**At Chillventa 2024, ebm-papst will be showing a wide range of fans that are suitable for use in heat pumps, chillers, condensers or evaporators and refrigeration units and are designed for applications with flammable refrigerants. The right compact fans are available for the heat pump safety concept. In addition to the fans, new inverter electronics significantly reduce noise generation and also increase the efficiency of the heat pump.**

ATEX-approved compact fans for the safety concept

The F-Gas Regulation, which has been in force since 2015, means that manufacturers of air-to-water heat pumps are increasingly using refrigerants with a low global warming potential (GWP), such as the natural refrigerant R290 (propane). However, these refrigerants are usually flammable. Special safety concepts are therefore required. There are ATEX-approved compact fans for heat pumps. In the case of a leak in the refrigerant circuit, they ventilate the housing and prevent an explosive atmosphere from forming. Thanks to the fully encapsulated motor and electronics, they meet the requirements of EN 60079-7, Group IIC, up to T4 and DIN EN 60335-2-40 as standard. Thanks to their compact design, the fans require minimal installation space and can also be used for cooling electronics. In smaller heat pumps, for example for floor heating, they can also be used as the main fan.

Axial fans for particularly noise-sensitive areas

When developing their systems, heat pump manufacturers generally have to ensure that only components are integrated that fulfil all common standards for handling flammable refrigerants. ebm-papst has two fan series for noise-sensitive outdoor use: AxiEco Plug-In and AxiTone. Both are designed for applications with natural and flammable refrigerants (EN 60335-2-40) and are particularly quiet thanks to their special design. While the AxiEco Plug-In is suitable for heat pumps requiring a large conveying pressure reserve for the evaporator, the AxiTone is geared more towards delivering higher air flow at low back pressure when the heat pump design requires this. Based on many years of experience with heat pump applications, EC motors and their commutation electronics, ebm-papst has also developed inverter electronics that are suitable for speed-controlled permanent magnet synchronous machines (PSM), which are typically used in compressors. This also reduces noise generation and simultaneously increases the efficiency of the heat pump.



Image 1: For the heat pump safety concept, there are suitable compact fans that ventilate the housing in the case of a leak in the refrigerant circuit, thus preventing the formation of a potentially flammable atmosphere.



Image 2: The powerful, quiet-running AxiTone and AxiEco Plug-In axial fans were developed for use in air-water heat pumps and are suitable for applications with flammable refrigerants.

# Pictures: ebm-papst

# Characters: approx. 2.700, with headings and sub-headings

# Tags Heat pumps, flammable refrigerants, AxiTone, AxiEco Plug-In, F-gas, Atex, inverter electronics

# Link [www.ebmpapst.com](http://www.ebmpapst.com)

**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.