + Reliable performance
- + No downtimes
- + Reliable planning and fast handling



The optimum relocation process saves time and money.





The compact TBA plants feature strong and reliable plant performance during operation. Optimum quality of the asphaltic mixture is always guaranteed with a mixing capacity of up to 320 t/h.

320 t/h

NOMINAL MIXING CAPACITY

517 t

LOADING SILO CAPACITY WITH EXTENSION

80%

POSSIBLE RECYCLING ADDITION RATE



W BENNINGHOVEN



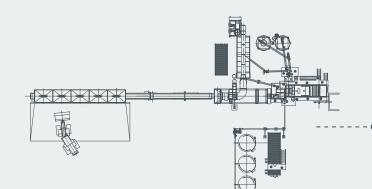
BENNINGHOVEN CONTROL SYSTEM



>> YOUR BENEFITS:

- + User-friendly, contemporary user interface
- + Fast training, flexible personnel management + Control and monitoring of the complete plant and mixing process
- + Realistic visualisation in real time
- + Energy monitoring, backup system for high operational reliability



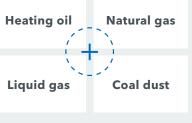


Additional information: ---- > Control systems brochure









Independent - flexible - cost-efficient

Raw material shortage Downtimes

>> YOUR BENEFITS:

- + Use of the currently most cost-efficient fuel
- + High efficiency in consumption
- (frequency-controlled)
- + Minimum pollutant emissions thanks to
- state-of-the-art control technology + Mobile burner for easier accessibility
- (e.g. for servicing)
- + Easy retrofitting

Perfectly positioned. THE TBA PLANT AT A GLANCE



- > Highest manufacturing standards
- > Innovative technologies
- > Comprehensive customer support

> Optional reclaimed filler loading (loading hose, loading fittings, filler water mixer)

> Optional storage of imported filler -----

> Storage of reclaimed filler

Filler silo

Mixing tower - - - - - - - - -

> Optimum wear protection > Trouble-free process

- > Efficient filter function/dust collection
- > Maximum use of space

1 Cold feed unit

- > 3/4/5/6-fold cold feed units with 12 m³ each
- Precise pre-classification
- > Flexible installation



> Optimum stocking

- > Efficient heat insulation concept
- > Expanded options with intelligent

BENNINGHOVEN technologies

BENNINGHOVEN is world market leader for burners and the only manufacturer of

4-fuel burners.



> Control of the mixing process

- > Recipe management

Dryer drum with burner

- > Optimum drying and heating of the

> Different versions of the drum depending on requirements



> 180°

- > Lifting capacity 980 kg
- Screen unit
- > 5-fold/6-fold screening > Adapted to international standards and recipe requirements

---- Hot bin section

- > 60 t/80 t/130 t > in 5, 6 or 7 bins
- > Sand/bypass together/ separate

Weighing and mixing section

- > Fast and precise weighing and feeding
- > Good accessibility
- > 1.25 t mixer = 100 t/h
- > 2 t mixer = 160 t/h > 3 t mixer = 240 t/h
- > 4 t mixer = 320 t/h

Asphalt transfer

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

- Mixed material loading silo

> Stationary concrete foundations

> Mobile steel foundations

ADDITION OPTIONS:

+ Granulate dosing system

+ Powder/granulate dosing

+ Manual bag dosing system

+ Liquide additive system + Foam bitumen system

+ RAP system

- > Storage or direct loading
- > Various expansions

> Flexible positioning

Foundations

BENNINGHOVEN INNOVATION

WEIGHING AND MIXING SECTION







- + Pre-configured interfaces for adding recycling material,
- bags, foam bitumen, granulate, powder, fibre and adhesive
- + Optimum fill level (< 60%) no overfilling
- + Highest quality materials for extreme loads
- + Optimum wear protection
- + Fault-free process
- + Key transfer system for high level of safety





fill level < 60%

VARIETY OF OPTIONS

Thought further.



The well thought-out modular system allows expansions with additional components at any time.



