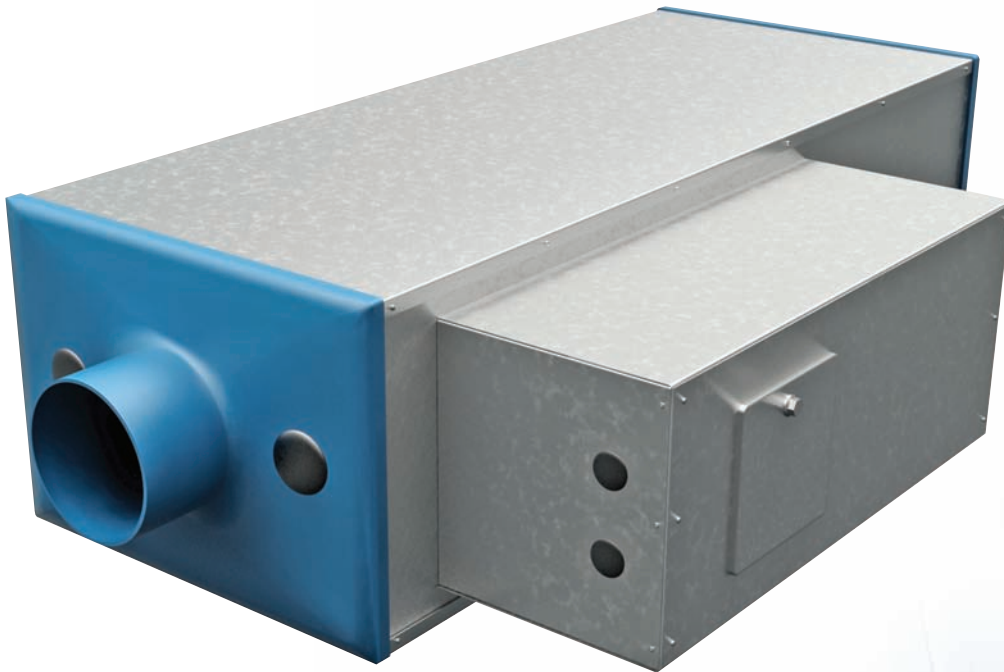


## SQRBO EXTRACT OR SUPPLY

LOW DEPTH EXTRACT OR SUPPLY FANS THAT AUTOMATICALLY  
REACT TO THE ENVIRONMENTAL CONDITIONS.



## BENEFITS

### ENERGY EFFICIENT

All models have Ecosmart controls which provide the most energy efficient and cost effective solution by varying fan speed to suit the required units.

### EXACT VENTILATION

Low voltage plug-in sensors allow the extract rate to be automatically adjusted to suit the rooms specific requirement. Plug-in sensors and controls reduce the installation time on site.

### COMPACT DESIGN

Low case height makes this unit ideal for restricted ceiling spaces. Unique, removable mounting bracket and integral AV mounts ensure quick and efficient installation and maintenance.

### QUIETER UNITS

Casing is fully lined to provide high acoustic and thermal insulation properties ensuring very low noise.

### COST EFFECTIVE

All sensors are safe extra low voltage therefore eliminating the need for expensive main wiring between fan and controls.

### EFFICIENT PACKAGED SOLUTION

All fans and controls are an integrated package providing a simple to select and install system – eliminating the need for traditional control panels.

### SIMPLE COMMISSIONING

On board control pad allows for pre-setting of minimum and maximum fan speeds to suit design requirements – no main balancing damper required.

### DESIGN FLEXIBILITY

Available in 6 case sizes, supply unit with LPHW or electric heater.

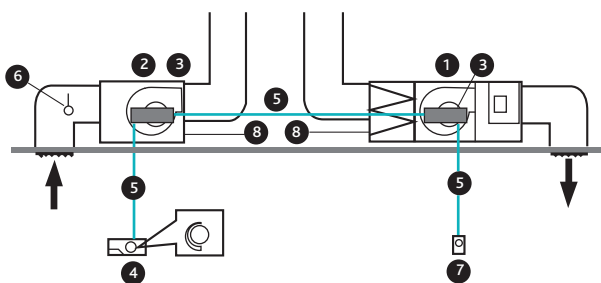
### ANCILLARIES

Full range of heat exchangers, attenuators, smart heaters and cowls etc. are available to complete your installation.

