RadiCube:
Smart EC Fan

Powered by IoT technology and
energy saving EC motors

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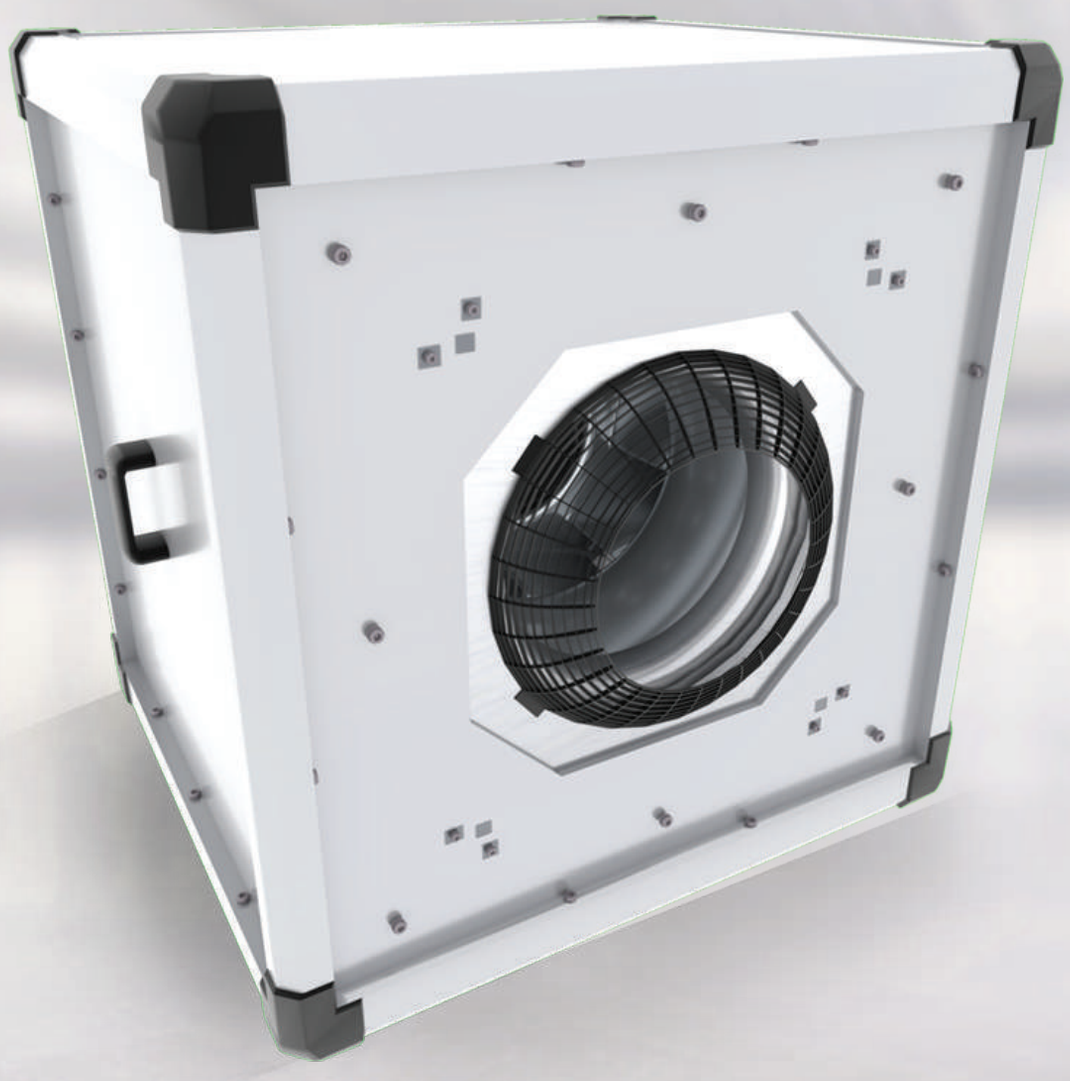
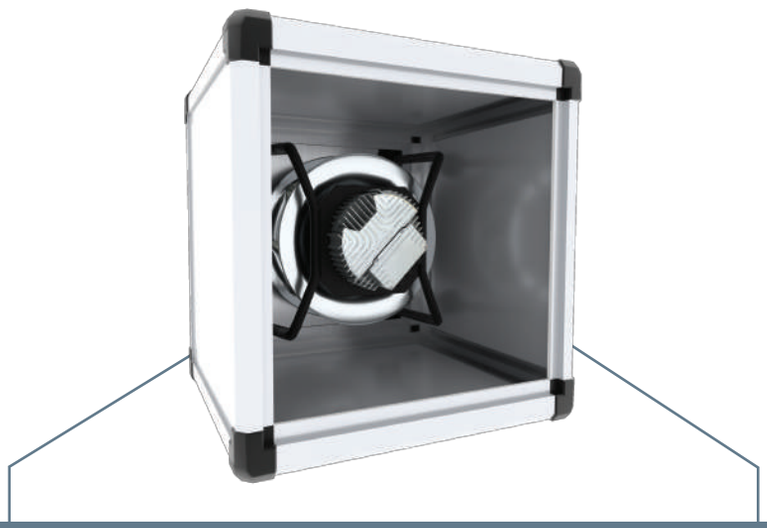


