ebmpapst

engineering a better life

Go for no. 1.
With RadiCal 2.

Unbeatably powerful, quiet, compact and efficient.

AR

Augmented Reality
Content Inside

The new *number one.*

The 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 up to 18% 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.

Find out more with the Xplore-App.
See back page for info

The best *in its class.*

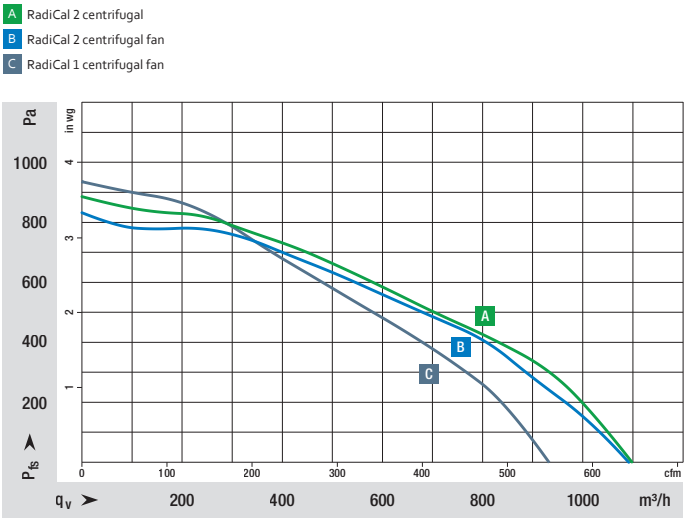
From the very beginning, 'RadiCal' has been synonymous with maximum efficiency and top performance. To ensure that applications in ventilation and air-conditioning technology continue to benefit from the strengths of this allrounder in the future, we have further developed the series. The result is a 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, InRow cooling in data centers, 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).

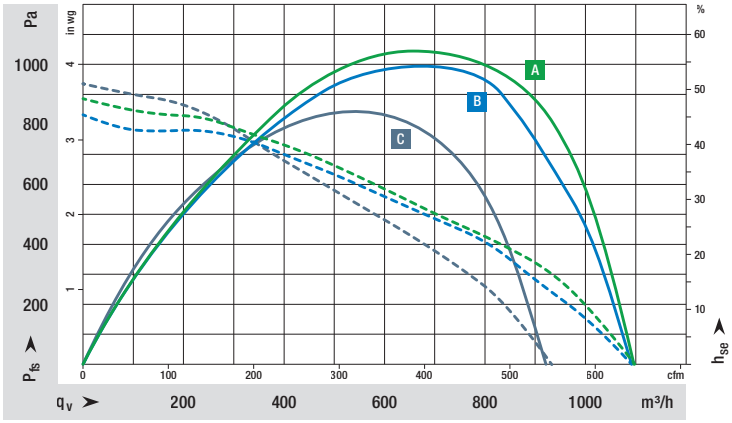


The RadiCal 2 outperforms its predecessor with high air flow rates. The new centrifugal module is now slightly above the motorized impeller.

Power consumption reduced *by up to 18%.*

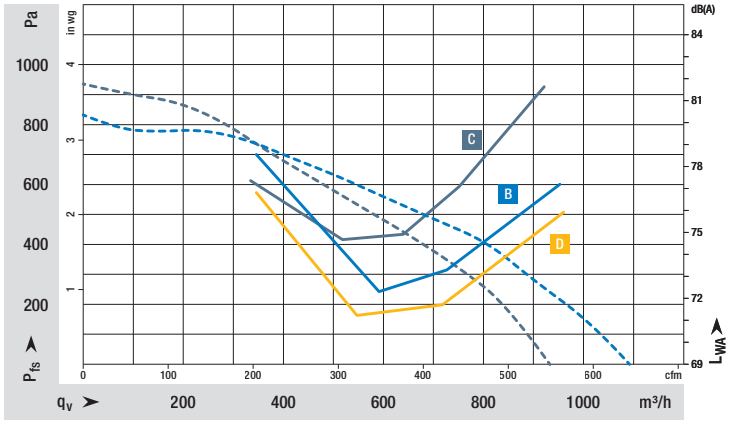
If we compare the power consumption of the size 190 RadiCal at the same operating point of 525 m³/h at 550 Pa, for example, the RadiCal 2 consumes significantly less power with the same air performance. This means that it runs in the partial load range and even has power reserves. This is where the new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

