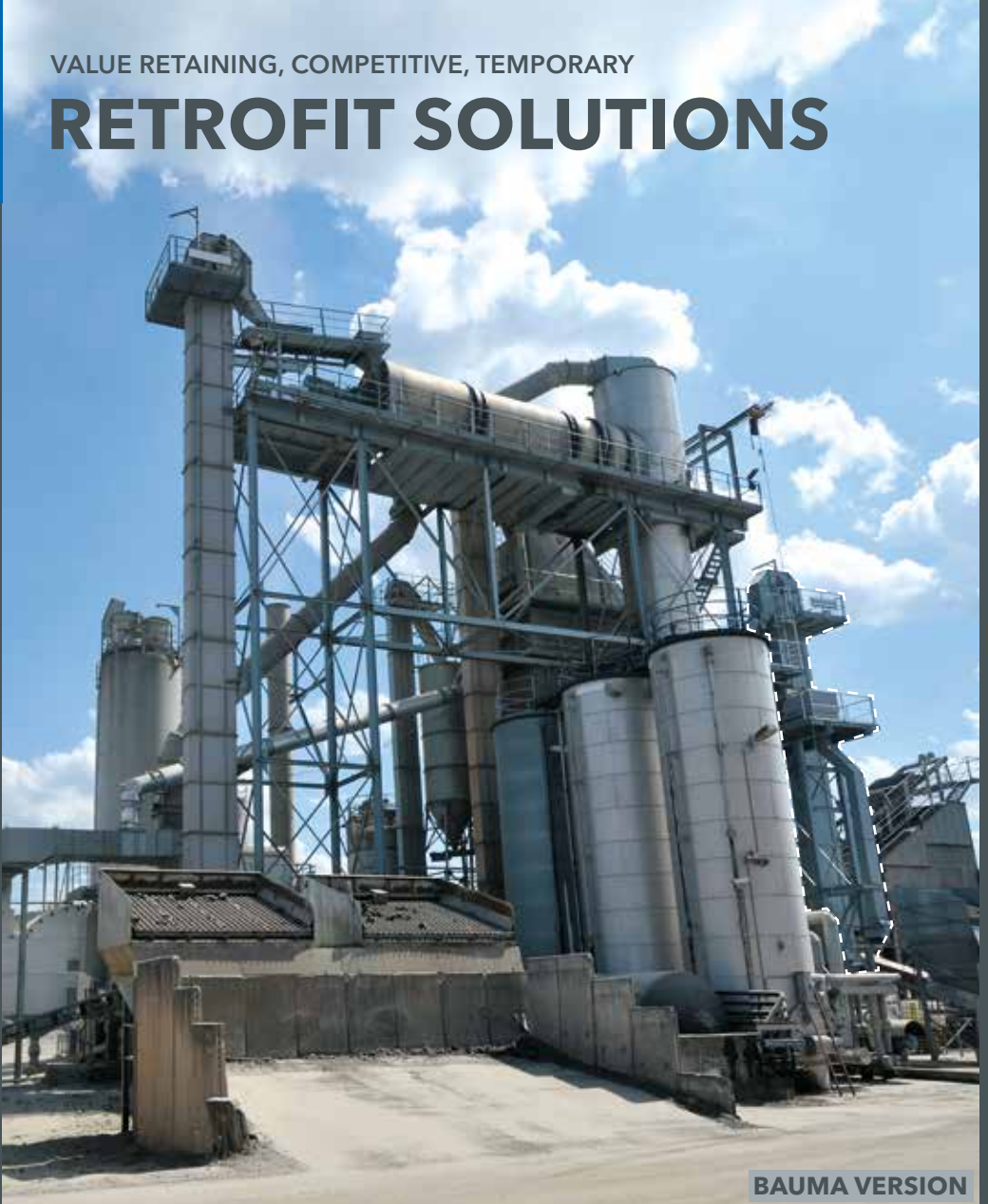




VALUE RETAINING, COMPETITIVE, TEMPORARY

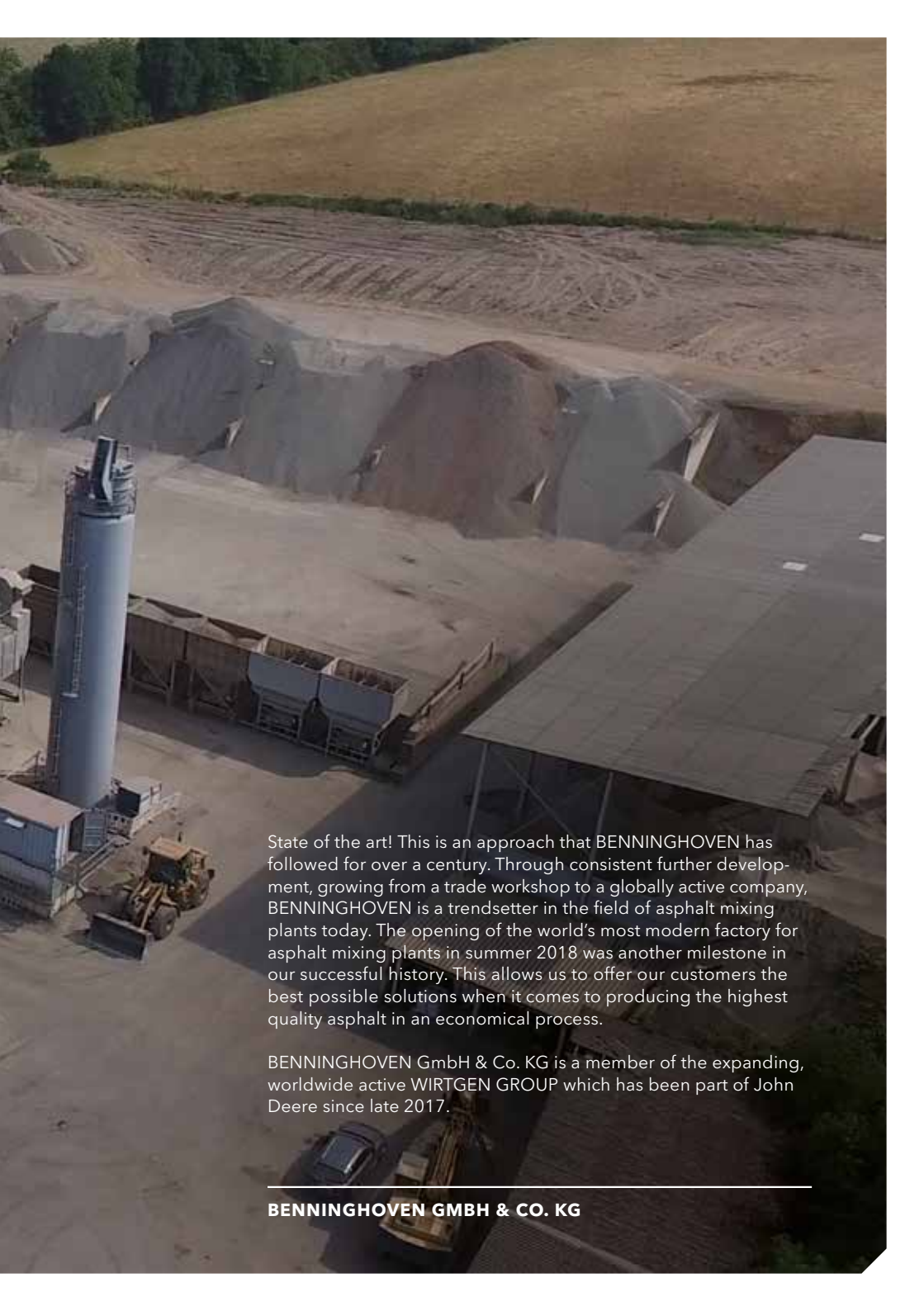
# RETROFIT SOLUTIONS





**HIGHEST QUALITY  
STATE OF THE ART**

**Trendsetter for the  
highest demands.**

An aerial photograph of an asphalt mixing plant. In the foreground, there is a large, light-colored cylindrical silo. To its right, a yellow front loader is parked. Further back, there are several large, rectangular storage bins. The background features large, conical piles of sand or aggregate, some covered with grey tarps. The entire facility is situated in a flat, open area with a field of golden-brown crops in the distance under a clear sky.

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.

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**BENNINGHOVEN GMBH & CO. KG**

# Forever young.

RETROFIT SOLUTIONS AT BENNINGHOVEN



## Whether one of our plants or one from another manufacturer, stay or become state-of-the-art again with **BENNINGHOVEN** retrofit solutions.



### It's all in the mix

Retrofitting can be a more practical solution for an existing plant than replacing it with a new one. By replacing outdated components and adding the latest technologies, existing plants are updated to the latest standard. For the operating company, the advantage lies in the modernisation of the plant and the associated increase in productivity with significantly lower costs compared to purchasing a similar new plant. The sturdy basic structure of the plant is retained.

## Significant performance increase.

### Retrofit solutions at **BENNINGHOVEN** means:

- > Contemporary technology
- > User-friendly
- > For own and third-party plants
- > Economical – lower investment costs compared to new purchase
- > Making and keeping customer plants competitive
- > Protecting existing sites
- > Concept planning and customised solutions
- > Engineering





### **Increased productivity/volume**

- > Component expansion on customer request (large projects)
  - > Higher flexibility - large variety of recipes
  - > Increasing competitiveness
- 



### **Compliance with legal standards/environmentally friendly**

- > Lowering emissions (TA-Luft, etc.)
  - > Reducing CO<sub>2</sub> emissions
  - > Health and safety - noise, dust, heat
  - > Ergonomics concept
  - > Re-using reclaimed asphalt - careful use of resources
- 



### **Technology expansion**

- > Low-temperature asphalt (foam bitumen)
  - > Recycling
  - > Mastic asphalt
  - > Feed systems
- 



### **Extended service life of the plant**

- > Replacing components
  - > No approval process necessary (no new approval)
  - > Using contemporary, new materials - longer useful life
- 



