

# Discover ebm-papst for buildings.

Energy-efficient fans for a controlled room atmosphere.

# ebmpapst

The engineer's choice



# About ebm-papst.

*As technological leader for ventilation and drive engineering, ebm-papst is in demand as an engineering partner in many industries. With over 15,000 different products, we provide the right solution for just about any challenge. Our fans and drives are reliable, quiet and energy-efficient.*



## 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.** Our GreenTech EC technology is setting standards worldwide. And our lead is your competitive advantage.

**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.

## Controlled home ventilation for a pleasant room atmosphere.

Adequate air exchange is important for a healthy, comfortable environment and to protect the building structure. The energy conservation regulation (EnEV), however, demands that building envelopes now have to be designed with virtually air-impermeable insulation. Window ventilation alone is no longer sufficient to ensure the specified minimum air change rate. Additional ventilation measures are required.

Future-proof concepts are ventilation systems of central or decentralized design. With a central residential ventilation system, the unit is installed at a central location such as the cellar and the air is circulated through pipes. Decentralized ventilation systems are installed in specific rooms and can be controlled individually. In both cases it is advisable to use systems featuring heat recovery and demand-based adjustment of the air volume.

To suit these requirements, ebm-papst develops highly efficient, extremely quiet-running fan solutions with heat recovery, at the same time employing the warm exhaust air to heat the cooler supply air and keep energy losses to a minimum.



# ebm-papst technology meets tomorrow's standards today.

All ebm-papst fans with GreenTech EC technology already far surpass the efficiency standards likely to come into force from 2020 onwards. We call this "ErP Next – the future of efficiency now". For our customers it is a guarantee of highly efficient, future-proof high-end products conforming to legal requirements.

As the legislation relating to ventilation in residential buildings is a complex matter, a brief outline of the two main points is given below:

## 1. Building air tightness and minimum air change rate

Both these factors are regulated by the applicable building efficiency guidelines. Buildings must be constructed in such a way that the heat transmitting envelope is impermeably insulated while at the same time ensuring the necessary minimum air change rate.

## 2. Minimum efficiency requirements

With effect from 1 January 2016, the ecodesign directive (ErP) demands that residential ventilation units satisfy stringent minimum energy efficiency requirements and bear a corresponding energy label. The ecodesign directive currently stipulates the following: Fan regulation with at least three speed levels or, better still, infinitely variable speed control. Bidirectional ventilation units must feature heat recovery. The annual energy demand limit value must be less than or equal to 0 kWh/m<sup>2</sup>. And it is set to become even more drastic: From 1 January 2018 onwards, this specific annual energy demand is required to be below –20 kWh/m<sup>2</sup>.

You are always on the safe side with fans from ebm-papst. As pioneers in the development of highly efficient EC fans and innovation experts, we can supply you with just the solution you need – with the best possible efficiency values and guaranteed to conform to the applicable legislation.



### The highlights at a glance:

- Infinitely variable fan control characteristics for a controlled room atmosphere
- Ideal fan solutions for central ventilation in new buildings and decentralized ventilation in existing buildings
- Low-noise fan operation for a better quality of life
- ebm-papst fans already surpass the minimum efficiency requirements for 2020
- Far lower current consumption than comparable fans on the market
- Extensive product portfolio of GreenTech EC fans suitable for the DC low-voltage range and single-phase AC (1~ 230)



## One example of efficiency and innovation: Bathroom fan with GreenTech EC technology.

### As compared to the previous model:

- 60 % lower power consumption
- 45 € annual cost savings\*
- 3 dB(A) quieter, in other words about half the noise level

\*Continuous operation at 0.25 €/kWh average electricity price for end consumer.



## Decentralized residential ventilation

Decentralized ventilation systems provide healthy, low-energy air circulation. Installation is straight forward, and retrofitting in existing buildings is no problem. It merely involves fitting fans in the outside walls to extract stale or moist air from rooms with a particularly humid atmosphere, such as bathrooms. A fan then draws the air out of this room and fresh air flows in.



### 1 Decentralized ventilation unit with heat recovery

These can be fitted in specific rooms and controlled individually. An optimum flow of air is ensured by powerful tubeaxial fans of axial, centrifugal or diagonal design, for example reversible axial fans or particularly quiet-running centrifugal fans.

