

ebmpapst

engineering a better life

Go for no. 1. *With RadiCal 2.*

Unbeatably powerful, quiet, compact and efficient.





The new *number one*.

The size 190 RadiCal 2 is a real winner in terms of air flow, noise and energy consumption, making it better than its predecessors in every respect. This is possible thanks to a completely redesigned impeller and the proven EC motor concept.



Higher air throughput thanks to new application-specific impeller dimensioning



Further optimized noise behavior

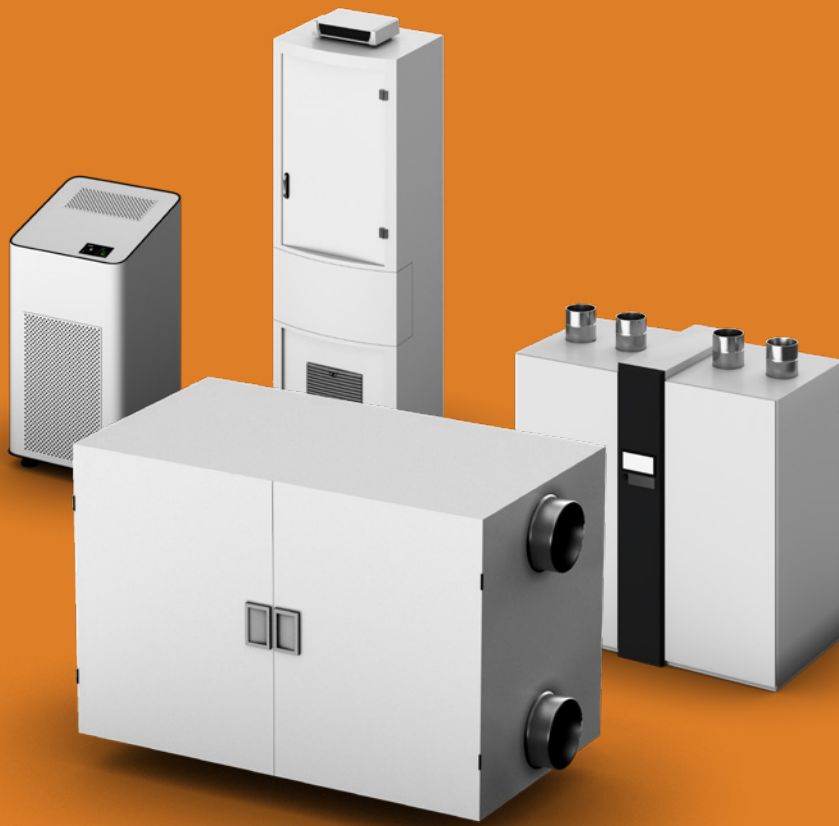


Power consumption reduced by 29 W for the same operating point and long service life for maximum profitability



Compact design and new sizes for optimum power density

All specifications relate to the 190 mm size.



The best *in its class*.

From the very beginning, 'RadiCal' has been synonymous with maximum efficiency and top performance. To ensure that applications in ventilation and air-conditioning technology continue to benefit from the strengths of this allrounder in the future, we have further developed the series. The result is a new RadiCal generation that is energy saving, more powerful, and more flexible than ever before.

Optimization of the series means that the 2nd generation consumes significantly less energy than

its predecessor at the same operating point and achieves a higher air flow in optimum conditions. The RadiCal makes maximum use of installation space in applications such as residential ventilation units, electronic control cabinets, heat pumps and air purifiers. This means that a smaller size may even achieve the desired air performance alongside lower noise characteristics. Air is conveyed efficiently and smoothly – even in demanding continuous operation.

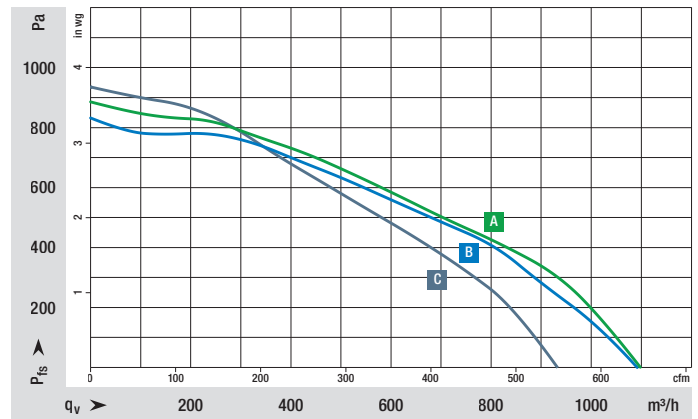
Significantly *expanded* power range.

