

# RadiPac EC centrifugal fans.

The best results for ventilation technology.

# ebmpapst

The engineer's choice



# A coherent concept.

## RadiPac stands for ...

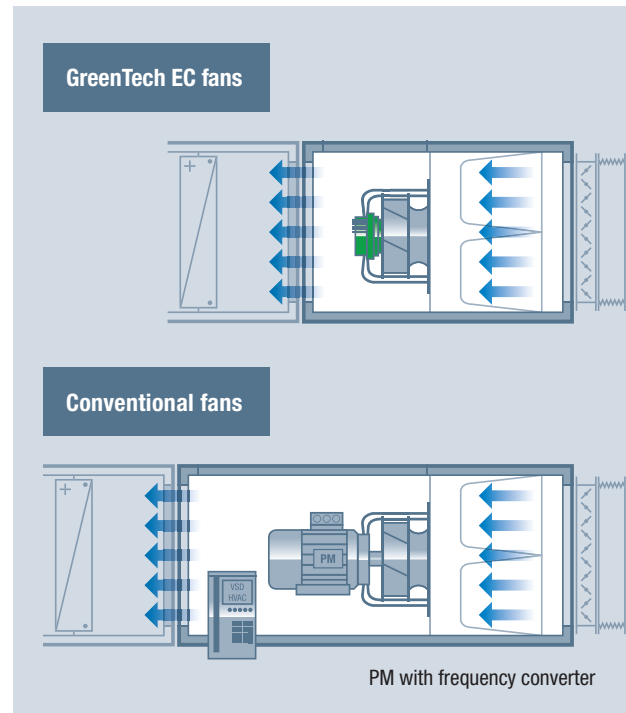
**Realistic performance specifications**, as the performance data of the entire fan is continuously measured by means of the components: high-performance impeller, GreenTech EC motor and control electronics.

**Effective logistics**, as a single RadiPac part number includes all components required for your ventilation demands – in the fashion of one-stop shopping.

**Simple commissioning**, as all features necessary for operation are already installed and adapted to one another.

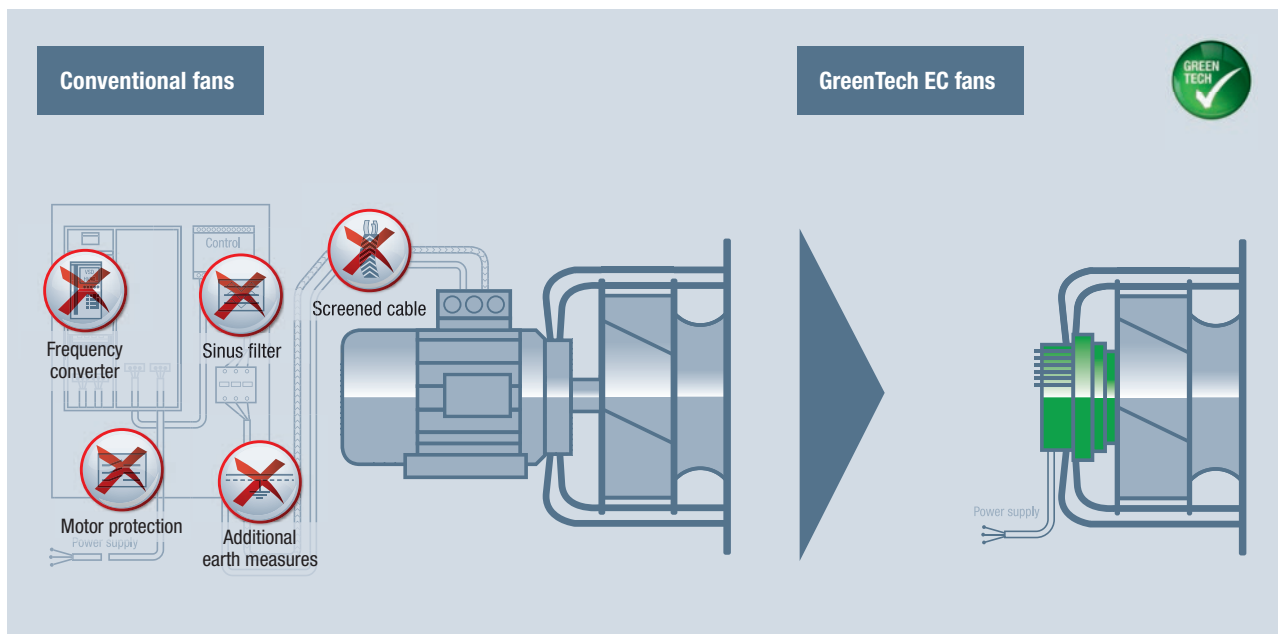
### Simple and safe.