RadiCube: *Smart EC Fan*

Powered by IoT Technology and Energy Saving EC motors

The RadiCube comprises of ebm-papst's signature EC centrifugal fans and a cube-like casing made of extruded aluminium. It is capable of discharge in all directions. The RadiCube is designed to be an integrated solution powered by energy-saving EC motors. To further optimise the use of the RadiCube, IoT sensors can be installed as well. These devices offer an impressive list of benefits, including (but not limited to) energy efficiency and convenience. The RadiCube is available in two versions: RadiCube and RadiCube Pro.



RadiCube

- **Flow Rates**: Up to 19,500 m³/h
- **Sizes**: 280 – 630 mm
- **Impellers**: Backward Curved Composite Impellers
- **Speed Control**: 0-10V

RadiCube Pro

- **Flow Rates**: Up to 21,000 m³/h
- **Sizes**: 310 – 560 mm
- **Impellers**: Aluminium Backward Curved Air-foil Impellers
- **Speed Control**: 0-10V or 4-20mA

Highly Efficient EC Motor

- Optimised commutation enables partial-load operation down to 1:10
- High efficiency even in partial-load operation

Precise Control

- Speed is 100% infinitely variable
- RS485/MODBUS RTU interface

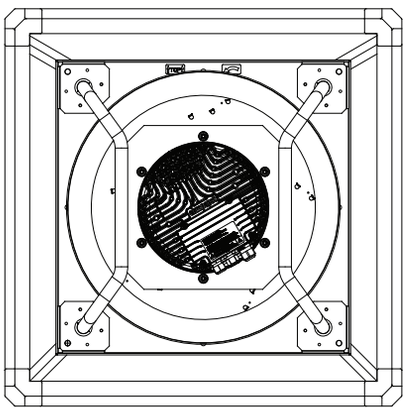
Low Noise Emissions

- Commutation and stator design ensure quiet magnetization of the main field
- Impellers are aerodynamically optimised for reduced noise

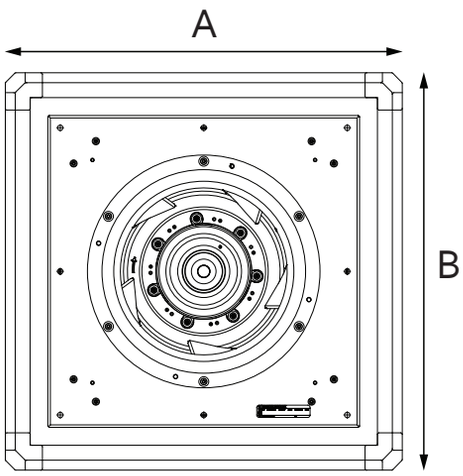
Dimensions

RadiCube & RadiCube Pro

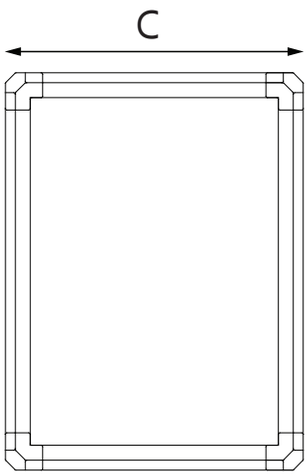
Dimensions



Back View



Front View



Side View

RadiCube

Part Number	RadiCube	Box Size (A*B*C)
230F00801	RC280-SQ500	500 * 500 * 350
230F00754	RC355-SQ600	600 * 600 * 350
230F00758	RC400-SQ600	600 * 600 * 350
230F00756	RC500-SQ900	900 * 900 * 600
230F00757	RC500-SQ900RA	900 * 900 * 600
230F00759	RC630-SQ1100	1100 *1100 * 600

