



Wirtgen Group Sustainability Path

Dr. Heinrich Steins



Our mission: How
can we support our
customers in
building energy-
efficient and
CO2-neutral roads?



... How can we help our customers to achieve their goals: Reduce their carbon footprint by **30%** by **2030** and be **carbon neutral** by **2045**.



Use of **Recycling-material**

1 **-1,5kg CO₂ / t Asphalt**
@10% RAP increase



Correct Storage

2 **-3 kg CO₂ / t Asphalt**
@ 1% moisture reduction



Bitumentank
Electrification

3 **-1kg CO₂ / t Asphalt**



Low Temperature Asphalt

4 **-1kg CO₂ / t Asphalt**
@10 °C temperature reduction



Regenerative Energies

5 **-16 | -23kg CO₂ / t Asphalt**
@ different fuels



Digitalization & Automation

6 **-1kg CO₂ / t Asphalt**

Recycling



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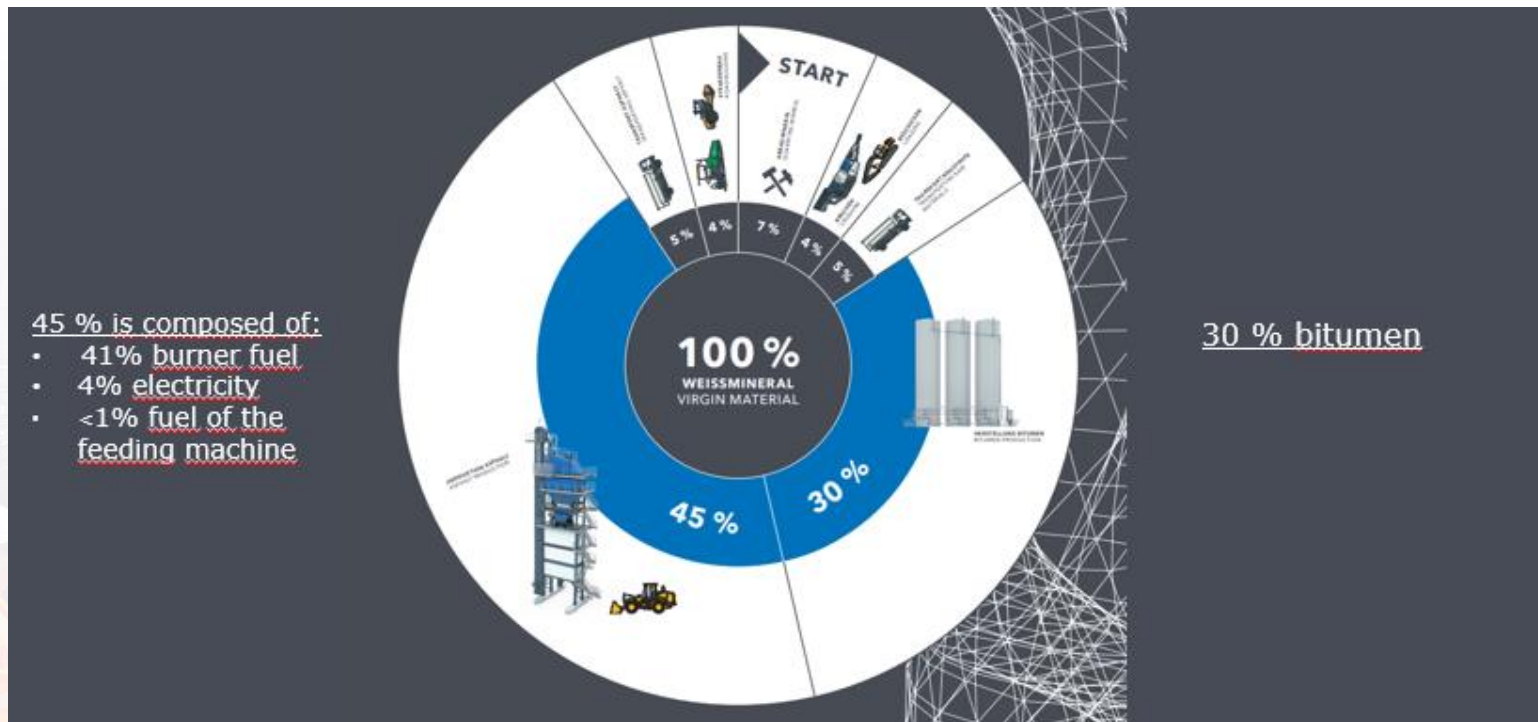
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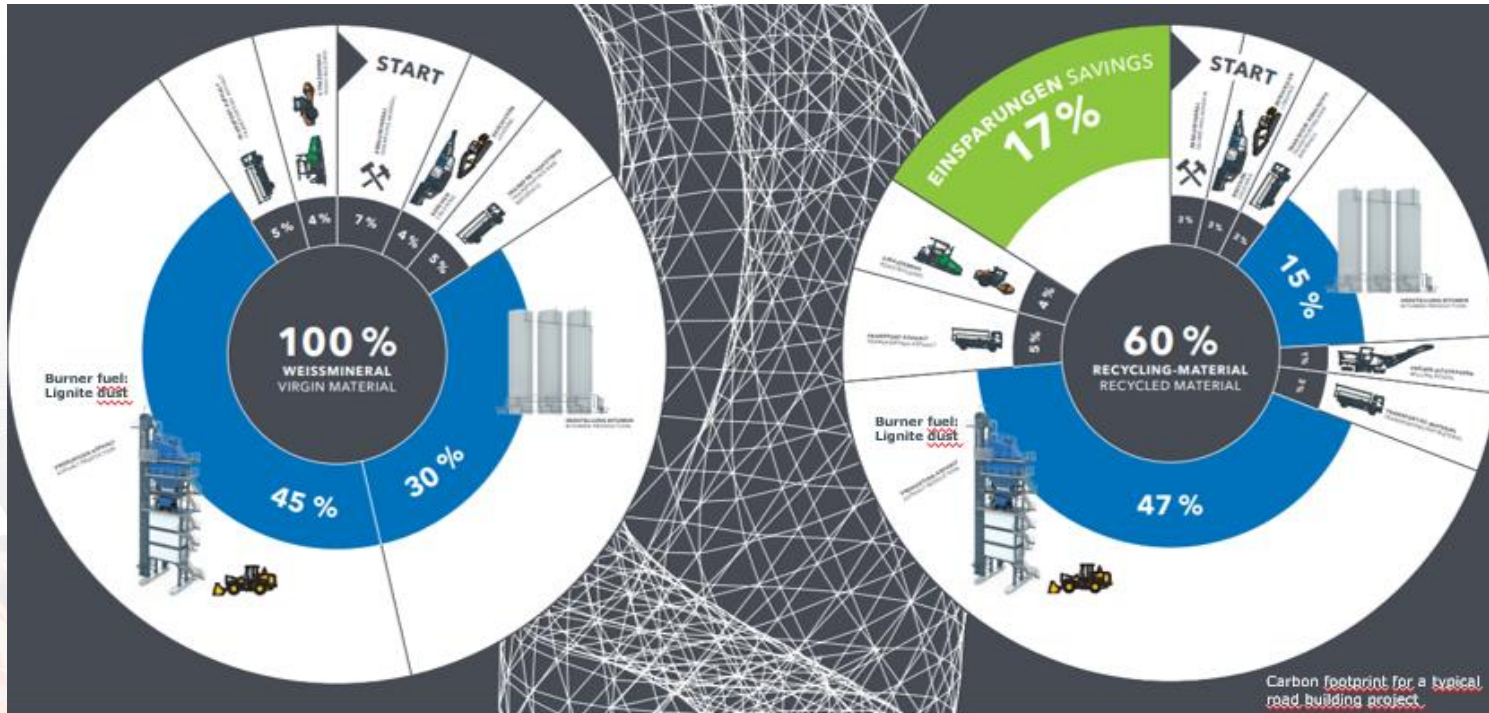
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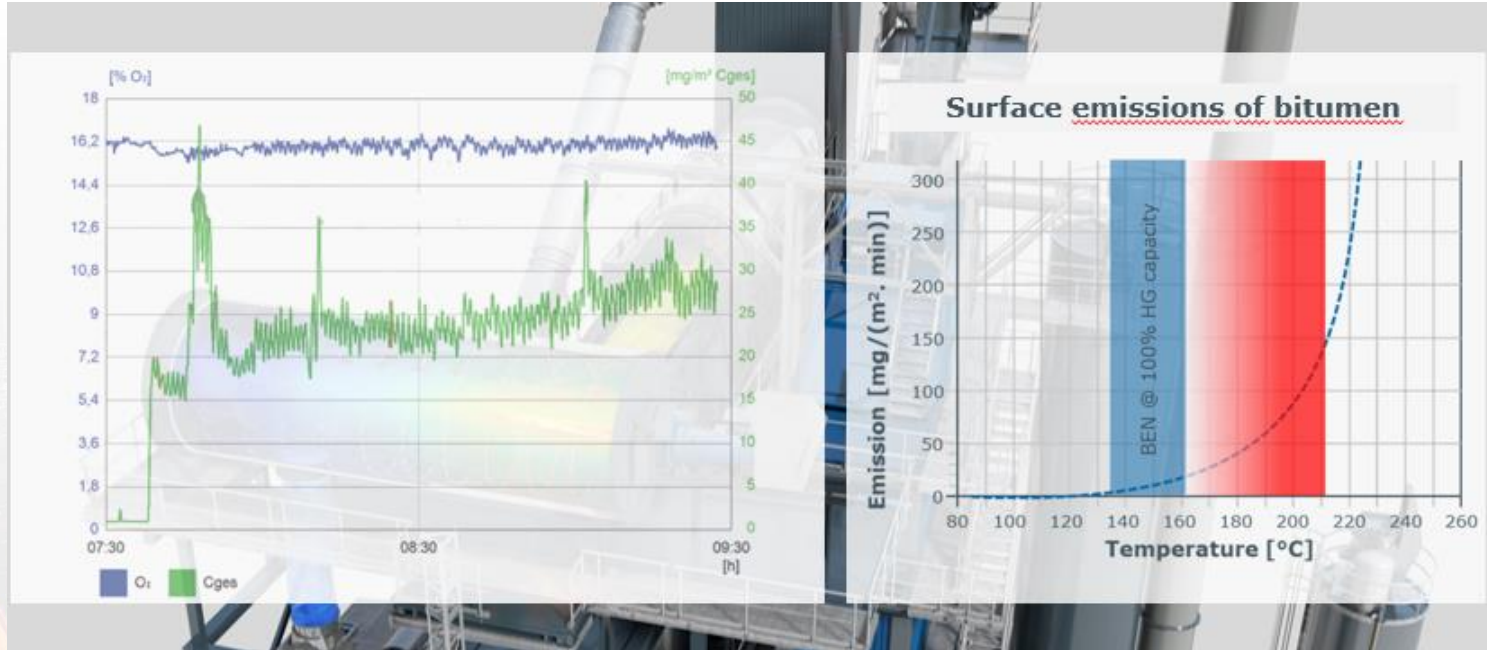


