

# ApenGroup®



Industrial Heating and Conditioning

**ApenGroup®**

# QUEEN

AIR DESTRATIFIERS



CONTROLLER  
OPTIONAL



CONTROLLER  
OPTIONAL



ELECTRONIC  
DESTRATIFIER



NEW

SMART CONTROLS  
OPTIONAL



### THE QUEEN DESTRATIFIERS

The QUEEN destratifiers have been purposely designed to reduce air stratification and make the temperature of the environments in which they are installed homogeneous, exploiting the powerful air blow of the axial fans with which they are equipped.

The concept of destratification at the base of this product is simple: the hot air that tends to remain in the upper zones of the heated environments is sucked by the axial fan mounted on the destratifier and pushed downwards in the zones where people is present.

### DIRECT EFFECT INDUCTION EFFECT

The Queen destratifiers move a large quantity of air, both for a direct effect and for the effect of induction which (as verified by the laboratory tests) drags the air immediately adjacent to the directly treated air. This allows for very high efficiency and great speed in achieving environmental comfort. This action is added to those of the heating appliances by mixing the hot air they produce with the ambient air.

### SECTORS OF USE

- Logistics
- Depots and Warehouses
- Facilities
- Sheds
- Workshops with all types of processing
- Body shops
- Carpenter's workshops
- Shopping malls
- Public environments
- Gyms

### INNOVATIVE DESIGN

The QUEEN destratifier has an innovative shape and design: it is built with very light materials (ABS plastic) and has a particularly compact shape.

### POSITIONING VERSATILITY

The QUEEN destratifier's compact shape allows it to be installed very close to the ceiling of the target building (64 cm), solving problems often related to the passage of overhead cranes or other self-propelled structures inside some sheds.

### SIMPLE INSTALLATION

Its particularly small size and weight make it easy to move and position.

Installation is limited to fixing by means of practical coupling and support systems.

### HIGH-PERFORMANCE STRUCTURE

Compact and lightweight, the QUEEN has a solid construction and has no fan balancing issues as it uses a robust type of fan that requires little maintenance.

### BENEFITS IN SUMMER

- Reduction of relative humidity by more than 20%
- Reduction of the concentration of flue gas and odours by more than 50%
- Clear improvement of the microclimate

### BENEFITS IN WINTER

- Reduction of heat demand by more than 30%
- Reduction of relative humidity by more than 20%
- Elimination of condensation
- Reduced maintenance for plants and facilities

# QUEEN DESTRATIFIERS

## TECHNICAL FEATURES

- ABS supporting structure and diffuser
- Fin geometry with high diffusion efficiency
- Treated air from 7,500 m<sup>3</sup>/h to 10,050 m<sup>3</sup>/h
- Range of operation 70-380 m<sup>2</sup>
- Absorbed power 130 W / 230 W
- 230 V single-phase supply voltage
- IP54 Protection degree
- Axial fan
- Possibility of adjusting the ventilation speed

## VARIABLE SPEED DRIVE

In case there is the need to adjust the rotation speed of the fans, and consequently reduce the air speed on the ground, two 5-position speed drives are available as accessories on request:

A drive that can control up to 2 Q450s or up to 4 Q350s simultaneously;

A drive that can control up to 5 Q450s or up to 10 Q350s simultaneously.

## ACCESSORIES UPON REQUEST

- Variable speed drive
- Temperature regulator

Both drives have a summer/O/winter adjustment button (winter in the case of regulating operation with the accessory thermostat).



## AUTOMATIC/ENERGY SAVING

It is important to emphasise that the new QUEEN destratifiers provide the possibility of the combination of an accessory thermostat that allows to set the automatic operation of the destratifier(s) installed in a room.

This accessory kit allows to automate the operation of the destratifier and to regulate its operation only when the environment needs it, thus allowing the reduction of consumption.

The destratifiers start automatically once the operation of the heating system results in a  $\Delta T$  between the temperature measured at the height of the destratifier installation and the ambient temperature (therefore only when there is a real need to destratify).

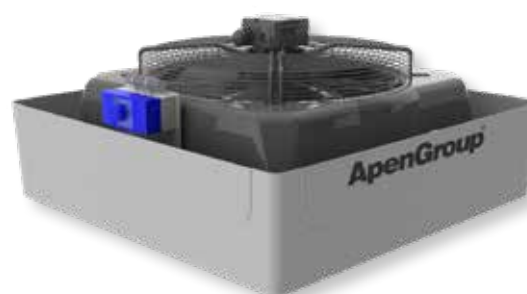


## SIMPLICITY AND EFFICIENCY

Among the most important data we want to highlight:

- The single-phase power supply, with consequent ease in setting up the electrical system
- The reduced power consumption
- The installation height allowing the passage of overhead cranes or other self-propelled structures

This type of operation, together with the rapidity in reaching comfort described above, allows to significantly reduce the electrical consumption of the destratification system. This is because the actual hours of operation of the electric fans will be automatically controlled and will be much lower than the hours of use of the heating system.



