



STATIONARY ASPHALT MIXING PLANTS

TYPE BA / BA-RPP



BAUMA VERSION



HIGHEST QUALITY
STATE OF THE ART

**Trendsetter for the
highest demands.**

State of the art! This is an approach that BENNINGHOVEN has followed for over a century. Through consistent further development, growing from a trade workshop to a globally active company, BENNINGHOVEN is a trendsetter 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 GmbH & Co. KG is a member of the expanding, worldwide active WIRTGEN GROUP which has been part of John Deere since late 2017.

BENNINGHOVEN GMBH & CO. KG

Superlative.

STATIONARY ASPHALT MIXING PLANTS



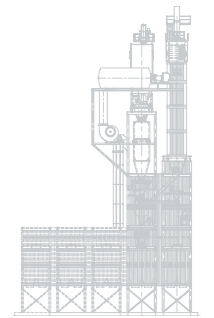
The stationary plant type BA/BA-RPP is the flagship of the BENNINGHOVEN range.



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.

The powerful plants of type BA/BA-RPP feature unlimited equipment options and a vast production capacity with optimum asphalt mixture quality. They are always planned as a location concept and individually tailored to the customers' economic requirements. BA/BA-RPP enables customers to secure the market and dominate it over many years.



Clearly defined position.

Eco-friendly asphalt production

The BA-RPP plants are equipped with "RECYCLING+" and feature a particularly high recycling addition rate of up to 90 %. With low emissions, the plant makes an effective contribution to energy efficiency, economic efficiency and active environmental protection.



RECYCLING+

- > Recycling addition up to 90 % (BA-RPP)
- > Low environmental impact (emissions)
- > Low energy consumption of the plant
- > Output of the RAP plant 180 t/h, 220 t/h



HIGH-TECH
PLANT POWER

- > Wide range of mixing capacities 320 - 400 t/h
- > Hot bin section capacity 170 - 320 t in up to 14 bins
- > Loading silo capacity 355 - 1100 t in up to 11 bins



PLUG & WORK

- > Location concept with flexible modular system
- > Modular expansion possible
- > Short project implementation periods
- > Short installation periods



OPERATOR
BENEFIT

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

Clean performance.

RECYCLING DRUM USING COUNTERFLOW ACTION WITH A HOT-GAS GENERATOR



With the recycling drum using counterflow action with a hot-gas generator, BENNINGHOVEN offers an environmentally friendly, future-proof solution that is always a reliable investment.

>> Everything under control

In classic recycling systems using the parallel flow principle, the temperature is limited to 130 °C by the generated exhaust gas emissions. However, the exhaust gas temperatures physically exceed this, resulting in increased energy consumption and a greater load on the dust collection system. In order for the asphaltic mixture to reach a temperature of 160 °C, overheated virgin mineral must be used in this case.

In contrast to classic recycling parallel drums with the recycling drum, with hot gas generator, the recycled material is heated indirectly in counterflow action. Depending on the quality of the recycled material, even quantities of over 90 % can be added.

As a result, the discharge temperature of 160 °C is the same as the application temperature, while the exhaust gas temperature is only around 100 °C (but above the dew point). This provides key advantages for companies operating of asphalt mixing plants.

YOUR BENEFITS:

- + High level of economic efficiency by increasing the RAP addition rate to over 90 + x %
- + Energy efficiency through low total energy required for operating the plant
- + Low emissions below the standard range, allowing compliance with the German TA Luft regulation

COMPETITIVE ADVANTAGE THROUGH LOW EMISSIONS



COMPLIANCE GUARANTEED:

Technical Instructions on Air Quality Control (TA-LUFT)

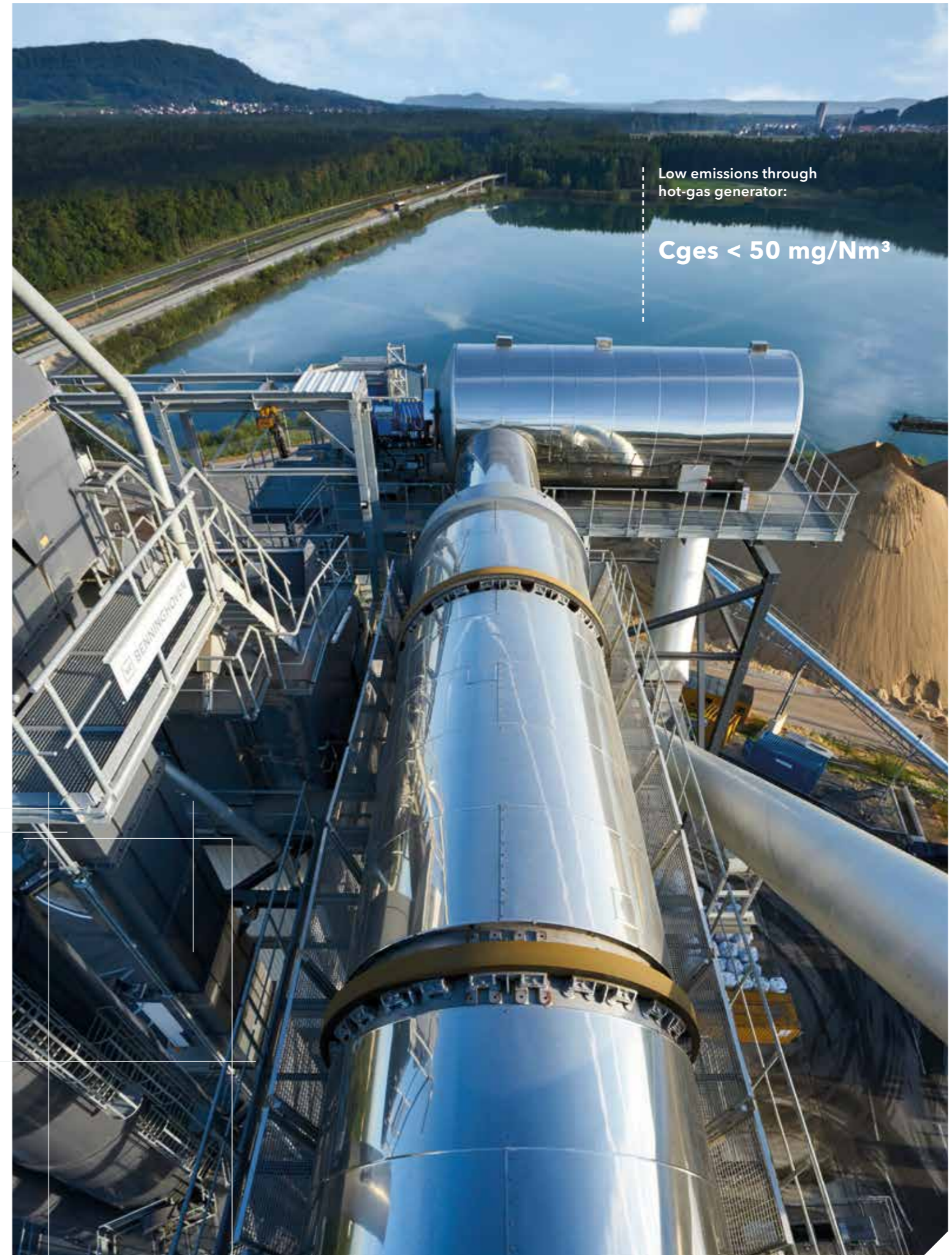
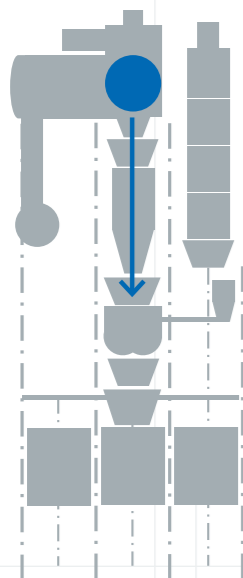
BA-RPP with hot-gas generator