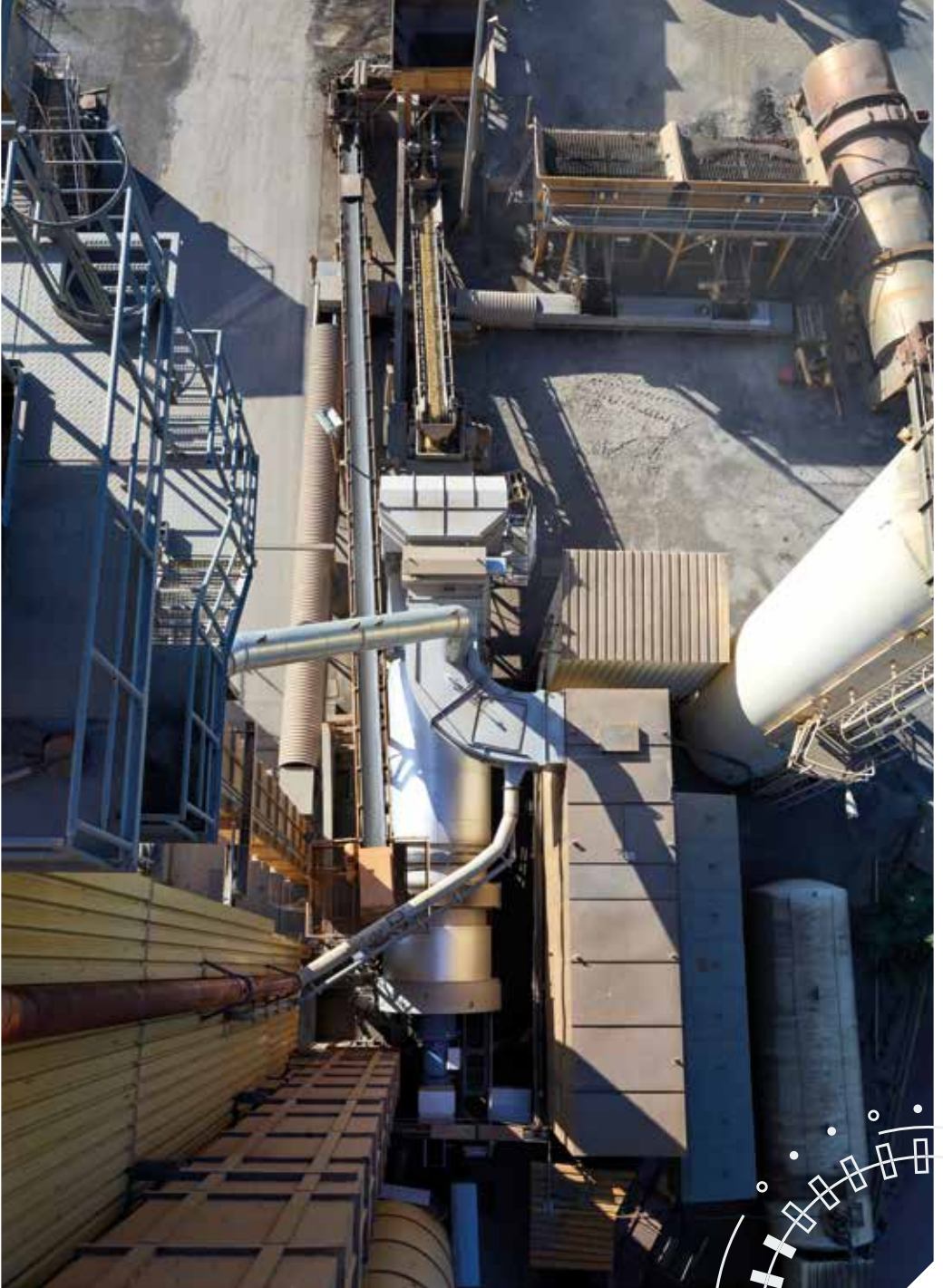
### **Higher energy efficiency (savings)**

- > Increase overall efficiency
  - > Fuels
  - > Energy monitoring
  - > Electric heating instead of thermal oil
  - > Retrofitting of frequency converters
  - > Effective material handling (storage)
- 



### **Application consulting and increased product quality**

- > Updating the control system
- > More efficient processes
- > Storage of materials



# Burns with passion.

EVO JET BURNER







>> **Fired up for more economic efficiency**

Combustion technology from BENNINGHOVEN is worldwide leading - with respect to market shares and to technology. That makes the efficient and flexible EVO JET burner highly interesting for operators of asphalt mixing plants. This especially applies for retrofit solutions - regardless of the manufacturer of the asphalt mixing plant.

