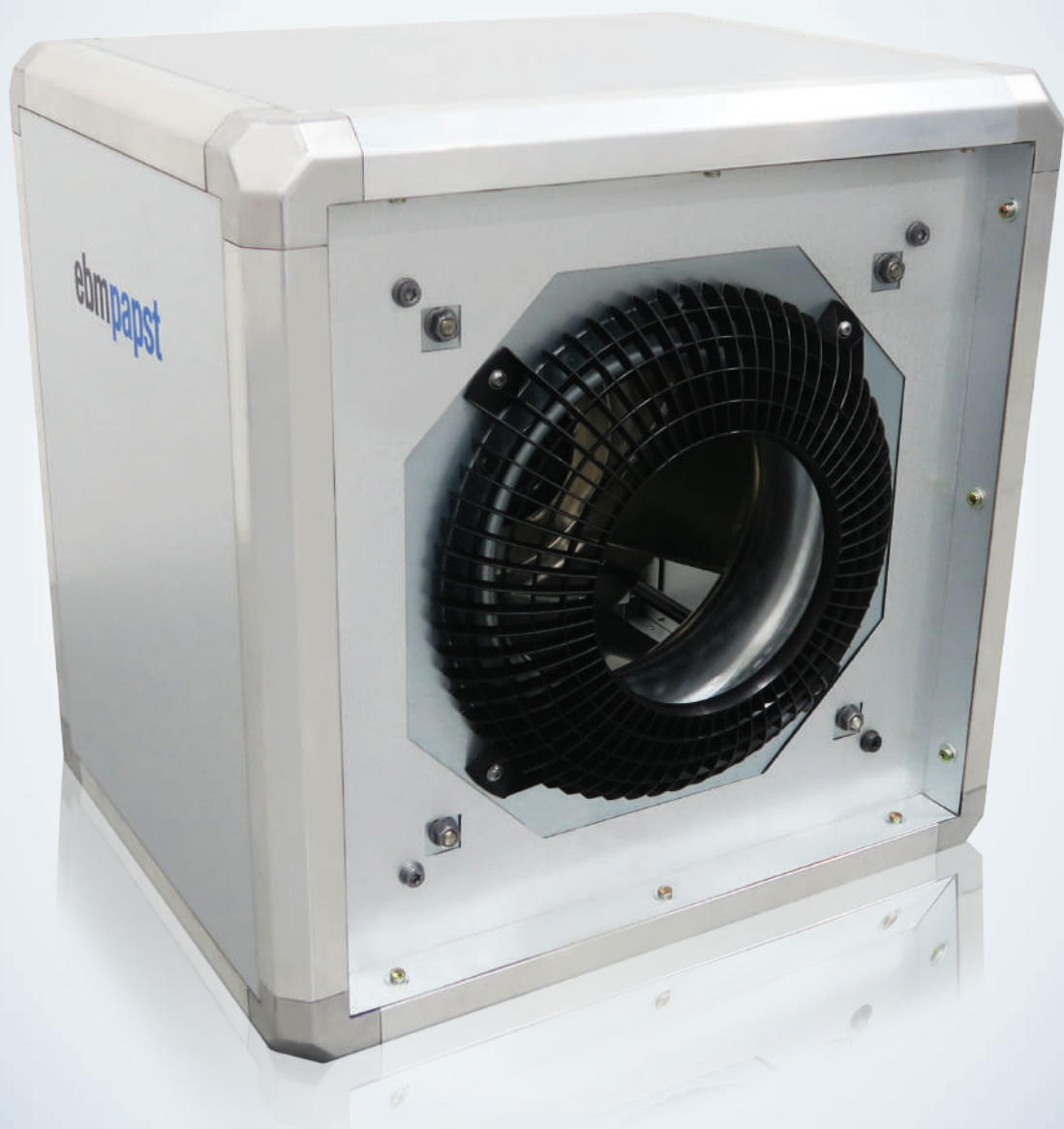


# RadiCube: *Smart EC Fan*

Powered by IoT technology and  
energy saving EC motors

**ebmpapst**

the engineer's choice



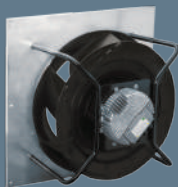
# RadiCube: Smart EC Fan

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 Radi-Cube is available in two versions: RadiCube and RadiCube Pro.