### WARRANTY

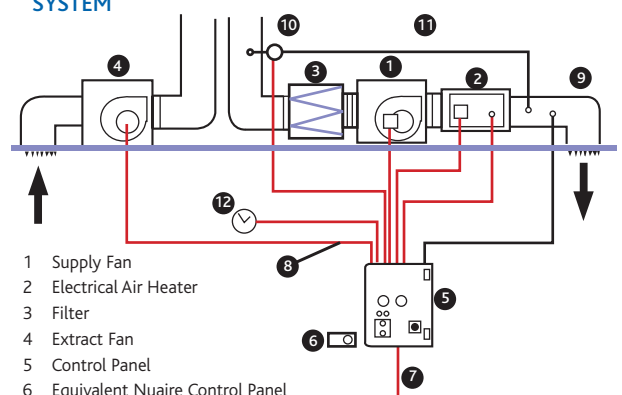
Ecosmart sqrubo has a 5 year warranty.

**"ECOSMART" SUPPLY AND EXTRACT VENTILATION SYSTEM**



- |   |   |
|---|---|
| 1 Supply Unit   | 5 Safe Extra Low Voltage (SELV) 12V Cable |
| 2 Extract Unit  | 6 CO2 Sensor (optional)                   |
| 3 Integral Controls                                     | 7 PIR (Occupancy Sensor) optional         |
| 4 User Controls (on/off, speed, heating) or BMS control | 8 230V electricity supply to fan          |