Mixer in the RAP tower

Optimised material flow

Recycling drum with counterflow action

RAP addition rates: 90 + x %



Low emissions through hot-gas generator:

Cges < 50 mg/Nm³

Runs like clockwork.

RECYCLING DRUM USING COUNTERFLOW ACTION WITH A HOT-GAS GENERATOR



RAP BURNER

Indirect heating of the RAP material in the recycling drum using hot air - no flame contact

The burner burns into the hot-gas generator and intensively heats the circulating air, also using counterflow action

In the recycling drum, the RAP material is heated gently in counterflow action, which in turn cools the gases

HOT-GAS GENERATOR

CIRCULATION FAN

RECYCLING DRUM

EXTRACTION HOOD

Low emissions through hot-gas generator:

Cges < 50 mg/Nm³

RAP ELEVATOR

EXHAUST FAN

The material heated to the final temperature is transported directly into the storage silos or added to the mixer

>> HOT RECYCLING SYSTEMS - PROCESS COMPARISON AND ADVANTAGES

	RAP parallel drum (parallel flow action)	Recycling drum with hot-gas generator (counterflow action)	Advantages
Temperature of RAP material	130 °C	160 °C	+ 30 K
Temperature of virgin mineral	250 °C	160 °C	- 90 K
RAP addition rate	70% RC	> 90% RC	≥ 20%
Exhaust gas temperature	≈ 160 °C	≈ 100 °C	≈ 60 K

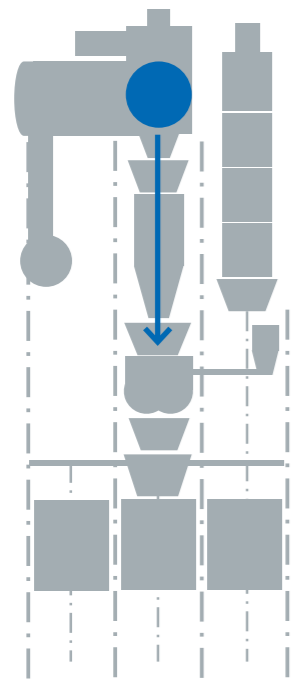
Everything considered.

MODEL VARIANTS OF THE BA SERIES



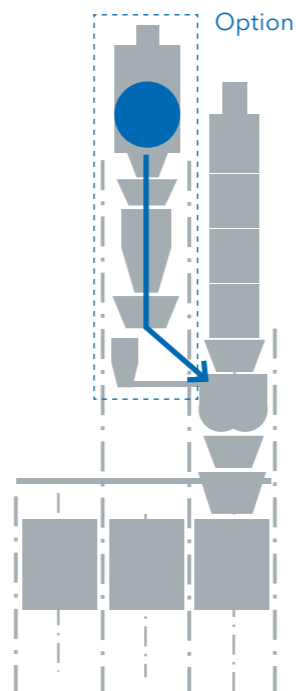
The subtle difference

As part of our comprehensive customer support and our varied product portfolio, BENNINGHOVEN offers the right plant for your individual requirements. Targeted planning takes into account economic aspects as well as the local and legal situation.



BA-RPP HG

- > Mixer in the RAP tower
- > Recycling drum with counterflow action
- > RAP addition rates: 90 + x %
- > RAP material temperature max. 160 °C
- > Optimised material flow
- > Output of the RAP system 180 t/h or 220 t/h



BA

- > Mixer in the virgin mineral tower
- > Recycling drum with counterflow action
- > RAP addition rates: 70 %
- > RAP material temperature max. 130 °C

> BA: BENNINGHOVEN plant > RPP: Recycling Priority Plant > HG: Hot Gas generator



Ready for great deeds.

THE FLEXIBLE MODULAR SYSTEM



Thanks to the flexible modular design, the asphalt mixing plant of type BA/BA-RPP features short project implementation times and fast readiness for operation.



