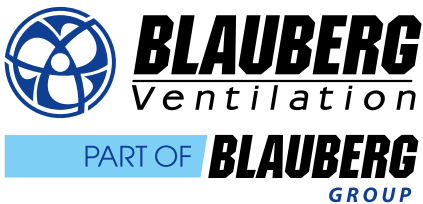


HOW INDOOR AIR QUALITY IMPACTS



**Student Health
and Academic Performance**

ABOUT THE COMPANY

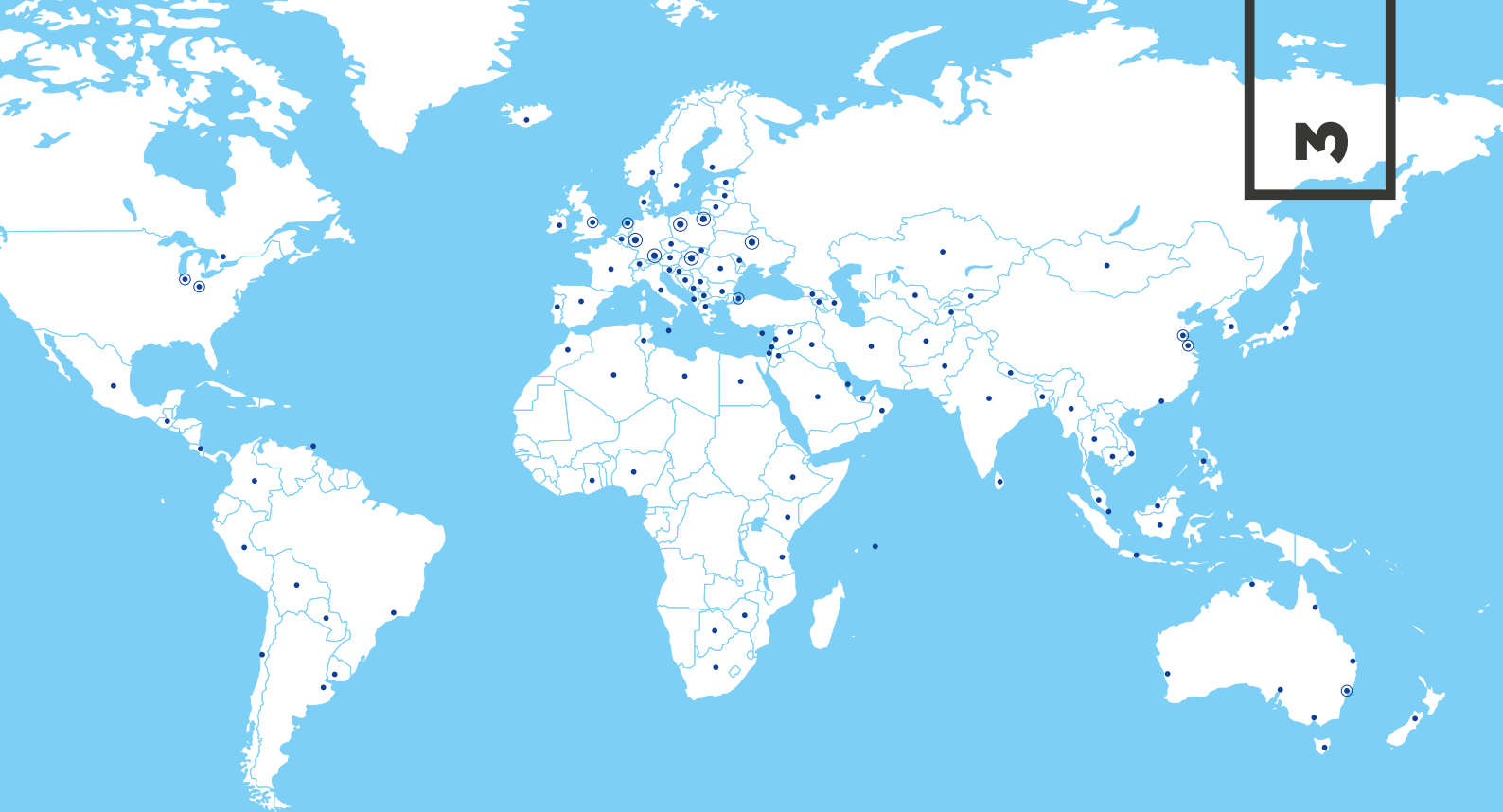


Blauberg Ventilation offers a wide scope of ventilation equipment which combines innovative technology, contemporary design and German quality.