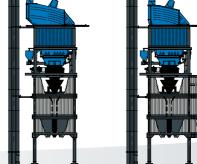
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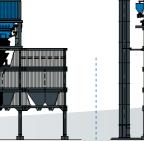
High level of flexibility and individual customisation

One great advantage of the TBA plants is the flexible expansion of the capacities of the loading silos and hot bin section. BENNINGHOVEN offers the right plant solution for any require-



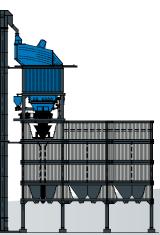








- + Flexible expansion
- + Time-optimised loading of different recipes
- + Individual adaptation
- + Cost-efficient processes



- > Low investment costs
- > Direct loading
- > Market-focused recipe selection
- > Optional adjacent loading silo
- > Low investment costs
- > Market-focused recipe selection
- > Small batches with direct loading
- > High storage capacity and flexibility
- > Flexible expansion of the loading silo capacities
- > Flexible expansion of the hot bin section capacities
- > Time-optimised loading of different
- > Small batches with direct loading



Asphalt optimization with feed systems

Additives can be introduced into the mixture to optimise the properties of the asphalt. BENNINGHOVEN offers the option of a single or double feed system.







Granulate dosing system Powder/Granulate doing system Manual bag dosing system Liquide additive system Foam bitumen system **Additional customer requests**



A question of type.





	TBA 2000		TBA 3000		TBA 4000					
Performance parameters										
Nominal mixing capacity (t/h)	16	50	24	10	320					
Drying capacity (t/h)	14	15	220		290					
General information										
Material moisture	All information is based on a material moisture level of 4 %									
Foundations	Stationary concrete foundations/mobile steel foundations									
Cold feed unit										
Number of hoppers			3/4/5/6-fold	cold feed unit						
Capacity (m³)	12		12		12					
Feed ramp			Optional							
Loading width (mm)	3,500		3,500		3,500					
Dryer drum										
Туре	TT 8	TT 8.22		TT 9.23		TT 11.26				
Burner										
Туре	EVO JET 2		EVO JET 3		EVO JET 4					
Burner output (MW)	11.9		19.0		23.7					
Single fuel burner	Heating oil (EL - extra light) or natural gas or liquid gas or heavy oil									
Single fuel burner	Combination of heating oil (EL - extra light), coal dust, natural gas, liquid gas, heavy oil									
Triple fuel burner	Combination of coal dust, heating oil (EL - extra light), natural gas									
Dust collection system										
Output (Nm³/h)	44,000		58,000		78,000					
Screen unit										
Screening (x-fold)	5	6	5	6	6					
Screen output (0-2 mm, t/h)	160	160	240	240	320					
Total screen area (m²)	25.5	30.6	38.5	46.2	48.3					
Hot bin section										
60 t										
5-fold screening	60-TA05-S/B comb., OA out	60-TA06-S/B sep., OA out	60-TA05-S/B comb., OA out	60-TA06-S/B sep., OA out	-					
Bins	5	6	5	6	-					
6-fold screening	60-TA06-S/B comb., OA out	60-TA07-S/B sep., OA out	60-TA06-S/B comb., OA out	60-TA07-S/B sep., OA out	60-TA06-S/B comb., OA out	60-TA07-S/B sep., OA out				
Bins	6	7	6	7	6	7				
80 t										
5-fold screening	80-TA05-S/B comb., OA out	80-TA06-S/B sep., OA out	80-TA05-S/B comb., OA out	80-TA06-S/B sep., OA out	-					
Bins	5	6	5	6	-					
6-fold screening	80-TA06-S/B	80-TA07-S/B	80-TA06-S/B	80-TA07-S/B sep., OA out	80-TA06-S/B comb., OA out	80-TA07-S/B sep., OA out				
o-tota screening	comb., OA out	sep., OA out	comb., OA out	sep., OA out	comb., or out	sep., OA out				