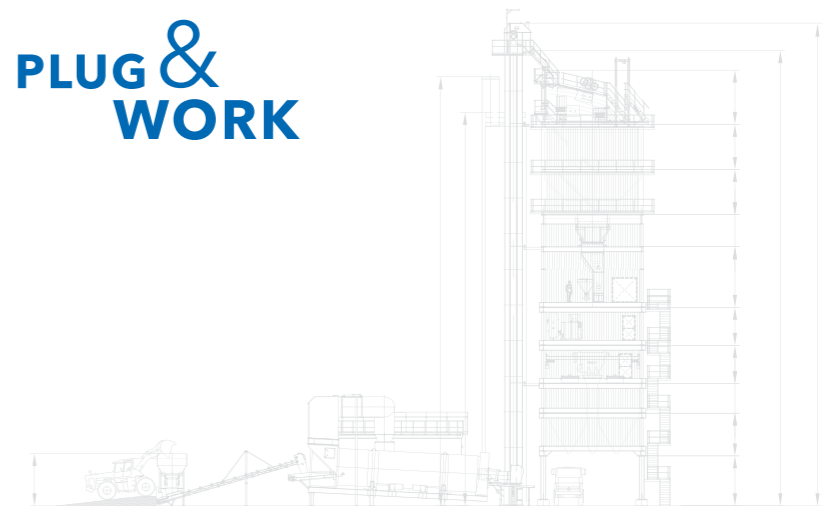
The stationary asphalt mixing plant is manufactured in sturdy container units, each fully assembled and with full wiring and piping. That makes installation very simple. Continuous inner walking platforms and wide access stairs offer comfortable access and safe, uncomplicated maintenance options.

All components are tested thoroughly at the factory and are absolutely reliable.

YOUR BENEFITS:

- + Fast and easy installation
- + Low design effort
- + Housing for essential sections
- + Very good accessibility

PLUG & WORK



3 MONTHS
IN 8 CONSTRUCTION PHASES

INSTALLATION TIME UNTIL COMPLETION

True strength.

HIGH-TECH PLANT POWER

The impressive plants of type BA/BA-RPP feature strong and reliable plant performance during operation. Optimum quality of the asphaltic mixture is always guaranteed with a mixing capacity of up to 400 t/h.

BA-RPP PERFORMANCE

400 t/h

NOMINAL MIXING
CAPACITY

320 t

HOT BIN SECTION

1,100 t

LOADING SILO CAPACITY
WITH EXPANSION

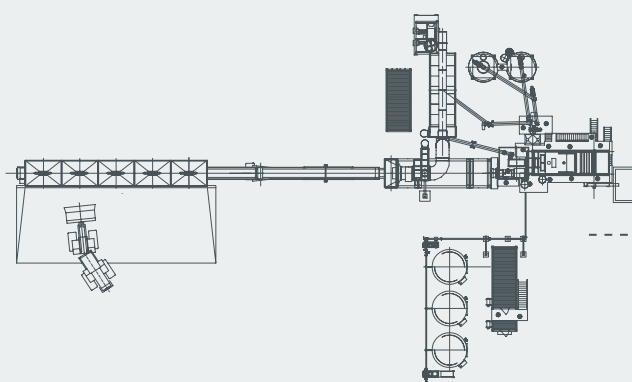




**BENNINGHOVEN CONTROL SYSTEM
BLS 3000**

>> 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



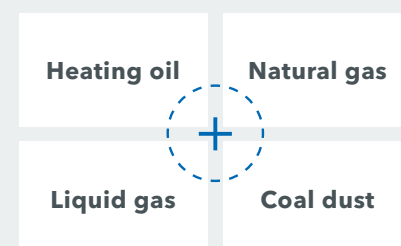
Additional information:
> Control systems brochure
> Retrofit brochure



**BENNINGHOVEN BURNER
EVO JET**



Flexible fuel change at the press of a button
(individually or in combination)



