# **QUIETSCROLL** TWIN FAN RANGE

MOST COMPREHENSIVE RANGE OF TWIN FANS WITH INTEGRAL ENERGY-SAVING CONTROLS

ErP COMPLIANT 2018

UK MADE

ecosmart classic

NUAIRE. FOR THE COMPLETE VENTILATION SOLUTION

# QUIETSCROLL TWIN FAN RANGE

ecosmart classic

ErP COMPLIANT 2018

Quiet, high duty with integral energy-saving and controls from the innovator of twin fans.

### SUPPLY AND EXTRACT

A Nuaire supply unit can be interlinked with a twin fan to provide a cost-effective controllable solution for your system requirments – both fans responding to single or multiple sensors/controls.

### PURE DEMAND VENTILATION

Only ventilates the room when required - maximum energy savings possible achieved.

### HEALTHY ATMOSPHERE

Ecosmart has a "trickle function" as standard which when activated enables you to set a background ventilation rate, keeping the rooms fresh whilst still saving energy.

### EASY MAINTENANCE

Removable top or bottom panels for easy access.

### SIMPLE TO INSTALL AND COMMISSION

All controls pre-assembled and installed – site time kept to a minimum. Integrated simple-to-adjust speed control – no need for main balancing damper which can waste energy and generate noise.

Note: The control box on sizes EST 1-9 can be moved to the opposite side of the Twin Fan.

### IMPROVED LIFECYCLE

Auto duty share every 12 hours ensuring maximum life from fans.

### PLUG-IN CONTROLS

All sensors and controls (a maximum of 32) are complete with 10m lengths of low voltage pre- plugged cable, (extra lengths available). You decide which conditions to monitor and the system will operate at the optimum speed for that condition.

### INTEGRATED SILENCER

The unique integrated silencer (direct drive models) means that your in-duct acoustic requirements may be reduced and subsequently save you space on site. Contact Nuaire for details.

### NO SYSTEM OVERLOADS

Ecosmart is pre-programmed with a soft-start function which prevents electrical overloading and minimises mechanical wear.

### BMS INTERFACE

Integrated BMS features enable any central system to monitor the fan/air handling unit.

### WARRANTY

Ecosmart Quietscroll twin fans have a 5 year warranty.

### ANCILLARIES

A wide range of ancillaries are available.

### CONSTANT PRESSURE RANGE

Constant pressure range available on all models.

### CODE DESCRIPTIONS

**EST 19B - X**

1 2 3 4

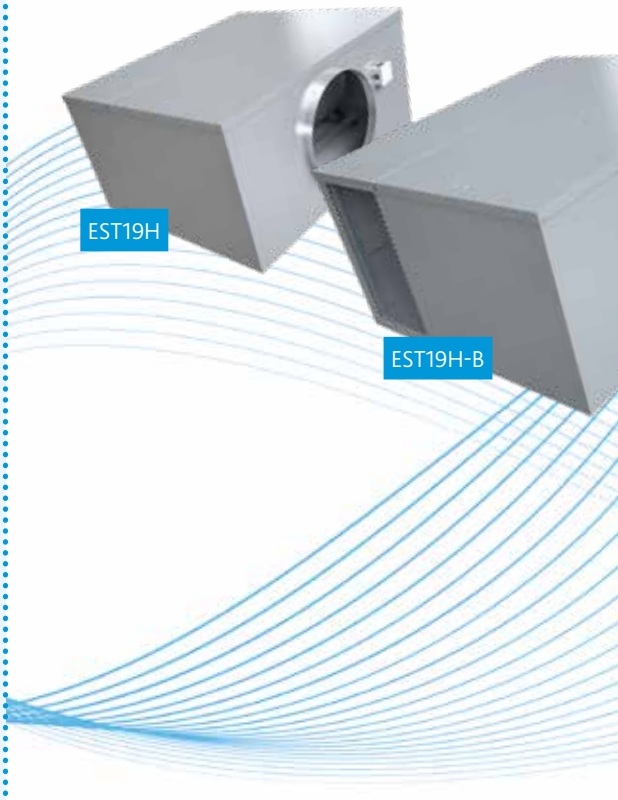
1 Quietscroll Twin range.

