



Augmented Reality  
Content Inside

# The whole world *of ventilation technology.*

Product overview.

**ebmpapst**

engineering a better life



# We have been moving air since 1963.

**ebmpapst**

engineering a better life

## The story of our success as market and technology leader.

Establishment of **Elektrobau Mulfingen GmbH & Co. KG** by Gerhard Sturm and Heinz Ziehl.

**1963**

Takeover of **PAPST Motoren GmbH** in St. Georgen.

**1992**

The **Alcatel SEL AG motor and fan plant** in Landshut becomes part of the Group.

**1997**

**Renaming** of the three brands **ebm, PAPST and mvl** to become **ebm-papst**.

**2003**

**1966**

The new **68 motor** gives momentum to the ebm-papst success story.

**1974**

Development of the first compact fan featuring **EC/DC technology**.

**1972**

Production of the first **electronically commutated DC external rotor motor**.

**1991**

Introduction of the **first gas blower with EC technology**.

**1998**

Development of the first fans with **integrated electronics**.

**2010**

Introduction of **GreenTech**, the symbol of energy efficiency and resource conservation.

**2008**

Development of business into **system supplier** for gas heating and condensing technology.

Air is an elementary part of our lives. Controlling it and channeling it in the right direction – efficiently, quietly and intelligently – and thereby enabling a wide range of applications that make our lives better: Nothing tops that for us!

ebm-papst celebrates its **50th anniversary**.

**2013**

A record turnover of more than **2.0 billion euros** for the worldwide Group.

**2018**

Opening of ebm-papst testing center.

**2022**

ebm-papst celebrates **60th anniversary**.

**2023**

**2014**

Development of the **S-Panther** with high air volume and low noise level.

**2016**

**AxiBlade** sets new standards in ventilation, refrigeration and air conditioning technology.

**2018**

Introduction of the **RadiMix** with maximum air delivery and minimum space requirements.

**2019**

**GreenIntelligence**, the consequent further development of GreenTech.

**2011**

**RadiCal** defines a new standard for EC centrifugal fans.

**2015**

**RadiPac** pushes efficiency limits even higher.



# Three core competencies, *unique synergy effects.*

An excellent system solution needs three things.

## **Innovative motor technology:**

Our external rotor motor has long since become the favorite choice of experts – quiet-running, powerful and constantly evolving, it has made us into the world market leader. With its remarkable capacity for integration it is suitable for a wide variety of applications, both in the form of a customized drive solution together with transmission, sensors and operating electronics and as the efficient heart of our fans and pumps. It is ideally complemented by our internal rotor motors for dynamic applications or for conveying particularly aggressive air flows. Together they form the basis for a worldwide unique range of fan and motor models.



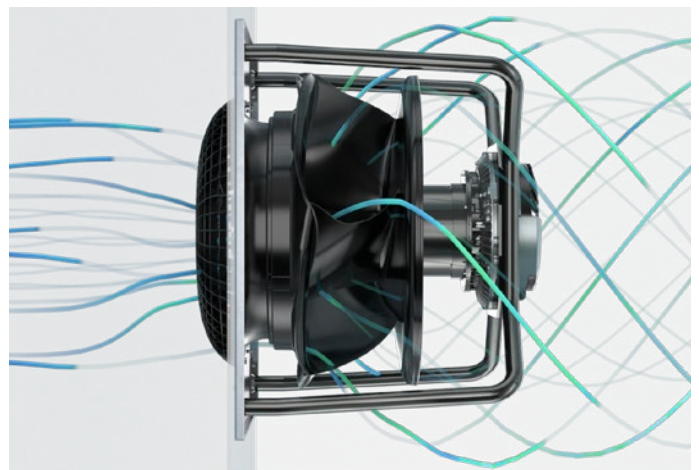
## **Intelligent electronics:**

The brain behind any modern system solution. The control action provided by the electronics ensures the perfect coordination of drive technology and aerodynamics required to implement complex automation solutions. ebm-papst supplies not just the hardware for this, but the intelligent control software as well. So our customers receive smart, interconnected end products all from the same mold – for precise electronics cooling, energy-saving heating systems, and full building automation. All in keeping with the principles of GreenIntelligence – the next level of Green.



## **Smart aerodynamics:**

An optimum shape is crucial to all axial and centrifugal fans, centrifugal blowers, tubeaxial fans and tangential blowers. Which is why we always design fan blades, impellers and housings to suit the conditions of the particular application. Only in this way can we obtain the maximum possible efficiency with maximum noise reduction. To put it in a nutshell: Aerodynamics in perfection.