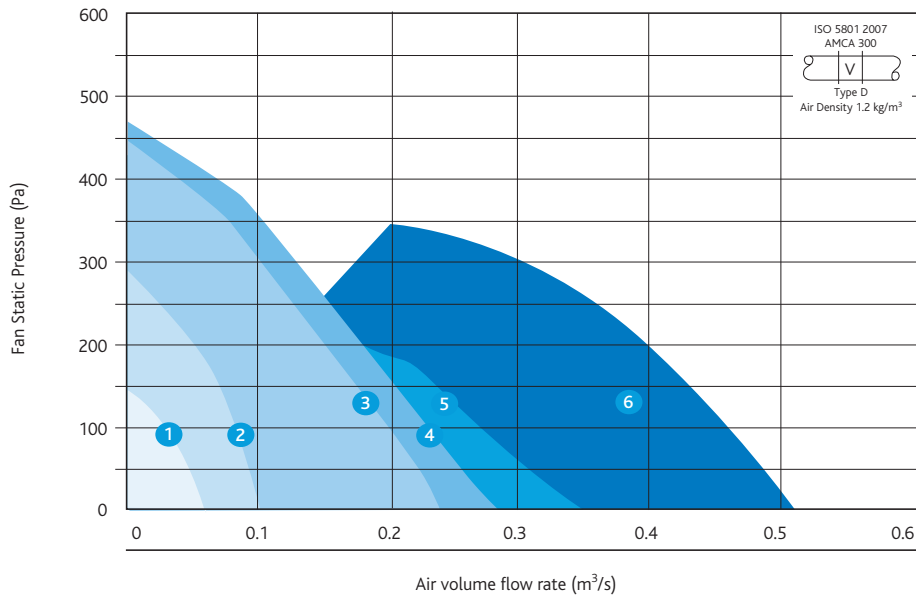
**"CONVENTIONAL" SUPPLY AND EXTRACT VENTILATION SYSTEM**



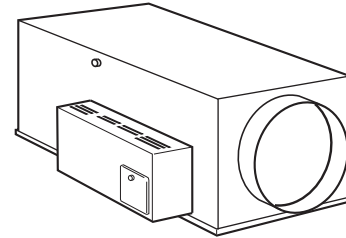
- |   |                        |
|---|------------------------|
| 1 Supply Fan  | 9 Temperature Switch   |
| 2 Electrical Air Heater   | 10 Air Pressure Switch |
| 3 Filter  | 11 PVC Tubing          |
| 4 Extract Fan   | 12 Time Clock          |
| 5 Control Panel   |                        |
| 6 Equivalent Nuaire Control Panel (User Control) for comparative purposes |                        |
| 7 230V/400V Electrical Supply   |                        |
| 8 Various Control & 230v/400v Electricity Cabling                         |                        |

**PERFORMANCE - ECOSMART SQRUBO EXTRACT**

**Ecosmart Sqrubo Extract Unit**



**Casing**



ESSE Extract units

**Code descriptions**

**ESSE 2-WP**



- 1. ESSE = Ecosmart Sqrubo extract fan
- 2. Case Size/Curve Reference
- 3. WP = Weatherproof enclosure

**ECOSMART SQRUBO EXTRACT UNITS**

**ELECTRICAL & SOUND**

| Curve | Code  | Phase | RPM  | Motor Power (kW) | FLC (amps) | SC (amps) | Data Type | Sound Power levels (dB re 10-12W) |     |     |    |    |    | Breakout dBA @ 3m |    |
|-------|-------|-------|------|------------------|------------|-----------|-----------|-----------------------------------|-----|-----|----|----|----|-------------------|----|
|       |       |       |      |                  |            |           |           | Octave Band mid frequency (Hz)    |     |     |    |    |    |                   |    |
|       |       |       |      |                  |            |           |           | 125                               | 250 | 500 | 1K | 2K | 4K | 8K                |    |
| 1     | ESSE1 | 1     | 2724 | 0.043            | 0.32       | 0.32      | I         | 63                                | 59  | 63  | 50 | 45 | 37 | 27                | 30 |
|       |       |       |      |                  |            |           |           | O                                 | 68  | 62  | 65 | 51 | 48 | 44                | 34 |
| 2     | ESSE2 | 1     | 2285 | 0.075            | 0.34       | 0.34      | I         | 64                                | 64  | 66  | 57 | 52 | 57 | 37                | 34 |
|       |       |       |      |                  |            |           |           | O                                 | 71  | 66  | 68 | 61 | 56 | 65                | 44 |
| 3     | ESSE3 | 1     | 2544 | 0.15             | 0.72       | 0.72      | I         | 70                                | 75  | 75  | 66 | 63 | 57 | 49                | 42 |
|       |       |       |      |                  |            |           |           | O                                 | 76  | 75  | 76 | 70 | 69 | 66                | 55 |
| 4     | ESSE4 | 1     | 2313 | 0.17             | 0.92       | 0.92      | I         | 70                                | 75  | 75  | 66 | 64 | 61 | 58                | 43 |
|       |       |       |      |                  |            |           |           | O                                 | 76  | 75  | 79 | 69 | 69 | 63                | 65 |
| 5     | ESSE5 | 1     | 2313 | 0.17             | 0.92       | 0.92      | I         | 74                                | 70  | 73  | 68 | 66 | 64 | 60                | 43 |
|       |       |       |      |                  |            |           |           | O                                 | 78  | 69  | 77 | 73 | 72 | 70                | 66 |
| 6     | ESSE6 | 1     | 1110 | 0.66             | 2.95       | 2.95      | I         | 71                                | 67  | 59  | 60 | 56 | 51 | 46                | 45 |
|       |       |       |      |                  |            |           |           | I                                 | 76  | 74  | 73 | 73 | 71 | 67                | 62 |