2 Case sizes 19 to 20.

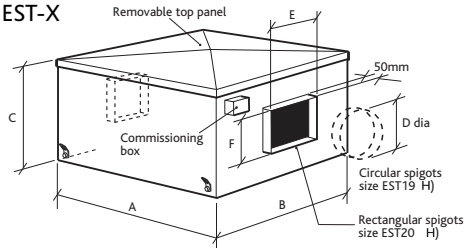
3 A,B,C & D refer to motor & pulley combination (Case size 20 only).

4 No suffix = Internal in-line unit
- X = External in-line unit.
- R = black, inlet, grille outlet external roof mounted unit.
- B = bottom inlet, grille outlet external roof mounted unit.

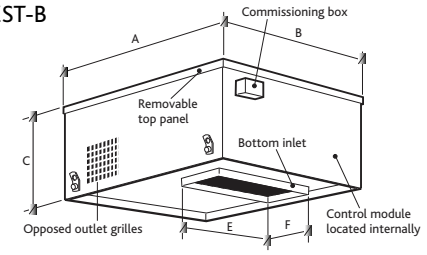
**PLEASE NOTE:** EST19 units are direct drive, EST20 units are belt drive.



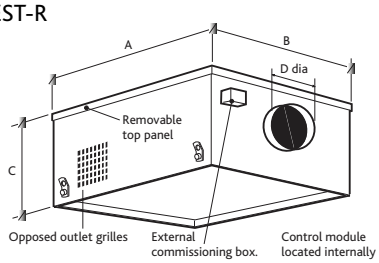
EST-X



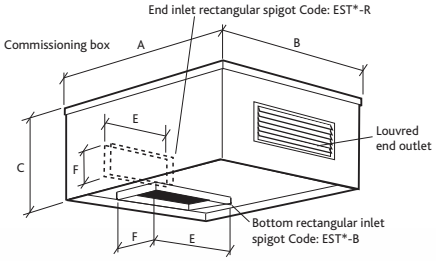

EST-B




EST-R




EST-B/R larger units * larger units have end discharge

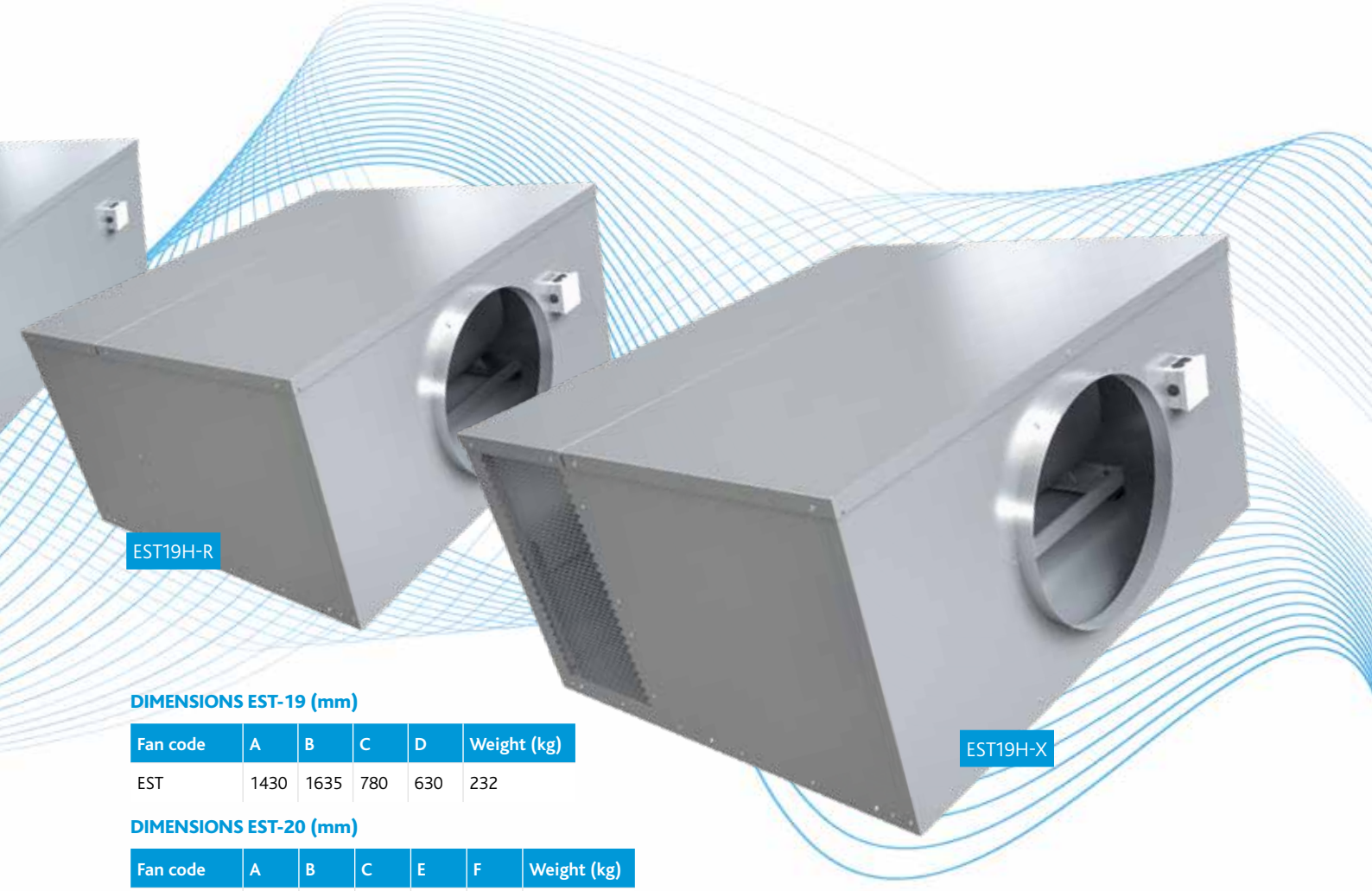