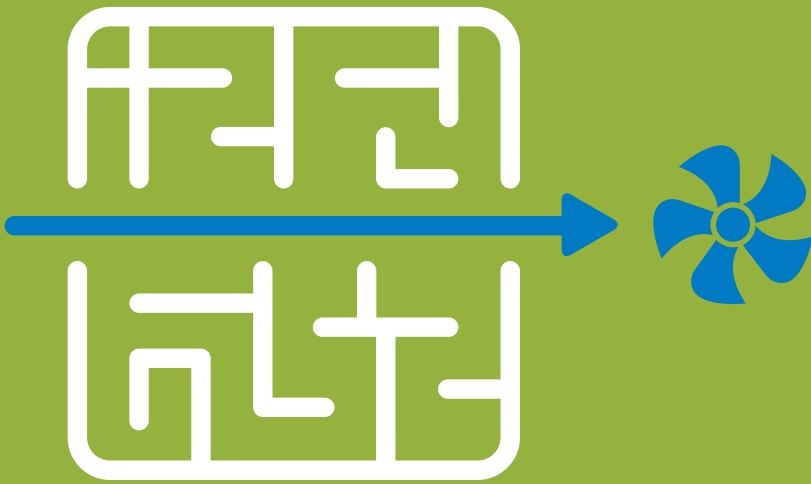
New, now as a browser version!

With FanScout, your complex search for the right fan solution will have a quick and happy ending. Because as soon as you open FanScout, you are already practically where you want to be. All you need for the perfect result are the requirements of your application – for example, air flow, static pressure, and the planned operating time.

FanScout then guides you through an overview of the best possible fan and FanGrid solutions, which you can compare with each other clearly and intuitively. And to make your decision even easier, FanScout also takes life cycle costs into account – from acquisition to operation and service. This saves you time and helps you to find out all about the right fan.

#### The most important functions at a glance:

- Compare product data at a glance and find the best fan or FanGrid solution quickly and easily
- Results can be filtered by operating point, nominal data, dimensions and other parameters
- Direct comparison of air performance curves and sound power diagrams
- Calculate life cycle costs via energy, product and installation costs
- Sustainability analysis based on CO<sub>2</sub> emissions
- Expert mode with efficiency curves, FEI or isoline
- Operating instructions and data sheets available for direct download
- Browser-based software without time-consuming installation or updates



# *The simplest way to the best result.*

*With FanScout from ebm-papst.*

## **Precise data. Better decisions.**

With ebm-papst FanScout, you get reliable and highly accurate data because our software is based on real measured values. Not only is the performance of the individual fan components measured but also that of the fan as a complete system.

Validation measurements have shown that the FanScout does not exaggerate when stating the efficiency. For this purpose, 15 reference points were selected for the measured fans and recorded on the certified chamber test rig. Comparing the measured air performance data with the data from FanScout shows that the calculated values from FanScout are almost identical to those measured under real conditions. And this means that ebm-papst fans as delivered tend to have an even higher efficiency than shown in FanScout. This gives you real certainty in the planning process.

Further information and contact details can be found at:  
[ebmpapst.com/fanscout](http://ebmpapst.com/fanscout)

Bring this brochure to life –  
with the ebm-papst “Xplore”  
app and augmented reality.



**1. Install the Xplore app.**  
Launch it and select the  
“product overview” module.



**2. Scan**  
Point the camera at pages  
with the AR icon.

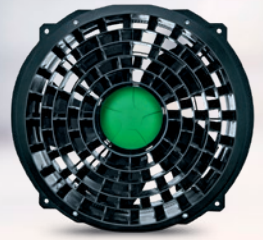
# Fans and blowers *for every challenge.*

Whatever you want to drive, ventilate, cool or air-condition, you are sure to find the right solution among our roughly 20,000 different products.



## Centrifugal fans





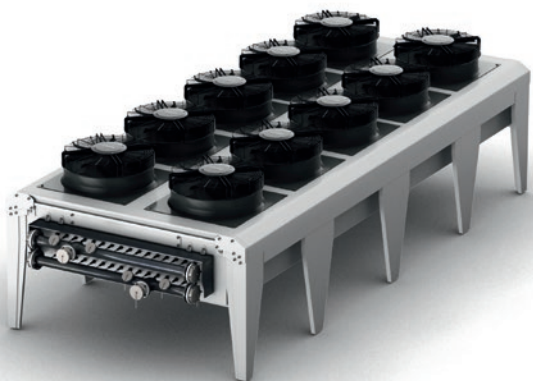
## Axial fans



## Fans



# Axial fans.



The truly space-saving axial fans from ebm-papst are used to exchange hot and cold air in all sorts of devices and systems. Their outstanding features include a shallow installation depth, a low noise level and excellent efficiency, making them particularly suitable for conveying air through heat exchangers.

