EC centrifugal fans

for the food service sector
and process exhaust air.

Standard-compliant ventilation with ready-to-install RadiPacs.
There’s something in the air.
Operators of commercial kitchens have a thing or two to say about that; cooking fouls the surrounding air with grease vapors and combustion gases, not to mention heat and moisture. All that can quickly make the air quality reach hygienically questionable levels, not only in the kitchen but also in the serving area and throughout the dining areas – where bad smells can ruin the pleasant atmosphere. So legislation calls for the installation of air handling units (AHUs) in these areas. They extract air pollutants, moisture and odors from the air and bring in cool and clean air from outside.

About ebm-papst.

ebm-papst is a leader in ventilation and drive engineering technology and a much sought-after engineering partner in many industries. With around 20,000 different products, we have the perfect solution for practically every requirement. We believe the consistent further development of our highly-efficient GreenTech EC technology provides our customers with the best opportunities for the future in industrial digitization. With GreenIntelligence, ebm-papst already offers intelligent networked complete solutions that are unique anywhere in the world today.

Six reasons that make us the ideal partner:

**Our systems expertise:** as experts in advanced motor technology, electronics and aerodynamics, we provide system solutions from a single source.

**Our spirit of invention:** our 600 engineers and technicians will develop a solution that precisely fits your needs.

**Our lead in technology:** with our EC technology and GreenIntelligence, we combine the highest energy efficiency with the advantages of IoT and digital networking.

**Closeness to our customers:** at 49 sales offices worldwide.

**Our standard of quality:** our quality management is uncompromising, at every step in every process.

**Our sustainable approach:** we assume responsibility with our energy-saving products, environmentally-friendly processes, and social commitment.
Keeping air clean in canteens and cafeterias can be challenging. To improve air quality, fans used in AHUs have to meet special requirements. According to VDI 2052, motors may not lie directly in the path of air flows bearing particulates. In addition, incoming air must be kept free of contaminants and, according to EN 16282, the fans need to be easily accessible and easy to clean. At the same time, the AHUs have to serve as humidity and temperature control in the rooms.

To meet this challenge, ebm-papst modified its proven RadiPac product range with EC centrifugal fans and optimized it for these special conditions. Now, manufacturers of AHUs for the food service sector and emissions-heavy processes or higher flow medium temperatures can finally benefit from the advantages of energy-efficient EC technology as these fans meet all their requirements.

Optimized for kitchen exhaust air:
In contrast to the normal RadiPac, the motor and control electronics have been removed from the contaminated air flow in accordance with VDI 2052 and EN 16282, effectively preventing the buildup of greasy or oily deposits on them.

Furthermore, the motor and controls are designed according to EN 60335-1 (Household and similar electrical appliances – Safety). This standard must also be met when certain devices that are not intended for normal household use could still pose a risk to the general public, e.g. when they are used by laypersons in shops, in industrial workplaces or in agriculture.

The underpressure relative to the surroundings that prevails around the fan’s intake (indicated by $\Delta Pa$ in the illustration below) causes cool outside air to be drawn in through a hose to cool the encapsulated motor. This enables the fan and the controls to reach their full output and, with the appropriate cooling air temperature, permits high flow medium temperatures.
Performance data – *lots of it.*

Measurements for fan characteristic curves are carried out on state-of-the-art chamber test rigs. The entire fan unit, consisting of motor, control electronics and impeller, is measured in various load states to ensure that we obtain reliable data and that you can count on these values being achieved when selecting your fan. So there are no unpleasant surprises when commissioning the fans.

The measured data form the basis for our design program, FanScout, which is available on request. This software can be used to calculate the expected operating costs or to perform lifecycle cost analyses.

**Benefits of RadiPac for use in the food service sector:**

– Motor isolated from air flow according to VDI guideline
– Complete solution from a single source
– Top efficiency values thanks to GreenTech EC technology
– Realistic performance data for reliable planning
– Easy installation and connection with plug & play

---

**Nominal data**

<table>
<thead>
<tr>
<th>Item number</th>
<th>Size</th>
<th>Nominal voltage range</th>
<th>Frequency</th>
<th>Speed</th>
<th>Max. power consumption</th>
<th>Max. input current</th>
<th>Flow medium temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>K3G 400-AQ27-K1</td>
<td>400</td>
<td>3–380–480</td>
<td>50/60</td>
<td>2,550</td>
<td>3,000</td>
<td>4.6</td>
<td>–25 to +45</td>
</tr>
<tr>
<td>K3G 450-AQ23-K1</td>
<td>450</td>
<td>3–380–480</td>
<td>50/60</td>
<td>2,040</td>
<td>2,730</td>
<td>4.2</td>
<td>–25 to +60</td>
</tr>
<tr>
<td>K3G 500-AP28-K1</td>
<td>500</td>
<td>3–380–480</td>
<td>50/60</td>
<td>1,780</td>
<td>2,825</td>
<td>4.3</td>
<td>–25 to +45</td>
</tr>
</tbody>
</table>

Data sheets on request. Subject to technical changes.
The clean solution for clean air in cafeterias.

