

AxiEco Track: Sophisticated design for high demands in railway engineering

New axial fan for railway applications with high back pressure

The AxiEco from ebm-papst has successfully established itself on the market for over two years. The versatile axial fan range has now been expanded to include a model that is specially tailored to the requirements of railway engineering and has many design tricks. The AxiEco Track was recently presented at InnoTrans 2022 in Berlin for the first time.

The product range's new fan was specially developed in view of the requirements of railway engineering. Until now, AC fans were often used in this arena. In contrast to modern EC fans, however, these can only be poorly regulated to the requirements, they are loud and they consume a lot of electrical energy. In the AxiEco Track, the impeller, integrated diffuser ring and hub form a compact unit. The blade tips pass directly into the integrated diffuser ring, which has eliminated the tip gap. The diffuser is integrated directly into the impeller, which increases the pressure, reduces outlet losses and helps to reduce noise levels. The fan blades are grooved, which increases mechanical stability and enables a higher power density. The fan housing is made of aluminum and can withstand strong forces.

Energy-efficient and quiet, thanks to a sophisticated design

These design tricks increase efficiency and also reduce noise. This results in remarkable characteristic values: in the largest size (500), the AxiEco Track enables an air flow of over 13,500 m³/h with a static pressure increase of over 750 Pa. In the size 450, it achieves a noise reduction of 6 dB (A) compared to its HyBlade predecessor.

The AxiEco Track, which can be used as a plug-and-play solution, is available in sizes 300, 400, 450 and 500 mm and, thanks to its high static pressure increase, covers all typical applications, for example it can be used in condensers in air conditioners or for cooling electronics and variable frequency drives. The size 500 features automatic resonance detection, i.e. critical speed ranges are detected automatically and "blended out". As a result, and due to its compact, robust design, it is resistant to vibrations and shocks, ensuring long operational reliability. Due to the wide voltage input, the fan is suitable for all voltage ranges and mains frequencies worldwide.

Fire protection and EMC compatibility for railway applications

Standards for additional safety apply particularly in railway engineering. For example, EN 44545 and EN 50121-3-2 place special requirements on fire protection in railway vehicles and on the electromagnetic compatibility of the installed components respectively. The AxiEco Track was also subjected to shock and vibration tests in accordance with IEC 61373 category 1B.

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Photo: The product range's new fan was specially developed in view of the requirements of railway engineering.

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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, automotive, information technology, mechanical engineering, household appliances, intralogistics and medical engineering.

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