

## AxiCool Fans

A breath of fresh air in refrigeration technology

# ebmpapst

The engineer's choice



## About ebm-papst.

As a leader in technologies for ventilation and drive engineering, ebm-papst is in demand as an engineering partner in many sectors. 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.

**Proximity to our customers.** At 57 sales offices worldwide.

**Our standard of quality.** Our quality management is uncompromising, at every step in every process at all 18 of our production facilities.

**Our sustainable approach.** We assume responsibility with our energy-saving products, environmentally-friendly processes, and social commitment.

## Setting tomorrow's standards by keeping our eyes on the future today.

AxiCool represents a new level in the evaporator and air cooler market, thanks to the high system efficiency achieved through the perfect interaction of the individual components. With advantages for both the application and for operators, AxiCool offers even more: The compact axial fan features excellent air throw, easy handling, maximum operating safety, and economical operation. Exceptional design, ease of operation, and the sparing use of resources round off the spectrum of positive features. The AxiCool fans are based on the HyBlade® product range.



## So fresh will stay fresh.

The AxiCool series has an important function to fulfill: to keep food in cold storage fresh under hygienic conditions. That's why AxiCool is specially designed to ensure an ideal environment right from the start – with the emphasis on hygiene and food safety.



### Maximum hygiene, optimum food safety.

A high standard of refrigeration is required to maintain the quality of stored products – only minimal temperature fluctuations and drying-out of the refrigerated items is permissible and the defrosting cycles must be short. All these conditions are satisfied by the ideal distribution of cold air in the cold room, aided by innovative concepts such as the patented fan housing design. AxiCool is fully equipped to meet special challenges such as cheese maturing processes or the storage of sensitive fruit and vegetables.

When it comes to hygiene, AxiCool does not compromise. AxiCool features a high level of splash water protection (up to IP 55) and smooth surfaces with no visible screws. The great advantage: dirt cannot get a grip. Furthermore, the hinge function ensures easy cleaning according to HACCP specifications. The integrated hinge function in AxiCool up to size 450 makes cleaning especially fast. Simply unfasten the screws, open up the fan, and clean it.



### AxiCool fan – quickly installed in the evaporator.

Plug & Play: There is no longer any need to worry about aligning and gap dimensions. Installation of the AxiCool is quick and easy – just a few screws and a cable connection are required.

#### Customer benefits

- Quick installation
- Simple cable connection



# Ecology and preservation of resources: GreenTech by ebm-papst.



## Truly sustainable.

In our view, ecology, sustainability, and economical operation are inseparable issues. This GreenTech concept is embedded in the ebm-papst philosophy and characterizes the entire lifecycle of the product with recycling, waste avoidance, ecological materials, lower emission levels, reduced energy consumption and hence greater efficiency. For example, AxiCool attains this efficiency with a GreenTech EC motor that operates at various speed settings or with regulation by way of a linear interface. In addition, AxiCool supports the concept of sustainability with a particularly long service life. It is often possible to preserve resources with simple means. From the outset, AxiCool was designed to have smooth surfaces to facilitate cleaning and thus save water.

## AxiCool benefits at a glance:



**Efficiency**  
Low power consumption  
High air performance



**Plug & Play**  
Uncomplicated installation and commissioning



**Power Density**  
High ventilation efficiency  
High power reserves



**Compactness**  
Small footprint



**Control**  
Control characteristics / controllability  
Air performance can be adjusted as needed



**Sustainability**  
Preservation of resources in development, production and during operation



**Noise**  
Sound reduction  
Low sound emission level



**Monitoring**  
Monitoring  
Querying of operating data and states

## Customer benefits

- GreenTech concept combining ecology, sustainability, and economical operation by using a GreenTech EC Motor
- Less water required for cleaning



Ecology and preservation of resources – two of the factors in the AxiCool success story.

# Great performance for any dimension.

**For commercial and industrial applications:** The advanced AxiCool series covers the entire range of evaporators and air coolers. With the new 500, 630, and 800 sizes, you can now manage your applications effectively on a large scale. To put it in a nutshell: AxiCool fans are really versatile.