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

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

Unrivaled compactness
+ Impeller mounted directly on motor's rotor

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

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

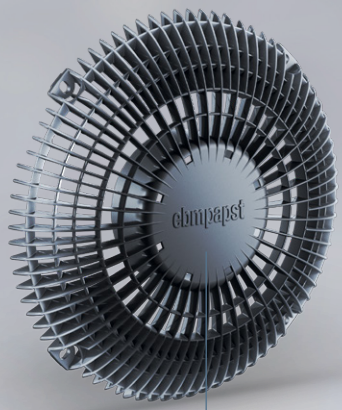
Durable and maintenance-free
+ Maintenance-free ball bearings
+ Reliable operation
+ Designed for continuous operation S1
+ Insulated bearing system to prevent bearing currents

Sustainable design
+ Magnets without rare earths

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

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



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

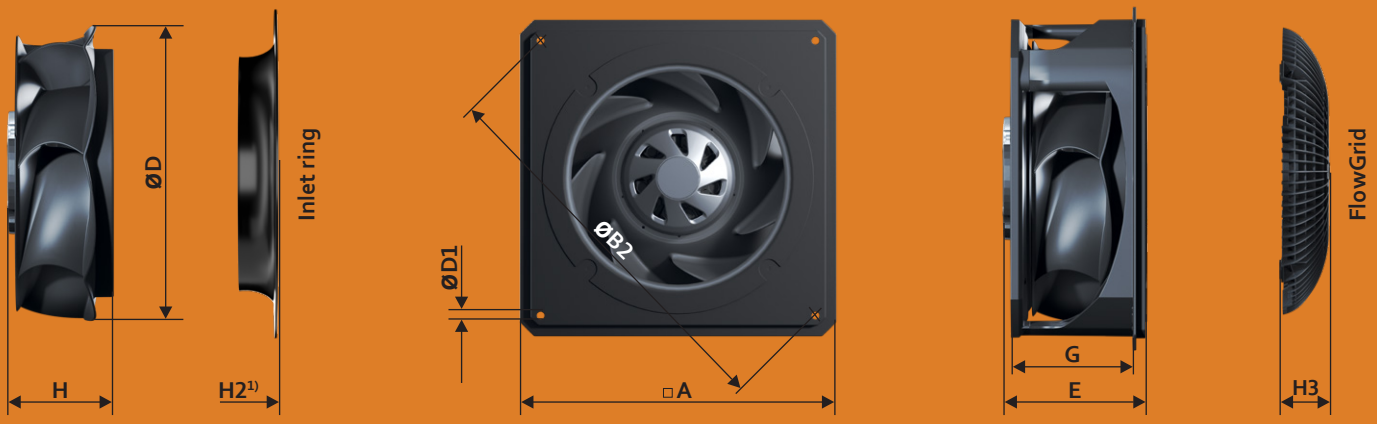
Radial module pressure extraction (optional)

The fan can be equipped with a pressure transducer to determine the volume flow rate via the differential pressure. For the measurement, the fan is equipped with suitable accessories (see page 9).

To do this, the 4 pressure sensors are inserted into the FlowGrid in the recesses provided:

+ **No extra screws**
+ **No additional adjustment**
+ **Perfectly positioned**

At a glance: Facts and figures.