Together, the electronics and motor form one unit – this doesn't just save space, but also ensures easy installation: in this respect, an integrated electronics system for commutation and control replaces an external frequency converter. What's more, as the motor and electronics in the motor system are already perfectly matched to one another, additional electronic filters and shielded cables are unnecessary, for example an additional motor protecting switch. To sum up: there is no need for any costly component matching on commissioning or for earthing and screening work. Plug & Play really is that simple.



### Compact design.

The high-performance impeller is mounted directly on the rotor of the external rotor motor. This saves space and allows the entire rotating unit to be balanced at the same time.



### System efficiency.

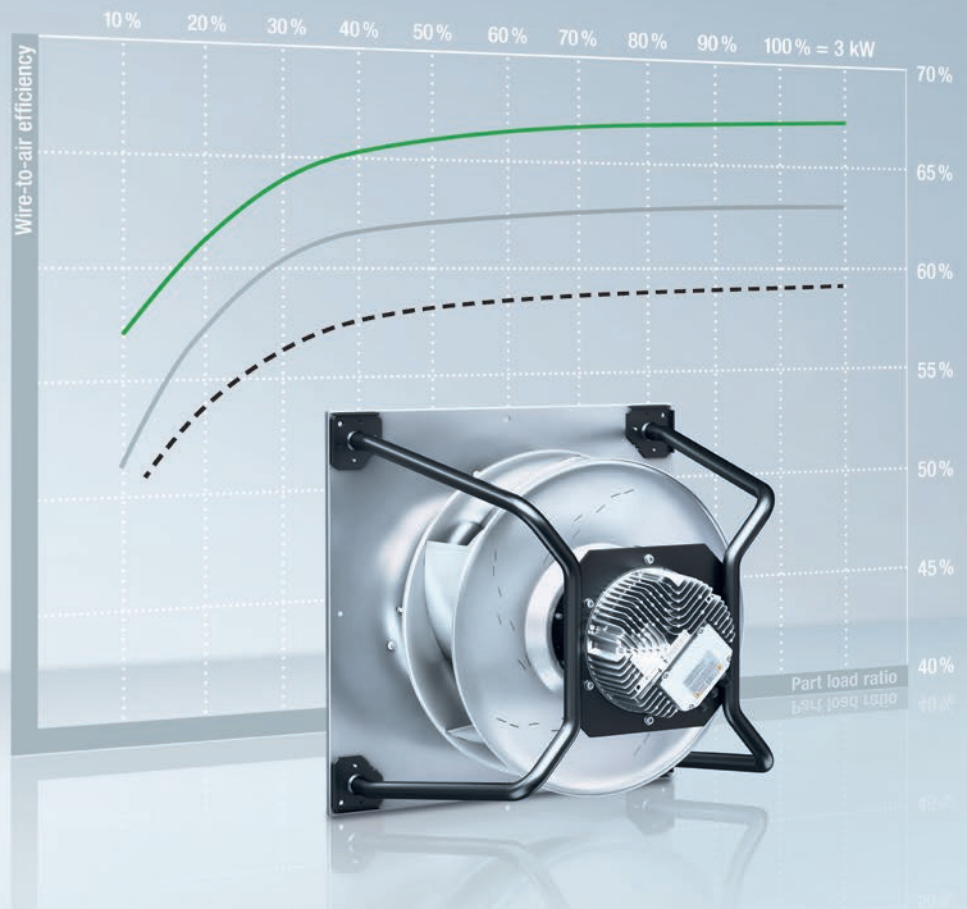
“The result is what matters” – this also applies to efficiency. After all, it is not just the efficiency of individual components which is decisive, but rather the result of their interaction. This is where RadiPac shines with its impressive statistics. The impeller, motor and electronics system are all optimally adjusted to one another, leading to an overall efficiency of well above 60%. A significant contribution to this efficiency is made by the external rotor design GreenTech EC motor. This is a mains-powered, permanently energised synchronous motor

with electronic commutation (also called BLDC). Its efficiency is significantly higher than the efficiency class IE4, and it achieves this without the use of supply-critical rare-earth magnets. On account of their design, other permanent magnet motors of the internal rotor type that offer comparable efficiency require rare-earth magnets. This means that they are less compact and more difficult to assemble and commission due to the necessary external control electronics.