Independent - flexible - cost-efficient

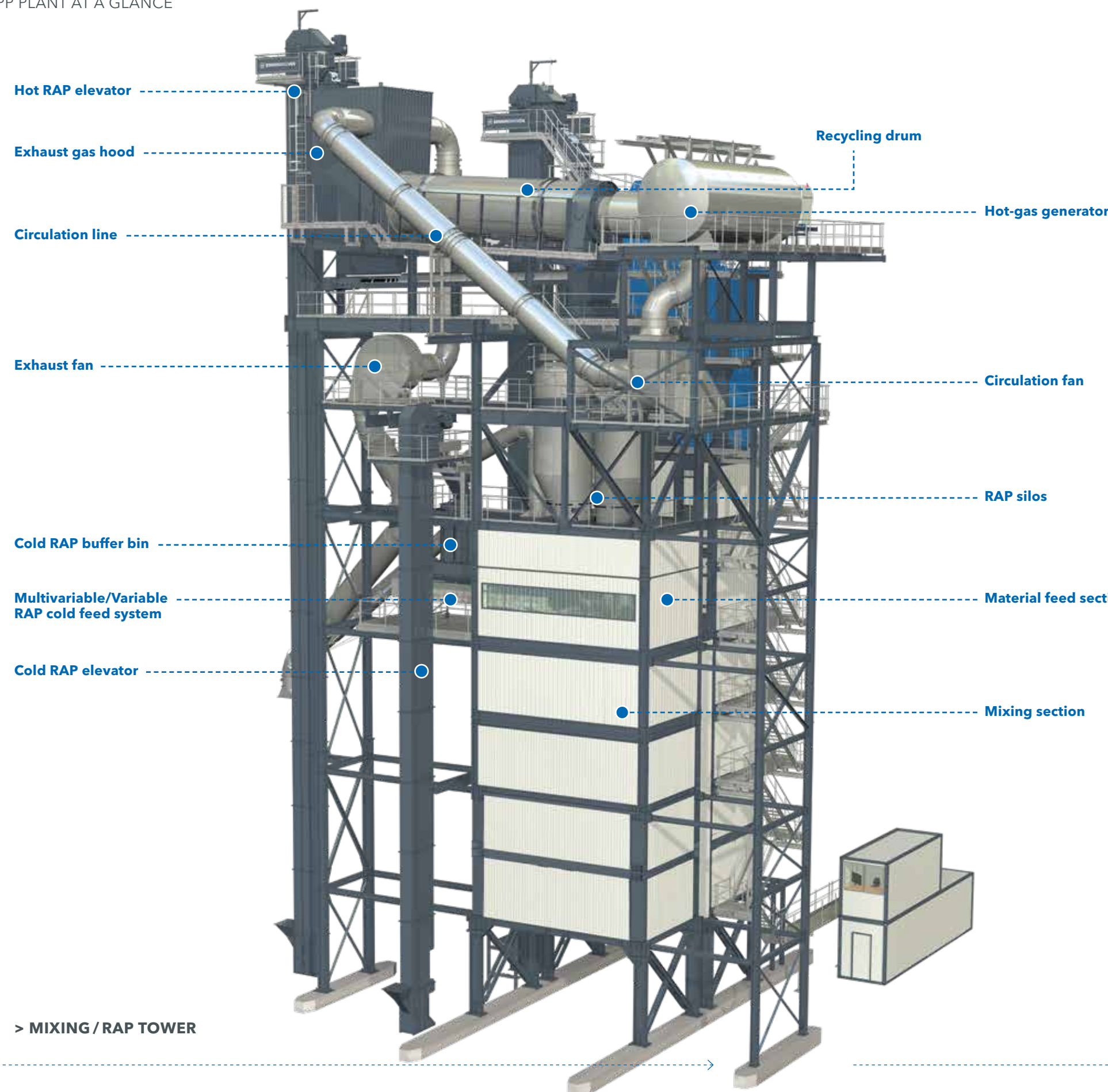
Raw-material shortage — Downtimes

>> 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 BA-RPP PLANT AT A GLANCE



> MIXING / RAP TOWER

PRODUCTION OF:

- + Rolled asphalt
- + Low-temperature asphalt
- + Mastic asphalt

IHRE OPTIONEN:

- + Granulate dosing system
- + Powder / Granulate dosing system
- + Manual bag dosing system
- + Liquide additive system
- + Foam bitumen system
- + Passenger and cargo elevator
- + Crane support
- + Innovative weigh hopper calibration system via measuring tractive force in one-man operation

> SCREEN TOWER

RAP burner

Aggregate weigh hopper

Filler weigh hopper section

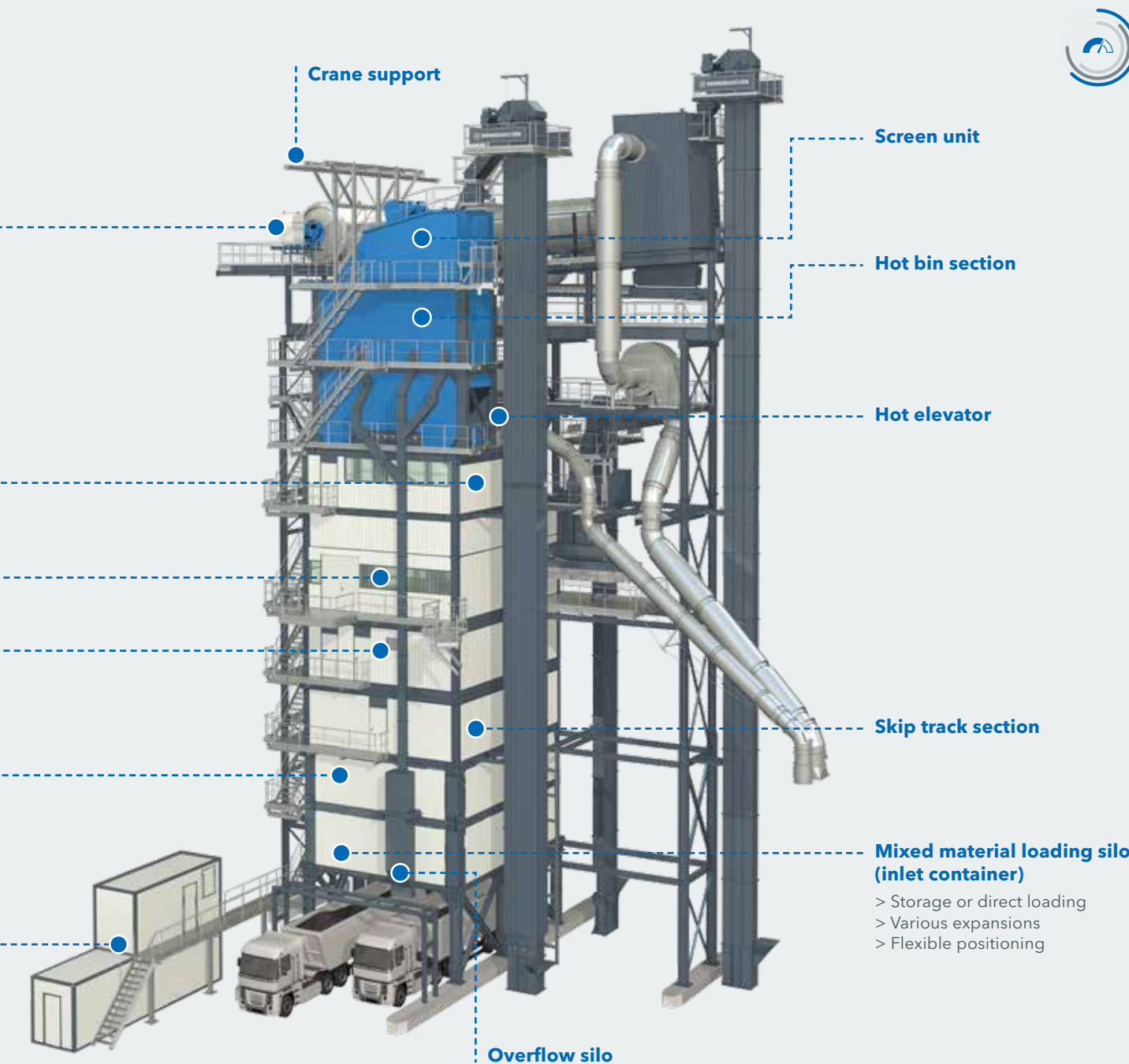
Compressor section

Mixed material loading silo (inlet container)