# QUEEN-EC ELECTRONIC DESTRATIFIERS

## TECHNICAL FEATURES

- ABS supporting structure and diffuser
- Fin geometry with high diffusion efficiency
- Treated air from 8,650 m<sup>3</sup>/h to 11,550 m<sup>3</sup>/h
- Range of operation 70-380 m<sup>2</sup>
- Absorbed power 130 W / 230 W
- 230 V single-phase supply voltage
- IP54 Protection degree
- Electronic axial fans with integrated inverter
- Possibility of adjusting the ventilation speed
- Switch-on, switch-off and air flow rate regulation with 0-10 Vdc signal

## ACCESSORIES UPON REQUEST



KIT G24500:

- SmartWeb
- CPU electronic board
- Immersion probe to be connected to CPU
- Room probe
- Control panel

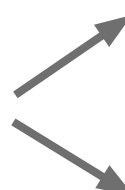
## POSSIBLE CONFIGURATIONS



**QUEEN-EC  
DESTRATIFIER**



**STAND  
ALONE**



**CONTROLLABLE WITH  
0-10 VOLT SIGNAL**

**KIT G03780  
POTENTIOMETER  
MANUAL REMOTE CONTROL**



**QUEEN-EC  
DESTRATIFIER**



**G24500 KIT COMPOSED BY:**

- SmartWeb
- CPU electronic board
- Immersion probe to be connected to CPU
- Room probe
- Control panel



**SMARTWEB**



**QUEEN-EC  
DESTRATIFIER**



**CONTROL  
PANEL  
G24200**

- CPU electronic board
- Room probe



**AKN BOILER**



**KONDENSA LK**



**SMARTWEB  
OR SMARTEASY**

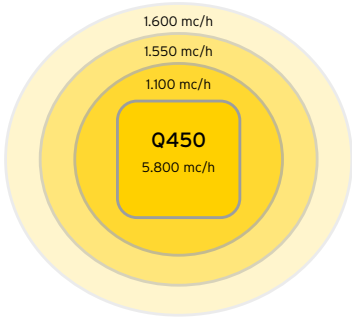


**SMARTWEB  
OR SMARTEASY**

# DESTRATIFICATION



TREATED AIR

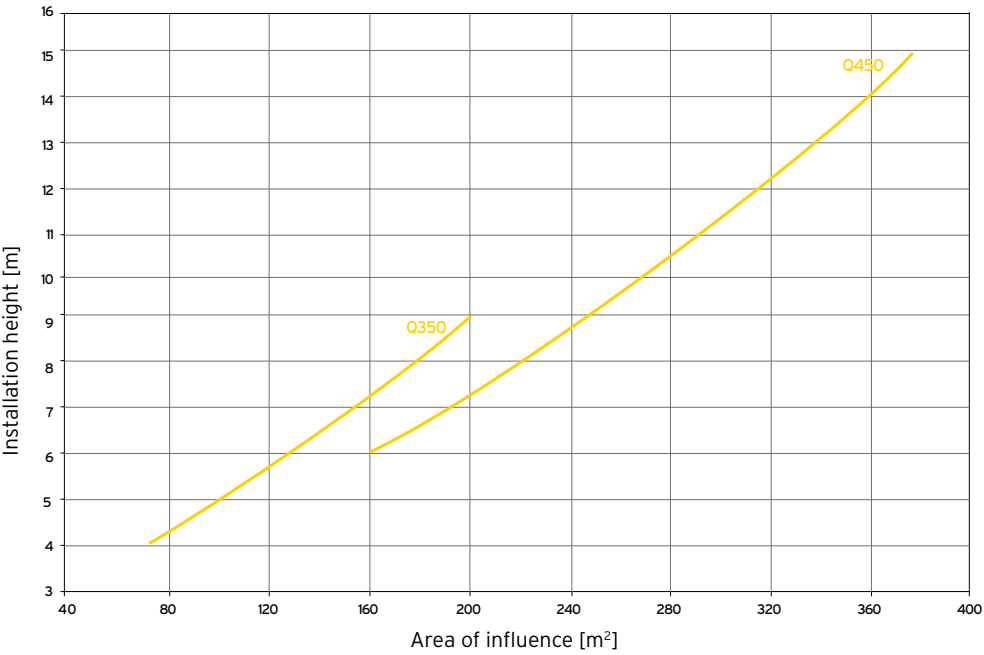


|                   |              |
|-------------------|--------------|
| Fan flow rate     | 3,800 cu.m/h |
| Induced flow rate | 3,700 cu.m/h |
| Total flow rate   | 7,500 cu.m/h |

|                   |               |
|-------------------|---------------|
| Fan flow rate     | 5,800 cu.m/h  |
| Induced flow rate | 4,250 cu.m/h  |
| Total flow rate   | 10,050 cu.m/h |

## HIGH INDUCTION DIFFUSER

The downward diffusion of the hot air is “guided” by the inclined blades of the distributor mounted on the QUEEN destratifier; the complex geometry of these inclined blades has been studied and verified in order to have the best air blow in terms of area of influence as well as speed of the air perceived on the ground. The following graph shows the indications of the area of influence depending on the installation height of the two models of the QUEEN destratifier.



