

Fan as a sensor

Smart fans for centralized residential ventilation

Fans are at the heart of efficient residential ventilation systems. They ensure air exchange and do this as efficiently, powerfully and quietly as possible. ebm-papst offers the right product solutions for specific applications.

In centralized residential ventilation, one device controls the supply and exhaust air via piping systems in relevant rooms of the residential building. The advantage of a centralized unit is that heat recovery and air filtering are effectively implemented. The centralized control system also enables evenly regulated air distribution and optimization across the entire building.

Second-generation efficiency: RadiCal 2

The RadiCal has proven itself for over 10 years in use in centralized domestic ventilation units and is now in its second generation with impressive noise and efficiency levels. Aerodynamic optimizations include its “twisted” blade geometry and the completely revised housing box with diagonally arranged struts. Compared to its predecessor, the RadiCal 2 has a 9 percent higher peak efficiency level in size 190, for example. In addition, the maximum air flow per size is considerably higher. The noise level has been significantly improved and is up to 3 dB (A) lower depending on the operating point. Thanks to the new FlowGrid and the revised EC motors, additional noise benefits can be achieved in the ventilation unit.

RadiCal in scroll housing with smart features

The RadiCal fan in scroll housing continues to set new standards in ventilation technology. Users don't need their own air duct design as the round outlet is connected to the ventilation unit's air ducts. The vane anemometer in the outlet of the scroll housing enables automatic control to provide a constant air flow. This makes it suitable for smart ventilation, which ensures a predefined air exchange in living spaces. This vane anemometer is now also available in 4 sizes as a single sensor for installation in ventilation systems.

With its integrated vane anemometer, the RadiCal not only functions as a powerful fan, but also as a smart sensor. When combined with an appropriate control system and software, it can precisely monitor the pollution degree of filters in a residential ventilation system and issue a timely warning message to replace them. This not only ensures good air quality, but also enables further potential energy savings, while at the same time avoiding additional costs for other pressure sensors in the ventilation system. Compared to centrifugal blower fans of the same design, the RadiCal in scroll housing is 34 percent more efficient and up to 3.5 dB (A) quieter. The integrated humidity and temperature sensors make the RadiCal in scroll housing particularly suitable for residential ventilation systems – a further step toward measurable indoor air quality.

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Fig. 1: ebm-papst fans for centralized residential ventilation (RadiCal 2 left, RadiCal in scroll housing right). The vane anemometer is now also available in 4 sizes as a single sensor for installation in ventilation systems (front).

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About ebm-papst

The ebm-papst Group, a family-run company headquartered in Mulfingen, Germany, is the world's leading manufacturer of fans and motors. Since it was founded in 1963, the technological leader has set international industry standards with its core competencies in motor technology, electronics, digitalization, and aerodynamics. ebm-papst offers sustainable, intelligent, and tailor-made solutions for virtually every requirement in ventilation and heating technology.

In the 2023/24 financial year, the Group generated turnover of EUR 2.408 billion. It employs just under 14,000 people at 30 production sites (including in Germany, China, and the U.S.) and in 50 sales offices worldwide. ebm-papst sets the benchmark in almost all sectors, such as ventilation, air conditioning and refrigeration technology, heating technology, information technology, mechanical engineering, intralogistics, and medical technology.

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