Size 190 in comparison

Thanks to several structural enhancements to the impeller, the air performance of the new RadiCal has once again been increased compared with its predecessor. The special impeller design enables higher speeds and hence increased power density.

The ready-to-install centrifugal module (VBH type) has also been aerodynamically optimized. The new shape of the struts positively affects the performance values, enabling the module to further improve the efficiency and noise level compared with the motor-impeller (VBS type).

- A RadiCal 2 centrifugal
- B RadiCal 2 centrifugal fan
- C RadiCal 1 centrifugal fan



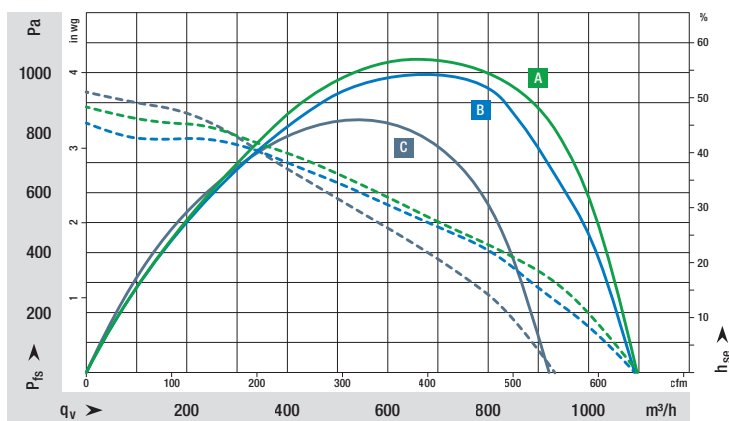
The RadiCal 2 outperforms its predecessor with high air flow rates. The new centrifugal module is now slightly above the motorized impeller.

Power consumption reduced *by up to 29 W*.

If we compare the power consumption of the size 190 RadiCal at the same operating point of 525 m³/h at 550 Pa, for example, the RadiCal 2 consumes significantly less power with the same air performance. This means that it runs in the partial load range and even has power reserves. This is where the new centrifugal module delivers impressive results and is also significantly more economical than conventional centrifugal blowers, for example.

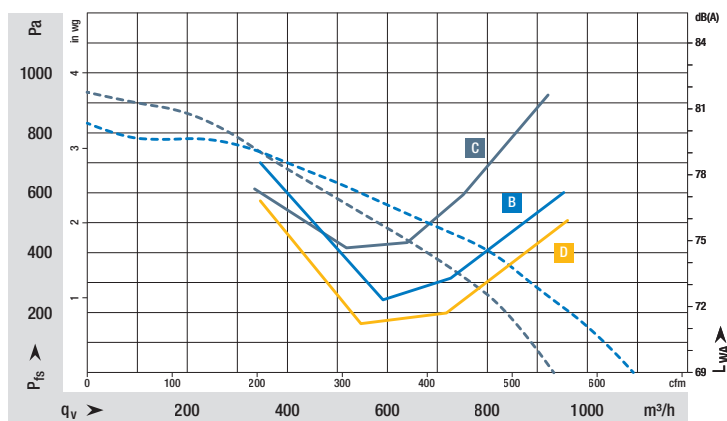


- A RadiCal 2 centrifugal
- B RadiCal 2 centrifugal fan
- C RadiCal 1 centrifugal fan



The advantages of the RadiCal 2 over its predecessor are clearly evident in an efficiency comparison.

- C RadiCal 1 centrifugal fan
- B RadiCal 2 centrifugal fan
- D RadiCal 2 centrifugal fan with FlowGrid



The RadiCal 2 is also much quieter and equipped with the FlowGrid, it achieves ultra-low noise levels.



Up to 3 dB(A) less noise.

If we compare the optimum performance of the predecessor model with the new size 190 RadiCal, the latter achieves significantly better noise behavior with lower power consumption (151 vs. 173 W) and constant pressure (550 Pa).

This is possible thanks to a revamped impeller and module design and continuous further development of the motors. This results in lower turbulence and reduced air flow losses.