## QUEEN / TECHNICAL DATA

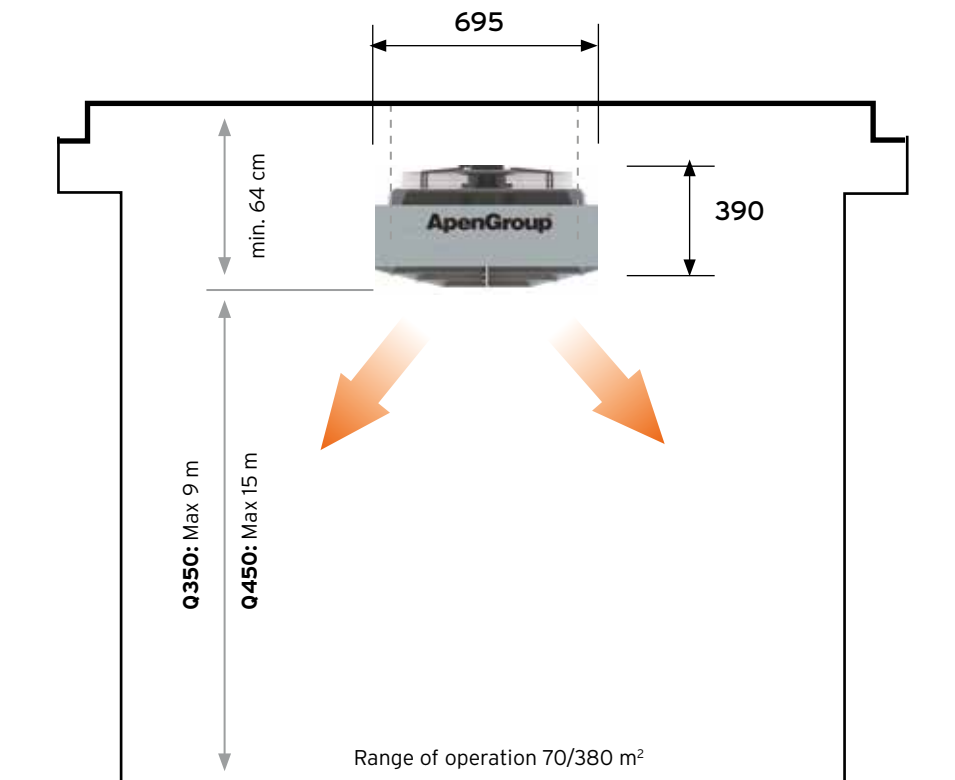
| Model                                     |                    | Q350             | Q450             | Q350EC           | Q450EC           |
|-------------------------------------------|--------------------|------------------|------------------|------------------|------------------|
| Fan type                                  |                    | Axial            |                  | Electronic axial |                  |
| Casing and diffuser                       |                    | ABS              | ABS              | ABS              | ABS              |
| Treated air flow rate                     | m <sup>3</sup> /h  | 7,500            | 10,050           | 8,650            | 11,550           |
| Fan air flow rate                         | m <sup>3</sup> /h] | 3,800            | 5,800            | 2,645            | 6,028            |
| Sound power                               | dB(A)              | 65               | 71               | 65               | 71               |
| Sound pressure                            | dB(A)              | 43 (at 5 metres) | 45 (at 8 metres) | 43 (at 5 metres) | 45 (at 8 metres) |
| Range of operation                        | m <sup>2</sup>     | 70-200           | 150-380          | 70-200           | 150-380          |
| Installation height                       | m (min-max)        | 4-9              | 6-15             | 4-9              | 6-15             |
| No. of fans and blade diameter            |                    | 1x350            | 1x450            | 1x350            | 1x450            |
| Working temperature                       | min-max            | -15°C,+50°C      | -15°C,+50°C      | -15°C,+50°C      | -15°C, +50°C     |
| Maximum room height                       | m                  | 18               | 18               | 18               | 18               |
| Rated power                               | W                  | 135              | 230              | 110              | 300              |
| Frequency                                 | Hz                 | 50               | 50               | 50               | 50               |
| Inrush current/max speed absorbed current | A                  | 0.65/1.5         | 1.6/2.4          | 0.95             | 2.05             |
| Motor revolutions                         | rpm                | 1340             | 1320             | 1350             | 1320             |
| Supply voltage                            | V                  | 230              | 230              | 230              | 230              |
| Protection Rating                         |                    | IP54             | IP54             | IP54             | IP54             |
| Weight                                    | kg                 | 14               | 15               | 17               | 17               |

## DIMENSIONS AND INSTALLATION HEIGHT

### INSTALLATION HEIGHT

The Q350 model is suitable for maximum installation heights of 9 metres with a capacity of 7,500 m<sup>3</sup>/h.

The Q450IT model, on the other hand, is suitable for heights up to 15 metres, with a maximum treated air flow rate of 10,050 m<sup>3</sup>/h.





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