

Diagonal compact module.

The intelligent solution for electronics cooling.

ebmpapst

The engineer's choice



The perfect space-saving solution.

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.

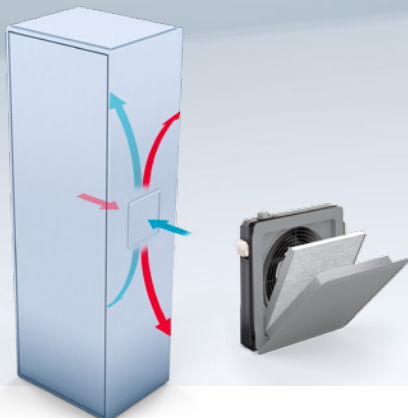
Proximity to our customers. At 57 sales offices worldwide.

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

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

New challenges demand a new standard

The market requirements for electronics cooling are constantly increasing and necessitate ever more intelligent high-performance solutions. Up until now tubeaxial fans have been widely used. These function optimally where there is little pressure loss.



If this increases on account of a higher power density or increasing filter clogging, tubeaxial fans soon reach their limits. The consequence: Inefficient, noisy fan operation.

The new diagonal compact module from ebm-papst can now provide the ideal solution:

As its characteristic curve is less sensitive to pressure, the diagonal fan permits efficient operation even with increasing filter clogging or a higher power density. In addition, higher air performance provides enhanced cooling action, which makes this the ideal solution for demanding applications requiring intensive cooling. Simple mounting and installation round off the advantages of this new concept.

More efficient, quieter, more flexible.

The main function of fans in control cabinets is to dissipate thermal loads while working as efficiently and quietly as possible.

The ebm-papst diagonal compact module was developed specially for this purpose. Other areas of use include: Variable frequency drive, electronics and inverter cooling as well as standard cooling applications in industry and engineering.

And the diagonal compact module has plenty more to offer: Even with increasing filter clogging it continues to provide the air performance required for heat dissipation – and with the greatest possible efficiency. This considerably reduces power loss in the control cabinet, which in turn significantly enhances the cooling action. The pressure-insensitive curve of the diagonal fan lengthens the service life of the filter pads and extend the maintenance intervals.

As an added benefit the running noise is much lower than with commercially available tubeaxial fans. By virtue of its higher air performance, the EC version achieves even better heat dissipation and permits greater energy savings thanks to demand-based speed control with 0-10 V control voltage. The interface also provides an easy means of connecting an external temperature sensor to make it even simpler to control the fan as required.

Flexibility is a top priority: The new diagonal compact module is designed for quick and uncomplicated installation and can be set up to suit whichever air flow direction is required. Its mechanical compatibility with existing tubeaxial fans on the market also ensures rapid, straight forward exchange.

Integrated plugs put an end to complicated connection work. Optional guard grilles for outlet or intake side mounting round off the many advantages offered by the new diagonal compact module.

All the advantages at a glance:

- Pressure-insensitive diagonal fan: constant characteristic curve, long filter service life, longer maintenance intervals
- Up to 49% lower energy consumption
- Reduced power loss and hence improved cooling action and longer service life
- Up to 50% better air performance in nominal operation
- Demand-based air flow thanks to speed control
- Up to 7 dB (A) sound reduction
- Shallow installation depth
- Completely pre-assembled – Plug & Play
- Mechanical compatibility with existing industry standard for uncomplicated retrofitting and exchange



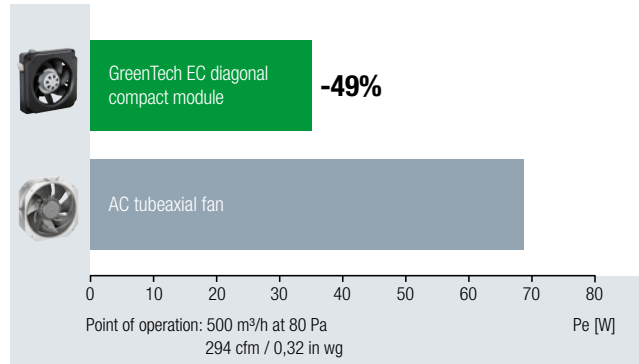
The principle: centrifugal + axial = diagonal

The new diagonal compact modules have a diagonal impeller which combines the positive features of axial and centrifugal flow machines. Operation in the medium pressure range brings the best out of these benefits: Pressure insensitivity even with increasing pressure loss – and at the same time high efficiency with a low sound level. The diagonal outflow produces a more uniform flow through the control cabinet, significantly reducing the formation of harmful "hot spots" and thus extending the service life.