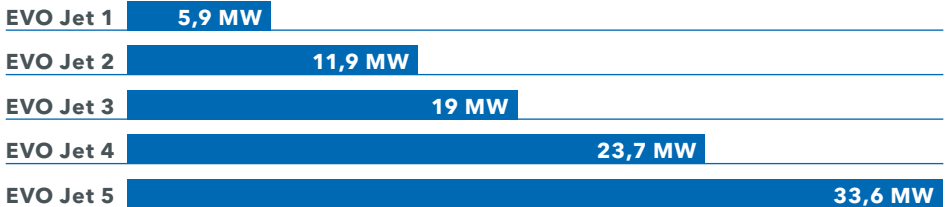
**BENNINGHOVEN is a world market leader when it comes to burners, and the only manufacturer of 4-fuel burners. The company's essential expertise enables the development of unique burners with excellent characteristics:**



- > Modular design
- > Compact structure
- > Easy to maintain
- > Long service life
- > Low wear
- > High efficiency in consumption (frequency-controlled)
- > Minimum pollutant emissions thanks to state-of-the-art control technology
- > Inspection doors on both sides
- > Mobile burner for easier accessibility (e.g. for servicing)
- > Internal fan (exclusive to BENNINGHOVEN)
- > Easy to retrofit

### Burner output

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### ALSO AVAILABLE:

- + Pump station
- + Oil pump feed station
- + Coal dust silo
- + Oil tanks
- + Gas safety system



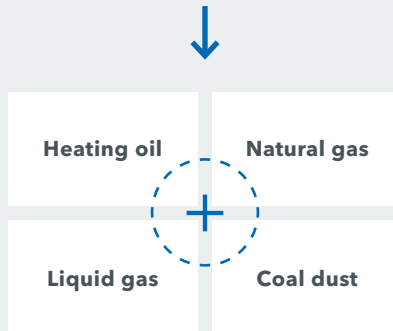
### >> Competitive advantage from fuel change

By adding up to three fuels, customers can upgrade their burner, which is responsible for drying and heating the base material and is designed as a simple oil burner in its standard version.

This turns the burner into a combination burner, meaning that oil, natural gas, liquid gas, coal dust and heavy oil are all available as fuels. A combination burner has the advantage of eliminating downtimes of the plant caused by raw materials shortage or delivery problems. In the event of price fluctuations for any particular fuel, the cheapest fuel can always be selected.

### Flexible fuel change at the press of a button

(individually or in combination)