## One principle, endless possibilities.

With axial fans, which function similarly to a propeller, the air is conveyed in axial direction in parallel with the rotating motor shaft. The ebm-papst external rotor motor is integrated directly into the axial impeller, thus forming a compact axial fan unit. For mounting, use is generally made of fan housings in short or long nozzles.

## AxiEco conquers new power ranges.

ebm-papst is continuously developing its axial fans. In addition to motor technology and electronics, aerodynamic optimization is a key focus. As a result, fans like the AxiEco regularly perform at the top of the market when it comes to energy efficiency and power density. The direct advantage for ventilation and air conditioning applications is that fewer fans are required for the same air performance.

## AxiCool: Our specialist for cooling.

The AxiCool product range has been specially designed for use in evaporators and air coolers. It features an excellent air throw, easy handling, maximum reliability, and economical operation. Hygiene and product protection have also been given top priority. As a result, these fans deliver ideal cold store conditions to keep products fresh for a long time.

## AxiTop: The super-quiet power pack.

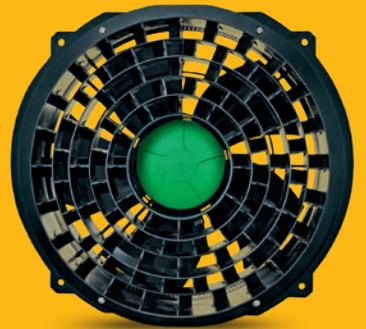
Our AxiTop diffuser greatly enhances efficiency while reducing running noise at the same time. It transforms much of the dynamic kinetic energy into static pressure in the process. This makes it possible to reduce the speed and thus lower the noise level by up to 7.2 dB(A), in addition to cutting energy consumption by as much as 27%. Retrofitting is possible in existing installations without the need for any redesign.

### Facts at a glance:

- Compact dimensions
- Choice of EC technology or AC technology
- Many different designs, sizes and air performance levels
- Optimum efficiency levels and noise development thanks to the sophisticated aerodynamic design of the fan blades
- Highly efficient, energy-saving versions with EC technology and standardized integration of control functions and sensor signals
- Wide range of guard grilles, basket guard grilles and fan housings as accessories
- Axial fans are dynamically balanced on two planes in accordance with DIN ISO 1940
- Numerous approvals including VDE, UL, CSA, CCC and EAC
- Areas of application: ventilation, refrigeration, air conditioning, automotive industry, wind power plants and the machinery/equipment industry

### Technical values

Voltage	85–480 VAC, 50/60 Hz 5–110 VDC
Air flow quantity	1–85,000 m <sup>3</sup> /h
Power consumption	1–12,000 W
Applications	up to 700 Pa





# Axial fans – best example: *AxiEco*.

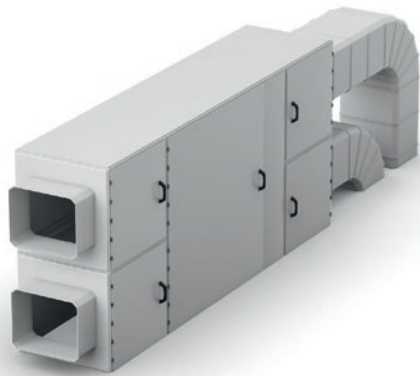
By the time the next ErP stage (EU Energy-related Products Directive) comes into force at the latest, the AC axial fans still in widespread use will have reached their limits and will not meet the high efficiency requirements.

With AxiEco, ebm-papst has succeeded in developing a highly-efficient axial fan that is perfectly adapted to the requirements of flash freezers, chillers, evaporators, condensers, control cabinet and generator cooling systems, and numerous other applications. It boasts an impressive combination of robustness, high performance, low noise levels and economical operation, while its special hallmark is its pressure stability.

Thanks to aerodynamic optimizations, the AxiEco's air performance curve is steeper than that of comparable axial fans. This means that it covers a significantly broader power range and still operates at optimum efficiency even with increasing back pressure. This pays off in evaporator applications, for example – so if ice forms on the heat exchanger, the axial fan will work very efficiently for longer despite the increasing back pressure. The result: longer service lives and fewer defrosting cycles.