## Top efficiency values.

Measurements at the Institute of Air Handling and Refrigeration (ILK) Dresden show that the maximum efficiency of the entire system can only be achieved if the built-in components are combined in the best possible way. All told, the redesign of the flow machine resulted in an efficiency increase of more than 13% for the RadiPac fans. Based on results for size 400 fans.

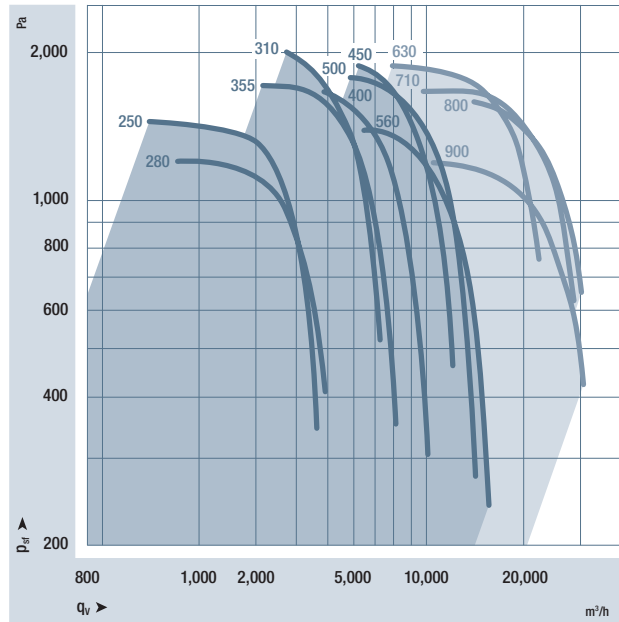
- EC RadiPac “new”
- - - EC RadiPac “old”
- Fan PM motor



# Convincing performance.

The performance measurements for all fans are conducted on cutting-edge chamber test rigs. The entire fan unit, consisting of the motor, the control electronics and the impeller, is measured at different load levels. This provides us with reliable data, meaning that when you are choosing your fans, you can count on these values being met. This rules out any nasty surprises when commissioning the fans. The measurement data form the basis for the selection program available on request.


This software enables you to calculate operational costs or to conduct a comprehensive cost analysis across the life-cycle.



RadiPac Nominal data			Nominal voltage range	Frequency	Speed	Max. input power <sup>(1)</sup>	Max. input current <sup>(1)</sup>	Perm. ambient temperature
Article number	Motor	VAC	Hz	rpm	W	A	°C	
R3G 250-PR04-H1	K3G 250-PR04-H2	M3G084-DF	1 ~ 200-277	50/60	3,080	520	2.3	-25...+40
R3G 250-PR17-I1	K3G 250-PR17-I2	M3G084-DF	1 ~ 200-277	50/60	3,450	750	3.3	-25...+40
R3G 250-PR02-J1	K3G 250-PR02-J2	M3G084-DF	3 ~ 380-480	50/60	4,000	1,180	1.8	-25...+40
R3G 280-PR03-H1	K3G 280-PR03-H2	M3G084-DF	1 ~ 200-277	50/60	2,670	520	2.3	-25...+45
R3G 280-PR04-I1	K3G 280-PR04-I2	M3G084-DF	1 ~ 200-277	50/60	3,000	750	3.3	-25...+45
R3G 280-PS10-J1	K3G 280-PS10-J2	M3G084-FA	3 ~ 380-480	50/60	3,400	1,050	1.6	-25...+45
R3G 310-PT08-J1	K3G 310-PT08-J2	M3G084-GF	3 ~ 380-480	50/60	3,010	1,290	2.0	-25...+40
R3G 310-PH38-O1	K3G 310-PH38-O2	M3G112-GA	3 ~ 380-480	50/60	3,410	1,800	2.9	-25...+40
R3G 310-PH58-O1	K3G 310-PH58-O2	M3G112-GA	3 ~ 380-480	50/60	4,000	2,800	4.3	-25...+40
R3G 355-PJ75-O1	K3G 355-PJ75-O1	M3G112-EA	3 ~ 380-480	50/60	2,400	1,120	1.7	-25...+40
R3G 355-PH49-O1	K3G 355-PH49-O2	M3G112-GA	3 ~ 380-480	50/60	2,870	1,920	2.9	-25...+40
R3G 355-PI93-O1	K3G 355-PI93-O2	M3G112-IA	3 ~ 380-480	50/60	3,230	2,680	4.1	-25...+40
R3G 400-PI92-O1	K3G 400-PI92-O2	M3G112-IA	3 ~ 380-480	50/60	2,450	2,500	3.8	-25...+40
R3G 400-PA27-71	K3G 400-PA27-71	M3G150-FF	3 ~ 380-480	50/60	2,830	3,380	5.2	-25...+40
R3G 450-PI86-O1	K3G 450-PI86-O2	M3G112-IA	3 ~ 380-480	50/60	1,730	1,740	2.7	-25...+50
R3G 450-PA23-71	K3G 450-PA23-71	M3G150-FF	3 ~ 380-480	50/60	2,140	3,030	4.7	-25...+40
R3G 450-PB24-O1	K3G 450-PB24-O1	M3G150-IF	3 ~ 380-480	50/60	2,620	5,050	7.7	-25...+40
R3G 500-PA23-71	K3G 500-PA23-71	M3G150-FF	3 ~ 380-480	50/60	1,910	3,450	5.3	-25...+40
R3G 500-PB33-O1	K3G 500-PB33-O1	M3G150-IF	3 ~ 380-480	50/60	2,250	5,700	9.0	-25...+40
R3G 560-PB31-71	K3G 560-PB31-71	M3G150-IF	3 ~ 380-480	50/60	1,540	3,300	5.1	-25...+40
R3G 560-PC04-O1	K3G 560-PC04-O1	M3G150-NA	3 ~ 380-480	50/60	1,760	5,000	7.7	-25...+40

