**Benninghoven | world premiere:**   
**100% green hydrogen system   
for road construction**

**New burner generation makes asphalt production even more sustainable**

**With the world’s first burner that can be operated only using 100% green hydrogen, Benninghoven now offers a forward-looking solution for greater sustainability in road construction. The first customer has now been able to produce several thousands tonnes of asphalt with virtually no emissions.**

On the way towards making future road construction more sustainable, the biggest lever here is asphalt production. Low-temperature asphalt, recycling rates of up to 100% reclaimed asphalt, and now hydrogen as the most environmentally friendly energy source are sustainable, future-proof, and cost-effective solutions that offer significant reductions in emissions.

**Burner operations with up to four fuels**

A thermal process is required for the production of asphalt. In this process, industrial burners heat and dewater the starting material – aggregates and/or reclaimed asphalt – before it is mixed with bitumen. To make this process as efficient as possible, Benninghoven has developed a new generation of burners that includes the control and drying system alongside the burner itself. With this system, up to four separate burners can be operated at the same time. This flexible approach to usage increases the cost-effectiveness of the overall facility, as its owner can always use the best-available energy sources.

**Burner and control as an integrated system**

The hydrogen burner from Benninghoven is supplied with an intelligent control system that ensures the carefully coordinated hardware and software solution can maximize process efficiency during asphalt production. This includes control of the feed systems, including the pressure control section, drying section with burner, and burner control. Switching between fuels or combinations of multiple fuels is done on the fly, meaning that no shutdown or downtime is required and with only minimal temperature fluctuations in the process. Emissions – especially the nitrogen oxides (NOx) produced when using hydrogen as a fuel – are kept very low.

**Less power consumed and lower noise emissions**

Alongside the climate-friendly, flexible use of a choice of fuels, the power draw has also been reduced by 20% while keeping the feed capacity constant. Heat transfer efficiency has been significantly improved by maximizing the use of the burner space, and providing a burner control and geometry that ensures optimum flame production for each fuel.

Another significant benefit for plant operators – especially in urban environments – is the 5 dB reduction in noise emissions.

**Hydrogen – zero emissions**

Green hydrogen is currently the most sustainable fuel available: it produces no greenhouse gases and is suitable for the heating process thanks to its high energy density. In many cases, facility operators wanting to start using hydrogen as a fuel experience difficulties due to current limitations in infrastructure. When facing this challenge, they can count on support from asphalt mixing plant specialist Benninghoven and its network.

**New facility or Retrofit solution**

The burner technologies from Benninghoven can be used to equip both new facilities and existing asphalt mixing plants, while Retrofit solutions can also be deployed in plants from other manufacturers. This gives every plant operator the chance to upgrade to the latest technologies at any time – an important aspect for ensuring economic, sustainable asphalt production and long-term plant operations.

**Photos:**

  
**BE\_photo\_Wasserstoffbrenner\_001\_PR**

Successful commissioning of the Benninghoven burner at the customer. This has resulted in several thousand tonnes of asphalt being produced virtually emission-free, thanks to the exclusive use of hydrogen as a fuel.

  
**BE\_photo\_Wasserstoffbrenner\_002\_PR**

Prototype test on the burner test bench in the Benninghoven factory. Every burner is tested on the test bench and preconfigured to customer parameters before it leaves the factory.

  
**BE\_photo\_Wasserstoff\_003\_PR**

The new Benninghoven burner generation enables the use of up to four fuels at the same time, in three aggregate states.

*Note: These are preview photos only. For reproduction in printed articles, please use the photos at 300 dpi resolution: these photos are provided as downloads on the Wirtgen Group website.*

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