Sizes are in mm

RadiCube Pro

Part Number	RadiCube Pro	Box Size (A*B*C)
230F00760	RC310-Pro-SQ600	600 * 600 * 450
230F00761	RC355-Pro-SQ600	600 * 600 * 450
230F00803	RC400-Pro-SQ700	700 * 700 * 560
230F00763	RC450-Pro-SQ800	800 * 800 * 800
230F00776	RC500-Pro-SQ800	800 * 800 * 800
230F00765	RC560-Pro-SQ1000	1000 * 1000 * 770

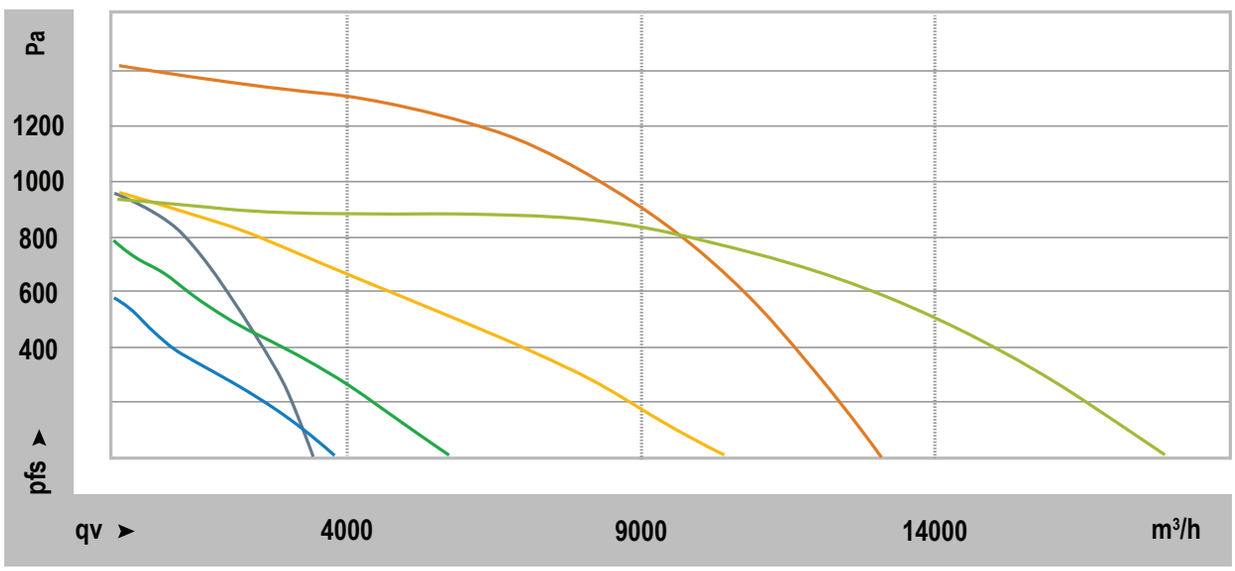
Sizes are in mm

Performance Curves

RadiCube

Air performance measured as per ISO 5801 Installation category A. For detailed information on the measuring setup, please contact ebm-papst SEA.

P_{ed} = electrical input power; n = fan speed; $\eta_{ed} = q_v \times p_f / P_{ed}$ = overall efficiency; $\eta_{es} = q_v \times p_{fs} / P_{ed}$ overall static efficiency; $\eta_m = \eta_{es} / \eta_{sr}$ motor efficiency; impeller effic.: $\eta_{sr} = \eta_{es} / \eta_m$ static; $\eta_r = \eta_{ed} / \eta_m$ total; I = current draw; FEIs = fan energy index static; p = air density