## **Applications for commercial or industrial air coolers:**

- Refrigeration of unpackaged goods
- Cold stores with heavy foot traffic
- Deep freezing
- Complex cooling tasks

## **Commercial application.**

AxiCool up to size 450 for commercial applications such as the refrigeration of storage rooms in direct proximity of sales.

## **Industrial application.**

AxiCool from size 500 for large-scale applications such as cold stores and storage, and production facilities in food processing and the food industry. For the optimal storage and logistics of fruits and vegetables (ripening processes) in transshipment warehouses, high-bay warehouses, tunnel freezers, etc.



# Already exceeding tomorrow's demands today.



## Extremely efficient.

We apply the stringent specifications of the ErP Directive. It is reassuring to know that these specifications on binding limit values are already surpassed by ebm-papst and that all the benefits of this superior efficiency are there for customers to enjoy. In other words, AxiCool can reduce power consumption by up to 46%. What's more, ideal system regulation guarantees high efficiency figures even at part load. And last but not least, optimized cooling and defrosting cycles also contribute to greater system efficiency.

### Customer benefits

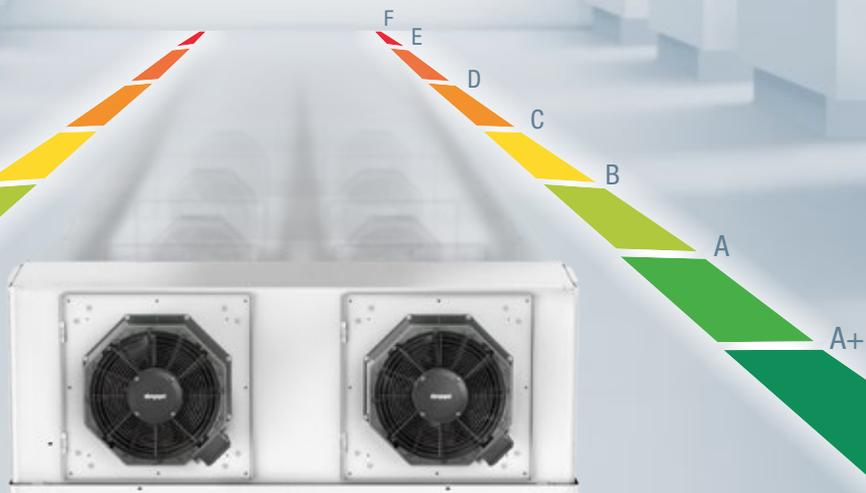
- Future efficiency specifications are already surpassed today
- Up to 46% less power consumption
- High efficiency figures even at part load
- Optimized cooling and defrosting cycles

## Your application

The result will be ideal only if all the components are matched perfectly to each other, resulting in a high overall fan system efficiency. It is good to know that the AxiCool series operates precisely on this principle. All the components – fan guard, venturi housing, HyBlade® impeller, GreenTech EC motor and control electronics – are perfectly matched to each other. The result is an energy-efficient Plug & Play unit ready to install with low noise generation. This gives you outstanding conditions for good labeling of your products.

## A giant leap into the future: big data

New directions for efficient refrigeration: A serial MODBUS interface can be used to connect the fans easily to each other and to integrate them in the building system automation to monitor the refrigeration circuit, for example. In addition, it is becoming easier to access the refrigeration technology by remote monitoring – an option that will certainly become more important in the future. A broad field of applications should also become accessible to the “big guys” of the AxiCool series in industrial and commercial refrigeration as an efficient Plug & Play solution perfectly tailored to the application, and for good measure, compact as well.