## RadiCube



- Flow Rates: Up to 19,500 m<sup>3</sup>/h
- Sizes: 280 – 630 mm
- Impellers: Backward Curved PP Plastic Impellers
- Speed Control: 0-10V

## RadiCube Pro



- Flow Rates: Up to 21,000 m<sup>3</sup>/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



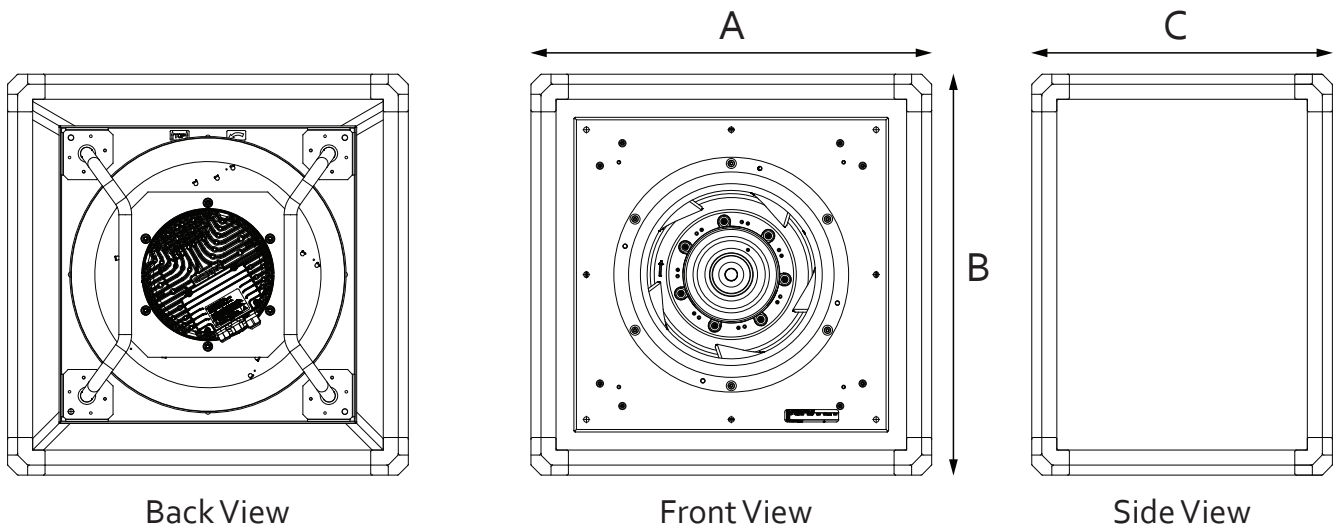
### Low Noise Emissions

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

# Dimensions

RadiCube & RadiCube Pro

## Dimensions



### RadiCube

Part Number	Radi-Cube	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 * 500
230F00757	RC500-SQ900RA	900 * 900 * 500
230F00759	RC630-SQ1100	1100 * 1100 * 500

Sizes are in mm

### RadiCube Pro

Part Number	Radi-Cube 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 * 500
230F00763	RC450-Pro-SQ800	800 * 800 * 800
230F00776	RC500-Pro-SQ800	800 * 800 * 800
230F00765	RC560-Pro-SQ1000	1000 * 1000 * 800

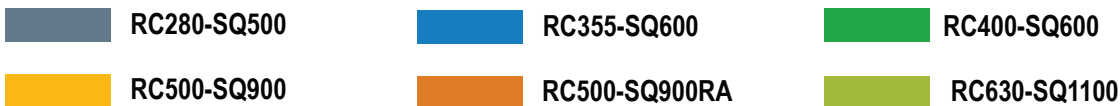
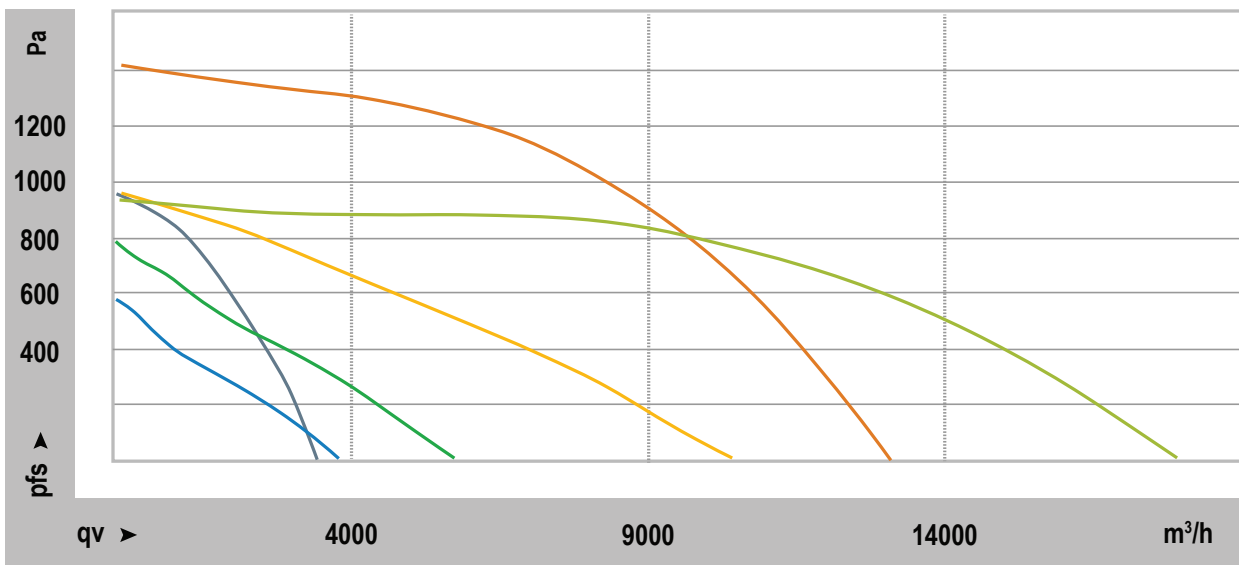
Sizes are in mm