(1) Nominal data at operating point with maximum load and 400 VAC  
Data is subject to change without notice at ebm-papst discretion.

Only optimised interaction ensures that the whole is more than the sum of its parts.



**Inlet nozzle**

- + Pre-installed**
  - Optimised, ex-works positioning of the nozzle
  - Pressure tapping for determining the air flow as standard

**Control** **Plug&Play**

**High-performance impeller**

- + High static efficiency**
  - Aerodynamically optimised blade channel
  - Integrated rotation diffuser
  - Inlet nozzle adjusted to impeller
- + Low-noise emissions**
  - Diagonal trailing edge for optimised flow control
  - Integrated rotation diffuser
- + Low vibration level**
  - Dynamic balancing of the impeller rotor unit minimises the generation of structure-borne noise and reduces the bearing load
- + Robust design**
  - Suitable for constantly high circumferential speeds
  - Corrosion-resistant aluminium
  - Airfoil blade

**Efficiency** **Power Density** **Noise**



### GreenTech EC motor

### Electronics and connection area

### Support bracket structure

- + Unbeatably compact**
  - The impeller is mounted directly onto the motor rotor
- + High efficiency**
  - Low copper and iron loss
  - No slip loss thanks to synchronous running
  - No magnetic hysteresis losses in the rotor due to permanent magnets being used
- + Economical operation**
  - Optimised commutation permits partial-load operation up to 1:10 whilst maintaining high efficiency
- + Low-noise emissions**
  - Commutation and stator design permit low-noise magnetisation of the field system
  - High, acoustically imperceptible cycle frequency
- + Long service life**
  - Maintenance-free bearings
  - Brushless commutation
- + Reliable operation**
  - Insulated bearing system to avoid bearing currents

- + Versatile**
  - Continuously variable speed settings
  - Control signal of 0–10 V DC and MODBUS
- + Universal use**
  - Wide voltage ranges for worldwide use
  - Suitable for 50 and 60 Hz power lines
- + Reliable operation**
  - Integrated locked-rotor and excess temperature protection
  - Environment-resistant cable glands
- + Simple commissioning**
  - Central terminal area for mains connection, alarm relay, open loop control and communication
  - Safe separation of terminal area and electronics
  - High-quality terminal clamps
  - No adjustment effort

- + Easy installation in the VACT**
  - Quick and easy installation thanks to the complete system
  - Thanks to the wall plate, the fan can be mounted to the device wall easily
  - Installation with horizontal AND vertical motor shafts
  - New structural freedom thanks to compact design
- + A perfect example of aerodynamics**
  - Aerodynamic
  - Optimised, ex-works positioning of the nozzle



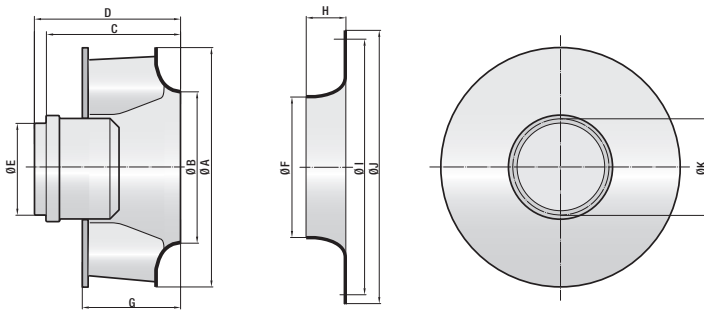
# From impeller to motor system.