**NOTE**

**All Twin Fans incorporate Ecosmart Controls as standard.**

**Comprising:**

- Auto changeover
- Auto duty share
- Integral control BMS interfaces
- Trickle and boost facility
- Easy commissioning adjustment
- External control parts
- Run and fail volt free contacts
- Speed control




## DIMENSIONS EST-19 (mm)

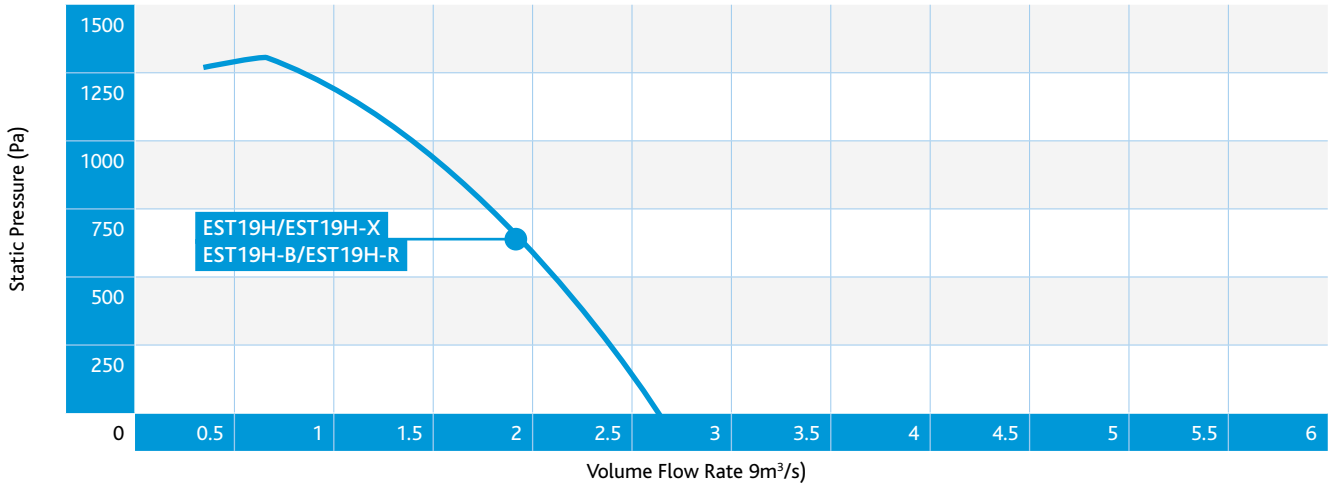
| Fan code | A | B | C | D | Weight (kg) |
|---|---|---|---|---|---|
| EST | 1430 | 1635 | 780 | 630 | 232 |

## DIMENSIONS EST-20 (mm)

| Fan code | A | B | C | E | F | Weight (kg) |
|---|---|---|---|---|---|---|
| EST | 2030 | 2313 | 1183 | 1200 | 700 | 697 |

A range of silencers are available for these units. Please refer to Fan Selector for more details.