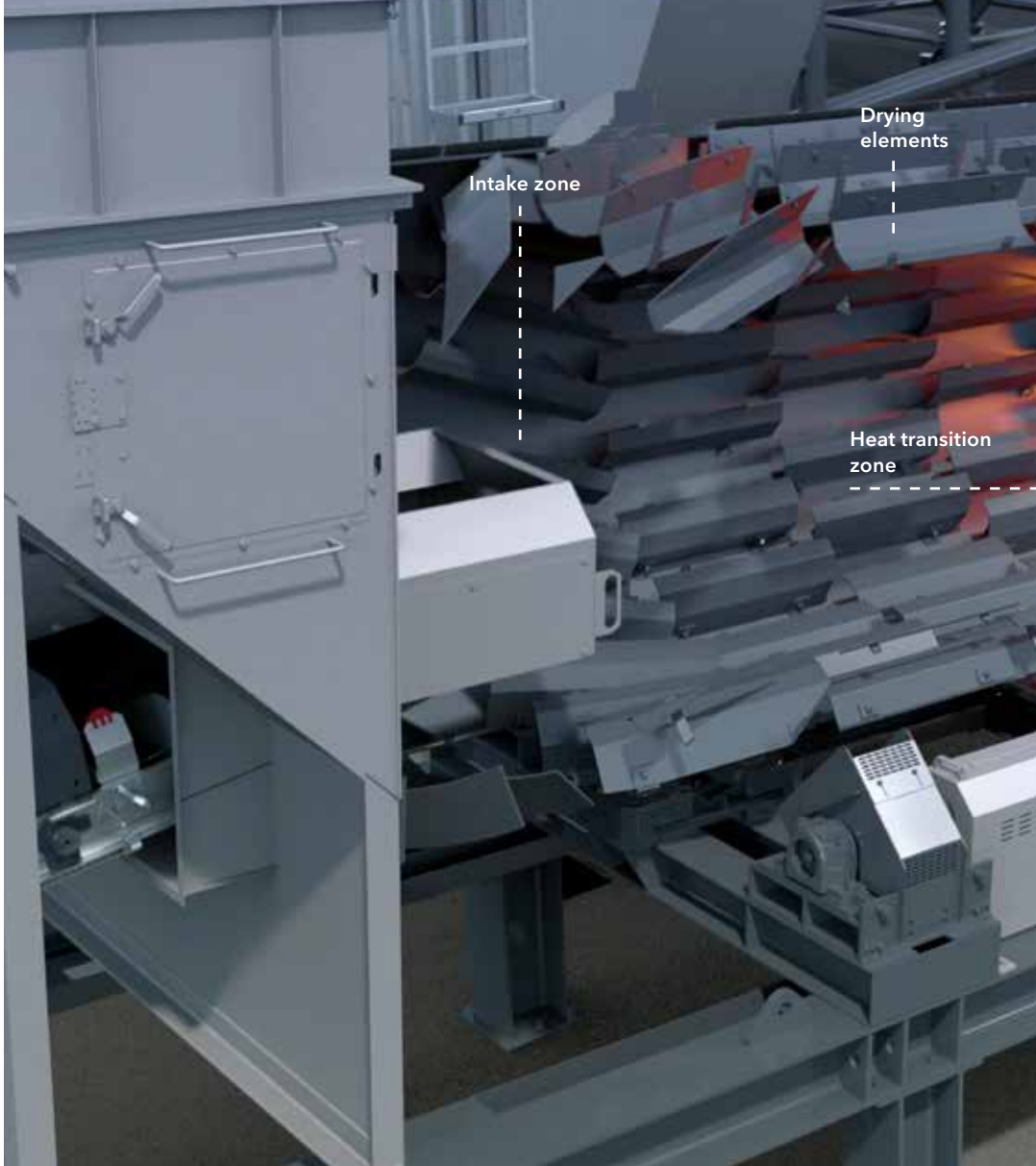


**Independent - flexible - cost-efficient**

Raw material shortage — Downtimes

# Safe number.

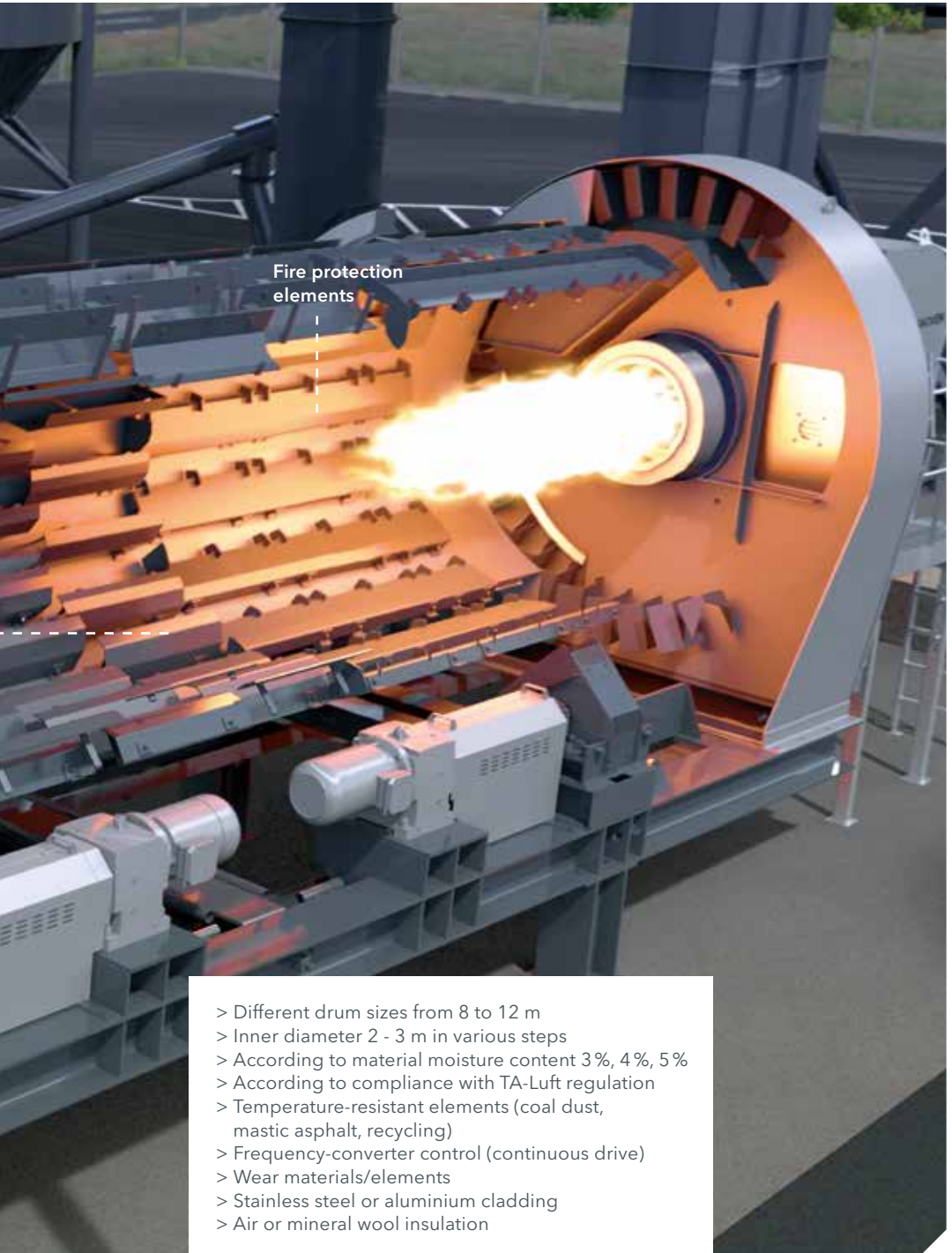
DRYER DRUM



Intake zone

Drying elements

Heat transition zone



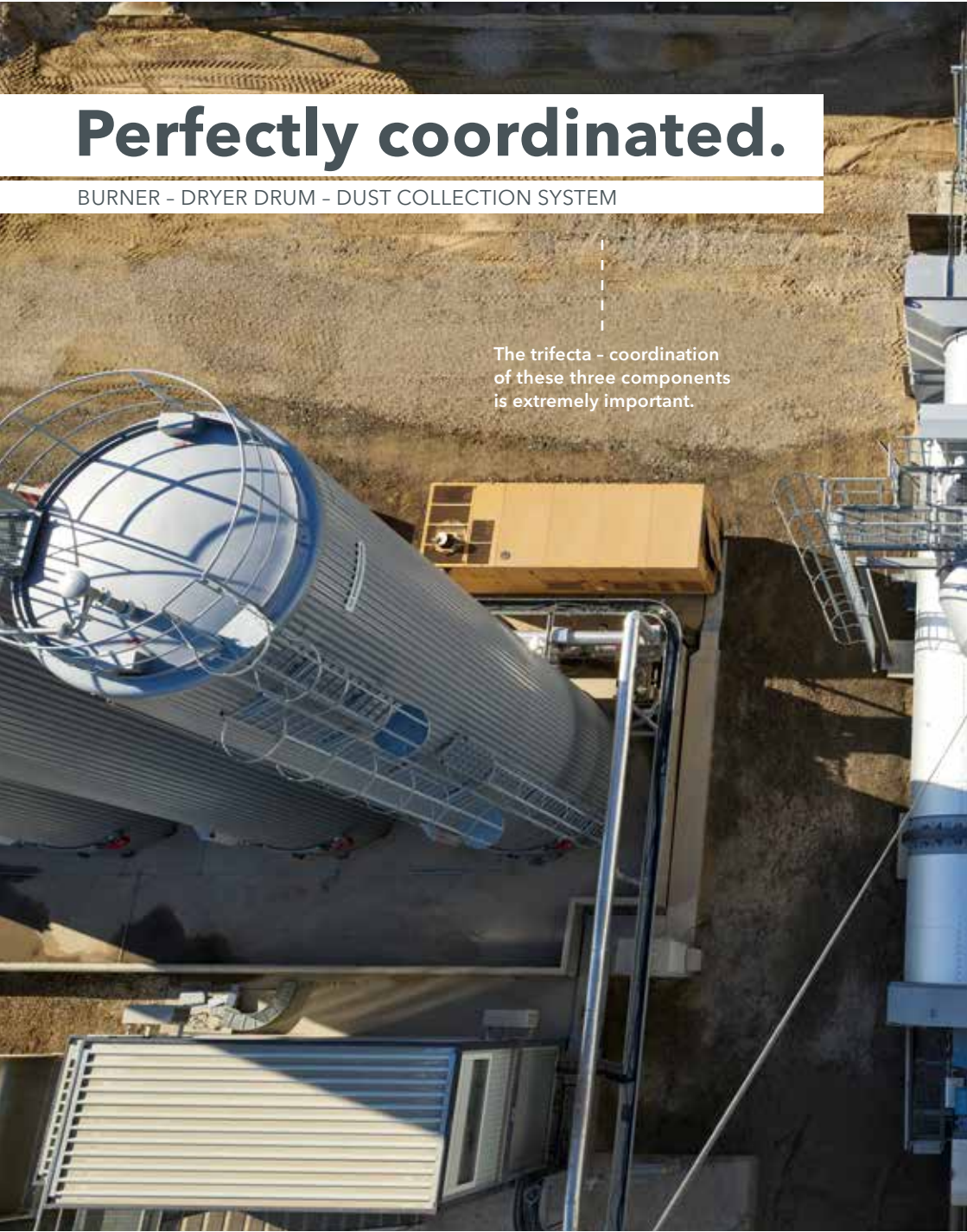
Fire protection  
elements

- > Different drum sizes from 8 to 12 m
- > Inner diameter 2 - 3 m in various steps
- > According to material moisture content 3%, 4%, 5%
- > According to compliance with TA-Luft regulation
- > Temperature-resistant elements (coal dust, mastic asphalt, recycling)
- > Frequency-converter control (continuous drive)
- > Wear materials/elements
- > Stainless steel or aluminium cladding
- > Air or mineral wool insulation

# Perfectly coordinated.

BURNER - DRYER DRUM - DUST COLLECTION SYSTEM

The trifecta - coordination of these three components is extremely important.





An overall analysis is indispensable  
for all retrofitting solutions.

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# Always in a good position.

## BITUMEN TANKS

- + 60/80/100 m<sup>3</sup> bitumen tanks (useful volume)
  - + 1 or 2 chamber tanks
  - + 200 mm or 300 mm insulation
  - + With agitator or mixing nozzle
  - + Electrically heated
- 







# Just take it a step up.

LOADING SILOS

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



## **High level of flexibility and individual customisation**

The flexible expansion of the capacities is a great advantage of the plants. BENNINGHOVEN offers the right plant and component solution for any requirement profile.