The better the interaction works, the more impressive the result. Individual RadiPac components are precisely adjusted to one another, which produces an outstanding result: the highest possible system efficiency. The basis for this is a combination of highly developed components and innovative technology.

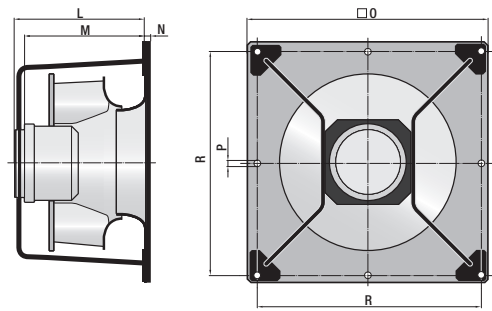
## In a class of their own: the new RadiPac models.

RadiPac EC centrifugal fans score well with their excellent characteristics – from high efficiency to easy handling and low space requirements. And in doing so, the product range completely covers the air performance range depicted below.

### R3G ...



### K3G ...



Article number		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	R
R3G 250-PR04-H1	K3G 250-PR04-H2	270	173	153	200	150/178	168	117	48	260	280	164	235	187	2	400	11 (4x)	350
R3G 250-PR17-I1	K3G 250-PR17-I2	270	173	153	217	169/200	168	117	48	260	280	186	251	187	2	400	11 (4x)	350
R3G 250-PR02-J1	K3G 250-PR02-J2	270	173	153	217	169/200	168	117	48	260	280	186	251	187	2	400	11 (4x)	350
R3G 280-PR03-H1	K3G 280-PR03-H2	294	188	160	208	150/178	182	127	46	260	280	164	243	195	2	400	11 (4x)	350
R3G 280-PR04-I1	K3G 280-PR04-I2	294	188	160	224	169/200	182	127	46	260	280	186	259	195	2	400	11 (4x)	350
R3G 280-PS10-J1	K3G 280-PS10-J2	294	188	175	239	169/200	182	127	46	260	280	186	274	210	2	400	11 (4x)	350
R3G 310-PT08-J1	K3G 310-PT08-J2	360	222	256	364	169/200	218	179	55	325	350	186	409	300	15	500	11 (4x)	450
R3G 310-PH38-01	K3G 310-PH38-02	360	222	251	323	232	212	179	55	325	350	252	368	296	15	500	11 (4x)	450
R3G 310-PH58-01	K3G 310-PH58-02	360	222	251	323	232	212	179	55	325	350	252	368	296	15	500	11 (4x)	450
R3G 355-PJ75-01	K3G 355-PJ75-01	405	250	252	353	232	246	200	64	345	370	186	407	306	15	500	11 (4x)	450
R3G 355-PH49-01	K3G 355-PH49-02	405	250	272	344	169	246	200	64	345	370	252	398	326	15	500	11 (4x)	450
R3G 355-PI93-01	K3G 355-PI93-02	405	250	292	364	232	246	200	64	345	370	252	418	346	15	500	11 (4x)	450
R3G 400-PI92-01	K3G 400-PI92-02	455	282	317	389	232	278	226	68	390	413	252	446	374	15	500	11 (4x)	450
R3G 400-PA27-71	K3G 400-PA27-71	455	282	310	380	232	271	226	68	390	413	252	437	368	15	500	11 (4x)	450
R3G 450-PI86-01	K3G 450-PI86-02	530	317	348	420	232	303	254	76	440	480	252	485	412	15	630	11 (4x)	580
R3G 450-PA23-71	K3G 450-PA23-71	530	317	340	410	232	303	254	76	440	480	252	477	408	15	630	11 (4x)	580
R3G 450-PB24-01	K3G 450-PB24-01	530	317	376	488	280	303	254	76	440	480	304	556	443	15	630	11 (4x)	580
R3G 500-PA23-71	K3G 500-PA23-71	585	353	373	442	232	337	282	75	445	470	252	508	439	15	630	11 (4x)	580
R3G 500-PB33-01	K3G 500-PB33-01	585	353	408	521	280	337	282	75	445	470	304	588	474	15	630	11 (4x)	580
R3G 560-PB31-71	K3G 560-PB31-71	655	395	432	502	232	389	314	82	490	515	252	658	505	15	800	11 (4x)	750
R3G 560-PC04-01	K3G 560-PC04-01	655	395	472	585	280	389	314	82	490	515	304	657	545	15	800	11 (4x)	750

All specifications in mm, data sheet on request  
Data is subject to change without notice at ebm-papst discretion.

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