Nominal Data

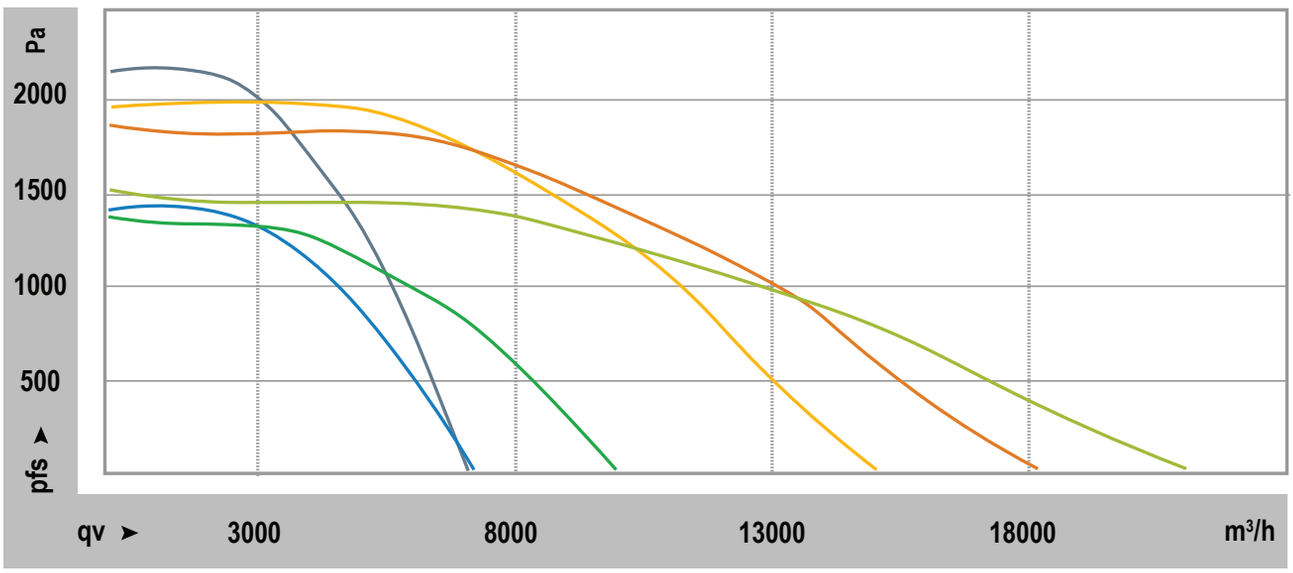
Material Type	No. Code	RC280-SQ500	RC355-SQ600	RC400-SQ600	RC500-SQ900	RC500-SQ900RA	RC630-SQ1100
$U_{N\ range}$	V	1~ 200...277	1~ 200...277	1~ 200...277	3~ 380...480	3~ 380...480	3~ 380...480
U_N	V	230	230	230	400	400	400
f	Hz	50/60	50/60	50/60	50/60	50/60	50/60
P_{ed}	W	500	250	500	1320	3600	3600
I	A	2.20	1.10	2.20	2.10	5.50	5.50
n	rpm	2700	1450	1500	1350	1900	1400
η_{es}	%	60.9	58.7	60.4	58.3	61.3	60.9
q_v	m^3/h	3409	3824	5765	10420	13000	18000

Performance Curves

RadiCube Pro

Air performance measured as per ISO 5801 Installation category A. For detailed information on the measuring setup, please contact ebm-papst SEA.

P_{ed} = electrical input power; n = fan speed; $\eta_{ed} = q_v \times p_f / P_{ed}$ = overall efficiency; $\eta_{es} = q_v \times p_{fs} / P_{ed}$ overall static efficiency; $\eta_m = \eta_{es} / \eta_{sr}$ motor efficiency; impeller effic.: $\eta_{sr} = \eta_{es} / \eta_m$ static; $\eta_r = \eta_{ed} / \eta_m$ total; I = current draw; FEIs = fan energy index static; p = air density



RC310-Pro-SQ600 RC355-Pro-SQ600 RC400-Pro-SQ700

RC450-Pro-SQ800 RC500-Pro-SQ800 RC560-Pro-SQ1000

Nominal Data

Material Type	No. Code	RC310-Pro-SQ600	RC355-Pro-SQ600	RC400-Pro-SQ700	RC450-Pro-SQ800	RC500-Pro-SQ800	RC560-Pro-SQ1000
$U_{N\ range}$	V	3~ 380...480	3~ 380...480	3~ 380...480	3~ 380...480	3~ 380...480	3~ 380...480
U_N	V	400	400	400	400	400	400
f	Hz	50/60	50/60	50/60	50/60	50/60	50/60
P_{ed}	W	2950	1900	2500	5250	5700	5000
I	A	4.60	3.00	3.80	8.00	9.00	7.70
n	rpm	4000	2870	2450	2600	2250	1760
η_{es}	%	62.6	64.4	65.9	66.5	66.5	67.5
q_v	m^3/h	7090	7203	10000	15000	18210	21200

Applications & Accessories

for RadiCube and RadiCube Pro

Application Examples

Air Handling Units (AHUs): Our RadiCube (Pro) fans, with its integrated outer casing, serve as an all-in-one package deal for small AHUs. It is ideal for situations that require a single fan. For projects that require a more powerful ventilation solution, please contact your ebm-papst SEA sales representative for a more customised proposal.

Exhaust Fans: Exhaust fans are used to remove unwanted odors and fumes from a specified space. It is essential for maintaining indoor air quality. Our RadiCube (Pro) fans can be quickly installed to serve this purpose.

Supply Fans: In contrast to exhaust fans, supply fans are used to move air into a specified space. Our RadiCube (Pro) fans are designed to suit this purpose as well.

