Press release

New software module from Dürr optimizes supply air control in paint booths

DXQ solution saves energy through more flexible temperature and humidity control

Bietigheim-Bissingen, March 27, 2025 – **Dürr’s new** **Advanced Analytics Smart AC software module enhances flexibility and speed in temperature and humidity control for supply air systems. This makes air conditioning – one of the biggest energy consumers in paint shops – much less resource intensive. A supply air system with a capacity of 350,000 m3/h equipped with DXQ software can lower annual energy costs by approximately 30,000 euros, regardless of the climatic conditions at the location.**

Supply air systems are essential in automotive paint booths, ensuring the correct temperature and humidity for high-quality surface coating. What’s more, these systems create comfortable working conditions and the optimal climate for storing paints. However, air conditioning is highly energy-intensive because incoming outside air flowing must be continuously treated. “Until now, air conditioning has accounted for around one-third of a paint shop’s total energy consumption. To reduce this, Dürr has enhanced **DXQ**equipment.analytics with an intelligent control system that enables operators to optimize energy and operating costs for the first time,” says Jens Häcker, Vice President Digital Factory at Dürr.

**Energy savings through a flexible control window**

Smart AC calculates an energy-optimized range for temperature and humidity based on the specific system and the local climate conditions. The minimum and maximum values define the setpoint range, which is displayed to the system operator as a ‘control window.’ The larger the window, the less energy is required to control the heating, cooling, and water input. Traditionally, supply air systems have been set to fixed setpoint values that maintain safe margin from critical limits for the paint application, often leading to unnecessary heating or cooling. “Our digital solution, with its optimized control strategy, enables precise and efficient regulation of supply air systems within a defined range,” explains Jens Häcker. “Instead of conditioning air to a fixed temperature, such as of 23°C, the system can flexibly adjust between 21°C and 25°C. This reduces consumption while maintaining consistently high coating quality”

An intuitive user interface provides operators with real time insights into all relevant data, ensuring end-to-end process transparency. The overview displays current consumption values of the conditioning modules, setpoint values and trends for booth conditions, control options, and a detailed comparison energy consumption between window control compared to the previous point control method. The impact is illustrated with the following example: An air supply system for base coat and clear coat lines with a capacity of 350,000 m3/h operates with 80% recirculated air, and 30% of the days require a rapid adjustments due to weather fluctuations. Regardless of the location, annual energy costs using the flexible window approach were approximately 30,000 euros lower. The warmer and more humid the climate, and the higher the energy cost, the greater the potential savings.

Advanced Analytics Smart AC is a new module of the **DXQ**equipment.analytics software developed by Dürr for acquiring, evaluating, and visualizing robot and process data. To support more sustainable operation of supply air systems, Smart AC can be integrated into both new and existing systems.

Picture:

Ein Bild, das Text, Screenshot, Computer, Design enthält.

KI-generierte Inhalte können fehlerhaft sein.

Picture: Advanced Analytics Smart AC software module optimizes supply air control in paint booths.

The Dürr Group is one of the world's leading mechanical and plant engineering firms with particular expertise in the technology fields of automation, digitalization, and energy efficiency. Its products, systems, and services enable highly efficient and sustainable manufacturing processes – mainly in the automotive industry and for producers of furniture and timber houses, but also in sectors such as the chemical and pharmaceutical industries, medical devices, electrical engineering, and battery production. In 2024, the company generated sales of €4.7 billion. The Dürr Group has around 20,000 employees and 139 business locations in 33 countries. As of January 1, 2025, the former divisions Paint and Final Assembly Systems and Application Technology were merged to form the new Automotive division. Since then, the Dürr Group has been operating in the market with four divisions:

* Automotive: painting technology, final assembly, testing and filling technology
* Industrial Automation: automated assembly and test systems for automotive components, medical devices, and consumer goods as well as balancing technology solutions and coating systems for battery electrodes
* Woodworking: machinery and equipment for the woodworking industry
* Clean Technology Systems Environmental: air pollution control and noise abatement systems

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