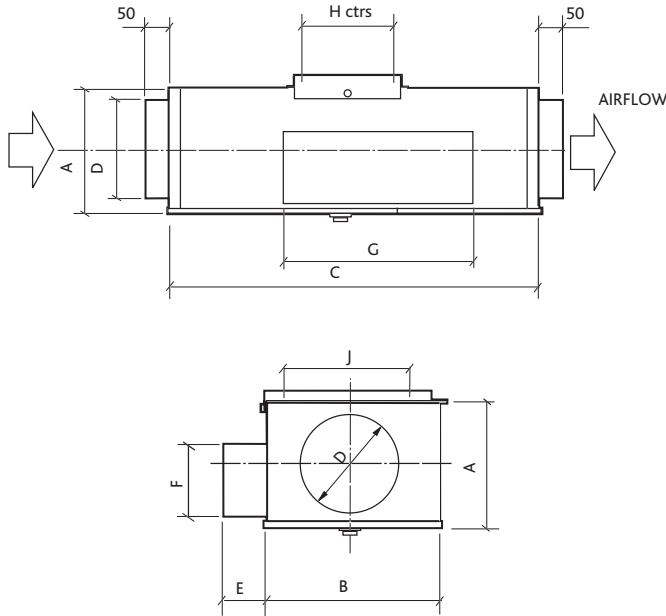
The electrical and sound information in the table is nominal. Breakout dBA@3m is spherical, free field.  
 SC = FLC due to soft starting control.

\* Motor electrical supply, 1=1 phase (230V, 50Hz) 3=3phase (400V, 50Hz).

Unit has facility to operate motorised damper fan frost protection. I = Induct inlet. O = Induct outlet.

Please note: With Ecosmart, Ecosmart BMS & Ecosmart Commissioning options the units are pre-programmed with a soft start facility.

**DIMENSIONS - ECOSMART SQRBO EXTRACT**



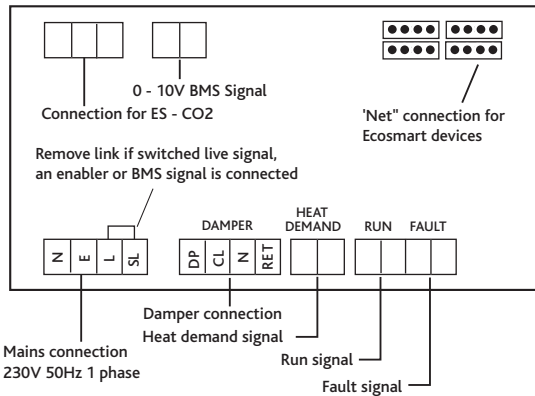
**Extract - No heater**

**DIMENSIONS (mm) & WEIGHTS**

|       | Dia |     |     | Fixing ctrs |     | Weight (Kg) |     |     |     |      |
|-------|-----|-----|-----|-------------|-----|-------------|-----|-----|-----|------|
|       | A   | B   | C   | D           | E   |             | F   | G   | H   | J    |
| ESSE1 | 160 | 230 | 640 | 125         | 150 | 150         | 330 | 140 | 115 | 7.4  |
| ESSE2 | 185 | 302 | 630 | 150         | 150 | 150         | 330 | 140 | 150 | 8.1  |
| ESSE3 | 235 | 350 | 700 | 200         | 150 | 150         | 330 | 140 | 170 | 13   |
| ESSE4 | 285 | 350 | 672 | 250         | 150 | 150         | 330 | 140 | 170 | 13.8 |
| ESSE5 | 350 | 400 | 726 | 315         | 150 | 150         | 330 | 140 | 200 | 15.2 |
| ESSE6 | 430 | 682 | 700 | 400         | 175 | 150         | 330 | 140 | 200 | 38   |

**WIRING - ECOSMART SQRBO EXTRACT**

**ESSE1-5 Extract**



## CONSULTANTS SPECIFICATION

### EXTRACT UNIT SPECIFICATION

The Unit shall be configured and arranged as detailed on the drawings and in accordance with the schedule of equipment.

Unit shall be manufactured from acoustically lined, heavy gauge pre-galvanised, corrosion resistant steel. The units shall provide exceptional thermal and acoustic insertion. The general construction is to class A leakage.