# A fresh breeze for industrial refrigeration.

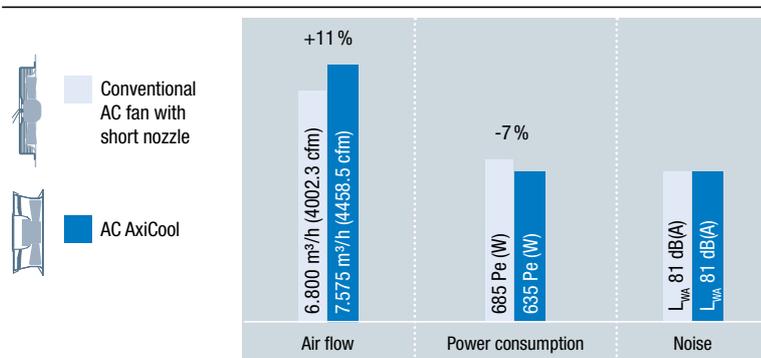


Conventional AC fan with short nozzle: The air flows behind the axial impeller in widening spiral swirls into the room.



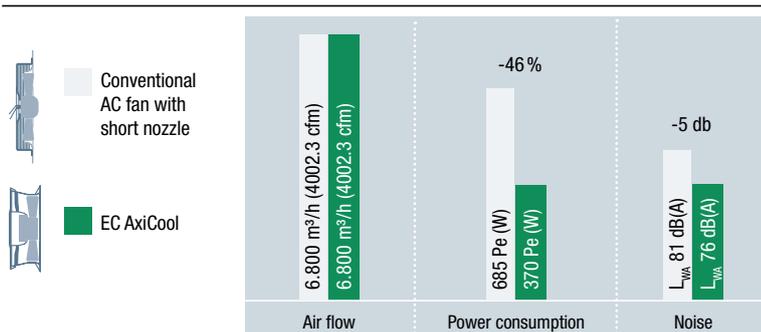
With the AxiCool, a significant part of the air swirl is deflected through a stationary streamer in the axial direction before exiting into the room. The increased air velocity helps the AxiCool to achieve a static pressure increase and thus greater air flow. At the same time, this relieves pressure from the motor, which can be noticed by a reduction in the power consumption. **To put it in a nutshell: The AxiCool conveys more air with less energy consumption.**

## Example of AxiCool in the AC version



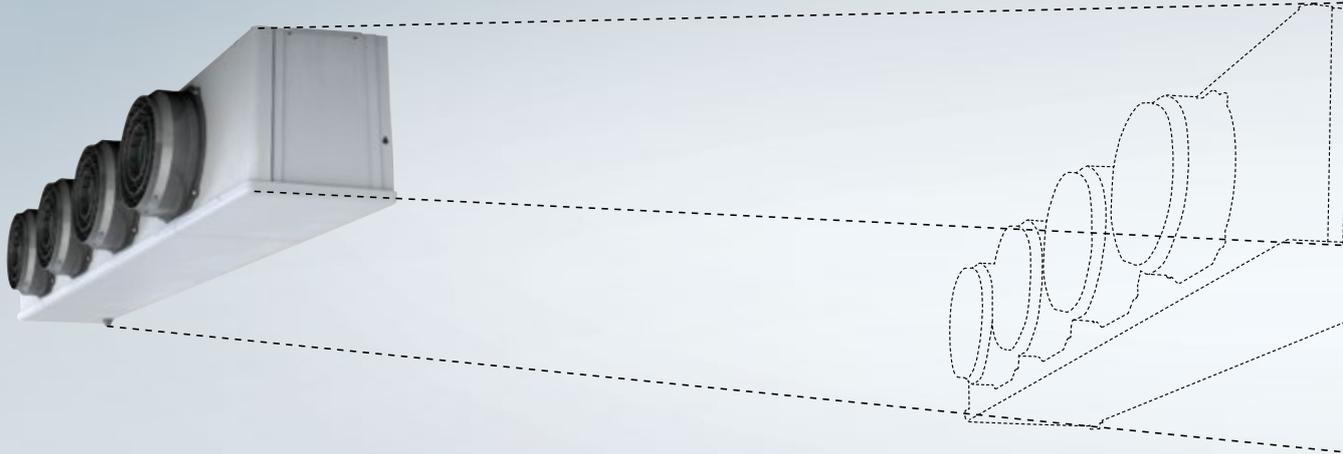
The AC AxiCool achieves **11% greater air flow at 7% less power consumption at the same speed in comparison with conventional AC fans with a short nozzle.** Example of fan size 500

## Example of AxiCool in the EC version



The EC AxiCool lowers power consumption by **46% and acoustic noise by 5 dB compared to a conventional AC fan with a short nozzle** (in the same operating point). Example of fan size 500

## Targeted use of enormous air volume.



300

350

450

Ideal for comm

### It's your choice: AxiCool in AC or EC.

The axial fans of the AxiCool series were designed specially for use in evaporators and air coolers. The clever system solution can be installed both to draw air in and push air out. The AxiCool portfolio offers a selection of AC or energy-efficient GreenTech EC motors.