The Company offers a wide range of domestic fans, ventilation units with heat recovery, industrial fans, and various accessories for creating ventilation systems.

OUR PHILOSOPHY

Our philosophy is to cultivate long-term client relations based on trust and reliability. We manufacture ventilation equipment to the highest German Standards, along with professional customer service and technical support.



100+

OVER 100 MILLION
FANS MADE BY US

123

COUNTRIES WHERE YOU
CAN BUY OUR PRODUCTS

3500

EMPLOYEES
WORLDWIDE

BLAUBERG
GROUP

Blauberg Ventilation is a part of the international group of companies Blauberg Group.

The Group headquarters as well as the R&D center and the quality control laboratory are located in Munich, Germany.

The Group is represented by a great number of offices and companies all over the world, ensuring timely supply and servicing.

Blauberg Group develops ventilation technology which complies with European and international standards and requirements specific to efficiency, reliability and safety.

Continuous improvement of the entire process flow, stringent product quality assurance at each production step, active implementation of innovative technology and consistent improvement of consumer appeal of the products were the key elements of the group's strategy of earning international recognition and making the Blauberg Group brands stand for uncompromising quality.



INTRODUCTION

Current classroom ventilation systems range from operable windows, to wall or ceiling mounted air conditioning, and include ducted HVAC systems. Unfortunately, most classrooms as presently designed and operated, do not provide adequate ventilation to minimise risks to student and teacher health.

“Many Victorian classrooms – the site for several recent outbreaks, have air quality that is 2^{1/2} times worse than recommended”¹

Current indoor air quality issues include COVID-19, high CO2 levels, presence of high moisture level and moulds, outdoor pollutants and exhaust fumes.

Ensuring ventilation in classrooms achieves 4 ACH to 6 ACH (air changes per hour), or is as close to that as is feasible, is one important way to minimise COVID-19

transmission indoors. AS 1668 indicates that the required ventilation to be designed into an active HVAC system for classrooms is 12L/second/person.

Equally important is understanding the pattern of flow within the space, with cross-ventilation providing the greatest removal efficiency of exhaled air.

A first step for any school is to ensure that the existing ventilation system is performing to these recommend requirements.



Single Opening



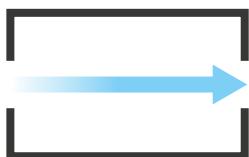
Two Opening - Same Wall



Two Opening - With Wings



Two Opening - Adjacent Walls



Two Opening - Opposite Walls

GOOD

BETTER

BEST

¹ Ventilation 'revolution' needed to speed up Australia's path out of lockdown, The Age, August 22, 2021.

Why do we care about Indoor Air Quality in schools?

Children's bodies more vulnerable to environmental hazards.

For their size, children breathe more air than adults.

Children's immune systems are still developing.

Children depend on adults for their health and safety.

A well implemented indoor air quality solution WILL result in energy cost savings and improved student, teacher performance.

Clearing the doubts

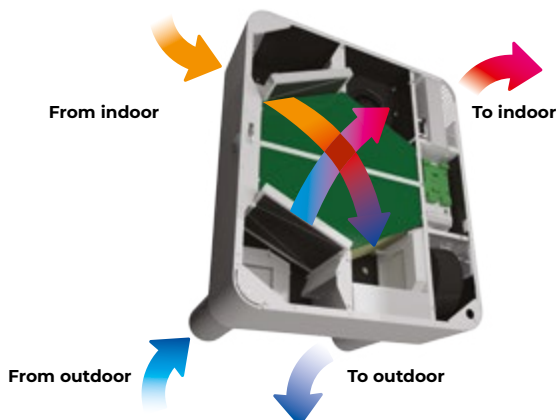
Don't rely on natural ventilation only - consider mechanical ventilation for good indoor air quality.