RadiCal *at its best.*

Central electronics

Precision control

- + Infinitely variable speed control with 0-10 V / PWM control signal
- + Control and monitoring via MODBUS RTU interface for the 170 W variant optional

Usage options

- + Suitable for 50 and 60-Hz grids with 230 V
- + Network types: TN grid (grounded neutral) and delta/grounded leg (midpoint-grounded grounded delta grid)

Safe operation

- + Integrated locked-rotor detection
- + Undervoltage and overvoltage detection

Simple commissioning

- + Plug & play: no adjustment effort required
- + Cable incl. splices, optionally with plug



High-performance impeller

High air throughput

- + Application-specific new development

High static efficiency

- + Aerodynamically optimized blade channel

Low noise emissions

- + Optimized blade pass noise

Low vibration

- + Dynamic balancing of impeller-rotor unit

Unrivalled compactness

- + Impeller mounted directly on motor's rotor

Innovative materials

- + Impeller made of tough composite material
- + UV- and corrosion resistant



Compact centrifugal module

Innovative design

- + Aerodynamically optimized struts
- + Optimally positioned inlet ring

Simple installation

- + System approach enables quick and easy assembly
- + Simple attachment using motor plate and nozzle plate on intake and outlet side
- + Installation with horizontal or vertical motor shaft
- + Enables versatile use



The new features of the 2nd RadiCal generation

- + Enlarged intake diameter allows increased air flow
- + Rounded blade inlet edges for optimized noise behavior
- + Rounded blade outlet edges for low-loss air flow
- + Wavy cover plate for minimum air flow disturbance
- + Profiled housing struts

GreenTech EC motor

Energy-saving

- + Optimized commutation for efficient partial-load operation
- + Low copper and iron losses
- + Synchronous running prevents slip losses
- + Use of permanent magnets prevents magnetic hysteresis losses in rotor

Durable and maintenance-free

- + Maintenance-free ball bearings
- + Reliable operation
- + Designed for continuous operation S1
- + Insulated bearing system to prevent bearing currents

Sustainable design

- + Magnets without rare earths

Low noise emissions

- + Low-noise commutation logic
- + High, acoustically imperceptible cycle frequency



FlowGrid (optional)

Reduced noise

- + Low noise level
- + Significantly dampened blade passing noise

Sustained efficiency

- + Unchanged air performance

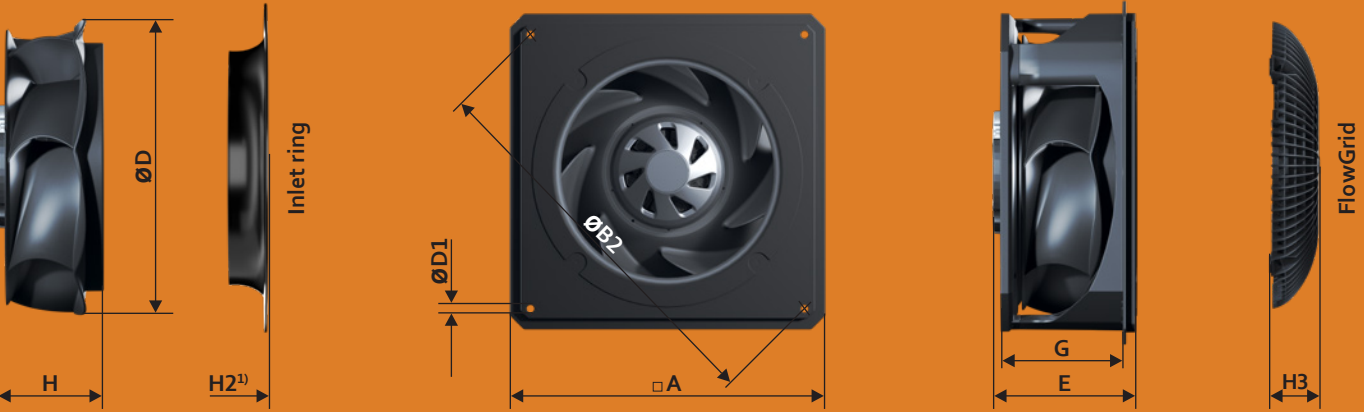
Environmental protection

- + Noise reduction as an essential component of environmentally friendly operation
- + Integrated guard grill

More at www.ebmpapst.com/flowgrid



At a glance: Facts and figures.