#### Axial fan 4400FG

- Integrated reverse function (push & pull)
- PWM control input, optional analog control input
- Moisture-proof design

#### Centrifugal fan RG140

- Optimized scroll design for even greater efficiency
- Low-noise operation
- PWM control input



### 2 Underfloor convector and single-room ventilation

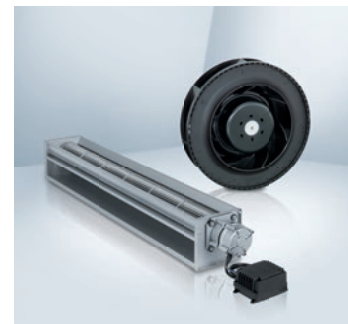
This application is frequently used with large-area windows to avoid unpleasant drafts of cold air and to create ideal comfortable living conditions.

#### Tangential blowers QL

- Low noise level with high air volume and low back pressure
- Uniform air distribution over a broad area
- Speed adjustment possible

#### DC centrifugal fan RER

- Very compact and shallow design
- Optimized impeller
- Extremely low-noise operation



### 3 Window fan

The small ventilation system with heat recovery in the window frame provides a supply of fresh and warm air without having to open the window. Pairs of fans for supply and exhaust air are integrated into the window frame.

#### DC centrifugal fan/DC axial fan

- Electronically commutated drive with electronic reverse polarity protection
- Less thermal impact and longer service life
- Optimized noise emissions



### 4 Ventilation unit with heat recovery

Compact design, high heat exchange efficiency, low power requirement. These are the special features of ventilation units with heat recovery. They are simply installed in the outside wall, so retrofitting is no problem either.

#### Centrifugal fan RadiCal R3G133

- 3-phase motor with optimized commutation
- Excellent noise values and minimal installation space
- For operation with line voltage or 24 VDC
- Infinitely variable speed control via control signal

#### Centrifugal fans with forward-curved centrifugal impellers



# Efficient solutions for more comfortable living.

## Examples of ebm-papst product applications.

- 1 Decentralized ventilation unit with heat recovery
- 2 Underfloor convector and single-room ventilation
- 3 Window fan
- 4 Ventilation unit with heat recovery
- 5 Roof-top heat recovery system
- 6 Central ventilation system with heat recovery
- 7 Home ventilation combined with heat pump
- 8 Exhaust air/outgoing air heat pump



Would you like to find out more and take a look at other possible applications and products?  
Then visit us online: [discover.ebmpapst.com/building\\_ventilation](https://discover.ebmpapst.com/building_ventilation)



## Central residential ventilation

With central ventilation systems, one central unit is responsible for air exchange for the entire building. Various different concepts exist. These range from simple air supply/exhaust units to solutions featuring integrated heat recovery and hybrid solutions with additional heat pump units.



### 5 Roof-top heat recovery system

The warm, “stale” exhaust air from kitchens and bathrooms is routed out of the building via a central duct through the roof. A ventilation unit with heat recovery is connected to this exhaust air duct. The heat is extracted from the exhaust air and then used for heating purposes.

#### Centrifugal fans RadiPac and RadiCal

- High, static overall efficiency
- Aerodynamically optimized impeller
- Maintenance-free and quiet-running
- Infinitely variable control characteristics



### 6 Central ventilation system with heat recovery

One centrifugal fan each conveys the supply air and the exhaust air via a heat exchanger in which the cold outside air is pre-heated by the warm, stale exhaust air. The air is thus at a pleasant temperature when supplied to the rooms.

#### Centrifugal fans with backward- or forward-curved blades

- Enhanced air performance
- Higher impeller efficiency
- Considerable noise reduction
- Operation with a constant air flow



### 7 Home ventilation combined with heat pump

The air/water heat pump uses outside air to heat the inside of the building. Heat pumps are suitable for universal use. They can be installed both in gardens and in cellars.

#### Axial fan HyBlade and centrifugal fan RadiCal

- Maximum energy efficiency
- Minimum noise generation
- Intelligent control
- Innovative flow-optimized design



### 8 Exhaust air/outgoing air heat pump

The heat pump draws in the warm air in the room and extracts energy from it to heat the service water tank. The exhaust air is routed out of the building and a corresponding amount of fresh air flows in through defined air supply vents.

#### Centrifugal and axial fans with GreenTech EC motors

- High efficiency
- Demand-based speed adjustment
- Low noise generation





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