Recycling



- Up to 180 – 220t/h RAP
- Reclaimed granulates heated up to **optimum processing temperature** of 160°C
- Bitumen heating in RAP:
 - > without flame contact
 - > without heat radiation
 - > exclusively by **hot gas**
- **VOC emission values** below 50mg/m³

Recycling



Recycling

Energy efficiency

- ▣ Efficient and environmentally compatible asphalt production
- ▣ Strong increase of RAP content up to 60%
- ▣ Reduction of VOCs by 50% from 100 mg/m³ to < 50 mg/m³
- ▣ Reduction of CO₂ by using RAP. Savings of up to 1.5 t CO₂ per hour

User benefits

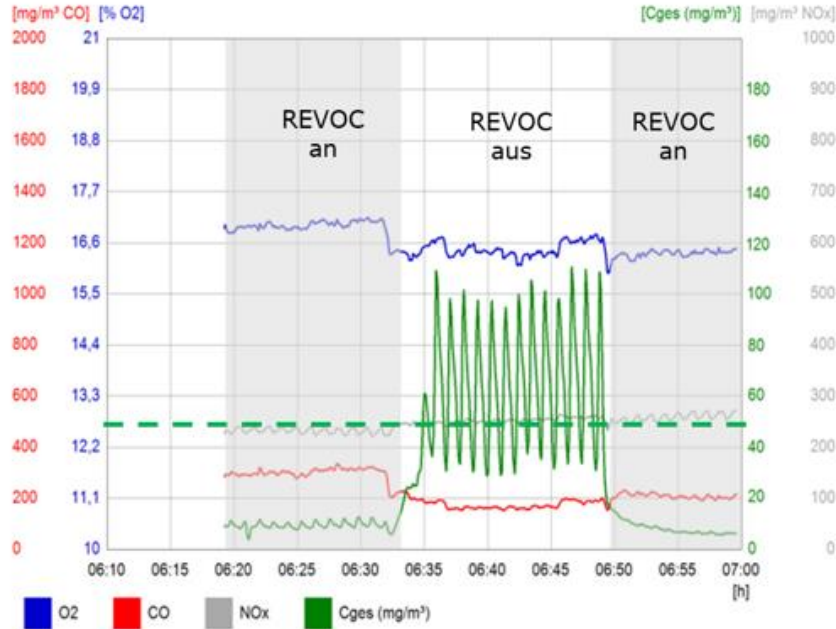
- ▣ Transfer existing plants (10-20 years) up to the state of the art

Economic efficiency

- ▣ Higher performance of the mixing plant with high recycling rates while complying with emissions values.
- ▣ ROI < 2 years




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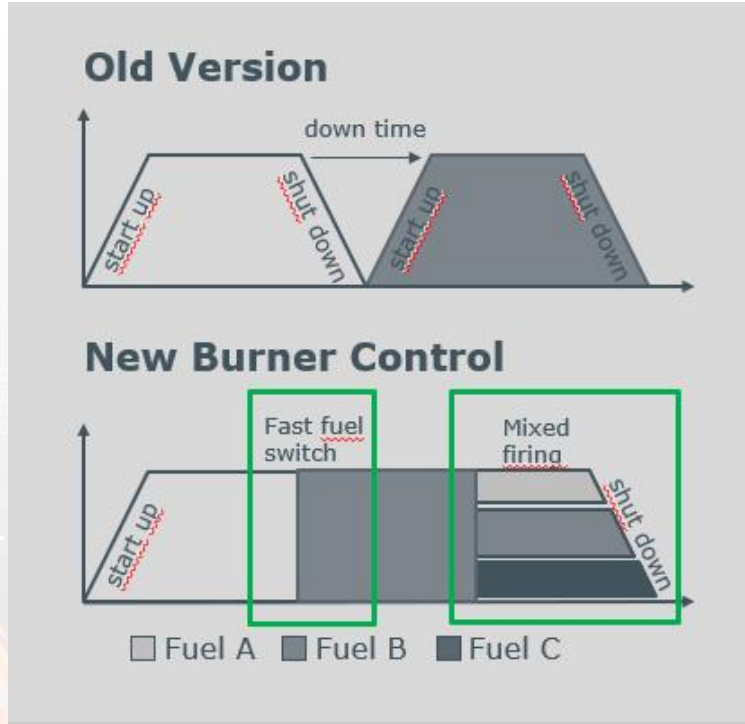
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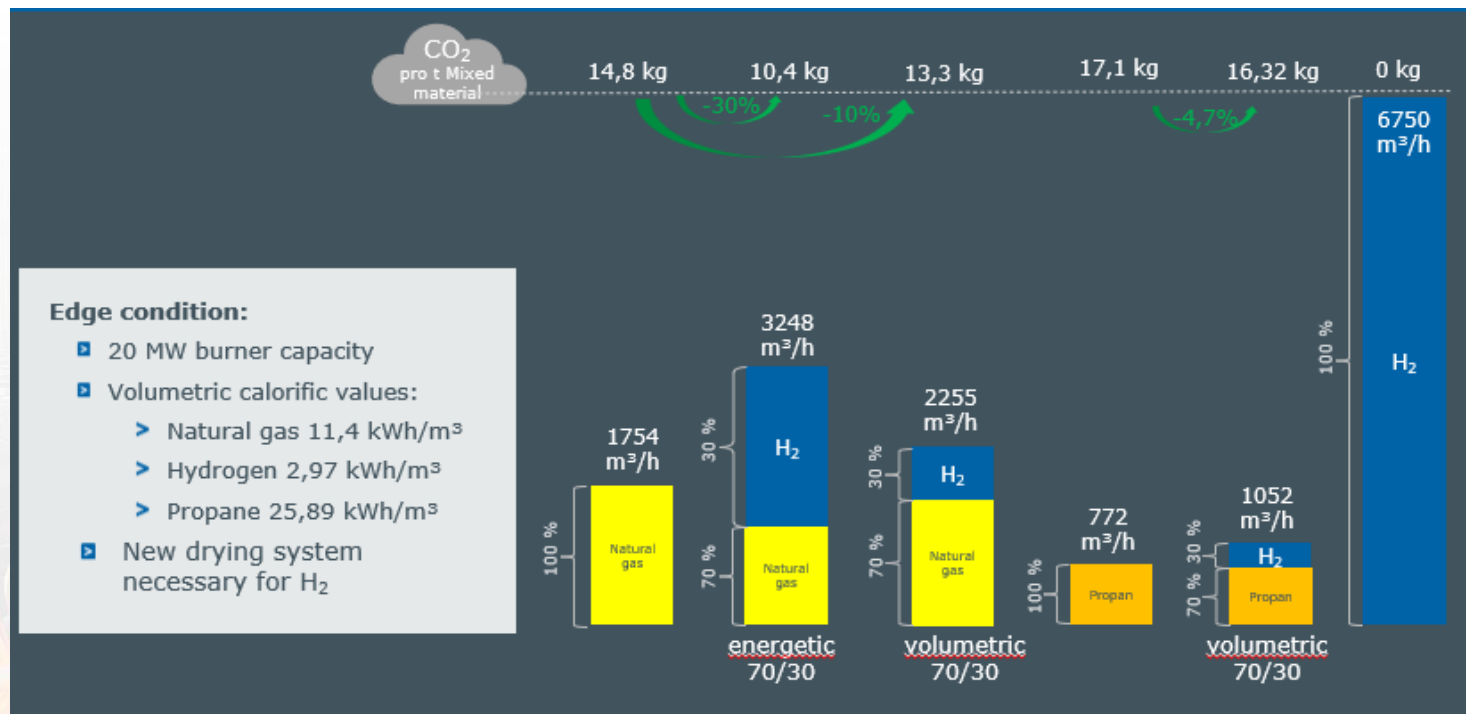
Digitalization & Automation