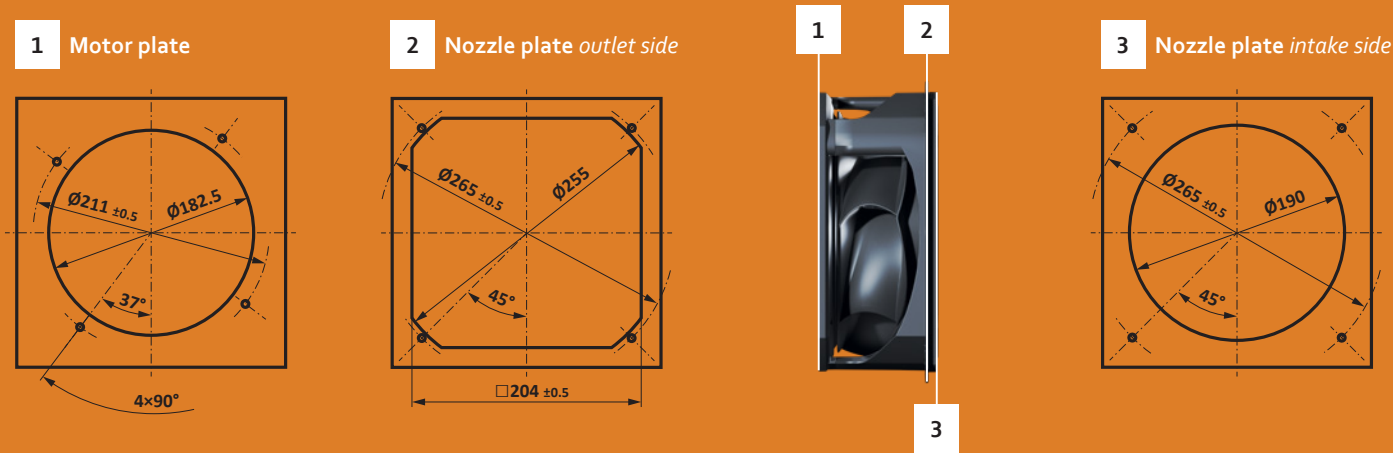
Dimensions

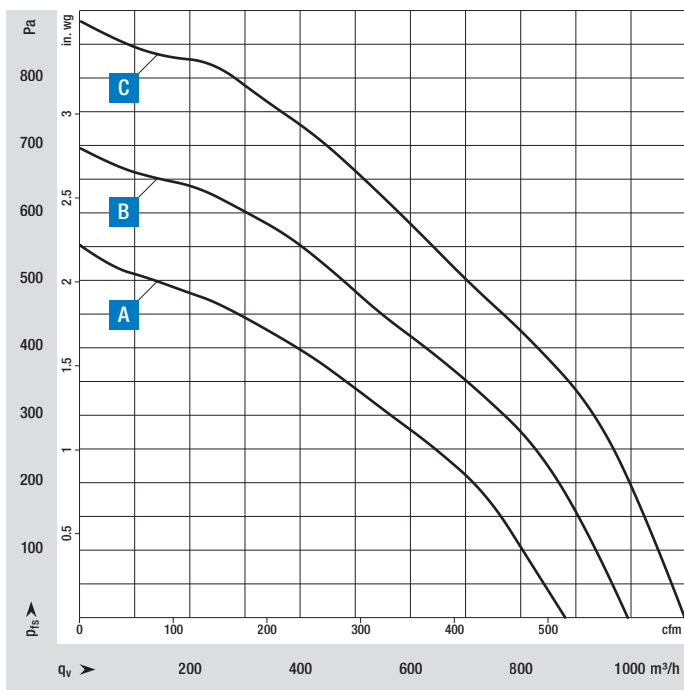
										Inlet ring	FlowGrid PP-GF40
Size	$\square A$	$\varnothing B2$	$\varnothing D$	$\varnothing D1$	E	G	H	max. $H2^{1)}$	H3	Material no.	Material no.
0190	216 ±0.5	265 ±0.5	190	5.2	98	77	89	104	32	8217116821	8217117433

Subject to technical changes. All dimensions in mm.
Data sheets available on request. ¹⁾ Dimension refers to the longest type.

Installation.

The nozzle plate can be attached on either the outlet or intake side. This further increases the flexibility of your application and installation options.