Dimensions

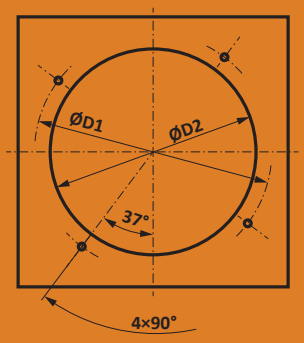
									Inlet ring	FlowGrid *PP-GF40*
Size	**□A**	**ØB2**	**ØD**	**ØD1**	**E**	**G**	**H**	**H3**	Material no.	Material no.
0175	200	243 ±0.5	175	5.2	97	77	88.7	29	8217117579	8217118111
0190	216	265 ±0.5	190	5.2	98	77	89	32	8217116821	8217117433
0206	235	290 ±0,5	206	5,2	113,5	85,5	99,5	39	8217118486	8217118542
0225	255	317 ±0,5	225	5,2	120,4	92	106	40	8217118485	8217118468

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

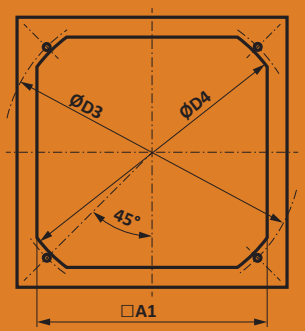
Installation.

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

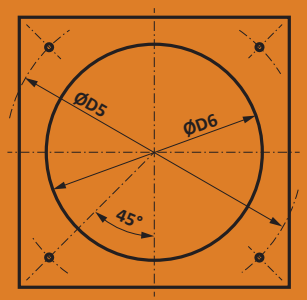
1 **Motor plate**



2 **Nozzle plate** *outlet side*



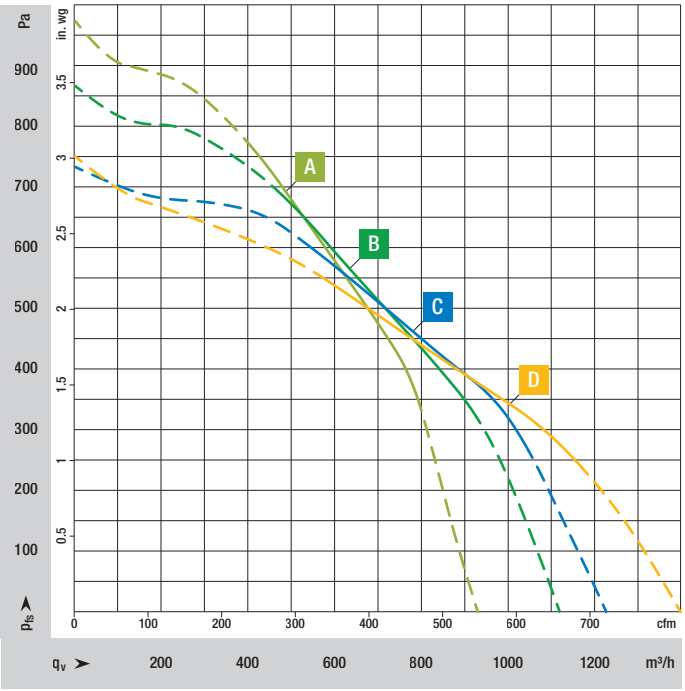
3 **Nozzle plate** *intake side*



Dimensions

Size	ØD1	ØD2	ØD3	ØD4	□A1	ØD5	ØD6
0175	186 ±0.5	157.5	243 ±0.5	234	189 ±0.5	243 ±0.5	174
0190	211 ±0.5	182.5	265 ±0.5	255	204 ±0.5	265 ±0.5	190
0206	232 ±0.5	173	290 ±0.5	279	224 ±0.5	290 ±0.5	208
0225	252 ±0.5	220	317 ±0.5	304	244 ±0.5	317 ±0.5	224