# Centrifugal fans.



Centrifugal fans from ebm-papst are available with forward and backward curved blades. The fans with forward curved blades are also supplied with scroll housing. The backward curved versions are designed as freewheel fans but are also available with housing. In the case of external rotor motors, the motor is positioned in the impeller, ensuring not just optimum cooling, but also a particularly compact design. The entire range is available with both AC and GreenTech EC technology. In addition to being particularly energy-saving, the integrated electronics also make it possible to implement any control, monitoring and maintenance functions – for both the smart home and Industry 4.0.

## Less noise, higher performance.

The characteristic features of our centrifugal fans with forward curved blades are their minimal noise generation and a high power density. They are employed wherever there is a need to move large volumes of air in a confined space. Depending on the aerodynamic and geometric requirements, the impellers are in single or dual inlet arrangement.

## Compact but powerful.

ebm-papst has been setting the benchmark for energy-efficient, quiet and intelligent ventilation technology solutions for many years with its RadiCal and RadiPac series.

Essential to this is the perfect interplay of aerodynamics, highly efficient motor technology and powerful electronics. Continuous optimization of the aerodynamics has drastically reduced flow losses and improved noise levels.

This is complemented by highly efficient GreenTech EC motors in a proven external rotor design in the 85 W to 24 kW power range that already exceed the minimum ecodesign requirements for fans. The integrated electronics with MODBUS-RTU interface and 0–10 V enable intelligent control of the fans.

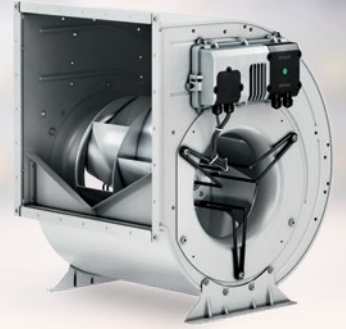
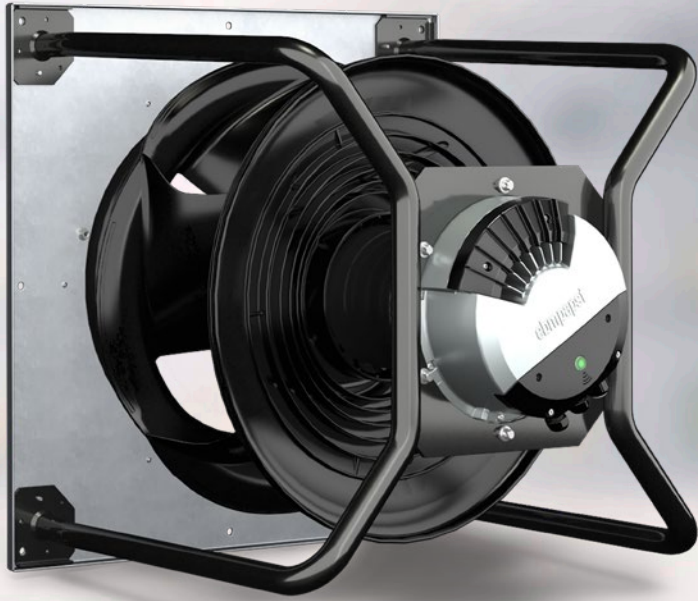
The RadiCal (sizes 175 to 280) and RadiPac (sizes 250 to 1,000) centrifugal fans come in motor impeller, compact centrifugal module, proven “spider” mounting or stable cube design, depending on the size. This makes RadiPac fans suitable for use not just in the air conditioning and ventilation industries, but for many other applications as well.