Thanks to an efficiency that is significantly better than AC fans, EC fans reduce the heat transfer into the cold store, which is naturally a great advantage for cooling applications. At the same time, energy consumption is reduced. This way, the overall efficiency of the refrigerating plant can be increased further.

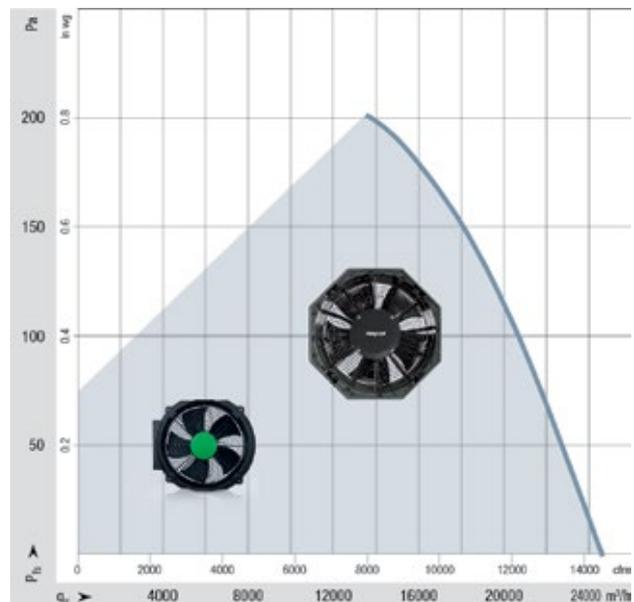
### A clear project is a good project.

Regardless of the project you have planned, with the AxiCool series from ebm-papst you will be utilizing cutting-edge technology and profiting from maximum flexibility in your systems.