- > Storage or direct loading
- > Various expansions
- > Flexible positioning

Control cabin

- > Control of the mixing process
- > Recipe management



**BENNINGHOVEN QUALITY
MIXING PROCESS**

>> YOUR BENEFITS:

- + Optimum fill level (<60%)
- + Highest quality materials for extreme loads
- + Optimum wear protection
- + Insulated mixer
- + Assured durability
- + Fault-free process



Best asphaltic mixture quality
Optimum fill level < 60%





Thought further.

THE VARIETY OF BA/BA-RPP OPTIONS

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

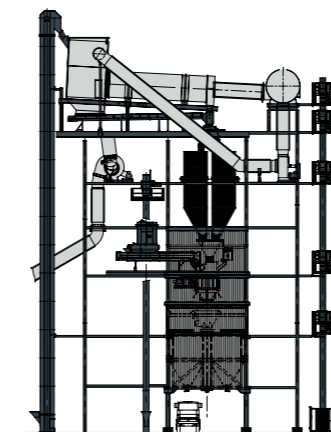


High level of flexibility and individual customisation

The flexible configuration of the capacities of the loading silo, hot bin section and RAP silos is a great advantage of the BA-RPP plants. BENNINGHOVEN offers the right plant solution for any requirement profile.

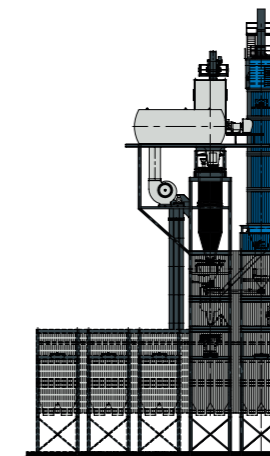
YOUR BENEFITS:

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



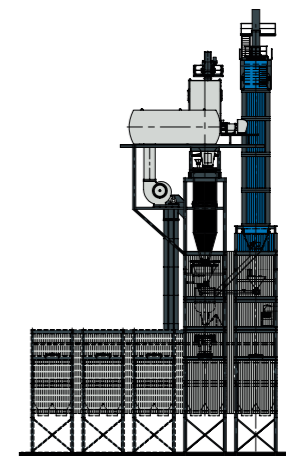
RAP silo variants

- > 1 x 45 t
- > 2 x 30 t
- > 2 x 40 t



Loading silo expansions

- > 355 t (4 chambers)
- > 440 t (4 chambers)
- > 535 t (6 chambers)
- > 660 t (6 chambers)
- > 715 t (8 chambers)
- > 880 t (8 chambers)
- > 895 t (10 chambers)
- > 1100 t (10 chambers)



Hot bin section variants

- > 170 t - 7 bins
- > 195 t - 13/14 bins
- > 270 t - 7/8 bins
- > 320 t - 13/14 bins

A question of type.

BA - TECHNICAL DATA



	BA 3000			BA 4000			BA 5000		
Performance parameters									
Nominal mixing capacity (t/h)	240			320			400		
Drying capacity (t/h)	220			290			360		
General information									
Material moisture	All information is based on a material moisture level of 4 %								
Foundations	Stationary concrete foundations								
Cold feed unit									
Number of hoppers	6-11 individual hoppers								
Feed ramp	Provided by customer								
Capacity (m ³)	12	16	20	12	16	20	12	16	20
Loading width (mm)	3,500	3,800	4,250	3,500	3,800	4,250	3,500	3,800	4,250
Dryer drum									
Type	TT 10.24			TT 11.26			TT 12.30		
Burner (white mineral)									
Type	EVO JET 3			EVO JET 4			EVO JET 5		
Burner output (MW)	19.0			23.7			35.6		
Single fuel burner	Heating oil (EL - extra light) or natural gas or liquid gas or heavy oil								
Dual 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 (Nm ³ /h)	58,000			78,000			96,000		
Screen unit									
Screening (x-fold)	6			6			6		
Screen output (0-2 mm, t/h)	240			320			320		
Total screen area (m ²)	46.2			48.3			48.3		
Hot bin section									
170 t with 6-fold screening with 7 hot bins	170t-TA7; S/B sep., OA out								
195 t with 6-fold screening with 13 hot bins	195t-TA13; S/B sep., OA out with rotary chute								
195 t with 6-fold screening with 14 hot bins	195t-TA14; S/B sep., OA out, with rotary chute, bypass separated								
270 t with 6-fold screening with 7 hot bins	270t-TA7; S/B sep., OA out								
270 t with 6-fold screening with 8 hot bins	270t-TA8; S/B sep., OA out, bypass separated								
320 t with 6-fold screening with 13 hot bins	320t-TA13; S/B sep., OA out with rotary chute								
320 t with 6-fold screening with 14 hot bins	320t-TA14; S/B sep., OA out, with rotary chute, bypass separated								