# Performance Curves

## Radi-Cube

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

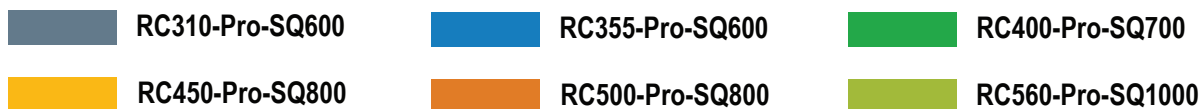
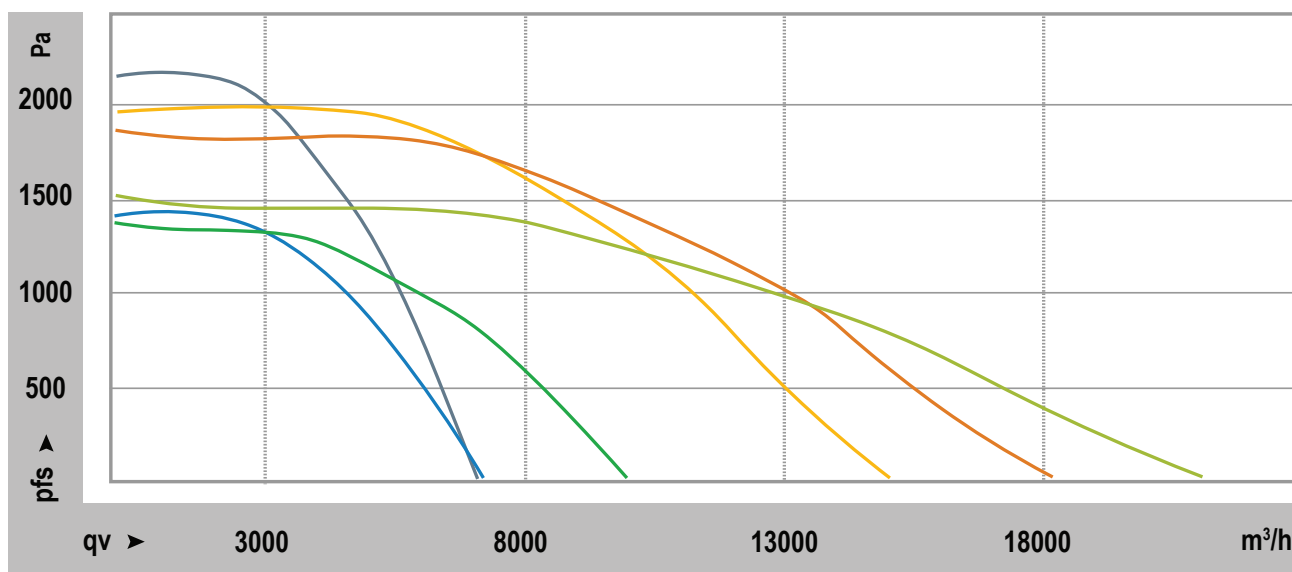
Material Type	No. Code	RC280-SQ500	RC355-SQ600	RC400-SQ600	RC500-SQ900	RC500-SQ900RA	RC630-SQ1100
$U_{N_{range}}$	V	1~ 200...277	1~ 200...277	1~ 200...277	3~ 380...480	3~ 380...480	3~ 380...480
$U_N$	V	230	230	230	400	400	400
$f$	Hz	50/60	50/60	50/60	50/60	50/60	50/60
$P_{ed}$	W	500	250	500	1320	3600	3600
$I$	A	2.20	1.10	2.20	2.10	5.50	5.50
$n$	rpm	2700	1450	1500	1350	1900	1400
$\eta_{es}$	%	60.9	58.7	60.4	58.3	61.3	60.9
$q_v$	m³/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



## Nominal Data

Material Type	No. Code	RC310-Pro-SQ600	RC355-Pro-SQ600	RC400-Pro-SQ700	RC450-Pro-SQ800	RC500-Pro-SQ800	RC560-Pro-SQ1000
$U_{N \text{ range}}$	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
$\eta_{es}$	%	62.6	64.4	65.9	66.5	66.5	67.5
$q_v$	m <sup>3</sup> /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), you may consider one or more of the following accessories:

### FlowGrid for Noise Reduction

Equipping our RadiCube (Pros) with 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. The potentiometer is available with and without housing.