### **YOUR BENEFITS:**

- + Capacity expansion
- + Long-term silos
- + Various expansion options
- + Flexible positioning







# Just a question of adjustment.

BLS 3000 CONTROL UNIT

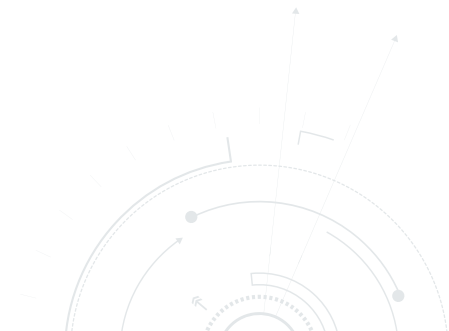
**The BLS 3000 control units feature simple, intuitive operation, a very clear interface and perfectly realistic virtualisation.**



## **Always get the latest live data**

The production process and the plant components are displayed in real time on just two screens. The recipe management, job handling and statistics are all self-explanatory. The BLS 3000 can be retrofitted to any asphalt mixing plant on the market, at any time.

- 
- > Control and switch control cabinet container
  - > Control cabinet for auxiliary drives
  - > 2 monitors + plant and process visualisation
  - > 3rd monitor
  - > Printer b/w, colour
  - > Energy monitoring
  - > RAP recipe generator
  - > Integration of weigh bridge
  - > NAS backup system + replacement PC
  - > Second client workstation
  - > Reporting (daily, energy, RAP report)
  - > Electric load shedding
  - > Emissions limitation 20 MW
  - > Data interface to customer system



# For today and tomorrow.

RECYCLING SYSTEMS



All plants can also be optimised with regard to recycling components, e.g. by retrofitting a parallel drum.



# Added value.

BENNINGHOVEN RECYCLING SYSTEMS



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



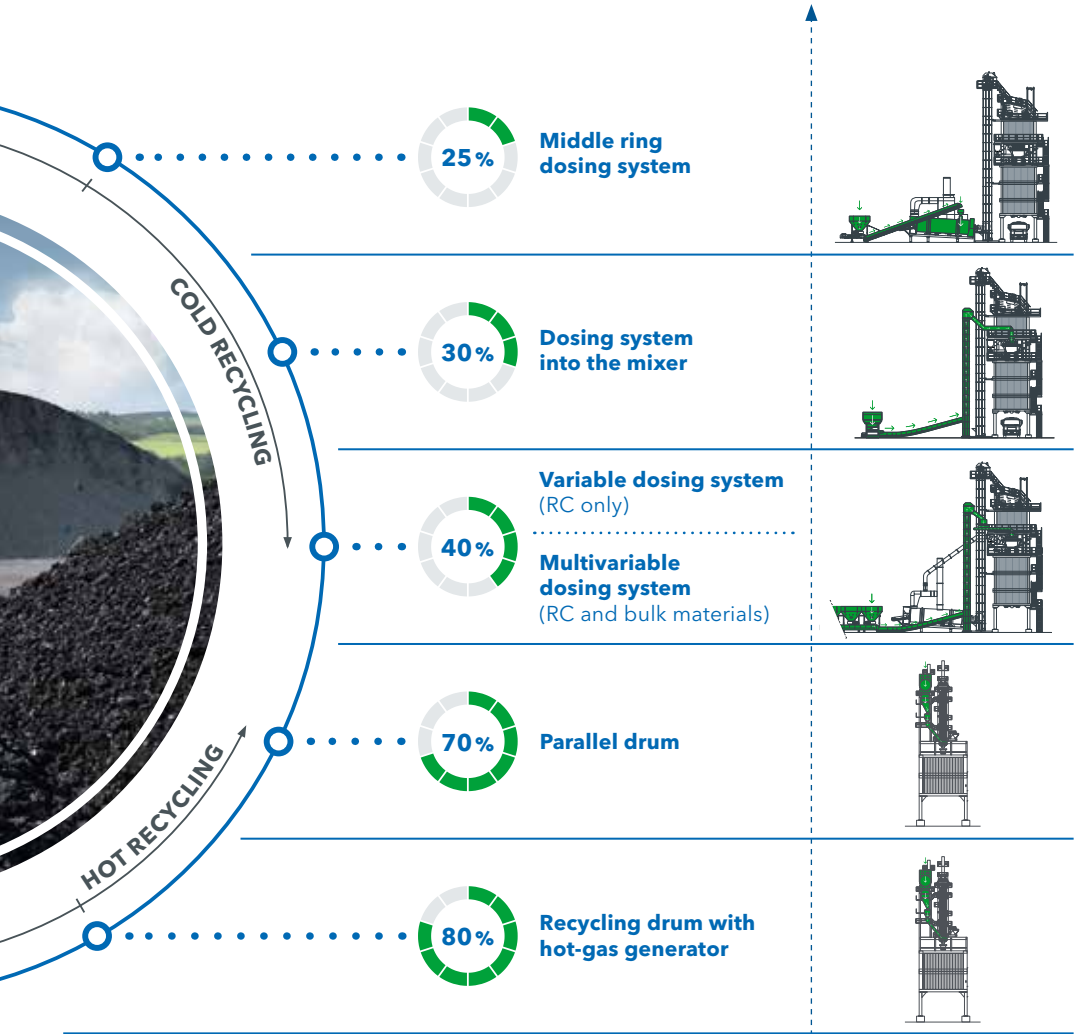
## **Economical and environmentally friendly**

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

This strengthens the environmental concept and achieves low CO<sub>2</sub> emissions as well as reduced use of resources.







