

Pressure-resistant axial fans for heat pumps FlowGrid improves noise characteristics

Air-water heat pumps now enjoy a high level of acceptance in heating technology and are becoming an important pillar of more sustainable heat generation. There is demand for efficient and, most importantly, quiet systems suitable for indoor, outdoor or hybrid use, which use natural refrigerants and whose output can be intelligently adapted to the actual conditions.

ebm-papst presented the efficient AxiEco axial fans in various designs at the beginning of 2020. Thanks to their high pressure stability, ventilation and air conditioning devices in particular benefit from higher air flow volumes. The series has now been expanded with the new AxiEco plug-in fans in sizes 450 and 500, which are typical for heat pumps in detached or semi-detached homes.

Pressure-resistant in the face of ice formation

Ice formation is a big topic in the world of heat pumps. It is a particular issue for evaporators when humidity settles on the heat exchanger as ice at cold ambient temperatures. This reduces the air routes and the drag. The fans then have to offer significantly greater pressure reserves. This is where the new AxiEco Plug-in comes in. Studies have shown that its flow technology reduces ice formation and its air flow only reduces very slightly as the pressure increases. This is also an advantage for heat pumps, which heat in winter and cool in summer, as the operating points then vary depending on operation.

Quieter thanks to FlowGrid

The new AxiEco Plug-in fans have now been equipped with an air inlet grille. This FlowGrid, which acts as a rectifier for air flow, drastically reduces noise-generating disturbances in the air flow. This reduces the sound pressure over the entire frequency range, in particular the disruptive blade passing noise, i.e. unpleasant "humming" in the low frequency range. At the same time, the air inlet grille serves as a motor suspension and, if necessary, the device manufacturer can insert heating tape. The new axial fan weighs 30% less than the comparable HyBlade version with steel wall ring. This means that less weight has to be handled during the installation and the compact dimensions often make it possible to optimize the design of the end device. The AxiEco Plug-in fans are supplied as a ready-to-install plug & play solution, including nozzle plate and FlowGrid.

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Fig. 1: AxiEco Plug-in axial fan with new FlowGrid makes heat pumps even quieter

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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 drives. Since the technology company was founded in 1963, it has continuously set the global industry standard with its core competences in motor technology, electronics, digitization and aerodynamics. With over 20,000 products in its portfolio, ebm-papst provides the best energy-efficient, intelligent solution for virtually every ventilation or drive-engineering task.

In fiscal year 2021/22, the "hidden champion" generated revenues of € 2,288 billion. The group employs roughly 15,000 people at 29 production sites (in Germany, China and the USA, to name but a few) and in 51 sales offices worldwide. ebm-papst sets the benchmark with their fan and drive solutions which are used in almost all industries, such as ventilation, air conditioning and refrigeration, heating, information technology, mechanical engineering, household appliances, intralogistics and medical engineering.