Accessories

To further optimise the utilisation of the RadiCube (Pro), we offer the following accessories:

FlowGrid for Noise Reduction

The FlowGrid further reduces noise emissions by dampening the noise produced by the blades. Fan efficiency will be retained.

Potentiometer (with Housing) for Speed Control

The potentiometer can be operated with DC/EC fans with 0-10V control input. When supplied with a 10V source, the potentiometer allows infinitely variable fan speed control. A single controller has the potential to control multiple fans. This is subjected to the supplied current rating.

Spring Hanger & Floor Rubber Mount

The spring hanger and floor rubber mount isolate the transfer of vibration to the adjoining system or building structure. The spring hanger is suited for hanging applications while the floor rubber mount is for floor-mounted RadiCubes.

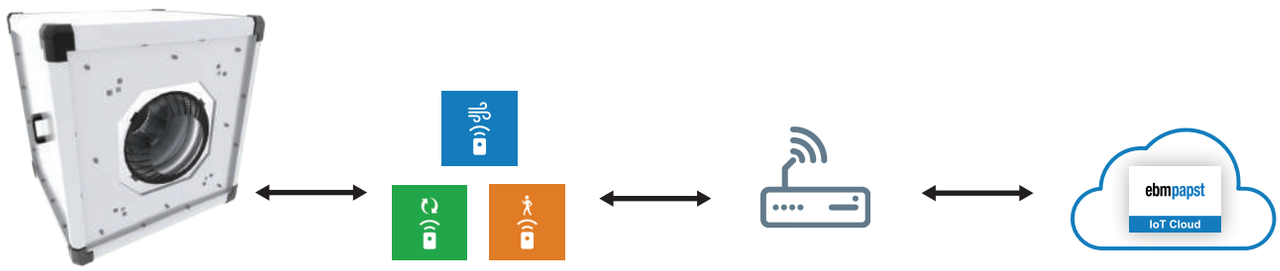
Part Number	Description	Capacity (kgf)	Spring Constant (kgf/mm)	Deflection (mm)	Weight (kg)	Colour	Level Bolt
230F00870	Spring Hanger	10	0.4	25	.70	Pink	M10
Associated RadiCube Part Numbers: 230F00801 | 230F00754 | 230F00758							
230F00783	Spring Hanger	25	1.0	25	.74	Yellow	M10
Associated RadiCube Part Numbers: 230F00756 | 230F00757 | 230F00760 | 230F00761 | 230F00803							
230F00784	Spring Hanger	50	2.0	25	.76	Red	M10
Associated RadiCube Part Numbers: 230F00763 | 230F00759 | 230F00776 | 230F00765							
230F00871	Floor Rubber Mount	60	N/A	6	.18	Black	M8
For all RadiCubes							

Accessories

Sensors and Data in the Cloud

How does Data in the Cloud work with the RadiCube?

Using ebm-papst's **IoT platform** solution to collect data from our RadiCube, surrounding sensors and even external devices and sources can enable the RadiCube to be controlled using Artificial Intelligence (AI). These AI algorithms can "learn" the most optimal way to operate the RadiCube within its installed environment, delivering optimal energy efficiency and air delivery performance.



RadiCube (Pro) | Sensors | IoT Gateway | IoT Platform

Our **IoT Platform** is an enterprise energy management solution suite. It is a user-friendly software that enables easy monitoring and control of the RadiCube (Pro).

Charts

Dashboard

List of Devices

Intuitive software for easy navigation and understanding

To enable the RadiCube (Pro) with Cloud connectivity, an **IoT gateway** is needed. The gateway connects sensors, controllers and devices to enable intelligent controls.

IoT Sensors

Indoor Air Quality (IAQ) Sensors: IAQ sensors can actively monitor IAQ indicators, which include CO, CO_2, O_2, temperature, humidity, TVOC, HCHO, PM2.5, PM10. The RadiCube (Pro) can be configured to respond in certain ways (e.g. increase in fan speed for improved ventilation) when pre-determined IAQ standards are not being met (e.g. CO_2 levels are too high).

Occupancy Sensors: Occupancy sensors can actively monitor the occupancy status of a specified area. The RadiCube (Pro) can be configured to activate when human activity is registered. Similarly, it can be configured to deactivate when the space is vacated. This will lead to more energy savings and therefore, a reduction in operation costs.

Constant Air Volume Sensor: This sensor maintains constant airflow within a specified space. This remains true even in situations such as clogged up filters. In applications where positive/negative air pressure needs to be maintained in an enclosed space, this sensor can be deployed to serve this purpose.

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