The unit will be manufactured to provide a low height solution to enable it to be located in low depth ceiling and floor voids. For ease of installation the unit shall be provided with a single point mounting bracket with integrated, anti vibration strips.

The extract fan shall have complimentary controls which will enable it to interface directly with the supply unit via a low voltage pre-plugged cable. The fan impeller and motor shall be selected to provide the most energy efficient solution conforming to part L regulations and shall be direct drive with high efficiency motors to BS5000 as standard. The fan impeller shall be a high efficiency backward curved centrifugal design, manufactured in galvanised steel.

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.

The unit and ancillaries shall be of the Ecosmart Sqrubo type as manufactured by Nuaire Ltd.

All other components shall be in accordance with the manufacturer's specification.

### CONTROL SPECIFICATION

The fan unit shall be supplied with one of the following control options:-

#### 1. ECOSMART CONTROLS

The compact Ecosmart control system complete with all necessary controls to facilitate the operation of the ventilation system. It shall be come complete with an integral factory fitted Ecosmart PCB which will control the fan unit within the desired design parameters and provide the interface between all external control devices and the unit itself.

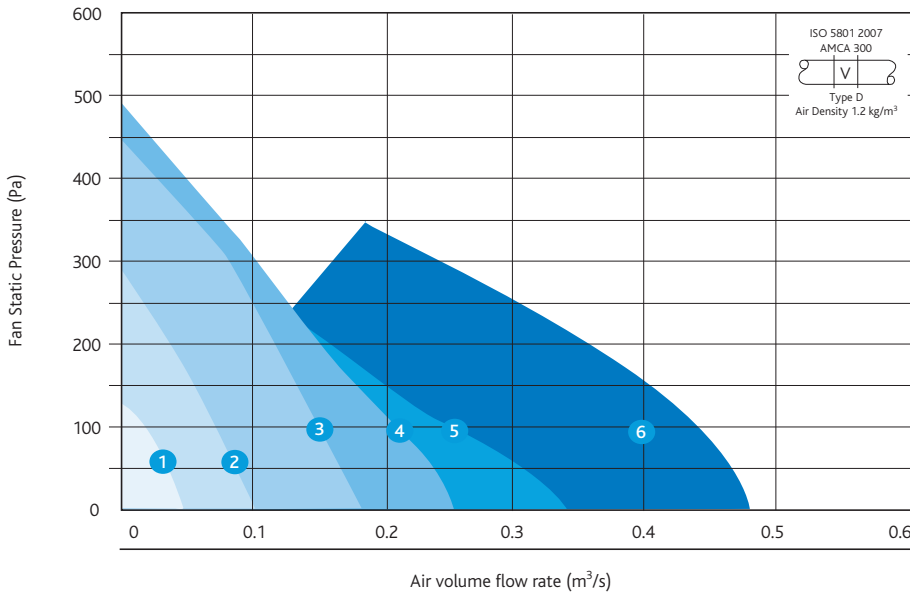
The Unit shall have the following energy saving components integrally mounted, pre-wired to interface with the purpose made PCB, all components pre-wired, configured and factory fitted by the manufacturer: -

- Integral Frequency inverter/speed controller.
- Integral maximum and minimum speed adjustment for commissioning.
- Integral adjustable run on timer.
- Integral BMS interfaces – heating/cooling switching, 0-10V speed adjustment. (using ES - CI).
- Volt free failure and status indication.
- Integral air off temperature adjustment.
- Facility for remote temperature control.
- Integral background ventilation switch (trickle switch).
- Multiple IDC sockets for interconnection of sensors or fans using pre-plugged 4-core low voltage cable.
- Volt free frost alarm/heat demand interface.
- Frost protection/hold off stat.

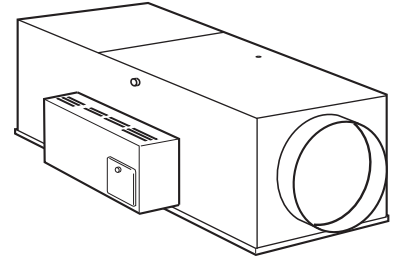
The Fan unit shall have a 5 year warranty.