	BA 3000	BA 4000	BA 5000
Weighing and mixing section			
Mixer (kg)	3,000	4,000	5,000
Mineral weigh hopper (kg capacity)	5,000	5,000	5,000
Filler weigh hopper (kg capacity)	600	600	600
Bitumen weigh hopper (kg capacity)	400	400	400
Mixed material loading silos			
4-chamber loading silo	355 t (2 x 80 t + 15 t direct loading 2 x 90 t) or 440 t (2 x 100 t + 20 t direct loading 2 x 110 t)		
6-chamber loading silo	535 t (2 x 80 t + 15 t direct loading 2 x 90 t + 2 x 90 t) or 660 t (2 x 100 t + 20 t direct loading 2 x 110 t + 2 x 110 t)		
8-chamber loading silo	715 t (2 x 80 t + 15 t direct loading 2 x 90 t + 2 x 90 t + 2 x 90 t) or 880 t (2 x 100 t + 20 t direct loading 2 x 110 t + 2 x 110 t + 2 x 110 t)		
Mixed material transfer			
	Skip track		
Filler system			
Filler tower FC/FT* (reclaimed filler silo and imported filler silo)	RF 135 m ³ and IF 2 x 60 m ³ or IF 2 x 80 m ³ or IF 3 x 60 m ³ ; RF 145 m ³ and IF 2 x 60 m ³ or IF 2 x 80 m ³ or IF 3 x 60 m ³		
Filler tower FT* (reclaimed filler silo and imported filler silo)	RF 2 x 65 m ³ and IF 3 x 60 m ³ ; RF 2 x 70 m ³ and IF 2 x 80 m ³		
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	BENNINGHOVEN control system BLS 300		
Recycling feed systems			
Variable dosing system	40 % RAP feed quantity (RC only)		
Multivariable dosing system	40 % RAP feed quantity (RC and bulk materials)		
Parallel drum	70 % RAP feed quantity		
Other feed options			
Additives	Powder, granulate, liquide additive, foam bitumen, bag feed and fibre		

*FC - Reclaimed filler infeed, central, *FT - Reclaimed filler infeed, top

A question of type.

BA-RPP - TECHNICAL DATA



BA-RPP 4000

BA-RPP 5000

Performance parameters						
Nominal mixing capacity (t/h)	320			400		
Drying capacity (t/h)	290			360		
General information						
Material moisture	All information is based on a material moisture content of 4 %					
Foundations	Stationary concrete foundations					
Cold feed unit						
Number of hoppers	6-11 individual hoppers					
Feed ramp	Provided by customer					
Capacity (m ³)	12	16	20	12	16	20
Loading width (mm)	3,500	3,800	4,250	3,500	3,800	4,250
Dryer drum						
Type	TT 11.26			TT 12.30		
Burner (white mineral)						
Type	EVO JET 4			EVO JET 5		
Burner output (MW)	23.7			35.6		
Single fuel burner	Heating oil (EL - extra light) or natural gas or liquid gas or heavy oil					
Dual 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 (Nm ³ /h)	78,000			96,000		
Screen unit						
Screening (x-fold tanks)	6			6		
Screen output (0-2 mm, t/h)	320			320		
Total screen area (m ²)	48.3			48.3		
Hot bin section						
170 t with 6-fold screening with 7 hot bins	170t-TA7; S/B sep., OA out					
195 t with 6-fold screening with 13 hot bins	195t-TA13; S/B sep., OA out with rotary chute					
195 t with 6-fold screening with 14 hot bins	195t-TA14; S/B sep., OA out, with rotary chute, bypass separated					
270 t with 6-fold screening with 7 hot bins	270t-TA7; S/B sep., OA out					
270 t with 6-fold screening with 8 hot bins	270t-TA8; S/B sep., OA out, bypass separated					
320 t with 6-fold screening with 13 hot bins	320t-TA13; S/B sep., OA out with rotary chute					
320 t with 6-fold screening with 14 hot bins	320t-TA14; S/B sep., OA out, with rotary chute, bypass separated					

BA-RPP 4000

BA-RPP 5000

Weighing and mixing section		
Mixer (kg)	4,000	5,000
Mineral weigh hopper (kg capacity)	5,000	5,000
Filler weigh hopper (kg capacity)	600	600
Bitumen weigh hopper (kg capacity)	400	400
Mixed material loading silos		
4-chamber loading silo	355 t (2 x 80 t + 15 t direct loading 2 x 90 t) or 440 t (2 x 100 t + 20 t direct loading 2 x 110 t)	
6-chamber loading silo	535 t (2 x 80 t + 15 t direct loading 2 x 90 t + 2 x 90 t) or 660 t (2 x 100 t + 20 t direct loading 2 x 110 t + 2 x 110 t)	
8-chamber loading silo	715 t (2 x 80 t + 15 t direct loading 2 x 90 t + 2 x 90 t + 2 x 90 t) or 880 t (2 x 100 t + 20 t direct loading 2 x 110 t + 2 x 110 t + 2 x 110 t)	
10-chamber loading silo	895 t (2 x 90 t + 15 t direct loading 2 x 80 t + 2 x 90 t + 2 x 90 t + 2 x 90 t) or 1100 t (2 x 110 t + 20 t direct loading 2 x 110 t + 2 x 110 t + 2 x 110 t + 2 x 110 t)	
Mixed material transfer		
	Skip track	
Filler system		
Filler tower FC/FT* (reclaimed filler silo and imported filler silo)	RF 135 m ³ and IF 2 x 60 m ³ or IF 2 x 80 m ³ or IF 3 x 60 m ³ ; RF 145 m ³ and IF 2 x 60 m ³ or IF 2 x 80 m ³ or IF 3 x 60 m ³	
Filler tower FT* (Reclaimed filler silo and imported filler silo)	RF 2 x 65 m ³ and IF 3 x 60 m ³ ; RF 2 x 70m ³ and IF 2 x 80 m ³	
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	BENNINGHOVEN control system BLS 300	
Recycling parallel drum plant		
Type	RA 180	RA 220
RAP dryer drum	RT 10.26 HG	RT 11.28 HG
RAP drying capacity (t/h)	180	220
Hot-gas generator	Type 2	Type 3
RAP burner	EVO-JET 2 HGE (11.9 MW)	EVO-JET 3 HGE (19 MW)
RAP storage silo (t)	2 x 30 or 2 x 40 or 1 x 45	
RAP weigher (t)	4	4
Recycling feed systems		
Variable dosing system	40 % RAP feed quantity (RC only)	
Multivariable dosing system	40 % RAP feed quantity (RC and bulk materials)	
Recycling drum with hot-gas generator	90 % + X RAP feed quantity	
Other feed options		
Additives	Powder, granulate, liquide additive, foam bitumen, bag feed and fibre	

*FC - Reclaimed filler infeed, central, *FT - Reclaimed filler infeed, top

Added value.

