Press Release

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New 200 mm fan with lower overall height of 51 mm

65 % higher cooling density with less energy consumption

Whether the application is climate control systems or refrigeration sets in industry, space for return cooling of the refrigerant is always scarce. Likewise, for other units that require cooling, such as in telecommunications, every centimetre of installation space counts. Therefore, fans that provide maximum air flow while requiring the least possible amount of space are in demand. In doing so, the operating noise level and energy consumption should be kept to a minimum. A new fan series now offers the solution for these requirements. Some one-third thinner than existing fans, these axial compact fans attain a higher air flow than existing fan designs.

State-of-the-art facilities, in mechanical engineering as well as in telecommunications and control cabinet technology, are becoming increasingly powerful. At the same time, the component size is shrinking, resulting in an additional increase in power and waste heat density. To keep up with the new demands for efficient heat dissipation, even for highly compact devices, the fan experts at ebm-papst in St. Georgen, Germany, have developed a new axial fan series. In doing so, the primary emphasis was placed on a compact design while simultaneously increasing the air flow. Therefore, the new 2200 series is in line with the trend towards compact solutions that are accompanied by an increase in performance.

Technical basics

In its installation-related outer diameter and pitch circle of the fastening eyes, the new 2200 FTD is sized identically to existing fans. Thus it can be easily retrofitted to existing mounting holes. Though the outer dimensions have remained the same, the rotor, and thus the "active" rotor surface important for moving air, are larger than previous common versions. The advantages of the

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new development are likewise clear when it comes to installation depth. Rather than 70 mm, the new fan requires only 51 mm of space for the housing, rotor and motor. The reduced installation depth improves the air flow in the housing; the air intake resistance is decreased while the actual flow rate is increased. Moreover, the aerodynamic improvements of the flatter design mean an air flow that is some 30% greater, and thus it has about 65% higher cooling density than existing fans with comparable size and a 70mm overall height (Figure 1). These advantages of internal air conduction also contribute to the significantly lower operating noise levels at all operating points. The efficiency also benefits from this: eight percent lower consumption compared to predecessor models adds up to impressive monetary amounts over the long running time (at 40°C, the service life of the fan is over 60,000 h). The Ecodrive motor with an efficiency of over 85 % also contributes to the high efficiency (Figure 2). Integrated electronics provide options for generating different speed variants. Currently, 12, 24 and 48 V variants of the motors are available.

Real-world applications

The numbers show the full potential of the development. Depending on the fan speed, the maximum air flow and pressure attain the values listed in Table 1 (Table). The operating noise level is a maximum of 72 dB(A). Thus the new fan is particularly suitable for the compact applications in the IT and telecommunications areas and in control cabinet cooling. In addition to these classic cooling applications, the high power density allows use in applications such as printing machinery or frequency inverters as well as those in the air-conditioning and automation fields, which previously required the use of larger units.

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The compact fans in flat design offer the user significantly improved performance data with a simultaneous increase in air flow and pressure. The space freed up by the one-third decrease in installation depth can be used for other components without the need for major changes to the existing (housing) design.

Figure 1: The new compact fan with standard installation dimensions

Figure 2: Compact stator winding with top-mounted electronics board of the Ecodrive motor

	2200 FTDH	2200FTDHH	2200 FTDH4
Speed (rpm)	4250	5000	6500
Power (W) (at free air)	31	48	130
Power (W) (p_{max})	75	170	300
Air flow (m^3/h)	795	925	1220

Table : Power consumption, air flow and pressure build-up as a function of the speed