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PRESS RELEASE

Production System for a Construction Site with Zero Local Emissions

Electrically Powered Machines Meet 100% Green Hydrogen for Asphalt Production

The Wirtgen Group's modular concept is based on a platform of alternative drive-system solutions. What's really new is an end-to-end production system that provides everything road construction contractors need for the realization of construction or rehabilitation projects. This includes a cold milling machine, a road paver, a tandem roller, an asphalt mixing plant, a crushing plant, and a whole suite of specially tailored digital solutions. The outcome of all this, a reduction of CO₂ and noise emissions and lower operating and energy costs. This in turn enables a more sustainable and simultaneously more profitable project realization.

The Wirtgen Group "production system for a construction site with zero local emissions" has been nominated for the Bauma Innovation Award 2025 in the "Climate protection" category.

The Challenge on Inner-City Construction Projects: Working with Zero Local Emissions

Urban road construction is primarily characterized by the repair and maintenance of existing infrastructure on small construction sites. Here, classic cold milling machines are employed for the removal of damaged asphalt pavement. These are followed by road pavers which lay down the new asphalt and rollers that compact the newly paved asphalt. With the Wirtgen cold milling machine W 50 Re, the Vögele SUPER 1300-5e road paver, and the Hamm HX 70e tandem roller, the Wirtgen Group has developed a production system that is based on a consistently battery-electric drive concept.

The Advantages of a Platform Solution: Increased Profitability, Lower Costs, Improved Working Environment

The particular challenges for battery-electric drive systems for the various machine types are the varying power requirements, the available installation space, and the demands on the power train functions. The development of high-voltage drive systems takes place in close collaboration with the specialists from the parent company and battery manufacturer Kreisel Electric, in which John Deere is a majority stakeholder.

The holistic approach of the platform solution enables users to not only reduce emissions but also simultaneously increase their profitability. Standardized components for all construction machines of the production system result in common service components, high availability of drive system components, and a universal, simple operating concept. On top of this, operating personnel and local residents alike benefit from the low noise levels of the machines in operation.

An on-site electric power supply infrastructure is also essential when it comes to exploiting the full potential of the platform solution. Here, a tailor-made mobile charging system reliably delivers sufficient power for charging multiple battery-electric machines deployed on a project.

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Custom-Built Drive Solution for Crushing Plants

Here, other solutions have been developed due to the high energy requirements of crushing plants that far exceed the capacities of commonly used batteries. Thanks to E-DRIVE, the all-electric drive concept with an external power supply option, the Kleemann MR 100i NEOe mobile impact crusher can also be operated with zero local emissions to sustainably process the milled material that is re-used in the production of the new asphalt mix in the asphalt mixing plant. In the event of an inadequate local power supply, the plant can also be powered with a smaller carbon footprint by a diesel-electric system using the alternative fuel HVO100.

A Mixing Plant with a Burner Fueled Exclusively with Green Hydrogen Rounds off the Solution

Almost CO₂ emission-free production of asphalt mixes are now also possible with the world's first burner that can be fueled exclusively with green hydrogen. To ensure maximum process-efficiency, the new burner generation from Benninghoven includes not only the burner itself but also the burner control and drying systems. On the way to making the future of road construction more sustainable, the greatest potential lies in the area of asphalt production. In view of this, the hydrogen system and electric drive solutions play a particularly important role.

Transparent Construction Site Documentation with the John Deere Operations Center™

All machines and the components of the electric drive concepts described here are designed to communicate performance data to the John Deere Operations Center™ via telematics solutions. The central platform for the management of machine fleets and entire construction sites offers users a real-time overview of the charge status of the respective machines and their functions.

Added Value for Construction Contractors and the Industry

For the first time, the modular concept from the Wirtgen Group offers road construction contractors an end-to-end production system that enables the realization of road construction projects with zero local emissions. Solutions from a single source result in high operational reliability and harmonized processes in machine and telematics solutions. This in turn enables a sustainable and profitable realization of construction projects.

In addition, users of the production systems also benefit from the competitive edge they enjoy on account of the ability to fulfill increasingly stringent stipulations when bidding for municipal construction projects. The holistic solution also helps to satisfy the requirements of potential investors who increasingly demand sustainable project realization as a proviso for project financing. It also enables construction contractors to fulfill their own sustainability goals.

All in all, the production system for zero local emission construction sites plays a decisive role in the industry on the way to a more sustainable road construction process chain.

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Photos:



WG_Local zero emission construction site_climate protection_EN_signet

The Wirtgen Group Production System for construction sites with local zero-emissions makes it possible to assure compliance with the strict threshold values for emissions applicable especially on urban construction sites and simultaneously increase profitability.

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 Wirtgen Group websites.

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