Press release

Dürr feeds 2-component paints directly into the return system

New technology from Dürr enables VOC-free color changes with 2-component clear coats

Bietigheim-Bissingen, December 3rd, 2024 – Dürr’s latest development enables mixed 2-component paint systems to be fed directly in the return system within the atomizer for the first time. This eliminates VOC emissions in the paint booth during flushing processes and color changes. The new solution has been successfully deployed in two top coat lines for over a year.

Until now, significant amounts of volatile organic compounds (VOCs) were released into the paint booth during flushing and color changes with mixed two-component (2C) paint systems. In conventional processes, residual paint is flushed forward into a funnel or directly into the washout, leading to VOC pollution in over 70 percent of the booth air. The **Eco**Bell PurgeBox collecting system with special filter mats already reduces VOC emissions by up to 60 percent.

Dürr’s new development further reduces VOC load by enabling a return system for 2C clear coats, similar to the classic 1C process. Previously, this was unthinkable for mixed clear coat systems consisting of hardener and stock paint. Using a patented process sequence with precisely coordinated parameters, mixed 2C materials can be flushed back via a return system integrated in the atomizer without curing. This technology includes up to two main needles in the atomizer and the established diaphragm valve technology, which ensures high mixing quality with minimal mixing volume. Low VOC emissions of only 5 percent occur solely during the bell disk cleaning in the **Eco**Bell Cleaner D2, with no VOC release during flushing or color changes.

**Effect finishes within normal cycle times**

The return system for mixed 2C materials is not only environmentally friendly, but also saves time. During cleaning of the bell disk and atomizer surface in the **Eco**Bell Cleaner D2, flushing and priming can occur parallel. These steps, previously performed sequentially, are now completed in parallel within just 15 seconds, reducing color change time by half, increasing system capacity, and allowing more time for painting. Tinted clear coats can now be applied without any cycle time losses, enabling car manufacturers to make much broader use of effect finishes, which were previously limited to exclusive segments.

In combination with the **Eco**Bell4 Pro this setup offers maximum flexibility. Two returns for 2C material (2x2C) are therefore integrated in each robot arm. This means that while one body is being painted, the stock paint and hardener for the next body can be prepared in parallel on a second channel. Even if manufacturers use multiple paints and hardeners that are chemically incompatible, these can be applied through separate channels. Dürr verifies the compatibility of customer clear coat systems in its test center. So far, all 2C clear coats have been compatible with this new technology and can be returned and collected via the atomizers.

**Return system reduces costs for fixtures and fittings**

The **Eco**Bell4 Pro rotary atomizer is available with the return system in the 2x2C and 1x2C variants, while the **Eco**Bell3 can be retrofitted with 1x2C. Another system using this new technology is currently being commissioned. Beyond eliminating VOC emissions during flushing and color changes and significantly reducing flushing agent consumption, this solution also offers low investment costs by eliminating the need for funnels, **Eco**Bell PurgeBox units, and other fixtures and fittings in the paint booth.

For over a year, the return system for mixed 2C material has demonstrated its effectiveness at a leading electric car manufacturer, operating in two top coat lines with 42 high-rotation atomizers.

**Pictures**

Ein Bild, das Im Haus enthält.

Automatisch generierte Beschreibung

Picture 1: The green paint is mixed in the atomizer and applied. Note: The clear coats are shown in green and blue for demonstration purposes.

Ein Bild, das Im Haus enthält.

Automatisch generierte Beschreibung  
Picture 2: Once painting is complete, the mixed green 2C paint is returned in the atomizer. During this process, the blue paint is already mixed and can be applied without any loss of cycle time.

**About Dürr**

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 2023, the company generated sales of €4.6 billion. The Dürr Group has around 20,000 employees and 141 business locations in 33 countries, and it operates in the market with five divisions:

* **Paint and Final Assembly Systems:** paint shops as well as final assembly, testing, and filling technology for the automotive industry
* **Application Technology:** robots and products for the automated application of paint, sealants, and adhesives
* **Clean Technology Systems:**air pollution control, coating systems for battery electrodes, and noise abatement systems
* **Industrial Automation Systems:**automated assembly and test systems for automotive components, medical devices, and consumer goods as well as balancing and diagnostic technology
* **Woodworking Machinery and Systems:**machinery and equipment for the woodworking industry

Contact

Dürr Systems AG

Carina Lachnit

Marketing

Phone: +49 7142 78-4899

E-mail: carina.lachnit@durr.com

www.durr.com