## **ACOUSTIC** DATA



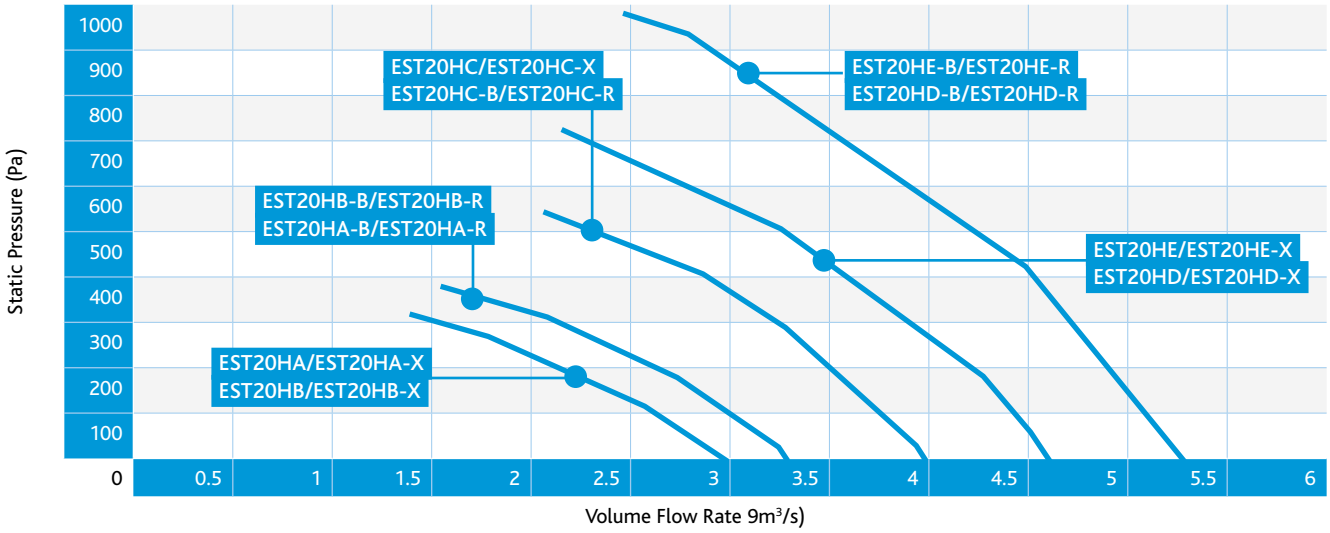

### EST19H/EST19H-X

| Fan Speed | Phase | RPM | Motor Power | FLC | SC | Sound Power Levels | Sound Power Levels re 1 pWatts (Hz) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (kW) | (amps) | (amps) | (dB re 1pW) | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | dBA@3m | Max duty (m³/s) |
| 100% | 3 | 2600 | 3.2 | 5.2 | 5.2 | Induct Inlet | 94 | 89 | 92 | 88 | 86 | 85 | 79 | 75 | 68 | 2.6 |
| | | | | | | Induct Outlet | 96 | 92 | 96 | 93 | 93 | 89 | 82 | 76 | | |
| | | | | | | Breakout | 83 | 76 | 89 | 83 | 83 | 77 | 68 | 60 | | |

### EST19H-B/EST19H-R

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100% | 3 | 2600 | 3.182 | 5.2 | 5.2 | Induct Inlet | 94 | 89 | 92 | 88 | 86 | 85 | 79 | 75 | 74 | 2.6 |
| | | | | | | Induct Outlet | 87 | 88 | 94 | 92 | 92 | 89 | 82 | 76 | | |
| | | | | | | Breakout | 94 | 89 | 92 | 88 | 86 | 85 | 79 | 75 | | |

## ACOUSTIC DATA




### EST20HC/EST20HC-X

| Fan Speed | Phase | RPM | Motor Power | FLC | SC | Sound Power Levels | Sound Power Levels re 1 pWatts (Hz) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (kW) | (amps) | (amps) | (dB re 1pW) | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | dBA@3m | Max duty (m³/s) |
| 100% | 3 | 1200 | 2 | 10 | 10 | Induct Inlet | 85 | 83 | 83 | 84 | 78 | 76 | 71 | 66 | 61 | 4 |
| | | | | | | Induct Outlet | 97 | 90 | 88 | 85 | 83 | 79 | 73 | 68 | | |
| | | | | | | Breakout | 87 | 74 | 83 | 77 | 73 | 67 | 58 | 52 | | |