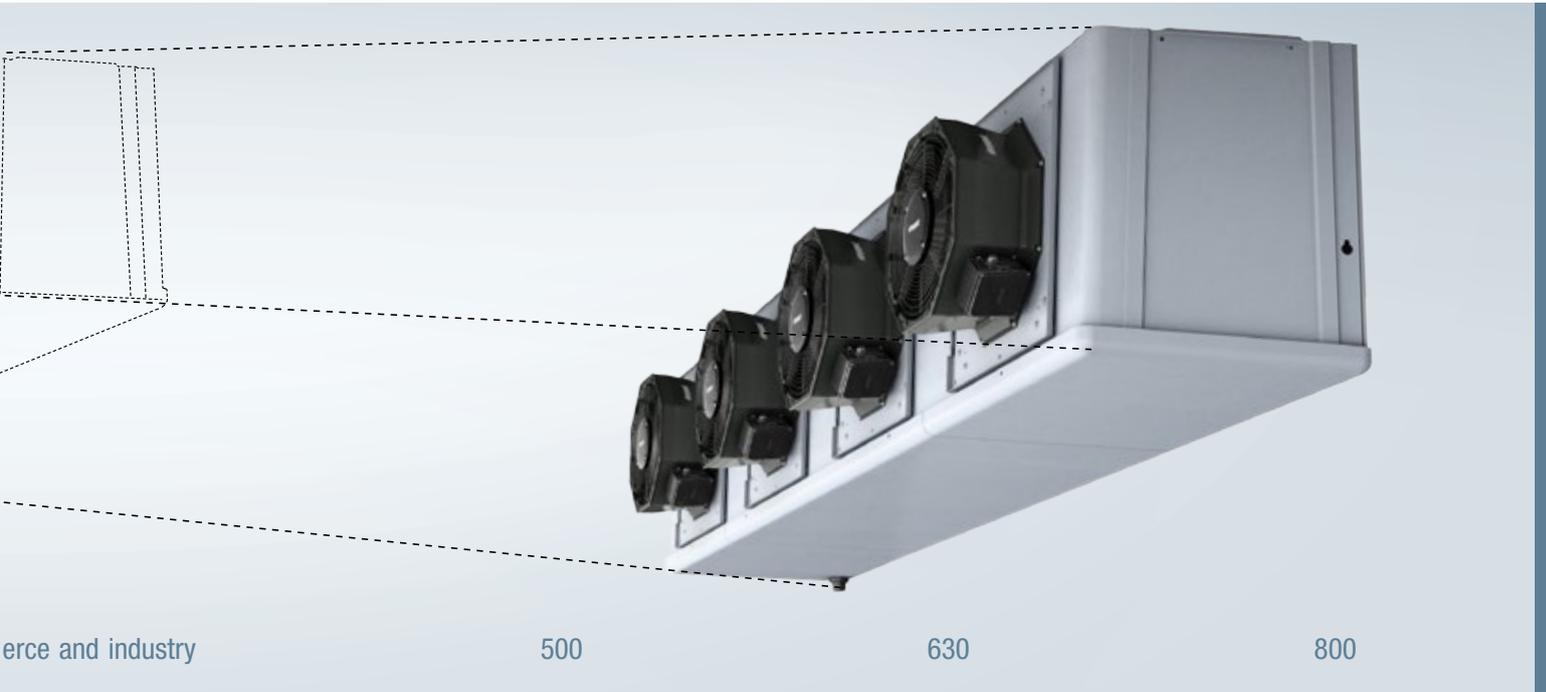
Do you have a question or would you like a personal consultation? Then we would be delighted to receive your e-mail. Write to [info1@de.ebmpapst.com](mailto:info1@de.ebmpapst.com). **More at [www.ebmpapst.com/axicool](http://www.ebmpapst.com/axicool)**

### The axial fans of the AxiCool series are suitable for air performance up to 24.600 cfm.

The entire fan unit, consisting of the motor, electronics, impeller, and fan housing system with guard grill is measured at varying load states. This ensures that we obtain reliable data, and that you can count on these values being reached when selecting a fan.



## From standard to high end.



### **AxiCool sizes up to 450 are available in four versions:**

A standard version, a version with hinge for easier cleaning or with guide vane for ideal cold storage air distribution in the cold store. And a high-end version with hinge and guide vane offering the full range of advantages.



### **AxiCool sizes from 500 are available in two versions:**

A standard version with integrated guide vane and installation track for the heating tape. And a high-end version with additional fan housing protection for less heat transfer into the cold store and the highest hygiene standards. A cable version is standard with the AxiCool fans. Both versions are available with a terminal box design as an option.





### Patented double-wall housing

- + Shorter defrosting cycles**
  - Two-piece plastic fan housing with integrated channels for water drainage, thus reducing ice formation
- + Simple retrofitting**
  - Convenient retrofitting of heating tape: for optimized defrosting cycles and reduced transfer of heat into cooling chamber
- + Rapid installation**
  - Quick and easy to fit with 4 screws
- + Aerodynamically optimized**
  - Innovative efficiency-enhancing shape
  - Quiet running thanks to ideal aerodynamic design
- + Convenient cleaning**
  - Easy-clean surfaces to satisfy maximum hygiene standards



### HyBlade® impeller

- + Innovative materials**
  - HyBlade® impeller made of resistant composite material
- + High efficiency**
  - More efficient than conventional fans thanks to profiled blade geometry and winglets
- + Quiet operation**
  - Aerodynamically optimized shape reduces noise by up to 4 dB(A) as compared to conventional fans available to date



### GreenTech EC motor

- + Unrivalled compact design**
  - Single axial fan unit: Direct integration of external rotor motor to axial impeller
- + Extremely energy efficient**
  - High efficiency
  - Low self-heating, producing less heat transfer into the cold store
- + Extremely robust**
  - Protection level IP 54 for optimum splash water protection
- + Precision control**
  - Exact regulation of air flow – with 0–10 V linear or PWM input and speed signal for controlled operation
- + Long service life**
  - Extremely durable thanks to maintenance-free ball bearings and brushless commutation



### Hinge

- + Particularly easy servicing**
  - Hinge mounting allows the fan to be opened up easily
  - Easy cleaning of heat exchanger



Perfection means a perfect match.  
The AxiCool system in sizes 300, 350 and 450.