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Burner Control System



H2



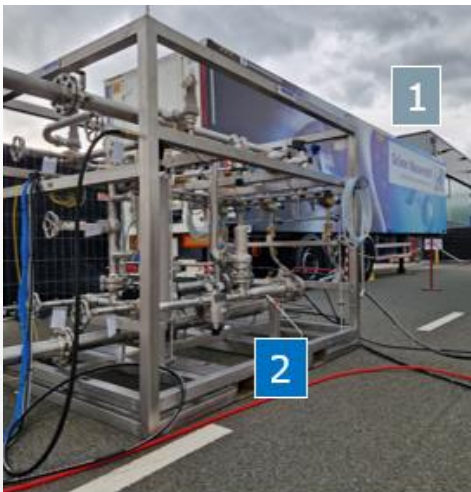
H2

- ▶ Safety assessment and authorisation – Germany
- ▶ Burner and H2 supply system function
- ▶ Initial commissioning incl. testing of safety functions
- ▶ Creation of regulation curves
 - ▶ H2 single
 - ▶ H2 & natural gas
 - ▶ H2 & heating oil



H2

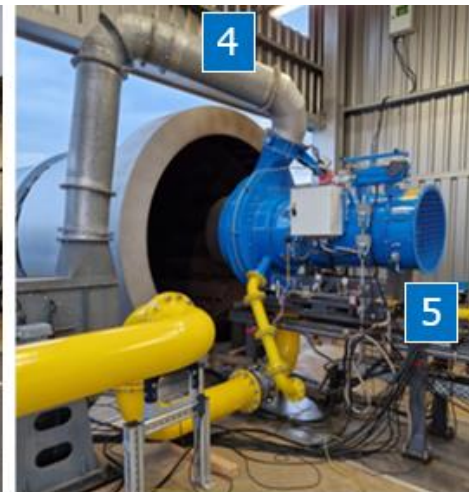





- 1 Mobile hydrogen storage unit
- 2 Pressure control section



- 3 Hydrogen control section



- 4 Inert gas recirculation
- 5 Burner



+ Use of 100% hydrogen

4 fuels simultaneously in 3 aggregate states

+ Mixed firing

+ Flying fuel change

Automatic switch for peak loads (gas)