### EST20HC-B/EST20HC-R

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100% | 3 | 1200 | 2 | 10 | 10 | Induct Inlet | 85 | 83 | 83 | 84 | 78 | 76 | 71 | 66 | 70 | 4 |
| | | | | | | Induct Outlet | 91 | 86 | 87 | 85 | 83 | 79 | 73 | 68 | | |
| | | | | | | Breakout | 91 | 86 | 87 | 85 | 83 | 79 | 73 | 68 | | |

# **ACOUSTIC** DATA

### EST20HA/EST20HA-X

| Fan Speed | Phase | RPM | Motor Power | FLC | SC | Sound Power Levels | Sound Power Levels re 1 pWatts (Hz) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (kW) | (amps) | (amps) | (dB re 1pW) | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | dBA@3m | Max duty ($m^3/s$) |
| 100% | 3 | 900 | 0.8 | 6.9 | 6.9 | Induct Inlet | 77 | 75 | 75 | 76 | 70 | 68 | 63 | 58 | 53 | 3 |
| | | | | | | Induct Outlet | 89 | 82 | 80 | 77 | 75 | 71 | 65 | 60 | | |
| | | | | | | Breakout | 79 | 66 | 75 | 69 | 65 | 59 | 50 | 44 | | |

### EST20HA-B/EST20HA-R

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100% | 3 | 900 | 0.8 | 6.9 | 6.9 | Induct Inlet | 77 | 75 | 75 | 76 | 70 | 68 | 63 | 58 | 62 | 3 |
| | | | | | | Induct Outlet | 83 | 78 | 79 | 77 | 75 | 71 | 65 | 60 | | |
| | | | | | | Breakout | 83 | 78 | 79 | 77 | 75 | 71 | 65 | 60 | | |

### EST20HE/EST20HE-X

| Fan Speed | Phase | RPM | Motor Power | FLC | SC | Sound Power Levels | Sound Power Levels re 1 pWatts (Hz) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (kW) | (amps) | (amps) | (dB re 1pW) | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | dBA@3m | Max duty ($m^3/s$) |
| 100% | 3 | 1600 | 5 | 16 | 16 | Induct Inlet | 92 | 90 | 90 | 91 | 85 | 83 | 78 | 73 | 68 | 5.3 |
| | | | | | | Induct Outlet | 104 | 97 | 95 | 92 | 90 | 86 | 80 | 75 | | |
| | | | | | | Breakout | 94 | 81 | 90 | 84 | 80 | 74 | 65 | 59 | | |

### EST20HE-B/EST20HE-R

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100% | 3 | 1600 | 5 | 16 | 16 | Induct Inlet | 92 | 90 | 90 | 91 | 85 | 83 | 78 | 73 | 77 | 5.3 |
| | | | | | | Induct Outlet | 98 | 93 | 94 | 92 | 90 | 86 | 80 | 75 | | |
| | | | | | | Breakout | 98 | 93 | 94 | 92 | 90 | 86 | 80 | 75 | | |

# ACOUSTIC DATA

### EST20HB/EST20HB-X

| Fan Speed | Phase | RPM | Motor Power | FLC | SC | Sound Power Levels | Sound Power Levels re 1 pWatts (Hz) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (kW) | (amps) | (amps) | (dB re 1pW) | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | dBA@3m | Max duty ($m^3/s$) |
| 100% | 3 | 1000 | 1.3 | 10 | 10 | Induct Inlet | 80 | 78 | 78 | 79 | 73 | 71 | 66 | 61 | 56 | 3.3 |
| | | | | | | Induct Outlet | 92 | 85 | 83 | 80 | 78 | 74 | 68 | 63 | | |
| | | | | | | Breakout | 82 | 69 | 69 | 72 | 68 | 62 | 53 | 47 | | |

