



Press Release

EC centrifugal blower with active PFC from ebm-papst

Fighting harmonics

Fan coils used in offices, hotel rooms or communal facilities are often operated in parallel connection. This means that the principle used to connect the EC fans that are mostly used in these devices are not completely free of effects on the grid. The pulsed input current of EC fans gives rise to current harmonics. They impact the supply grid and can lead to increased losses due to reactive power. Even other devices in the system grid can be negatively affected. To prevent this, operators must ensure sufficient reactive power compensation and provide central interference filters, which of course require extra installation space.

ebm-papst has now developed a solution integrated in the electronics for EC centrifugal blowers: active PFC (power factor correction). This integrated power factor correction converts the pulsed input current of the EC motors into a sinusoidal current. In the second step, the position of the current curve is shifted so that is in phase with the voltage. This significantly reduces the harmonic content of the input current. The peak value of the input current is also minimised and it is possible in many applications to select a smaller cross-section for the fan supply lines. The requirements of EN61000-3-2 are fulfilled with no additional measures.

The GreenTech motors work at efficiency levels of around 90% and use 70% less energy than standard AC motors, significantly reducing operating costs. High efficiency levels also mean lower levels of heat loss that would have to be cooled. The low motor temperatures have a positive effect on the service life of the ball bearings. In partial-load operation in particular, EC motors impress with their energy saving ability, as the fans can then be operated at low speed ranges. The operator quickly feels the benefit of this in their wallet.

This means that there are now efficient EC centrifugal fans available for use in fan coils, which can also be used for other applications with similar requirements. One example of this are air curtains in the entrance areas of department stores or factory halls. The EC centrifugal fans are available now in single, twin and triple configurations for air performances of up to 2,500 m³/h in the power range up to 250 W.

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Fig. 1: The new EC centrifugal fan with active PFC.

Photo: ebm-papst

About ebm-papst

The ebm-papst Group is the world's leading manufacturer of fans and motors. Since it was founded, the technology company has continuously set global market standards.

Developments have ranged from electronically controlled EC fans, through aerodynamic improvements of fan blades, and on to the resource-conserving selection of materials, with bio-materials being just one option.

In fiscal year 2013/14, the company achieved a turnover of €1.5 billion. Throughout the world, ebm-papst employs around 11,500 people at 18 production sites (including in Germany, China and the USA) and in 57 sales offices. Fans and motors from the global market leader can be found in many industries, including ventilation, air conditioning and refrigeration, household appliances, heating, IT and telecommunications, as well as automotive and commercial vehicles.

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