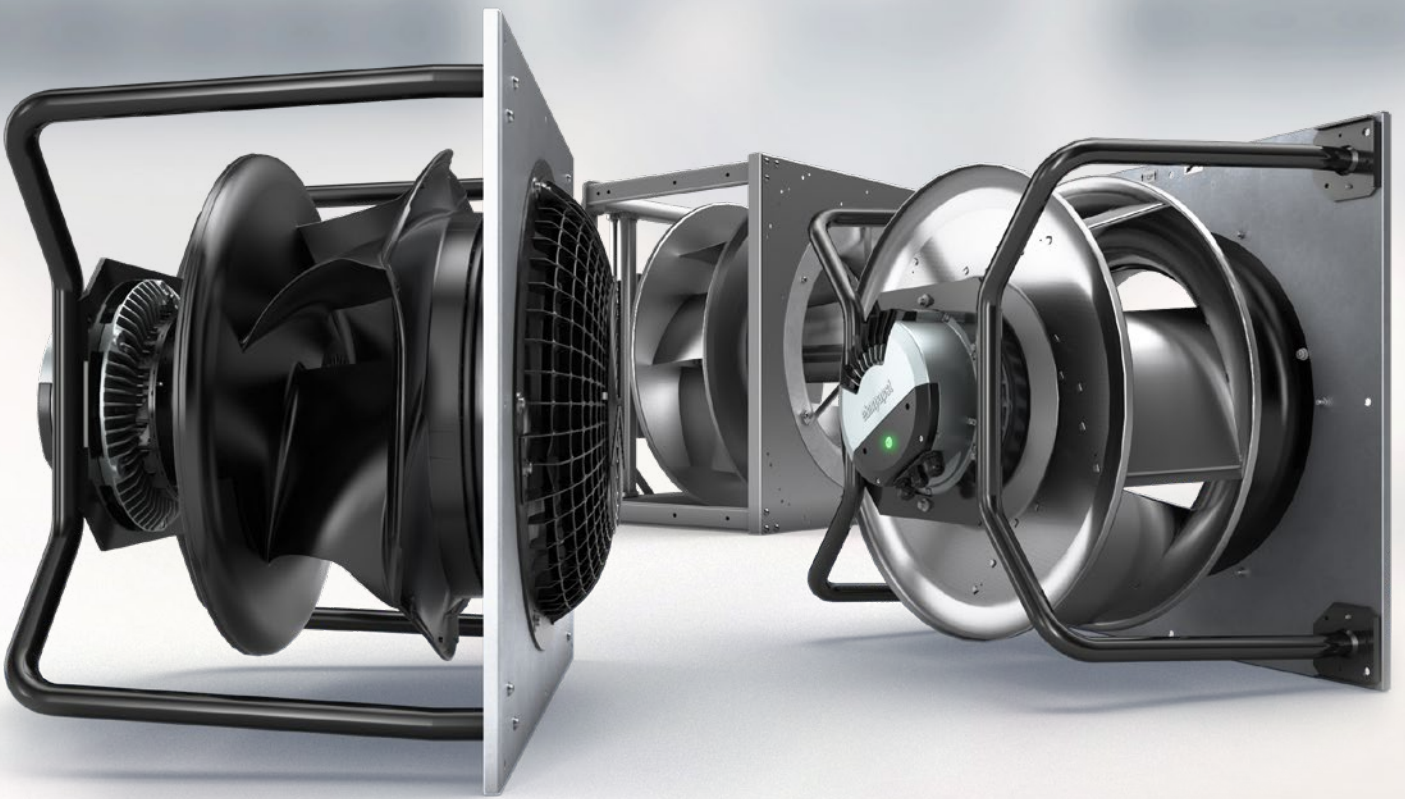
### Facts at a glance:

- AC and EC centrifugal fans with forward curved blades
- RadiCal AC and EC low-pressure fans
- RadiCal EC system solution in scroll housing
- RadiPac and RadiFit EC medium-pressure fans
- Compact design thanks to external rotor motor technology
- Comprehensive product ranges for every application
- Infinitely variable speed via analog or serial interface (control signal 0–10 VDC and MODBUS-RTU)
- With optional active PFC (power factor correction)
- High efficiency through the use of GreenTech EC technology
- Quiet operation thanks to optimized flow control and sophisticated EC motor commutation
- Commissioning made easy by perfectly coordinated components: control system/motor/fan
- Extensive accessories
- Excellent operational reliability thanks to integrated resonance detection

### Technical values

Voltage	85–480 VAC, 50/60 Hz 12, 24, 48 and 110 VDC
Air flow quantity	1–40,000 m <sup>3</sup> /h
Power consumption	1–24,000 W
Applications	up to 2,800 Pa





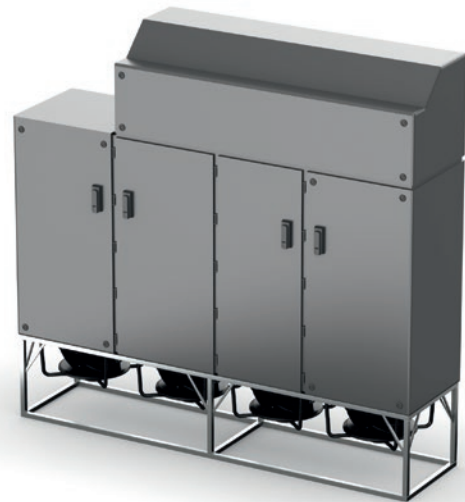
# Centrifugal fans – best example: *RadiPac*.