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



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

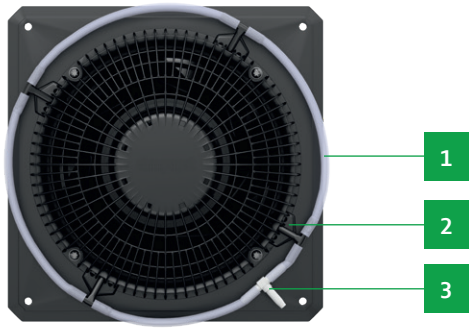
Further information

+ 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

Size		Type	Material no.	Frequency Hz	Nominal voltage range VAC	Motor size	Nominal speed min^{-1}	Max. power consumption W	Max. input current A	Temperature range °C
		VBH0175SSLBS	8300101013	50/60	1~ 200-240	60	3,900	85	0.7	-25...+60
175		VBH0175SSLDS	8300101063	50/60	1~ 200-240	60	4,400	120	1.0	-25...+60
	A	VBH0175SSLES	8300101014	50/60	1~ 200-240	60	5,000	170	1.4	-25...+60
		VBH0190SSLBS	8300100656	50/60	1~ 200-240	60	3,400	85	0.7	-25...+60
190		VBH0190SSLDS	8300100658	50/60	1~ 200-240	60	3,850	120	1.0	-25...+60
	B	VBH0190SSLES	8300100657	50/60	1~ 200-240	60	4,350	170	1.4	-25...+60
		VBH0206SSLDS	8300101416	50/60	1~ 200-240	60	2,900	85	0.7	-25...+60
206		VBH0206SSLES	8300101417	50/60	1~ 200-240	60	3,250	120	1.0	-25...+60
	C	VBH0206SSLFS	8300101418	50/60	1~ 200-240	60	3,700	170	1.4	-25...+60
		VBH0225SSLDS	8300101015	50/60	1~ 200-240	60	2,550	85	0.7	-25...+60
225		VBH0225SSLES	8300101016	50/60	1~ 200-240	60	2,900	120	1.0	-25...+60
	D	VBH0225SSLFS	8300101017	50/60	1~ 200-240	60	3,250	170	1.4	-25...+60

Subject to technical changes.



Radial module pressure extraction

Material no.	Components	
02636-7-7024	Silicone tube	1
20000-2-2945	Pressure transducer	2
79600-2-5120	T-tube connector	3
43426-4-5154	Sealing plug for pressure transducer	

Subject to technical changes.

K-Factor

Size	175	190	206	225	250	280
K-Factor	29	40	51	64	72	115

Subject to technical changes.

All designs and dates in the FanScout collection:
fanscout.ebmpapst.com/c/31169

The simplest way to the **best result.**

With FanScout from ebm-papst.

With FanScout, your complex search for the right fan solution will have a quick and happy ending. Because as soon as you open FanScout, you are already practically where you want to be. All you need for the perfect result are the requirements of your application – for example, air flow, static pressure, and the planned operating time.

FanScout then guides you through an overview of the best possible fan and FanGrid solutions, which you can compare with each other clearly and intuitively. And to make your decision even easier, FanScout also takes life cycle costs into account – from acquisition to operation and service. This saves you time and helps you to find out all about the right fan.

The most important functions at a glance:

- Compare product data at a glance and find the best fan or FanGrid solution quickly and easily
- Results can be filtered by operating point, nominal data, dimensions and other parameters
- Direct comparison of air performance curves and sound power diagrams
- Calculate life cycle costs via energy, product and installation costs
- Sustainability analysis based on CO_2 emissions
- Expert mode with efficiency curves, FEI or iso line
- Operating instructions and data sheets available for direct download
- Browser-based software without time-consuming installation or updates

