



Press Release

Energy-saving fan filter units

EC centrifugal fans for clean rooms

Tougher product quality requirements call for production in clean or ultra-clean rooms. Even the slightest impurities in the air can compromise production processes and lead to high reject rates. Air supplies for such production environments need to be as free as possible from dust or germs. The RadiCal centrifugal fans from ebm-papst are ideal for such applications.

Clean rooms place special demands on their ventilation systems, including sufficient air flow and pressure, precise temperature and humidity control, and consistent air quality. So-called fan filter units (FFU) combine filter systems and fans and are designed for installation in ceilings. For large clean rooms in particular, such a configuration satisfies the requirements.

The range of products offered by ebm-papst Mulfingen includes RadiCal centrifugal fans that are specially designed for use in fan filter units and satisfy all mandatory requirements for such applications. The fans cover an air performance range from 1,170 to 2,330 m³/h at a back pressure of up to 300 Pa. GreenTech EC technology is also of particular interest for clean room systems since FFUs equipped with it can reach efficiency levels of more than 50%, which was not previously possible with conventional technology. In addition, strict noise protection regulations apply in clean rooms. The RadiCal impellers, which were optimized according to aerodynamic criteria, ensure low noise emissions; the fans are 6-7 dB quieter than the previous market standard.

For operation in accordance with user requirements, the EC fans can be controlled with an analog 0-10 V signal or via a digital RS485 interface. The latter is especially effective for clean room systems, where several thousand fan modules are often at work in the ceilings. In such cases, the networking capabilities offered by MODBUS or ebmBUS have proven very advantageous for controlling and monitoring these complex systems.

Besides the production of semiconductors, clean-room conditions are also called for in production processes for optics and lasers, aerospace, medical research and treatment, and foodstuffs and pharmaceuticals. Clean-room technology prevents contamination from compromising production processes and damaging sensitive products, and there are also processes involving materials that must be kept from reaching the outside air.

RadiCal fans have demonstrated their capabilities all over the world, for instance in the clean rooms where flat panel displays are produced. The market leaders from Korea and Taiwan relied on GreenTech EC technology from ebm-papst for the production of their large flat panel products.

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Fig. 1: Compact fans with energy-efficient GreenTech EC technology for use in fan filter units.

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 sustainable materials being just one option.

In fiscal year 2014/15, the company achieved a turnover of almost €1.6 billion. Throughout the world, ebm-papst employs around 12,000 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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