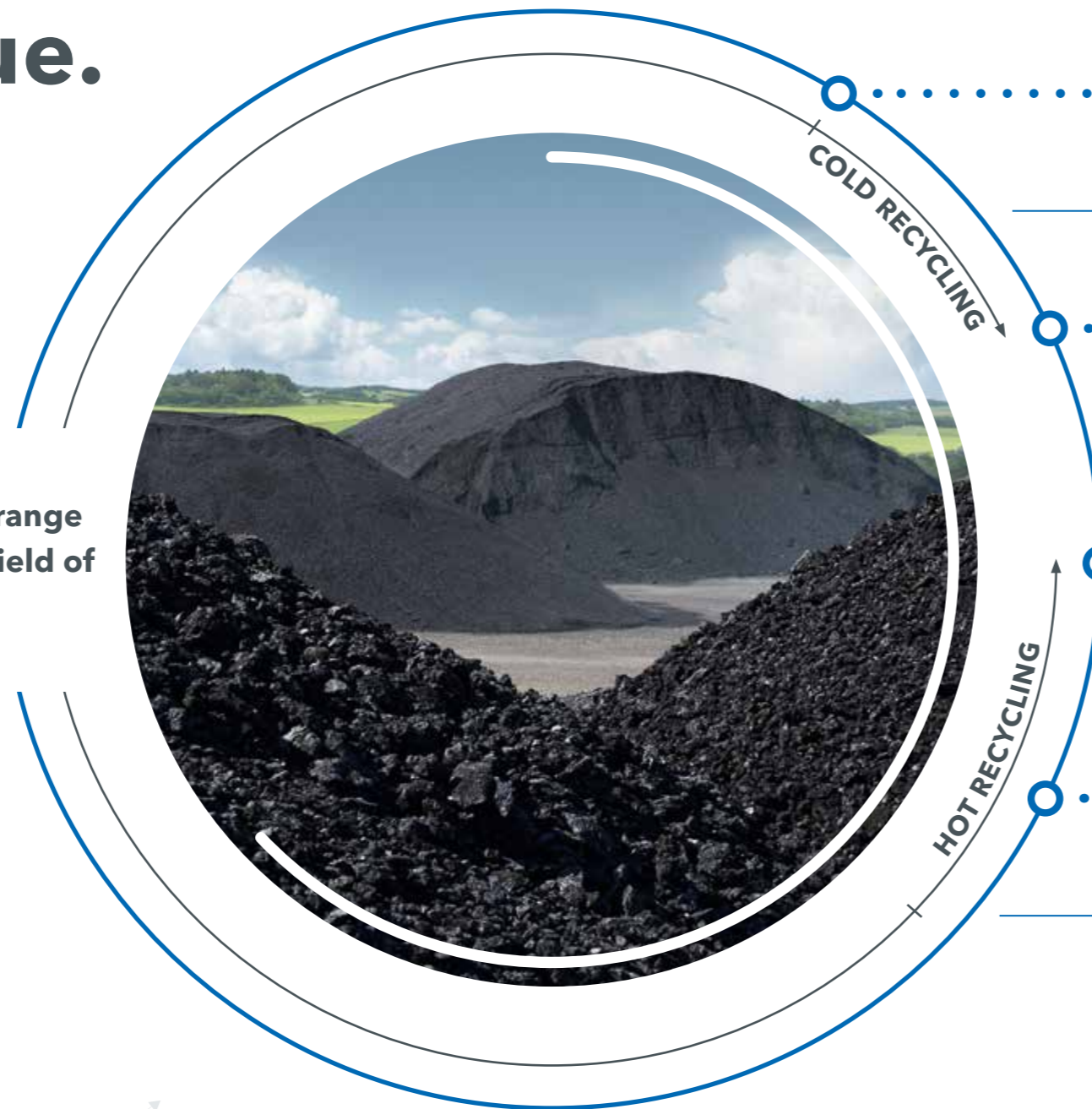
THE TBA RECYCLING SYSTEMS



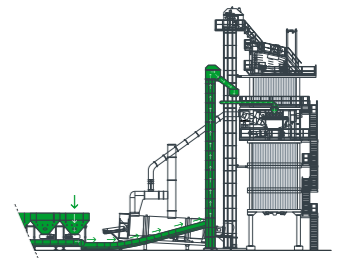
BENNINGHOVEN offers a wide range of products and services in the field of recycling feed systems.

YOUR BENEFITS:

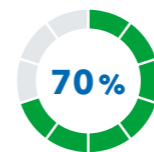
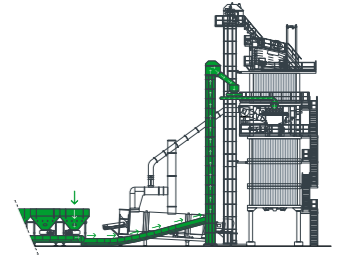
- + Environmentally friendly production
- + Multiple cost savings
- + Government grants
- + Easy retrofitting



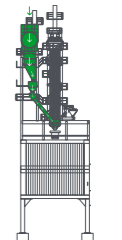
Variable dosing system
(RC only)



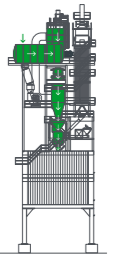
Multivariable dosing system
(RC and bulk materials)



Parallel drum
(BA)



Recycling drum with hot-gas generator
(BA-RPP HG)



Economical and environmentally friendly

In addition, the recycling components are adapted and integrated for the retrofitting of existing systems from all manufacturers according to individual customer requirements. With the BA/BA-RPP, 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.