Material/surface

- + Impeller: PP plastic
- + Rotor: Thick-film passivated
- + Electronics housing:
Die-cast aluminum

Mechanical properties

- + Number of blades: 7
- + Direction of rotation: Clockwise,
viewed toward rotor
- + Installation position: Any
- + Condensation drainage holes:
None, open rotor
- + Mode of operation: S1
- + Motor mounting: Ball bearings

Further information

- + Information on touch current, electrical hookup,
protection class, insulation class, environmental
protection class, EMC standards, as well as standards
and approvals can be found in the product-specific
data sheets.

Nominal data

Nominal data			Frequency	Nominal voltage range	Motor size	Nominal speed	Max. power consumption	Max. input current	Temperature range
	Type	Material no.	Hz	VAC		min ⁻¹	W	A	°C
A	VBH0190SSLBS	8300100656	50/60	1~ 200-240	60	3,400	85	0.7	-25...+60
B	VBH0190SSLDS	8300100658	50/60	1~ 200-240	60	3,850	120	1.0	-25...+60
C	VBH0190SSLES	8300100657	50/60	1~ 200-240	60	4,350	170	1.4	-25...+60

Subject to technical changes.

Other sizes and information?

All information on this page relates to the currently available size 190. As soon as further measurements have been completed and all the data is available, we will also be pleased to provide you with the results for sizes 175, 206, 225, 250 and 280. Simply make a note here in the contact form and you'll be the first to hear about it, we promise.

More information: Scan the code or visit www.ebmpapst.com/radical



GreenIntelligence.

Making Engineers Happy.



Why do our customers look so happy? Because when it comes to digitalization and sustainability, we provide them with a clear competitive edge with GreenIntelligence. The intelligent control and networking of fans and drives makes applications more powerful and efficient. Together with a long product life and highly efficient EC technology, we achieve lasting reductions in energy costs and emissions.

For industrial ventilation technology, solutions are in demand that ensure top performance and operational reliability in every situation. GreenIntelligence gives you robust fan solutions with intelligent networking capabilities that provide reliable performance data and extensive control and monitoring functions. They ensure high levels of efficiency and system availability while guaranteeing maximum data security.

This is how much GreenIntelligence there is in *the new RadiCal generation*:

- + All necessary hardware and software components from a single supplier
- + Motor and ambient temperature monitoring
- + Precise adjustment of air flow and operating point
- + Control and monitoring via 0-10 V / PWM (MODBUS-RTU as an option)
- + Fan as sensor
- + Warning and/or shutdown in the event of continuous imbalance



ebm-papst. Engineering a better life.

Who we are.

With over 20,000 different products, ebm-papst offers the right solution for just about any challenge. As the logical next stage in the development of our highly-efficient GreenTech EC technology, we believe that industrial digitization offers the greatest future prospects for our customers. With GreenIntelligence, we already represent intelligently interconnected complete solutions that are unrivaled worldwide.

Because we are always committed to making each of our innovative hardware and software solutions more powerful, compact, efficient and sustainable than its predecessor, we have evolved over the years into the global technology leader for ventilation and drive technology.

What drives us.

But our consistent pursuit of efficiency and progress has even deeper roots. After all, there is something that excites us even more than our market position. It is the deep awareness that, with our solutions, like the RadiCal, we are making the lives of many people around the globe more pleasant, safer and thus better. Therefore, the central driving force in all our thoughts and actions is Engineering a better life. It is the reason why it is worthwhile for us to get up every day and do our best.

More about this under ebmpapst.com/betterlife

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engineering a better life

What you get out of it.

- 1. Technological edge.**
With our EC technology and GreenIntelligence, we combine the highest energy efficiency with the advantages of IoT and digital networking.
- 2. Our sustainable approach.**
We take our responsibility seriously with energy-saving products, environmentally-friendly processes and through social engagement.
- 3. System expertise.**
As experts in advanced motor technology, electronics and aerodynamics, we provide perfect system solutions from a single source.
- 4. The ebm-papst spirit of invention.**
Over 800 engineers and technicians will develop a solution that precisely fits your needs.
- 5. Personal proximity to you.**
Thanks to numerous sales locations worldwide.
- 6. Our standard of quality.**
Our quality management is uncompromising, at every step and in every process.

Pablo improves the performance of his ventilation systems, even when they are already in operation.

GreenIntelligence helps us turn our commitment to Engineering a better life into reality.

What exactly does this mean? Watch the video now:



*Would you like more information?
No problem:*

If you have any questions, please contact
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engineering a better life

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