Mechanical ventilation is not same as air conditioning or indoor air filtration units.

Mechanical ventilation (with heat recovery) will improve indoor air quality by providing filtered fresh air, at temperature close to room temperature and without the mixing of exhaust air.

Adding Mechanical ventilation should not require any cooling system or electrical system upgrades.

Mechanical ventilation equipment would not need any major modification to the class room or building structure.



Improving Ventilation

There are 3 ways ventilation can be improved:

Natural - bringing in outside air by opening windows and doors.

Mechanical - using air conditioning/heating systems to bring outside air into the inside (air conditioning systems that do not bring in outside air are not mechanical ventilation).

Augmented - using air purifiers to filter the air.

What is Mechanical Ventilation with Heat Recovery?

Working Principles

The cold outdoor air passes through the filters and the heat exchanger and then is delivered to the serviced space by the EC supply centrifugal fan.

Warm polluted air from the premise flows through the filter and the heat exchanger and is exhausted outside with an EC extract centrifugal fan through an air duct in the wall.

The supply and exhaust air flows are fully separated which helps eliminate the possibility of odour or microbial transfer between the streams.

Heat Exchangers can be sensible type (only heat transfer) or enthalpy type (heat & moisture transfer).

Heat Exchanger Efficiency shall >85%.

Filter air - multiple level - optional carbon or HEPA11 filter (very high level of filtration possible).

Electrical heater can provide additional heating (pre or post supply air).

By-pass damper allows continuous supply of fresh air, without the heat recovery.



FRESH BOX

WALL MOUNTED UNIT



up to
28 l/s



from
20 W



from
13 dBA



FEATURES

Heat Exchanger upgradeable to enthalpy membrane for heat & humidity recovery.

Low-energy EC motors.

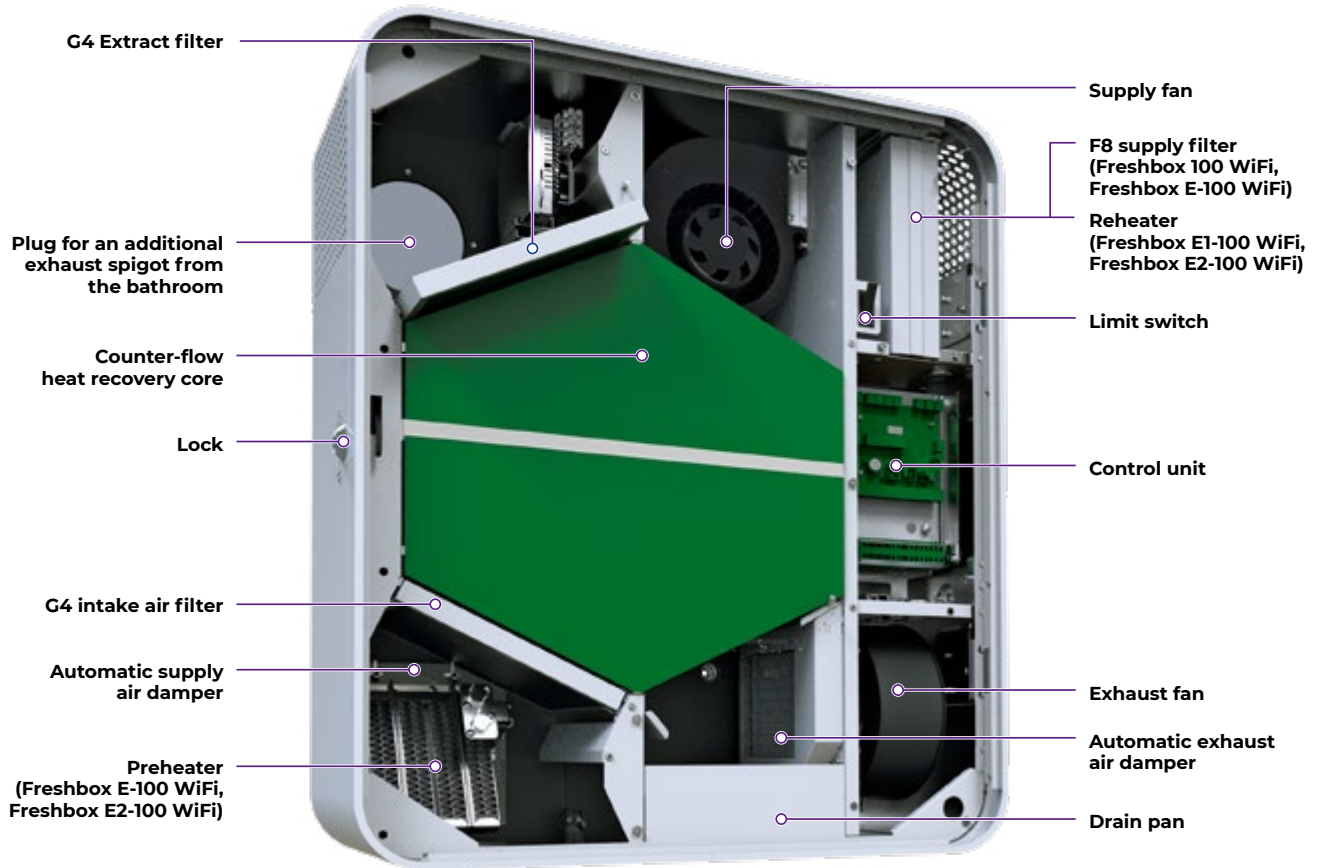
Silent operation.

