

**DiaForce provides 50% more cooling capacity**

## **Diagonal compact fans for electronics cooling**

**Increasing packing density in server cabinets and ever-increasing power throughput are becoming a challenge for electronics cooling. ebm-papst has developed the new high-performance DiaForce diagonal compact fan specially for applications with high availability requirements, e.g. in data centers or base stations for mobile communications.**

Until now, axial compact fans have been used predominantly for electronics cooling, but with ever higher cooling capacity and more compact designs, they are pushed to their limits. There is little space in these applications and it is often impossible to simply install more or larger fans. In order to keep increasing the cooling capacity nevertheless, two axial compact fans with counter-rotating rotors are often installed, but this results in greater energy consumption and significantly more operating noise. To meet these special challenges, ebm-papst has taken a different approach and developed the DiaForce diagonal compact fan.

### **Diagonal instead of axial**

As with an axial compact fan, the DiaForce also draws in and blows out air in an axial direction. Compared to a centrifugal fan, this presents design-related advantages for integration into the application. The benefit of the DiaForce lies in the unique geometry of its impeller and housing, which minimizes turbulence and enables a greater pressure increase at the same time. This aerodynamic optimization significantly reduces noise by 6 dB(A) and provides up to 50% higher air performance. However, this is often not required in normal operation, as fans in electronics cooling frequently only operate in partial-load operation. Yet a sufficient power reserve is crucial for operational reliability in these sensitive areas.

### **Operational reliability for high availability requirements**

The diagonal compact fan is used to cool electronics with high availability requirements, such as in data centers for the 5G standard, autonomous driving or cloud services. Thanks to its features, the DiaForce already fulfills the future requirements of electronics cooling. The first samples of the DiaForce are already available; series production of the size 119x119 mm will start in spring 2021.

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Image: DiaForce delivers 50% more cooling capacity with 6 dB(A) less noise for data centers and base stations.

Photo 1      ebm-papst  
Characters    approx. 2,200, including headings and sub-headings  
Tags          compact fan, data center, mobile communications, 5G,  
                 autonomous driving, electronics cooling, cloud services,  
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#### About ebm-papst

The ebm-papst Group, a family-owned company in Mulfingen, Germany, is the world market leader in fans and drives. Founded in 1963, the technology leader with its core competences motor technology, electronics and aerodynamics, has set international market standards ever since. With over 20,000 products, ebm-papst offers customized, energy-efficient and intelligent solutions for virtually any ventilation and drive technology requirements.

In fiscal year 2019/20, the hidden champion achieved a turnover of 2.188 billion euros and employed almost 15,000 people in 29 production sites (e.g. in Germany, China and the US) as well as in 48 sales locations. With their fan and drive solutions, ebm-papst defines and sets the benchmark in practically all industries, such as ventilation, air-conditioning and refrigeration, heating, automotive, IT, mechanical engineering, catering and household appliances, intralogistics and medical engineering.

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