Top performance in figures.

Significantly lower energy consumption than AC tubeaxial fan.

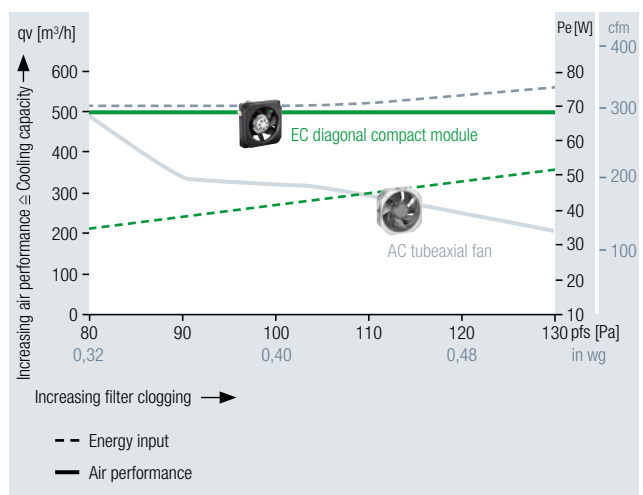
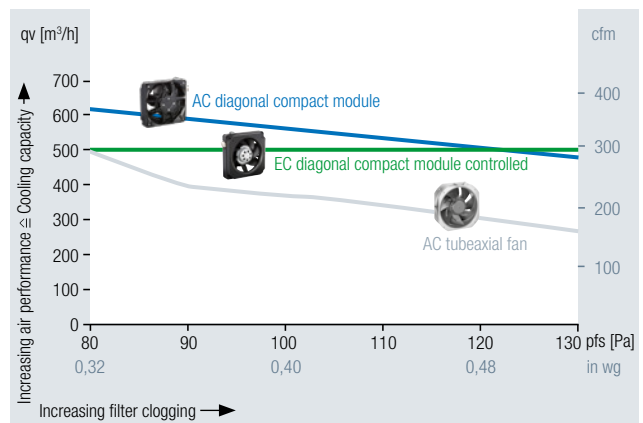
As compared to the existing industry standard, the new diagonal technology with EC motor saves around 49% energy with the same air performance. The graph on the right shows the energy consumption of a conventional AC tubeaxial fan as compared to the energy consumption of the new diagonal compact module with EC motor at a typical point of operation for control cabinet cooling.



Constant cooling capacity even as filters become clogged.

With the same fan size, the new diagonal compact module provides higher air performance at the point of operation. Even with increasing filter clogging, the diagonal compact module attains the required air performance of 500 m³/h in this example. There is no loss of control cabinet cooling, thus resulting in a longer filter service life and less need for servicing.

In the version with GreenTech EC motor, the diagonal compact module can be regulated as required to the desired cooling capacity. Thanks to the speed control function, the air performance and thus the cooling capacity remain constant even with increasing filter clogging. This means that dissipation of the waste heat ΔT is maintained at a constant rate. At the same time the diagonal compact module with EC motor saves a significant amount of energy. And sound emissions can be reduced by up to 7 dB.



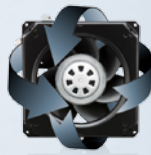
- High potential for savings on energy costs and CO₂ emissions.
- Longer maintenance intervals and extended service life of power electronics being cooled.
- Reduced noise as an important ergonomic factor.

Progress made perfect.

Fan installation

+ Installation made simple

- Mechanically compatible with commercially available tubeaxial fans
- Simple mounting on filter frame
- Optional guard grilles available for outlet and intake side
- Shallow installation depth
- Can be installed for both air flow directions



Power supply

+ Extra flexibility

- Simple plug in with connector
- 115 V and 230 V AC and EC versions available
- AC version with integrated motor run capacitor
- 4 x 90° rotation of connector position



Diagonal impeller

+ The optimum flow machine

- Pressure-insensitive
- Higher power reserve with greater density or increasing filter clogging
- High impeller efficiency for maximum performance and minimum noise





Terminal for EC version



With control interface

- 0-10 V/PWM control input
- 10 V voltage output for external sensors (e.g. temperature sensors)
- Speed signal for controlled operation