Compact size.





Controlled by Android or iOS smartphone or tablet over Wi-Fi.



Design



Control

 <p>Remote control</p>	 <p>Download the Blauberg AHU app for Android</p>	 <p>Download the Blauberg AHU app for iOS</p>	
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CIVIC EC LB

FLOOR MOUNTED UNIT



up to
344 l/s



from
125 W



from
21 dBA



FEATURES

Heat exchanger upgradeable to enthalpy membrane for heat & humidity recovery - efficiency up to 96%.

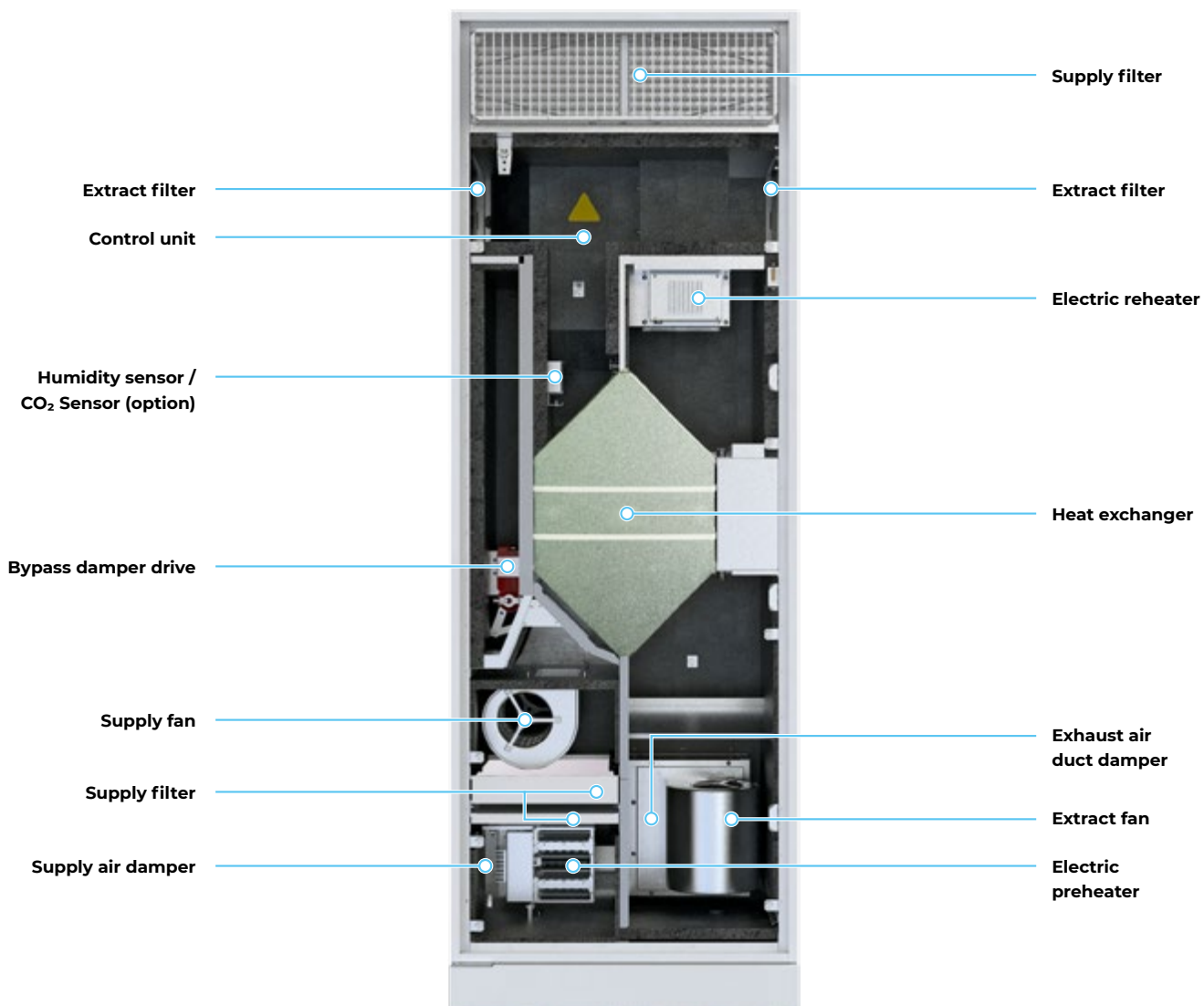
Low-energy EC motors.