### EST20HB-B/EST20HB-R

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100% | 3 | 1000 | 1.3 | 10 | 10 | Induct Inlet | 80 | 78 | 78 | 79 | 73 | 71 | 66 | 61 | 65 | 3.3 |
| | | | | | | Induct Outlet | 86 | 81 | 82 | 80 | 78 | 74 | 68 | 63 | | |
| | | | | | | Breakout | 86 | 81 | 82 | 80 | 78 | 74 | 68 | 63 | | |

### EST20HD/EST20HD-X

| Fan Speed | Phase | RPM | Motor Power | FLC | SC | Sound Power Levels | Sound Power Levels re 1 pWatts (Hz) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (kW) | (amps) | (amps) | (dB re 1pW) | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | dBA@3m | Max duty ($m^3/s$) |
| 100% | 3 | 1400 | 3.4 | 16 | 16 | Induct Inlet | 88 | 86 | 86 | 87 | 81 | 79 | 74 | 69 | 64 | 4.6 |
| | | | | | | Induct Outlet | 100 | 93 | 91 | 88 | 86 | 82 | 76 | 71 | | |
| | | | | | | Breakout | 90 | 77 | 86 | 80 | 76 | 70 | 61 | 55 | | |

### EST20HD-B/EST20HD-R

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100% | 3 | 1400 | 3.4 | 16 | 16 | Induct Inlet | 88 | 86 | 86 | 87 | 81 | 79 | 74 | 69 | 73 | 4.6 |
| | | | | | | Induct Outlet | 94 | 89 | 90 | 88 | 86 | 82 | 76 | 71 | | |
| | | | | | | Breakout | 94 | 89 | 90 | 88 | 86 | 82 | 76 | 71 | | |

## ECOSMART CLASSIC CONTROL (ES) SENSORS & ENABLERS

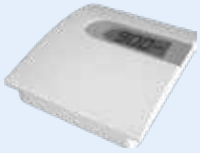
All Ecosmart Classic Systems must include at least one enabler.
(N.B. when used, BMS control and time clocks take over all other enablers).

### ES-PIR2 (ENABLER)
Detects movement and activates system. Incorporates a system status LED, overrun timer and timer adjustment.

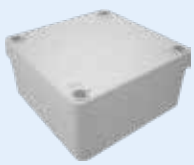
### ES-THERMOSTAT2 (ENABLER)
Activates the system when the temperature is above set point. Incorporates two system status LEDs. (Green = OK, Red = Failure) and temperature set point level adjustment.

### ES-AVI2 (ENABLER)
When fan failure occurs the AVI will flash a warning. Supplied with pre-plugged 10m length of communication cable.

### ES-HUMIDISTAT2 (ENABLER)
Activates the system when the RH level is above set point. Incorporates two system status LEDs. (Green = OK, Red = Failure) and RH set point level adjustment.



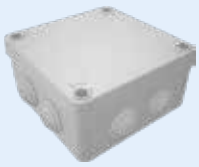
### ES-CO2RM / ES-CO2RMPP (SENSOR)
Surface mounted room carbon dioxide (CO2) sensors incorporate a temperature sensor. RM = SELV option, RMPP complete with SELV AC powers supply.



### ES-HTCSIG (ENABLER)
Signal conditioning circuit for humidity, temperature and $CO_2$ sensors.

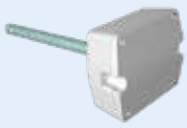
### ES-TEMP2 TEMPERATURE (SENSOR)
Modulate fan speed based on room temperature. Incorporates two system status LEDs. (Green = OK, Red = Failure) and temperature set point level adjustment.

### ES-RH2 RELATIVE HUMIDITY (SENSOR)
Modulate fan speed based on RH level. Incorporates two system status LEDs. (Green = OK, Red = Failure) and RH set point level adjustment.



### ES-CI SEMI-AUTOMATIC USER CONTROL
Fan, heating & cooling selected by external volt free switch, speed selected by 0-10V signal.

### ES-JB JUNCTION BOX
Designed to be compatible with Ecosmart System, this unit is supplied with a preplugged 10 metre length of communications cable and has 8 further ports.



### ES-CO2 (SENSOR)
Duct mounted sensor to modulate fan speed based on CO2 levels. Connect to fan directly. Pre-wired with 2m cable (not adjustable).

### SWITCHED LIVE (BY OTHERS)
Any mains voltage signal connected to the switched live terminal (S/L) in the unit. This affects the connected fan only.