Always right in the middle.

THE ERGONOMICS, MAINTENANCE, AND HEALTH AND SAFETY CONCEPT

During the development of our systems, we attach great importance to user convenience and a high level of health and safety and functional reliability. The comprehensive and well thought-out concept offers the ideal preconditions for an integrated performance.



YOUR BENEFITS:

- + Very good accessibility to all container sections is ensured
- + Generous internal access to container sections - ideal preconditions for service and maintenance work
- + Large compressor section offers additional space for setting up a workshop, spare parts storage, etc.
- + Container section clad with profiled sheeting, internally accessible, protection against weather, dust, heat and noise
- + Optimum illumination of the work and maintenance areas with LED technology
- + Large inspection access on the mixer cabinet incl. key transfer system
- + Inspection access on the mixer cabinet incl. inspection opening for fast visual inspection
- + Large-dimension expansion space above the mixer allows upright working for servicing
- + Intuitive lubrication plan with colour-coded lubrication points (ergonomic locations)
- + Electric and compressed air connection for tools
- + Extraction of bituminous vapours during loading (+ chimney)

Safety

- + Emergency stop button
- + Key transfer system
- + Contact protection on complete powertrain of the mixer
- + Contact protection on all pneumatic cylinders
- + Encapsulated material transfer areas

Very good accessibility
for all areas

The best recipe: more than 100 years of experience.

BENNINGHOVEN CUSTOMER SUPPORT



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

TECHNICAL SUPPORT:

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

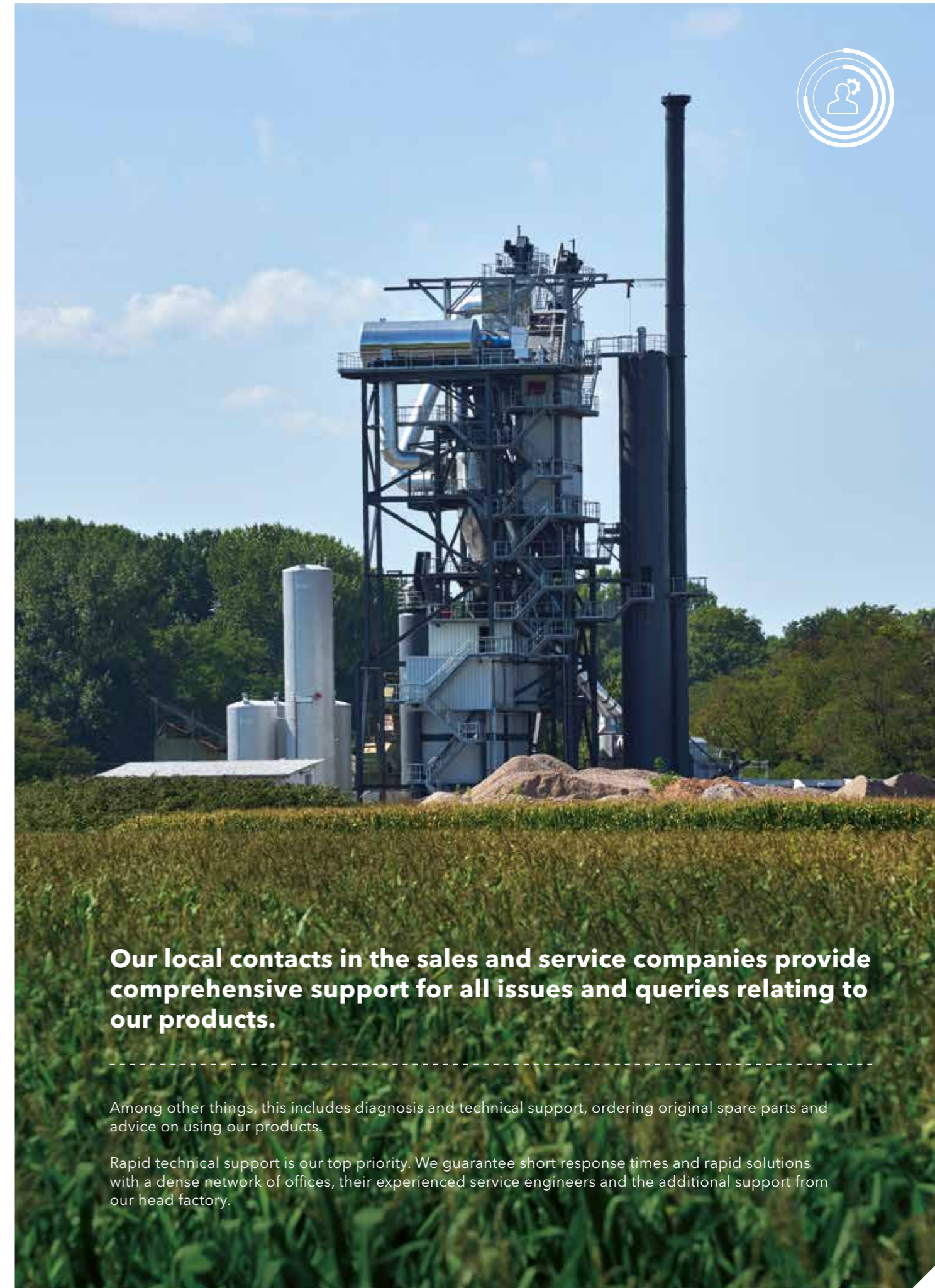


LOGISTICS CONCEPT:

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

PLANT TECHNOLOGY:

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



Our local contacts in the sales and service companies provide comprehensive support for all issues and queries relating to our products.

Among other things, this includes diagnosis and technical support, ordering original spare parts and advice on using our products.

Rapid technical support is our top priority. We guarantee short response times and rapid solutions with a dense network of offices, their experienced service engineers and the additional support from our head factory.



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