**YOUR BENEFITS:**

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



**RECYCLING+**

# For that little bit extra.

FEED SYSTEMS





## Additive feed systems

**Quantities**

Small quantities

Large quantities

**Dosing**

Manual feed

Automated feed

**Substances**

Solids

Solids

Liquids

**Types**

Powder  
Granulate  
Rubber granulate  
Cellulose  
Hydrated lime  
Fibre  
Colour pigment

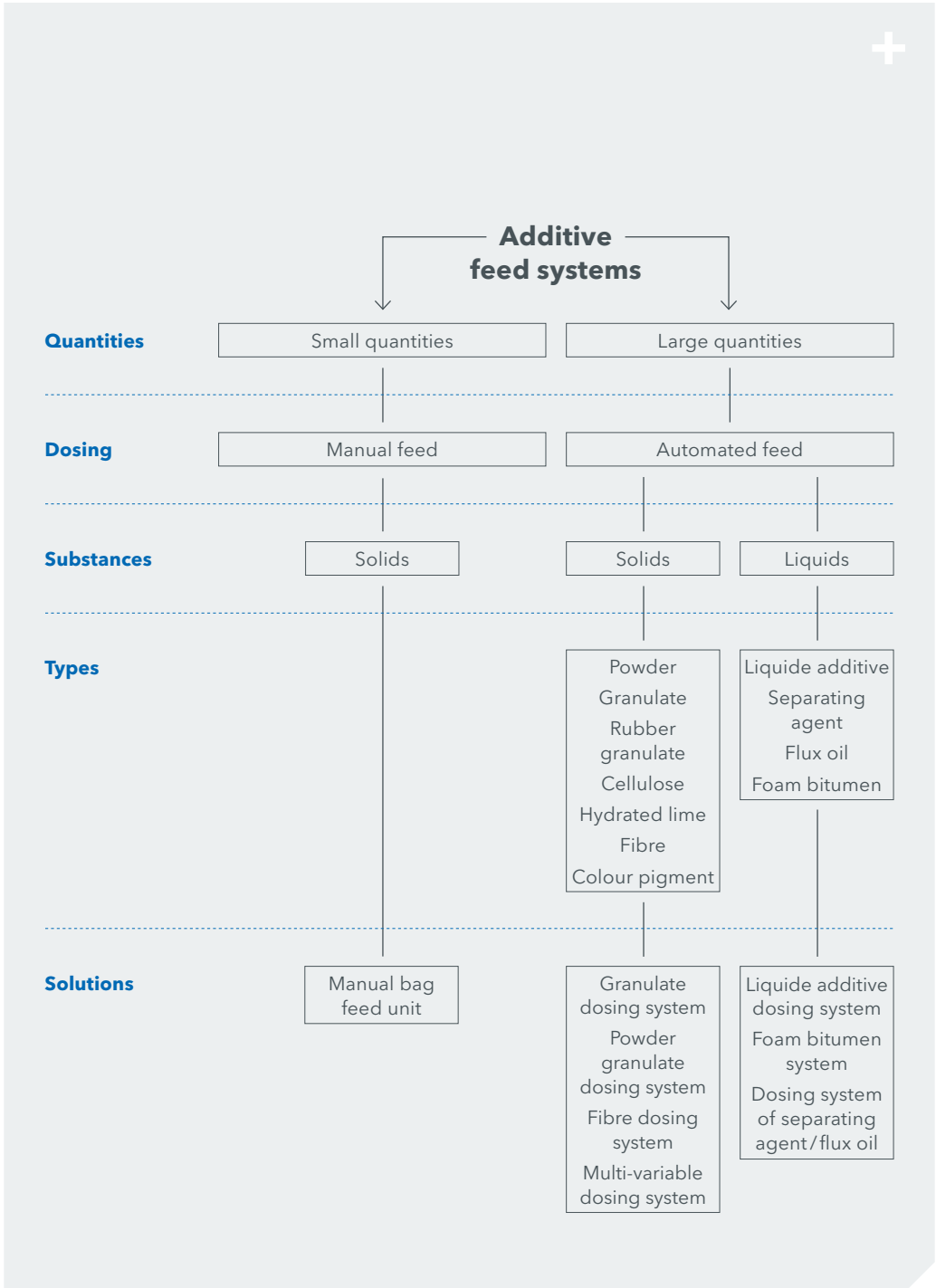
Liquide additive  
Separating agent  
Flux oil  
Foam bitumen

**Solutions**

Manual bag feed unit

Granulate dosing system  
Powder granulate dosing system  
Fibre dosing system  
Multi-variable dosing system

Liquide additive dosing system  
Foam bitumen system  
Dosing system of separating agent / flux oil





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