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Opening photo: The increasing global demand for energy-saving fans and rising quality standards have prompted the fan and motor manufacturer to expand its production capacity.



FOCUS ON TECHNOLOGY

Mixing it Up: New 2K Coating System for ZIEHL-ABEGG

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Sprimag's new coating system for fan rotor bodies provides a breath of fresh air to fan and motor manufacturer ZIEHL-ABEGG, because its chain system is capable of handling even complex requirements.

Fans have an extensive range of application, including in everyday ventilation, automotive engineering and even in machine and system technology, such as that produced by Sprimag.

When it comes to these and many other areas of application, ZIEHL-ABEGG is widely regarded as one of the leading manufacturers of fans and ventilation systems. The increasing global demand for

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energy-saving fans and rising quality standards have prompted the fan and motor manufacturer to expand its production capacity by means of a new building and additional production facilities (Ref. Opening photo). Among the new equipment installed is a Sprimag coating system, which has been coating rotor bodies of energy-saving fans (EC technology¹) since the start of 2018 (Fig. 1).

Sprimag rose to the challenge and, through close collaboration with ZIEHL-ABEGG and a series of trials in the applications center, succeeded in meeting even the most complex requirements of the new facility.

“The foundations were laid for a trusting working relationship from the very beginning of the project, particularly through an extensive series of initial trials. It was important to us that the system operated a fully dependable coating method that guarantees us maximum process reliability,” explains Jürgen Rehrauer, Head of Process Planning for EC Fans at ZIEHL-ABEGG. The first challenge to overcome was the spatial requirements, because space was at a premium on this project, especially in terms of height. This gave rise to a compact chain on edge coating

system that was in every way a perfect fit for the new ZIEHL-ABEGG production hall. As requested by the customer, the coating system’s dry spray station was deliberately positioned facing outwards for the added benefit of easy access for maintenance staff when changing the dry extraction filters for the coating, for instance. A large viewing window at the start of the evaporation zone gives the operator a clear view of the rotor once coated, meaning the quality of the coating on the parts can always be inspected before the parts move on to the two-stage drying process.

Another requirement of the coating system was that it needed to be able to process a wide range of parts that vary greatly in terms of the size and dimensions of the rotor bodies. As well as large rotors measuring 275 mm in diameter, the system should be capable of coating compact ECblue rotors with a diameter of just 146 mm. The system is required to coat a total of 23 different types of part.

A number of trial series, conducted in Sprimag’s in-house applications center, ascertained whether the SprimixII 2K paint supply would be

suitable for ZIEHL-ABEGG’s purposes (Fig. 2). During these trials in the technical center it was initially established that the existing SprimixII 2K

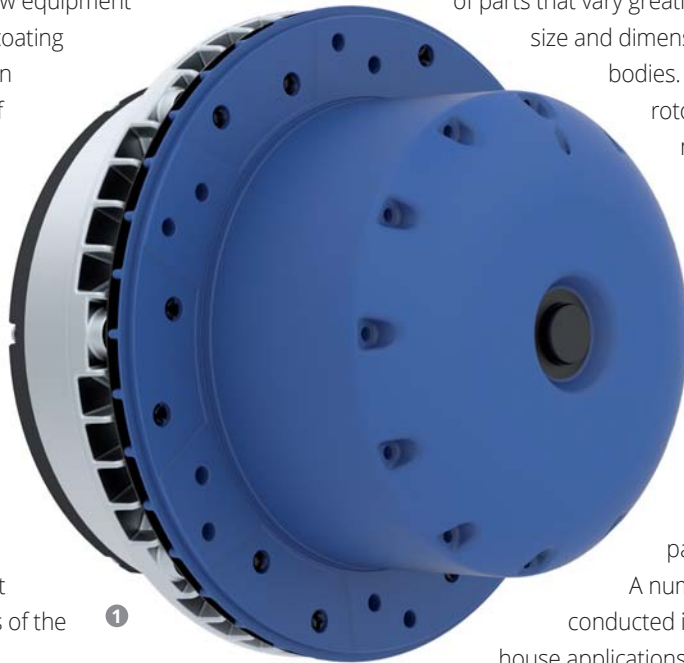


Figure 1: A detail of rotor body of energy-saving fans.

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¹ EC stands for “electronically commutated”. This type of motor needs less electricity to operate.

paint supply had found its limits: The technology was currently set up for significantly higher flow rates, and so needed to be honed into a new solution. Sprimag rose to the challenge and was ultimately able to adjust the mixing technology to also accommodate low flow rates with ease.

The coating system is integrated in a working environment with two other work stations. Once the shafts have been pressed, the operator places the rotor body on the coating machine's transport system. Once the coating process is complete, an operator conveys the parts to the pick-up station, ready for magnetization. The Sprimag chain on edge coating system features a transport system that is ideal for conveying heavy parts weighing over 5 kg. To avoid the need for time-consuming retrofits, a universal retaining chuck is used here, which is suitable for the full range of different parts. The parts are rotated in the spray station and coated by a coating robot. The transport cart is connected to the spray station by the chain system in operation, ensuring that parts that require only partial coating are coated with precision. Because the industry-wide rise in quality

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Figure 2: The SpriMixII 2K paint supply.

standards leaves no room for compromise in this area, we drew on our extensive experience and were able to meet the customer's exacting requirements for precision coating of rotor bodies.

The overall ventilation technology was created in consultation with ZIEHL-ABEGG's technical plans for the building design. The objective was to ensure that the air needed for the system is not taken from the hall. To achieve this, fresh air is taken from outside and the exhaust air from spray booths, paint rooms, evaporation zones, dryers and cooling zones is fed into an air collection system. The requisite fans and automatic throttle valves ensure a smooth connection to the exhaust air system. Sprimag was on hand offering in-depth advice throughout the entire collaboration. As a result, in the space of just two weeks all 22 coating programs were set up and the operating staff were trained on coating processes and using the SpriMix II. This was possible thanks to the trials conducted in the applications center at the very start of the project, which enabled us to adapt our SpriMix II to the customer's requirements and gain experience with the coating system at an early stage in the project. "Thanks to the excellent partnership with Sprimag, from the trials to the system design and construction and all the way through to commissioning, we are now in a position to meet ever-growing demand and our own integral quality standards," reports Jürgen Rehrauer, who is looking forward to further opportunities to work together. ○

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