

RadiCal EC/AC centrifugal fans

The new standard in ventilation and air conditioning technology

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RadiCal – the new generation of backward-curved centrifugal fans for operation without scroll housing

Facts at a glance

Backward-curved fan blades with a rigid, hybrid design

RadiCal centrifugal fans with backward-curved blades are the new standard in ventilation and air-conditioning. Radical features include both noise minimization and a further decrease in energy consumption. The RadiCal impeller with backward-curved blades is made of fiberglass-reinforced composite, enabling an aerodynamically optimized shape that cuts the noise level in half and reduces power requirements significantly.

Optimized RadiCal impeller with backward-curved blades

The designs for the impeller and the backward-curved blades were optimized with complex simulation models adjusted using measurements on prototypes. The result is an optimal, low-loss flow of air through the impeller without the drastic cross-sectional jumps that cause losses in the impeller. A uniform flow profile without laminar separation results in fewer noise sources and better acoustics. The plastic's good damping characteristics also help reduce noise emissions.

The impellers are produced from a special composite material, in a single piece without joints. This makes a high circumferential speed possible, so the fan has a high power density. Even without special varnish, the impellers are highly corrosion-resistant, for example if exposed to salt water or salty air. Direct solar radiation has no damaging effects on the UV-resistant material.

Compact low-pressure series with miniaturized motor-electronics combinations

GreenTech EC motors are used in the RadiCal low-pressure centrifugal fans. In terms of efficiency, they exceed legally mandated ErP limits. With these, up to 50% less energy consumption can be achieved in comparison with AC solutions. The motors in RadiCal low-pressure centrifugal fans have been miniaturized and are much more compact than their predecessors. With the current dimensions, easy and trouble-free replacement of existing AC solutions is possible at any time.

The motor's heat management system also has an optimized design. The stator is completely encapsulated in high-performance plastic. Air inlets in the rotor guarantee perfect heat dissipation for the motor, resulting in a further considerable increase in efficiency. The high level of IP protection permits the use of these fans even in critical applications.

The RadiCal with GreenTech EC motor features continuous control with a 0-10 V or PWM input signal. Versions with two fixed speed levels are available up to size 250 mm, with the higher speed providing a power reserve in comparison with the AC version. From size 250 mm, control via an RS-485 interface using the MODBUS RTU protocol is also possible.

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RadiCal centrifugal fans with backward-curved blades are used in many ventilation and air-conditioning applications such as control cabinets cooling, in-line duct fans, home ventilation units or heat pumps. In all of these applications, it pays to switch to the high-efficiency RadiCal low-pressure centrifugal fans with GreenTech EC motors or to opt for them from the outset.

RadiCal – Facts at a glance:

- » Perfectly matched components (controller/motor/impeller)
- » High efficiency with improved ventilation technology and new EC motors
- » Extremely quiet running with optimized impeller air flow
- » Significantly reduced rotation noise
- » Mechanical compatibility of AC and EC fans
- » EC fans with 2 speed levels or continuously adjustable
- » High power density
- » Rugged design and maintenance-free operation



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