**Guard grill**

- + Rugged design**
  - Standard version with flat metal guard grill: easy to clean mechanically when iced over
  - A mounting grill is used for versions with a guide vane
- + Greater splash water protection**
  - Motor cover as protection from splash water

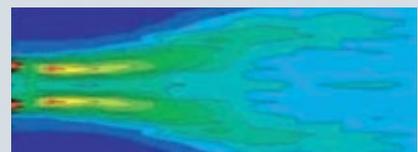


**Guide vanes**

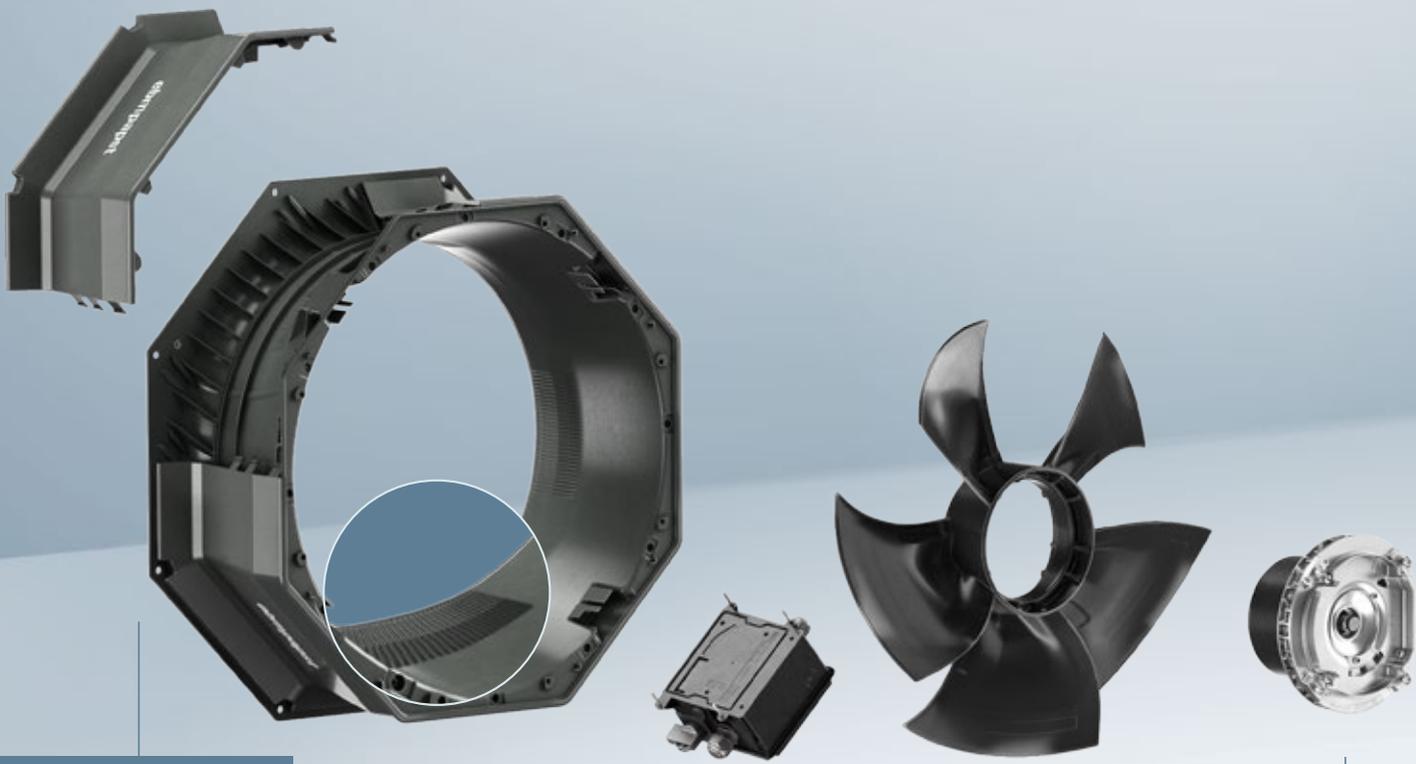
- + Excellent air throw**
  - Guide vane can double the fan air throw with comparable air flow
  - More even cold air distribution in the cold store
- + Simple installation**
  - Uncomplicated retrofitting of the guide vane
- + Convenient cleaning**
  - Easy to detach for cleaning