Further information and contact can be found at:
ebmpapst.com/fanscout

Go directly to the RadiCal 2 FanScout collection:
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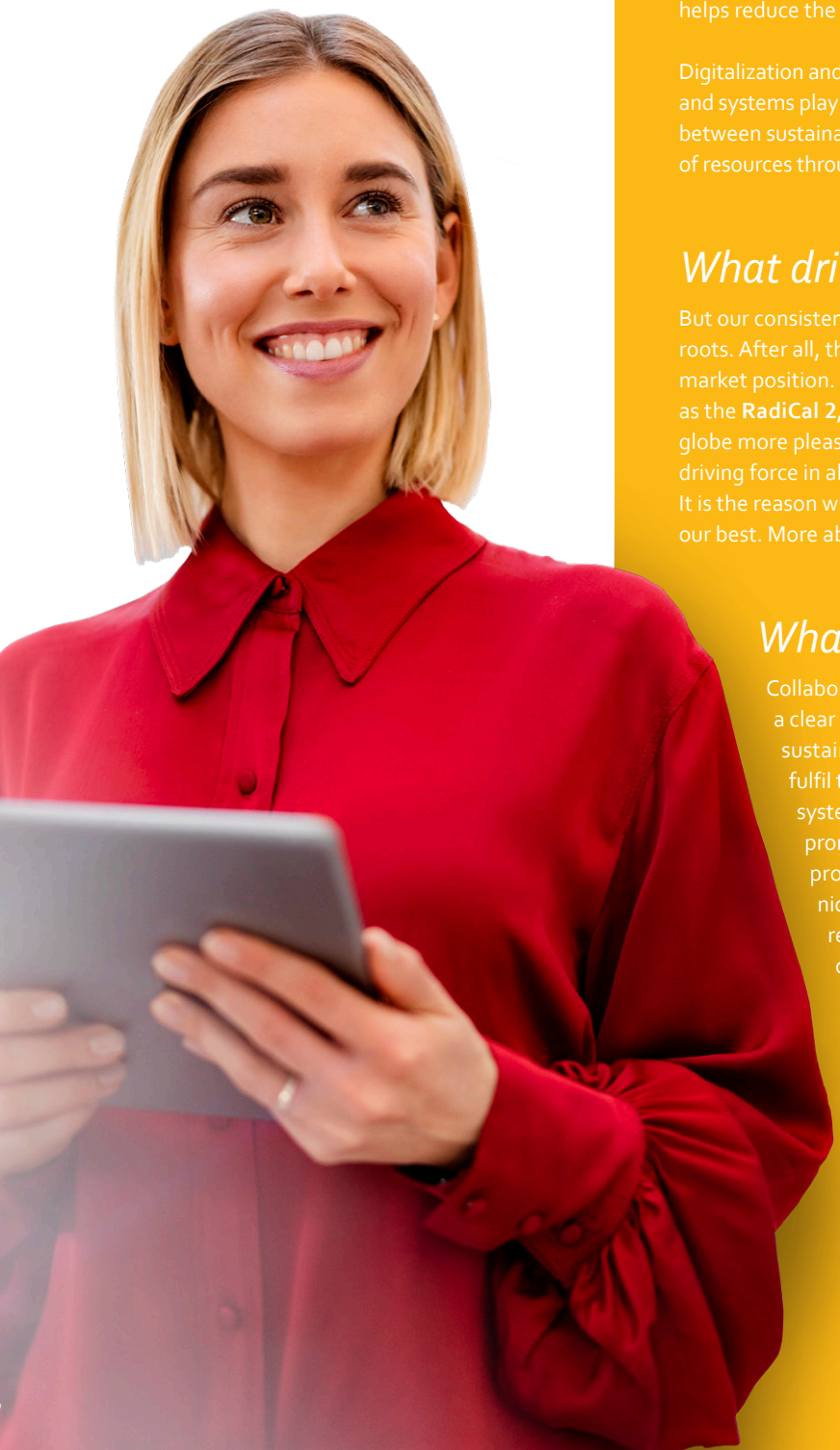
What *Engineering a better life* means to us.



Who we are.

We lead air technology into the next generation: with innovative hardware and software solutions that are always more powerful, compact, efficient and sustainable than their predecessors. Over the years, this has made us the world's leading manufacturer for fans and drives and helps reduce the carbon footprint in our customers' applications.

Digitalization and the associated networking of intelligent components and systems play a central role for us. In this way, we create a holistic link between sustainability and digitalization and enable the responsible use of resources through intelligent solutions of the highest efficiency.

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, such as the **RadiCal 2**, 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 at **ebmpapst.com/aboutus**

What you get out of it.

Collaborating with us brings you tangible benefits, such as a clear competitive edge in IoT and digital networking, sustainable product solutions that allow you to fulfil the latest environmental guidelines, and perfect system solutions from one source, shaped by uncompromising quality management in every step of the process. At ebm-papst, over 800 engineers and technicians develop the solution that perfectly fits your requirements. Tell us what we can do for you! One of our numerous sales sites around the world is sure to be near to you.

Would you like more information? No problem:

If you have any questions, please contact

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