High-performance impeller
- High static efficiency
  - Aerodynamically optimized blade channel
  - Integrated radial diffusor
- Minimal noise emission
  - Diagonal trailing edge for optimized flow control
  - Integrated radial diffusor
- Minimal vibration
  - Dynamic balancing of the impeller-rotor unit minimizes induced structure-borne noise and reduces the bearing load
- Robust design
  - Suitable for constantly high peripheral speeds
  - Corrosion-resistant aluminum

Electronics and connection area
- Adaptable
  - Smoothly adjustable speed
  - 0–10 VDC control signal and MODBUS-RTU
- Global usability
  - Wide voltage range for use worldwide
  - For use with 50 and 60 Hz grids
- Safe operation
  - Complies with safety standard for household-related areas (EN 60335-1)
  - Integrated locked-rotor and thermal overload protection
  - Environment-resistant cable glands
- Simple commissioning
  - Central terminal area for power connection, alarm relay, open-loop control and communication
  - Safe separation of terminal area and electronics
  - High-quality connection terminals
  - No programming effort
The clean solution for clean air in cafeterias.

**Support structure**
- Easy installation in AHU
  - Complete system for quick and easy installation
  - Installation with horizontal or vertical motor shaft
  - Designed for wall mounting
- Aerodynamically perfected
  - Aerodynamically efficient
  - Optimized positioning of nozzle
  - Minimum obstruction of air duct thanks to just one nozzle
- Plug & play
  - Same connection dimensions as standard, i.e. no modifications to the customer’s device necessary

**GreenTech EC motor**
- High efficiency
  - Low copper and iron losses
  - Synchronous running prevents slip losses
  - Use of permanent magnets prevents magnetic hysteresis losses in rotor
- Economical operation
  - Optimized commutation for partial-load operation down to 1:10 while maintaining high efficiency
- Minimal noise emission
  - Commutation and stator design ensure low-noise magnetization of the energizing field
  - High, acoustically imperceptible cycle frequency
- Long service life
  - Maintenance-free bearings
  - Brushless commutation
  - New motor design for high imbalance loading resulting from grime build-up
- Safe operation
  - Insulated bearing system to prevent bearing currents

**Motor enclosure**
- Motor isolated from air flow
  - Satisfies VDI 2052 for commercial kitchens
- Pre-installed intake nozzle
  - Intake nozzle prepared for installation on outer wall of AHU
  - Built-in flange included
- Pre-installed flexible air hose between motor capsule and nozzle plate
  - Easy to replace
  - Robust mechanical strength, low flammability according to UL 98 V-0
- Easy cleaning and inspection
  - Satisfies EN 16282 standard
Would you like some more?

Dimensions

<table>
<thead>
<tr>
<th>Item number</th>
<th>Size</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>K3G 400-AQ27-K1</td>
<td>450</td>
<td>15</td>
<td>281</td>
<td>251</td>
<td>441</td>
<td>520</td>
<td>500</td>
<td>640</td>
<td>450</td>
<td>11</td>
</tr>
<tr>
<td>K3G 450-AQ23-K1</td>
<td>500</td>
<td>15</td>
<td>311</td>
<td>251</td>
<td>441</td>
<td>547</td>
<td>630</td>
<td>725</td>
<td>580</td>
<td>11</td>
</tr>
<tr>
<td>K3G 500-AP28-K1</td>
<td>500</td>
<td>15</td>
<td>323</td>
<td>251</td>
<td>441</td>
<td>562</td>
<td>630</td>
<td>725</td>
<td>580</td>
<td>11</td>
</tr>
</tbody>
</table>

All dimensions in mm, data sheets on request. Subject to technical changes.

Intake nozzle included in scope of delivery. As of now, air hose not included in scope of delivery.

Want to find out more?

We are always happy to serve you.
Ralf Mühleck, Phone: +49 7938 81-7035, Ralf.Muehleck@de.ebmpapst.com
or follow us at www.ebmpapst.com/radipac