+ Zero CO₂

+ Low NOx Technology

Remote - direct access to the burner control

+ Noise emissions from the new burners have been reduced by 5 dB

+ Air flow in the burner has been optimised = electrical power consumption has been reduced by 20 % for the same output

+ The efficiency of the heat transfer has been extremely increased - through optimum utilisation of the combustion chamber



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Circular Economy



JOHN DEERE

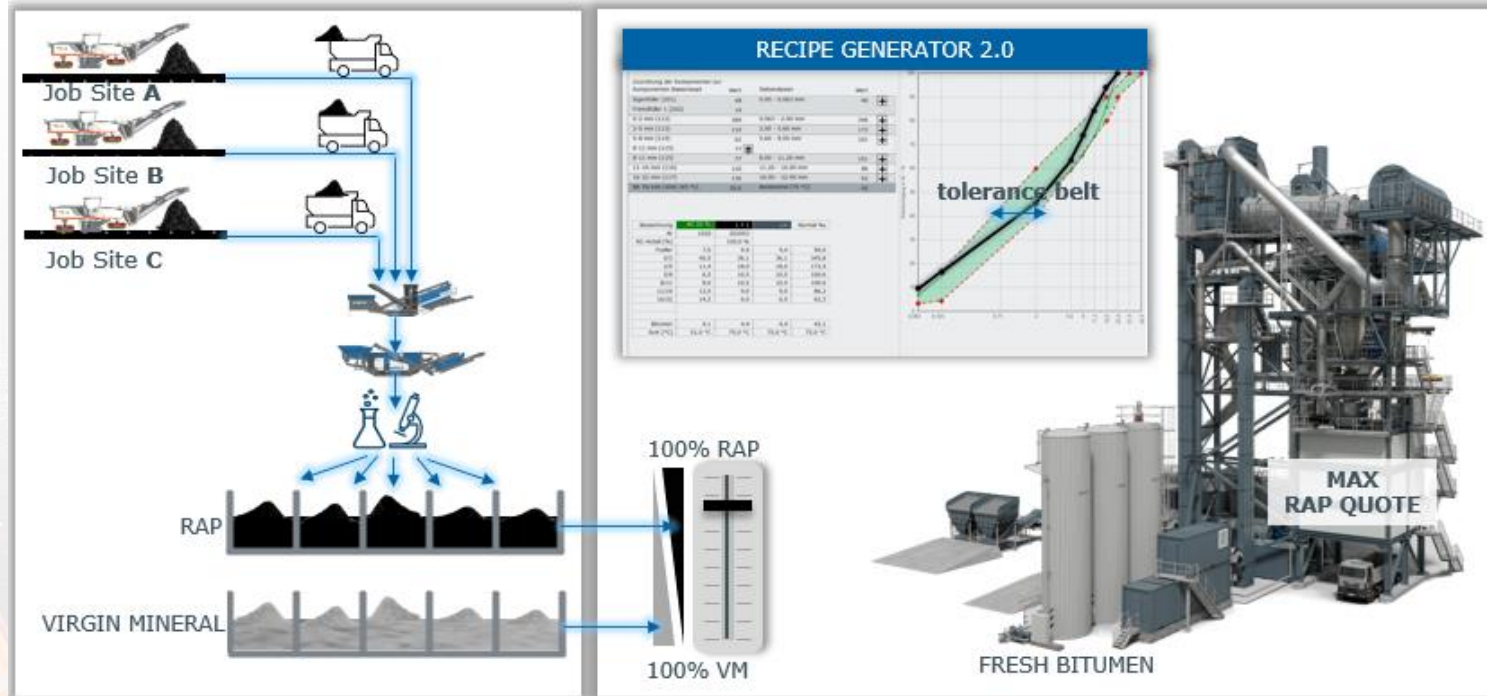


WIRTGEN GROUP

structural rehabilitation of all bound layers



Recipe Generator





THANK YOU!

CLOSE TO OUR CUSTOMERS