Control

Efficiency

Monitoring

GreenTech EC motor



Efficient and economical

- High efficiency
- Long service life
- Demand-based speed control
- Simple commissioning
- Integrated electronics
- Robust design
- Degree of protection IP 54



Sustainability

Efficiency

Noise

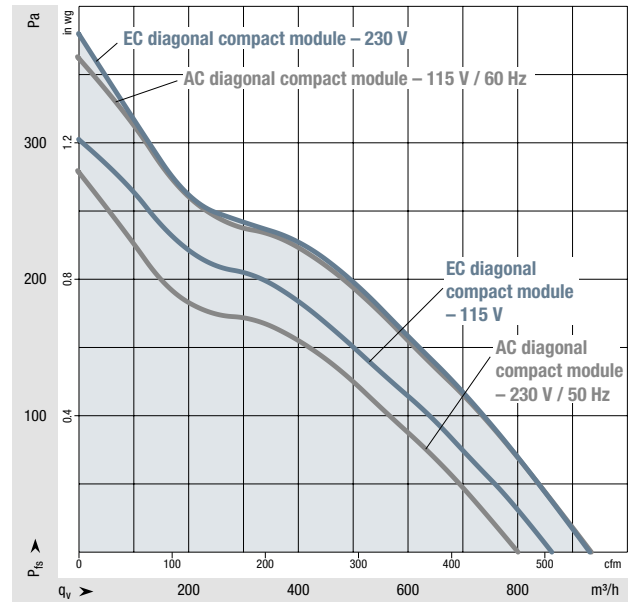
Compactness

Compact dimensions. Great performance.

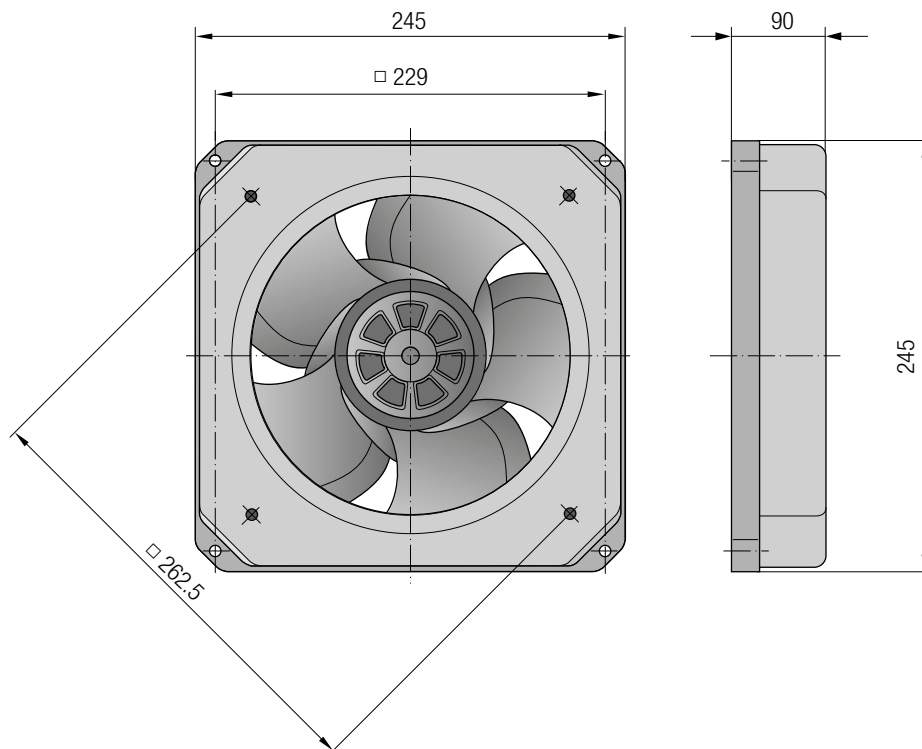
The dimensions are mechanically compatible with commercially available tubeaxial fans, thus permitting simple exchange. The external rotor motor makes the unit extremely compact with a very shallow installation depth.

The new size 200 diagonal compact module is available as an AC version for 230 V 50 Hz and 115 V 60 Hz as well as with a GreenTech EC motor for 230 V and 115 V operation.

At a typical point of operation the new diagonal compact module offers a higher air performance than commercially available AC tubeaxial fans. The outcome of this is a greater power reserve and an enhanced cooling action – for more efficiency plus a lower sound level.



Fan size 200:



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