### TOUCH SCREENS & MANUAL USER CONTROLS

### ES-LCD (ENABLER)
Touch screen user control in white incorporating time clock facility. This can control the function of the fan by manual setting or using a set of timed programs.

### ES-UCF
Manual 'on' and 'off' system user/speed control. Incorporates two system status LEDs (Green = OK, Red = Failure).

## **QUIETSCROLL** ANCILLARIES

### MOTORISED DAMPER

Circular Damper 630mm dia drive open/drive close 230V~50Hz with end switches.

### MATCHED SILENCER

Silencers have mineral wool packed to a density greater than 45kg/m$^3$. The mineral wool is inert, non-combustible and vermin proof for long life and safety. Casing is manufactured from 'Solissime' coated galvanised steel, and designed for fixing directly to the fan outlet. Fan spigot used on open end of matched silencer.

### CIRCULAR FLEXIBLE CONNECTOR

Flexible material is flame resistant to BS476 part 7 with galvanised steel spigots. Heat resistant to 132°C with excellent resistance to chemicals, oil and grease. Connector is airtight and waterproof.

### PREFABRICATED CURB

Manufactured in aluminium alloy these curbs will reduce design work and guarantee correct unit mounting when on site. Note: Upper faces of curb are fitted with robust sealing strip.

## **QUICK SELECTION** GUIDE

**EST19H**

| | |
|---|---|
| CA63S | Short, Circular Silencer |
| CA63SP | Short, Circular, Podded Silencer |
| CA63L | Long, Circular Silencer |
| CA63LP | Long, Circular, Podded Silencer |
| CFC63 | Circular Flexible Connector |
| ESCD630 | Circular Motorised Damper |

**EST20H**

| | |
|---|---|
| CA100S | Short, Circular Silencer |
| CA100P | Short, Circular, Podded Silencer |
| CA100L | Long, Circular Silencer |
| CA100LP | Long, Circular, Podded Silencer |
| FXRC11 | Rectangular Flexible Connector |

# **CONSULTANT** SPECIFICATION

## VENTILATION SYSTEM DESCRIPTION

The main extract twin fan shall be as indicated on the drawings and in accordance with the relevant fan schedule. The vitiated air shall be extracted from the space using an energy-efficient demand ventilation principle; the system shall have its volume flow rate of air varied by a range of low voltage sensors and enablers.

## FAN AND CONTROL DESCRIPTION

The unit shall be manufactured from heavy gauge, corrosion resistant Aluzinc steel, internally coated with fire retardant acoustic material. Fully detachable panels for maintenance/ service and manometer test points.

Fan assemblies incorporate backward curved centrifugal impellers belt driven (EST20H*) by BS5000 motors and fitted with air flow fail monitors. EST19H* impellers are directly driven by EC motors and fitted with air flow fail monitors.

The fan should be fitted with an Ecosmart Classic control together with an inverter speed controller. The fan shall have the following energy saving functions integrally mounted within the fan unit on a purpose made PCB, all components pre-wired by the manufacturer: integral maximum and minimum speed adjustment/setting; integral auto changeover/duty share, fans changeover every 12 hours of run time; integral adjustable run-on timer; integral BMS interfaces, 0-10v and volt free failure indication.

## INSTALLATION REQUIREMENTS

The mechanical contractor shall ensure that all necessary ancillaries are included e.g. AV mounts, flexible connections, attenuators, etc.

The contractor shall allow for all necessary ductwork transformations to and from the fan unit and any associated components in accordance with the manufacturers recommendations, DW 144 and general good practice.

## SYSTEM OPERATION

The extract fan shall automatically vary its speed as it receives signals from one of the interconnected sensors. When the signal is received the fan shall either increase speed gradually until the required level is achieved or it will work on a trickle and boost principle.

This will then move the fan duty point from trickle/background ventilation rate to the required boost ventilation rate. Both the trickle and boost rates are infinitely variable, easy to adjust and remove the need of a main balancing damper in accordance with Part L.

## WARRANTY

Quietscroll twin fan range with Ecosmart Classic control has a 5 year manufacturers warranty.

*All derivatives i.e -B, -R, -X and inline.

## NOTES

FOR MORE INFORMATION
www.nuaire.co.uk

COMMERCIAL
www.nuaire.co.uk/commercial

AIR HANDLING UNITS
www.nuaire.co.uk/boxerahu

BIM
www.nuaire.co.uk/bim

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