BMS connectivity possible via MODBUS.

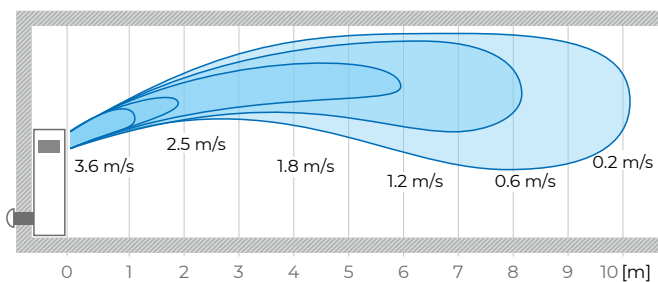
The unit can be controlled by the Blauberg AHU mobile application via Wi-Fi.



Design



Fresh air flow distance for CIVIC EC LB 1200



BMS connectivity possible via MODBUS.

The unit can be controlled by the Blauberg AHU mobile application via Wi-Fi.

Control

The control options for the Blauberg AHU are:

- S25 control panel (option)
- Download the Blauberg AHU app for Android
- Download the Blauberg AHU app for iOS

The Modbus logo is also present.

CIVIC EC DB

CEILING MOUNTED UNIT



up to
278 l/s



from
125 W



from
23 dBA



FEATURES

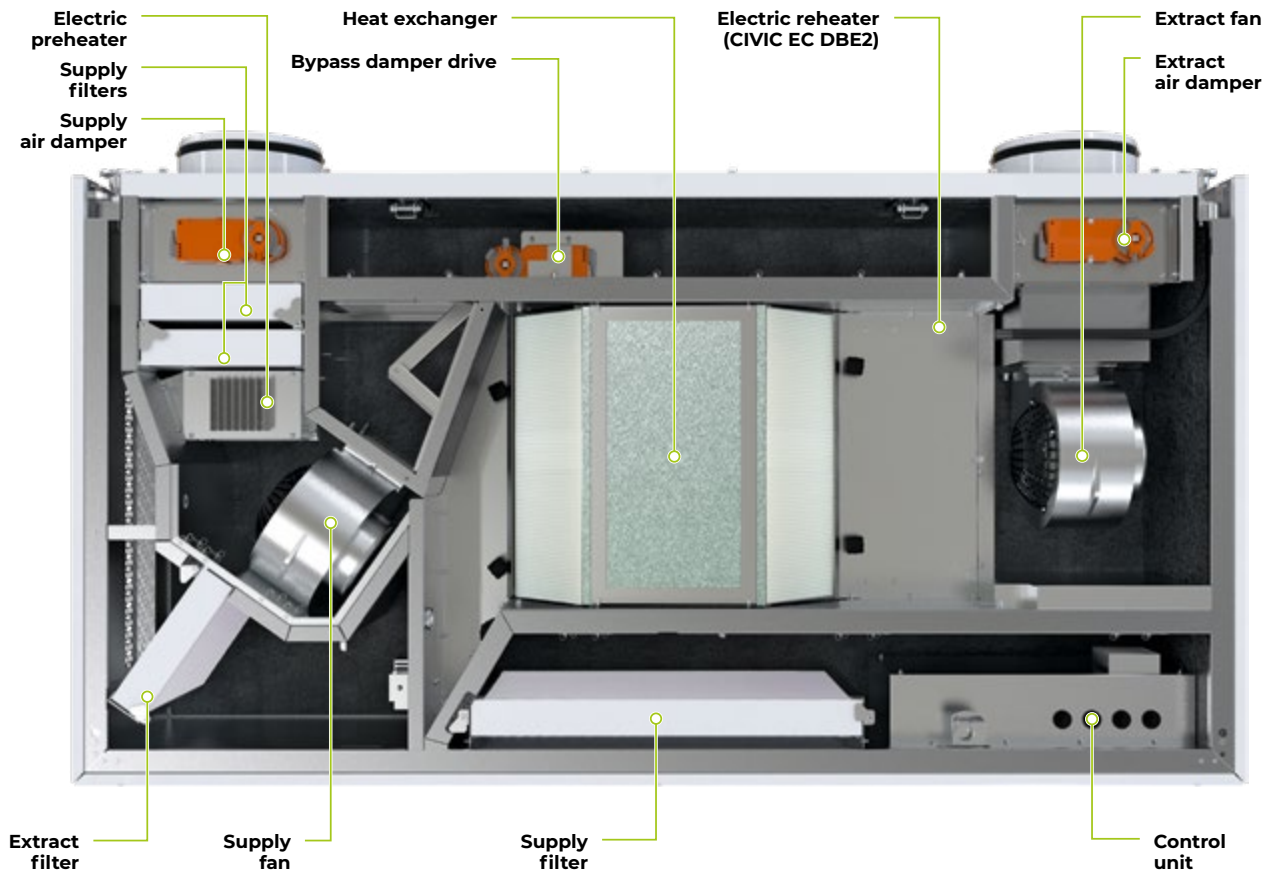
Heat exchanger upgradeable to enthalpy membrane for heat & humidity recovery - efficiency up to 96%.

Low-energy EC motors.

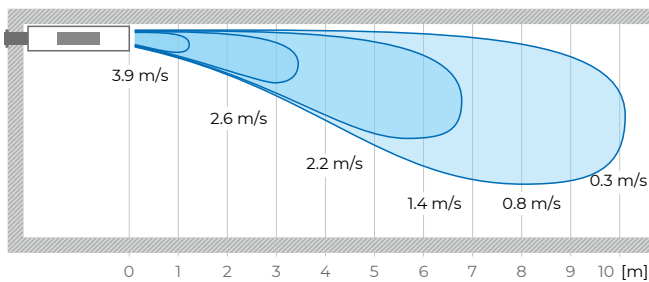
BMS connectivity possible via MODBUS.

The unit can be controlled by the Blauberg AHU mobile application via Wi-Fi.

Design



Fresh air flow distance for CIVIC EC DB 1000



Control

<p>S25 control panel (option)</p>	<p>Download the Blauberg AHU app for Android</p>	<p>Download the Blauberg AHU app for iOS</p>	



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