The demands placed on centrifugal fans in ventilation and air conditioning technology are constantly increasing, especially in terms of energy efficiency. However, noise characteristics and compactness also play a major role in many applications. The fans also need to cover a broad performance range in order to have more power reserves. And of course IoT and intelligent data utilization are also playing an increasingly important role in ventilation technology.

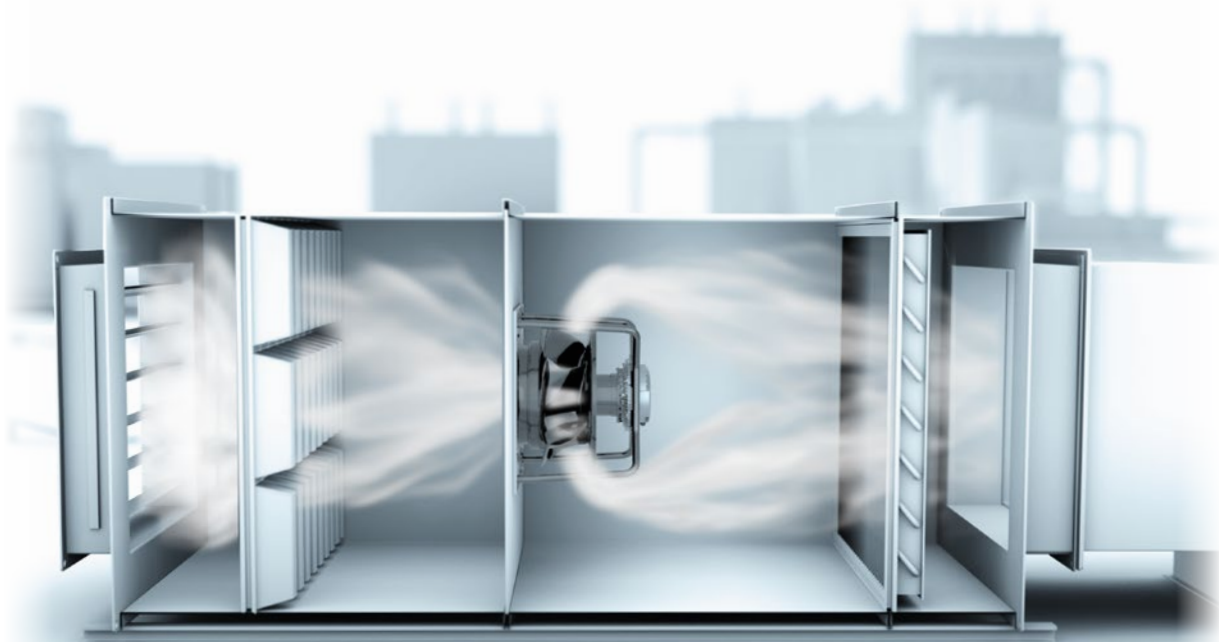
ebm-papst has been setting the benchmark for energy-efficient, quiet and intelligent centrifugal fan solutions for ventilation technology for many years with its RadiPac series. Essential to this is the perfect interplay of aerodynamics, highly efficient motor technology and powerful electronics.

The optimized impeller made of a high-strength, glass-fiber reinforced composite material allows for a complex design, which drastically reduces flow losses and optimizes noise characteristics. This is complemented by highly efficient GreenTech EC motors in a proven external rotor design in the 500 W to 8 kW power range. They achieve efficiencies in line with the requirements for efficiency class IE5 as specified in IEC TS 60034-30-2.

The RadiPac is also impressive when it comes to intelligence. Its integrated high-performance electronics have a configurable control interface for analog and digital signals that can be individually adapted,



as well as a serial MODBUS-RTU interface. This enables operating data, such as speed, power consumption or operating time, to be read out and processed digitally, for example. One important function is even on board as standard: automatic resonance detection “passes over” critical resonance points, thereby extending the service life of the fans.



# Fans.

## Axial, centrifugal or diagonal – but always leading the way.

Our **axial compact fans** are suitable for high air performance with medium pressure increase. The flow through the fan blades is parallel to the axis of rotation. They are extremely flat thanks to the space-saving integration of the motor.

The **centrifugal fans** from ebm-papst are the supreme high-pressure specialists with 90° air deflection and aerodynamically optimized impellers.

