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the engineer's choice

ebm-papst Inc. · 100 Hyde Road · Farmington, CT 06034 · USA

Dynamic air delivery in a compact size for critical respiratory applications and more!

Introducing ebm-papst's RV45 DC Centrifugal fan – Remarkably quiet and powerful

Ideal for applications requiring rapidly changing air flow and high pressures, including respirators / ventilators, extraction systems, packaging machines, and more! The RV45's aerodynamics and motor are optimized for rapid speed changes while its compact size and innovative design keep it lightweight and virtually silent.



RV45 in Medical Applications

Fans used in the medical field, especially those found in sleep apnea / breathing devices, have to meet rigorous standards with regard to dynamics, smooth operation, reliability, acoustics and size. ebm-papst's RV45 centrifugal fan passes every test with flying colors. Its extremely dynamic EC internal rotor motor supports flexible adaptation to the breathing sequence, switching both quickly and reliably between a high inflation pressure for inhalation and a considerably lower pressure for unobstructed exhalation. The high speed of up to 50,000 rpm produces exactly the power required, assisted by the low moment of inertia of the rotor. Vibration absorbing materials and ideal aerodynamics deliver quiet operation, and maintenance-free ball bearings ensure years of optimal operation, both vital characteristics for breathing equipment. Designed with external control in mind, users can employ their own systems or work with the ebm-papst "RV45 power module" (PN 992.0640.004) which enables the RV45 to be used in a wide range of industrial applications as well.

RV45 in Industrial Applications

The RV45 centrifugal fan can deliver pressures up to 5,000 Pa and vary its speed between 5,000 and 50,000 rpm with an acceleration of 50 rpm per millisecond. Such a range of speeds is important for devices such as respirators and vacuum lifting units, but the fan is still extremely quiet. Its air flow of up to 540 l/min enables focused ventilation or cooling. The control electronics monitor the maximum permissible power consumption during quick bursts of speed to ensure that the unit's responsiveness is not impacted. In addition, integration of active braking functionality enables an additional increase in responsiveness during phases of negative acceleration.

With its big performance and all features designed into a 64 x 69.5 x 54.5 mm package smaller than a tennis ball, the RV45 is the ideal solution for any number of demanding tasks in the medical or industrial market.

Advantages at a glance:

- Quiet-running:
 - Exemplary sound level of just 49 dB(A)
 - Inside a CPAP, less than 25 dB(A)
- Very dynamic and high performance
 - Up to 100 rev/ms with static pressure increase of over 5,000 Pa.
- Intelligent design
 - Highly compact outer dimensions and weighs only 135 grams (4.8 oz)
- FDA-listed materials
 - physiologically safe, ideal for human use

Technology:

- Highly dynamic blower, based on a lightweight inner rotor motor
- Weight optimized rotor and impeller
- Compact motor design, low vibration
- Integrated high-quality connector system
- Low noise – inside an CPAP Application less than 25 dB(A)

Target Markets

- Medical
 - Sleep apnea devices (CPAP, BiPAP, etc.)
 - Respiration / breathing equipment
 - Emergency ventilation systems
- Industrial
 - Fuel cells
 - Smoke detectors
 - Packaging machines
 - Extraction systems