

Media Information
22 July 2024

Next step in reducing CO₂ from production: BMW Group introduces electrically powered exhaust purification in first paint shops

**+++ Thermal purification powered by electricity rather than gas +++
Successful test operations in Germany and China +++ In series production
at Plant Dingolfing and forthcoming Plant Debrecen, Hungary +++**

Munich. The BMW Group is now powering exhaust purification in its first paint shops electrically. Thanks to a new method, the high temperatures needed for the thermal purification of exhaust from paint booths and drying areas can now be generated by electricity. With that, a further production process can now be carried out without using natural gas.

Michele Melchiorre, Head of Production System, Planning, Tool Shop, Plant Construction at the BMW Group: "For other energy-intensive paint shop processes, such as vehicle drying and water heating, solutions already exist for working without natural gas. So, electric exhaust purification is the final steppingstone for the BMW Group to run its paint shops on regenerative energy in the future."

The first systems have already been tested at Plant Regensburg and BMW Brilliance in China, and Plant Dingolfing has converted a painting line for the new system to be used in series production. When the BMW Group's newest plant goes on stream in Debrecen in 2025, it will use only the new method.

eRTO: The gas-free alternative

eRTO (electric regenerative thermal oxidation) is a process whereby gaseous or vaporous substances are burned off at temperatures of up to 1,000° Celsius. Unlike previous methods, it runs purely on electricity.

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Before being released into the atmosphere via chimneys, exhaust from paint booths and drying areas is purified to prevent paint shop solvents from harming the environment. This is done by passing it through a bed of ceramic media, where the solvent residues are burned off. To do this, the air has to be heated up to very high temperatures in a short space of time. The energy needed to do this could previously only be provided by natural gas. But the innovative eRTO system now makes it possible to purify exhaust without fossil fuels and use electricity from renewable sources instead.

Electricity not gas – ceramic media retain heat

The eRTO system is installed between the painting booth, drying process and chimney. Thermal energy is recovered by a flat, two-metre-deep ceramic bed where temperatures reach up to 1,000° Celsius and which serves as a recuperator. Electrical heating rods heat the surrounding ceramics, and because most of the heat is retained, with only small amounts escaping, a connected load of just a few hundred kilowatts is sufficient to run the system.

Use in series production at new plant in Debrecen

The eRTO system was initially function-tested in ongoing paint shop operations at BMW Group Plant Regensburg. It is being further validated at BMW Brilliance Plant Lydia in China, where an eRTO system is used to purify exhaust from the drying system for car bonnets. The first European BMW Group facility to use the technology in series paint shop operations is Plant Dingolfing, where the first of four paint lines has already been converted for electric exhaust purification. More such systems are planned for the production network, and the new plant in Debrecen will purify paint shop exhaust only by eRTO.

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With its four brands BMW, MINI, Rolls-Royce and BMW Motorrad, the BMW Group is the world's leading premium manufacturer of automobiles and motorcycles and also provides premium financial and mobility services. The BMW Group production network comprises over 30 production sites worldwide; the company has a global sales network in more than 140 countries.

In 2023, the BMW Group sold over 2.55 million passenger vehicles and more than 209,000 motorcycles worldwide. The profit before tax in the financial year 2023 was € 17.1 billion on revenues amounting to € 155.5 billion. As of 31 December 2023, the BMW Group had a workforce of 154,950 employees.

The success of the BMW Group has always been based on long-term thinking and responsible action. The company set the course for the future at an early stage and consistently makes sustainability and efficient resource management central to its strategic direction, from the supply chain through production to the end of the use phase of all products.

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