Our **diagonal compact fans** feature diagonal outflow. This achieves greater compression of the air – for a higher air flow rate with high pressure increase. It means they are particularly suitable for applications involving intensive cooling with a high concentration of components.

ebm-papst offers a large selection of fans for every design, with a choice of AC, DC or GreenTech EC versions, for all voltages and in all standard sizes. With built-in electronics, they also offer a wide range of additional functions and can be intelligently networked with the relevant device logic.

## Practical applications: fans that are customized and smart.

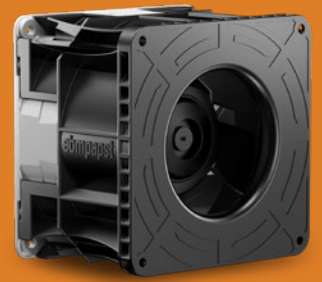
Developing customized, smart fans for our customers that are tailored to practical applications has always been a hallmark of ebm-papst. In addition to the wide range of standard fan types, we can offer you specific fans in many designs, performance classes and configurations: with intelligent motor features and monitoring and control functions as well as custom designs for use under extreme conditions. We are also happy to manufacture more specialized fan types for your application in economical batch sizes to order. Our experienced engineers will advise you on the right configuration.

## Facts at a glance:

- Space-saving installation thanks to compact, shallow design
- Wide range of sizes and installation depths
- Optionally available in AC or energy-saving DC technology
- New AxiACi AC fans: energy-saving compact fans with a wide voltage range and volume-oriented characteristic curve in various sizes, can be used universally as a retrofit for existing AC solutions or in new projects with AC supply voltage, extensively approved (e.g. DIN EN 60335-2-89) and with a wide temperature range
- New AxiEco 200 DC fans: compact and powerful with efficiency maximization and noise reduction thanks to innovative fan impeller design with circumferential fan housing
- Efficient, in some cases multi-pole and 3-phase drives
- Modern fan impellers with winglets and sickle-shaped blades for low noise and high efficiency
- Excellent reliability and a long service life
- A whole range of monitoring and control functions permit customized, demand-based fan operation
- Various protection mechanisms guard against ambient influences such as dust, moisture, water and salt
- Safety included: approvals in accordance with VDE, UL, CSA, EAC and CCC or e.g. protection class IP 68 and ATEX in accordance with DIN EN 60079-7
- Areas of application: telecommunications, server cooling, switch cabinet cooling, medical technology, residential ventilation, solar inverters, variable frequency drives

## Technical values

	Axial compact fans	Diagonal compact fans	Centrifugal fans
<b>Voltage</b>	5–75 VDC, 11–440 VAC	9–72 VDC	6–72 VDC, 103–264 VAC
<b>Air flow quantity</b>	Up to 1,820 m <sup>3</sup> /h	Up to 1,100 m <sup>3</sup> /h	Up to 1,600 m <sup>3</sup> /h
<b>Power consumption</b>	Up to 500 W	Up to 500 W	Up to 300 W
<b>Applications</b>	Up to 1,500 Pa	Up to 3,000 Pa (max. dynamic pressure)	Up to 5,200 Pa



# Fans – best example: *DiaForce.*

The concept is revolutionary: The DiaForce has a conical cover plate that rotates with the fan. The outlet opening is larger than the intake opening. The air flows through the fan in both an axial and a radial direction, enabling a high pressure increase. However, it retains a basic axial design, which is more favorable to install, combining the advantages of both worlds perfectly.

Compared to a conventional single-stage axial compact fan, the result is more than impressive:

