Benninghoven │ Austria’s first asphalt mixing plant with hot gas generator technology as a Retrofit solution

Maximised RAP feed rates, outstanding flexibility for frequent recipe changes and minimal emissions

In Vienna-Simmering, an established asphalt mixing plant was upgraded with a hot gas generator as a Retrofit solution. The retrofitting project was a première for Austria and the plant now ranks as the country’s most innovative asphalt production facility. The retrofitting of a hot gas generator using the counterflow principle means that the plant can now work with high RAP feed rates while simultaneously reducing its CO₂ footprint in the production of new asphalt mixes. Another benefit of this technology is the ability to maximise the proportion of RAP in all recipes. Thanks to the hot gas generator, the RAP material already achieves the end-product temperature of 160 °C whereby high RAP feed rates are still achievable despite frequently changing recipes.

Wide range of recipes to satisfy customers’ requests

In view of numerous requests for environmentally compatible construction materials on the part of customers, Austrian construction contractor PORR decided to upgrade their existing plant with the new recycling technology. At the site in Vienna-Simmering, around 30,000 tonnes of asphalt are produced with various recipes every month. The contractor supplies the City of Vienna with mastic asphalt for track construction and hot-rolled asphalt, and offers a wide range of recipes to meet the most demanding requirements of its many customers. The high output of the plant highlights its economic viability.

Plans to double the RAP feed rate

The objective of the first modernisation phase was to double the RAP feed rate to 40%. ‘The volume of reclaimed asphalt we’ll be able to process with the new mixing plant will depend on how much RAP is available from road resurfacing projects’, explains PORR CEO Karl-Heinz Strauss. It is also important to provide clear proof that the asphalt produced fulfils all standards for metrics such as rut resistance and bearing capacity. The asphalt mix produced must naturally also meet the customers’ particular requirements.

Retrofit solution from Benninghoven

For Benninghoven, sustainability also means retrofitting rather than a new-build. The patented hot gas generator recycling technology enables asphalt mixing plant operators to produce asphalt mixes containing up to 100% of reclaimed asphalt – and that with minimal emissions. As a Retrofit solution, it can be integrated into already established plants. Before retrofitting, the specialists from Benninghoven get together with the customer to discuss and decide where and how which technology should be integrated. The basis of these discussions is a holistic consideration and analysis of the production process.

In Vienna, the retrofitting project was carried out in two construction phases in order to minimise downtimes at the plant. The first phase of construction involved the retrofitting of the cold recycling system. This was followed later in the second phase by the erection of the structural steelwork, including the recycling drum, the hot gas generator and the burner.

The hot-gas generator sets the reference standard for recycling technology

High RAP feed rates and simultaneously low emissions can be achieved only by the use of the counterflow principle in the hot gas generator. Here, the RAP material is indirectly heated to the ideal processing temperature of 160 °C and does not come into contact with the burner flame. ‘Generally speaking, we don’t need to pay attention to reducing emissions when we have high RAP feed rates. The hot gas generator is a technology that completely avoids any emissions in the first place,” explains Steven Mac Nelly, Head of Development & Design Engineering at Benninghoven. With the counterflow principle, burner fuel combustion takes place inside the hot gas generator and intensely heats the air circulating in the recycling drum. This hot air then acts as an indirect and material-friendly source of heat for the recycled material in the downstream recycling drum, heating it to the RAP material target temperature of 160 °C. This was the decisive factor for PORR, the operator of the plant in Austria. In Germany, for example, this ensures compliance with the TA-Luft regulations, and is enabled by Benninghoven in all output ranges of the hot gas generator.

Sustainability as a part of the closed-loop recycling strategy

Benninghoven is not the only company focusing on sustainable solutions and cutting emissions. The plant operator is also focused on the achievement of a more sustainable business model. The use of hot gas generator technology is another milestone the company has passed on its way to the achievement of a closed-loop recycling economy. In Austria, recycling materials are used as a substitute for primary resources wherever it is technically feasible and economically viable.

An investment in the future

The utilisation of hot gas generator technology contributes to the reduction of the CO₂ footprint. The use of 60% reclaimed asphalt when producing new asphalt mix can already cut CO₂ emissions in the overall road construction process chain by 20%. This simultaneously reduces asphalt production costs, as RAP costs less per tonne than quarried virgin material. The Retrofit project has therefore paid off for the company in more ways than one, not only ecologically, economically, and through greater flexibility, but also with respect to the fulfilment of their customers’ requirements.

**Photos:**

  
B\_pic\_Hot-gas-generator-Retrofit-Austria-Simmering\_0099  
The first plant in Austria to be Retrofitted with a hot gas generator. With this retrofit solution, PORR now operates the country’s most modern asphalt mixing plant at its site in Simmering.

  
**B\_pic\_Hot-gas-generator-Retrofit-Austria-Simmering\_5005**  
Frequently changing recipes are typical in the daily production process, but, despite this, the asphalt mixing plant from Benninghoven achieves high RAP feed rates in every recipe as the RAP material has already been heated to the end-product temperature of 160 °C by the hot gas generator.

Please note: the photographs shown here are only previews. If you wish to publish them in other media, please download the higher resolution (300 dpi) versions from the link provided here.

**Video:**



[Click here to watch the video](https://youtu.be/KijQGigiWiM).

**[You can find more videos on the Wirtgen Group YouTube Channel.](https://www.youtube.com/@WirtgenGroup)**

For further information, please contact us at:

WIRTGEN GROUP

Public Relations

Reinhard-Wirtgen-Straße 2

53578 Windhagen

Germany

Phone: +49 (0)2645 131 1966

Fax: +49 (0)2645 131 499

Email: PR@wirtgen-group.com

www.wirtgen-group.com