Cold air distribution without guide vane



Optimized cold air distribution with guide vane



**Patented fan housing system**

- + Quick installation**
  - With few screws, simple and easy to install
- + Aerodynamically optimized**
  - Optimized inlet ring and integrated diffuser for maximum efficiency and quiet operation
- + Shorter defrosting cycles**
  - Intelligent fan housing system allows simple and quick installation of the heating tape
  - In connection with the fan housing protection reduces heat transfer into the cold store
  - Integrated channels for water drainage in 4 x 90 places for flexible installation position
- + Robust design**
  - Resistant composite material for the highest standards



**Fan housing protection (high-end version)**

- + Convenient cleaning**
  - Easy-clean surfaces to satisfy highest hygiene standards
- + Improved defrosting**
  - Accelerated defrosting cycle when heating tape is used
  - Defrost bag can be placed directed on the protection cover
  - Minimum heat transfer into the cold store



**HyBlade® impeller**

- + Innovative materials**
  - HyBlade® impeller made of resistant composite material
- + High efficiency**
  - Profiled blade geometry and winglets for greater efficiency
- + Quiet operation**
  - Aerodynamically optimized shape for noise reduction



**Terminal box (optional)**

- + Ideal installation conditions**
  - Direct installation on the fan



**GreenTech EC motor**

- + Unrivalled compact design**
  - Single axial fan unit: Direct integration of external rotor motor to axial impeller
- + Extremely energy efficient**
  - High efficiency
  - Low self-heating, producing less heat transfer into the cold store
- + Extremely robust**
  - Protection level IP 55 for optimum splash water protection
- + Long service life**
  - Extremely durable thanks to maintenance-free ball bearings and brushless commutation
- + Safe operation**
  - Insulated bearing system to prevent bearing currents



# Built for the big challenges.

## The AxiCool system in sizes 500, 630 and 800.



### Electronics

- + Precision control**
  - Infinitely variable speed control by 0–10VDC/PWM control signal and MODBUS-RTU
  - Performance variants based on your requirements
  - Remote maintenance and monitoring by means of MODBUS-RTU interface
- + Universal applicability**
  - For use with 50- and 60-Hz grids
  - Independent of the power frequency
  - Worldwide voltage variants
- + Optimized operation**
  - Safety provided by integrated locked rotor and thermal overload protection
  - Active PFC (Power Factor Correction) for 1~ versions
- + Simple commissioning**
  - Easy installation via conducted cable
  - Plug & Play: no adjustment effort required



### Guide vanes

- + Maximum efficiency**
  - Integrated air straightening system to minimize flow turbulence for maximum efficiency and minimum noise
- + Aerodynamically perfected**
  - Optimized internal diffuser in combination with guide vanes to reduce turbulence and to increase air performance



### Guard grill

- + Safe operation**
  - Motor cover as protection from splash water
  - Contact protection according to standard DIN EN ISO 13857
- + Rugged design**
  - As metal ring guard
- + Aerodynamically optimized**
  - Innovative design to minimize pressure loss



**ebm-papst**  
**Mulfingen GmbH & Co. KG**

Bachmühle 2  
74673 Mulfingen  
Germany  
Phone +49 7938 81-0  
Fax +49 7938 81-110  
info1@de.ebmpapst.com

**ebmpapst**

The engineer's choice