TECHNICAL DATA TBA | 21

	TBA 2000		TBA 3000		TBA 4000			
Hot bin section								
130 t								
5-fold screening	130-TA05-S/B comb., OA out	130-TA06-S/B sep., OA out	130-TA05-S/B sep., OA out	130-TA06-S/B sep., OA out		-		
Bins	5	6	5	6	-	-		
6-fold screening	130-TA06-S/B comb., OA out	130-TA07-S/B sep., OA out	130-TA06-S/B comb., OA out	130-TA07-S/B sep., OA out	130-TA06-S/B comb., OA out	130-TA07-S/E sep., OA out		
Bins	6	7	6	7	6	7		
Weighing and mixing section								
Mixer (kg)	2,000		3,000		4,000			
Mineral weigh hopper (kg capacity)	3,000		3,000		4,000			
Filler weigh hopper (kg capacity)	600		600		600			
Bitumen weigh hopper (kg capacity)	3!	350 350		35	50			
Mixed material loading silos	,							
Lowered/adjacent	0 t							
1-chamber loading silo	42 t							
2-chamber loading silo	94 t (2 x 43 t, 1 x 8 t (direct loading), 1 x 3 t (oversize aggregate/overflow)) or 165 t (2 x 76 t, 1 x 13 t (direct loading), 1 x 5 t (oversize aggregate/overflow))							
4-chamber loading silo	194 t (2 x 43 t, 2 x 50 t (next to MT), 1 x 8 t (direct loading), 1 x 3 t (oversize aggregate/overflow)) or 341 t (2 x 76 t, 2 x 88 t (adjacent), 1 x 13 t (direct loading), 1 x 5 t (oversize aggregate/overflow))							
6-chamber loading silo	294 t (2 x 43 t, 4 x 50 t (next to MT), 1 x 8 t (direct loading), 1 x 3 t (oversize aggregate/overflow)) or 517 t (2 x 76 t, 4 x 88 t (adjacent), 1 x 13 t (direct loading), 1 x 5 t (oversize aggregate/overflow))							
Mixed material transfer								
42 t mixed material loading silo	Direct draining of mixer in loading silo							
94 - 517 t mixed material loading silo	Skip track							
Filler system	,							
Reclaimed filler silo	50 m³ or 60 m³ or 80 m³							
Option imported filler silo 1x	50 m³ or 60 m³ or 80 m³							
Option imported filler silo 2x	50 m³ or 60 m³ or 80 m³							
Reclaimed filler loading	Optional							
Bitumen system	,							
Tank version	Vertical, electrically heated							
Capacity (m ³)	60 or 80 or 100							
Number of chambers	1 or 2							
Insulation (mm)	200 or 300							
Mixing	Agitator or mixing nozzle							
Control system								
Model		BE	ENNINGHOVEN co	ntrol system BLS 3	300			
Recycling feed systems								
Middle ring dosing system	- 25 % RAP feed quantity							
Dosing system into the mixer	30 % RAP feed quantity							
Multivariable dosing system	40 % RAP feed quantity							
Parallel drum	- 70 % RAP feed quantity							
Recycling drum with hot-gas generator	- 80 % RAP feed quantity							
Other feed options								
Additives		Granulate, powd	er, liquide additive	e, foam bitumen, b	ag feed and fibre			
	•							

RECYCLING SYSTEMS

Added value. Middle ring dosing system THE TBA RECYCLING SYSTEMS COLDRECYCLING Dosing system into the mixer **BENNINGHOVEN** offers a wide range Multivariable of products and services in the field of dosing system recycling feed systems. YOUR BENEFITS: + Environmentally friendly production HOTRECYCLING + Multiple cost savings **Parallel drum** + Government grants + Easy retrofitting



Economical and environmentally friendly

In addition, the recycling components are adapted and integrated for retrofitting of existing systems from all manufacturers, according to individual customer requirements. With the TBA, you can choose from a large number of recycling systems for hot and cold feed, to suit your demands or normative and legislative requirements.

This strengthens the environmental concept and reduces use of resources.



Recycling drum with hot-gas generator

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CUSTOMER SUPPORT TBA | 27

The best recipe: more than 100 years of experience.

BENNINGHOVEN CUSTOMER SUPPORT

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Maximum customer focus

Our service does not only start when the order is signed or end with commissioning. The comprehensive customer support at BENNINGHOVEN already starts much earlier on in 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.

ENVIRONMENTAL REQUIREMENTS:

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



LOGISTICS CONCEPT:

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

TECHNICAL SUPPORT:

- > Troubleshooting
- > Application consulting
- > Training
- > Operator days
- > Spare parts
- > Prevention and inspection
- > Energy optimisation
- > Retrofit

PLANT TECHNOLOGY:

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









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