- Up to 50% more air performance
- Up to 6 dB(A) lower sound levels

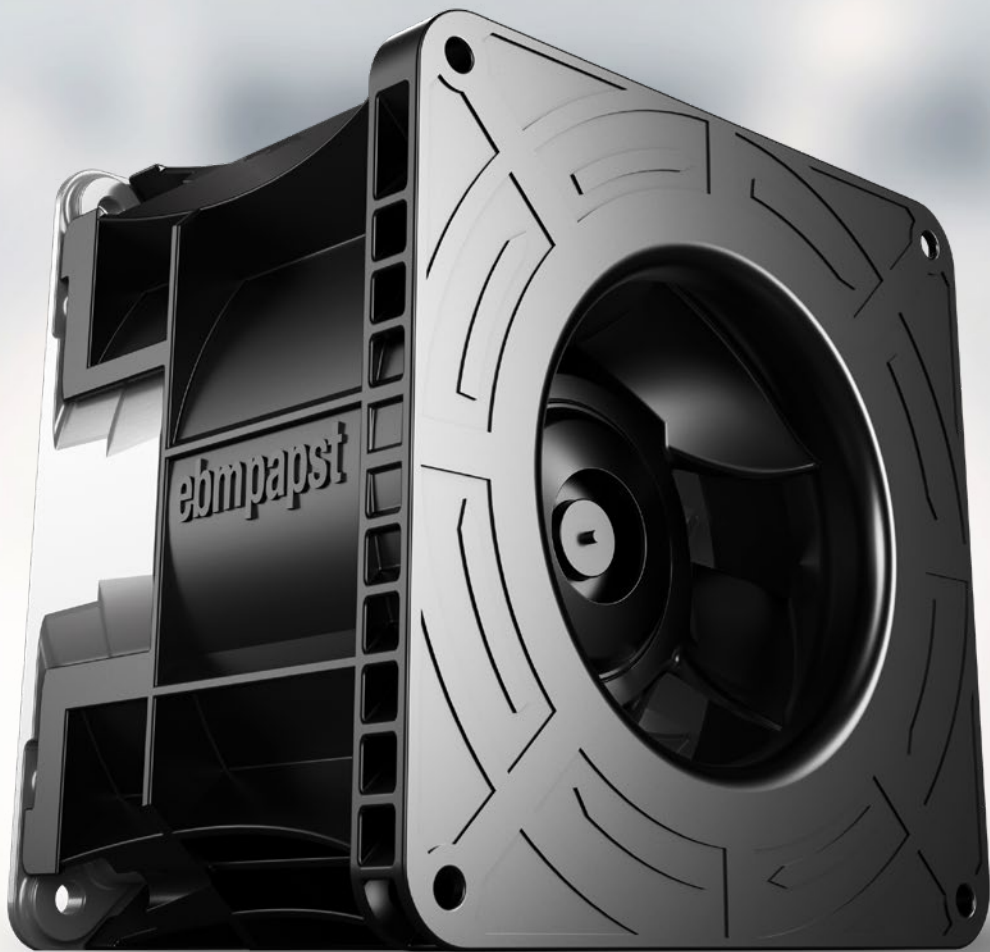
For the application, this means: at last, more performance without compromises. The DiaForce complies with all standards such as NEBS, OSHA, ANSI and ETSI.


You can use the DiaForce's large power reserves to create redundancies. For example, if the outside temperature rises due to faulty air conditioning, simply increase the speed. This is hardly possible with conventional single-stage fans because they have to be operated at the power limit even during normal operation.

The DiaForce's outstanding performance also ideally equips you for future IT applications. Think of increasing performance requirements due to 5G, autonomous driving or artificial intelligence.

And the icing on the cake: You also save time and money. Because time-consuming "tinkering" with two fans mounted on top of each other is now a thing of the past. The DiaForce is a complete, perfectly coordinated system consisting of a high-performance DC motor, optimized aerodynamics and intelligent control electronics. Simply install and start cooling!







*What engineering  
a better life means  
to us.*

## Who we are.

We lead air technology into the next generation: with innovative hardware and software solutions that are always more powerful, compact, efficient and sustainable than their predecessors. Over the years, this has made us the world's leading manufacturer for fans and drives and helps reduce the carbon footprint in our customers' applications.

Digitalization and the associated networking of intelligent components and systems play a central role for us. In this way, we create a holistic link between sustainability and digitalization and enable the responsible use of resources through intelligent solutions of the highest efficiency.

## What drives us.

But our consistent pursuit of efficiency and progress has even deeper roots. After all, there is something that excites us even more than our market position. It is the deep awareness that, with our solutions, we are making the lives of many people around the globe more pleasant, safer and thus better. Therefore, the central driving force in all our thoughts and actions is "engineering a better life". It is the reason why it is worthwhile for us to get up every day and do our best.

More about this at [ebmpapst.com/aboutus](https://ebmpapst.com/aboutus)

## What you get out of it.

- 1. Technological edge.**  
With our EC technology, we combine the highest energy efficiency with the advantages of IoT and digital networking.
- 2. Our sustainable approach.**  
We take our responsibility seriously with energy-saving products, environmentally-friendly processes and through social engagement.
- 3. System expertise.**  
As experts in advanced motor technology, electronics and aerodynamics, we provide perfect system solutions from a single source.
- 4. The ebm-papst spirit of invention.**  
Over 800 engineers and technicians will develop a solution that precisely fits your needs.
- 5. Personal proximity to you.**  
With numerous sales locations worldwide, we create a glocal presence that ensures fast response times. We always consider the complete process and put the customer at the center.
- 6. Our standard of quality.**  
Our quality management is uncompromising, at every step and in every process.

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