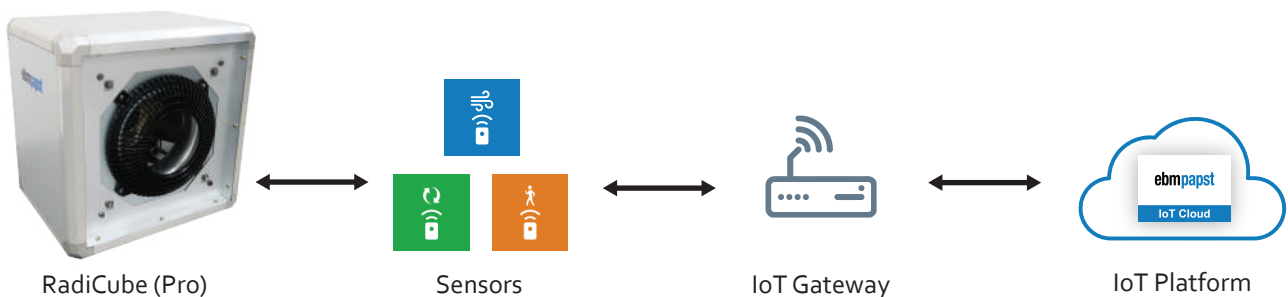


# Accessories

## 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.



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<sub>2</sub>, O<sub>2</sub>, 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<sub>2</sub> 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.

# ebmpapst

the engineer's choice

[www.ebmpapst.com.sg](http://www.ebmpapst.com.sg)

**ebm-papst SEA Pte. Ltd.**  
**Singapore (SEA Headquarters)**  
10 Changi South Street 2  
#01-01 / 02  
Singapore 486596  
Phone: +65 6551 3789  
Fax: +65 6842 8439  
sales@sg.ebmpapst.com  
marketing@sg.ebmpapst.com

**ebm-papst SEA Pte. Ltd.**  
**Malaysia - Kuala Lumpur**  
No.16-1, Jalan Putra Mahkota 7/5A  
Putra Heights, 47650 Subang Jaya  
Selangor Darul Ehsan, Malaysia  
Phone +603 5192 7688 / 9688  
Fax +603 5614 3078  
sales@my.ebmpapst.com  
marketing@sg.ebmpapst.com

**ebm-papst SEA Pte. Ltd.**  
**Malaysia - Penang**  
Block 31-8-03, Lebuhr Nipah 5, Bukit  
Jambul, 11900 Bayan Lepas, Pulau  
Pinang, Malaysia  
Phone +604 640 1380 / 1388  
Fax +604 640 1389  
sales@my.ebmpapst.com  
marketing@sg.ebmpapst.com

**ebm-papst SEA Pte. Ltd.**  
**Indonesia - Jakarta**  
Graha Telkomsigma 4th Floor Suite  
4470, Jl. Kapt. Subijanto Dj. - Bumi  
Serpong Damai Tangerang 15321  
Indonesia  
Phone +62-21 5376250-52  
Fax +62-21 5388305  
sales@id.ebmpapst.com  
marketing@sg.ebmpapst.com

**ebm-papst SEA Pte. Ltd. Philippines**  
**- Manila**  
Coherco Financial Tower  
Trade Street Corner Investment Drive  
Unit 1101 Madrigal Business Park  
Ayala Alabang, Muntlupa City  
Philippines  
Phone +63 2 804 2747 / 2757  
sales@ph.ebmpapst.com  
marketing@sg.ebmpapst.com

**ebm-papst SEA Pte. Ltd.**  
**Vietnam - Ho Chi Minh**  
Unit 512B, 5th Floor, Block B  
Charmington La Pointe, 181 Cao  
Thang Street, Ward 12, District 10,  
Ho Chi Minh City, Vietnam  
Phone +84 28 3929 0699 / 0670  
Fax +84 28 3929 0669  
sales@vn.ebmpapst.com  
marketing@sg.ebmpapst.com

**ebm-papst (Thailand) Co., Ltd**  
**Thailand - Bangkok**  
99/9 Moo 2, Central Chaengwattana  
Tower, 8th floor, Room 801-802  
Chaengwattana Road  
Bangtarad, Prakkret  
Nonthaburi 11120  
Phone +66 2 8353785-7  
Fax +66 2 8353788  
sales@th.ebmpapst.com  
marketing@sg.ebmpapst.com