PERFORMANCE - ECOSMART SQRUBO SUPPLY

Ecosmart Sqrubo Supply Unit



Casing



ESSE Supply units

Code descriptions

ESS 2 - E



1. ESS = Ecosmart Sqrubo supply fan
2. Case Size/Curve Reference
3. No suffix = without heater  
 E = With electric heating  
 L = Heating  
 2L = with 2 row LPHW heating

Note: Performance curves make allowance for the internal filter and heater battery and you only need apply the resistance external to the unit and any additional units eg. HX, Filter etc.

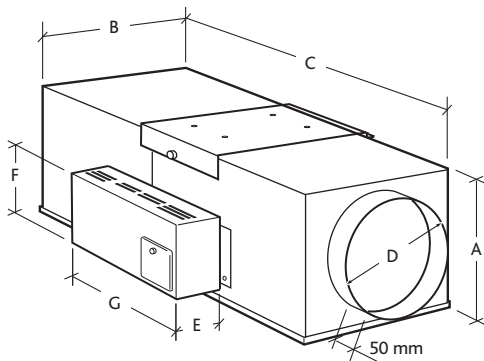
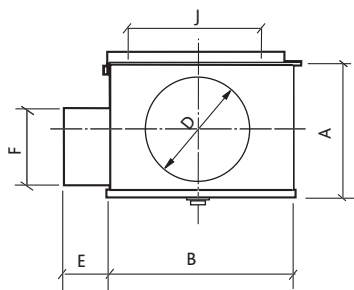
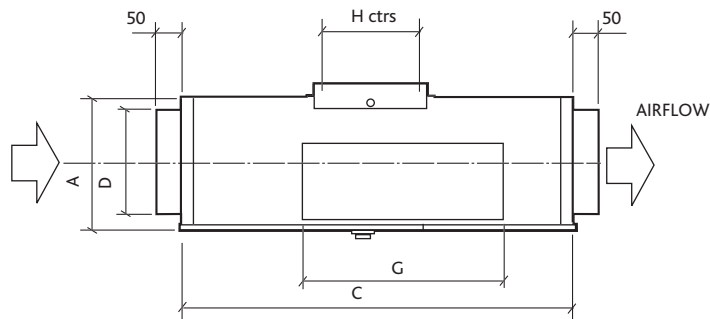
ECOSMART SQRUBO SUPPLY UNITS

ELECTRICAL & SOUND

| Curve | Code      | Phase | RPM  | Motor Power (kW) | Electric Heater (kW) | LPHW kW |     | FLC (amps) | Inlet/Outlet Type | Sound Power levels (dB re 10-12W) Octave Band mid frequency (Hz) |     |     |    |    |    | Breakout dBA @ 3m |    |
|-------|-----------|-------|------|------------------|----------------------|---------|-----|------------|-------------------|--|-----|-----|----|----|----|-------------------|----|
|       |           |       |      |                  |                      | L       | 2L  |            |                   | 125  | 250 | 500 | 1K | 2K | 4K |                   | 8K |
| 1     | ESS1-E    | 1     | 2724 | 0.043            | 1.0                  | -       | -   | 4.7        | I                 | 61   | 62  | 61  | 49 | 43 | 34 | 26                | 30 |
|       | ESS1      | 1     | -    | -                | -                    | -       | -   | 0.32       | O                 | 69   | 62  | 63  | 51 | 45 | 42 | 32                | 30 |
| 2     | ESS2-E    | 1     | 2285 | 0.075            | 1.5                  | -       | -   | 7.0        | I                 | 62   | 63  | 63  | 55 | 53 | 44 | 34                | 34 |
|       | ESS2-L/2L | 1     | -    | -                | -                    | 3       | 4.5 | 0.34       | O                 | 70   | 66  | 66  | 59 | 57 | 53 | 42                | 34 |
| 3     | ESS3-E    | 1     | 2544 | 0.15             | 2.0                  | -       | -   | 9.5        | I                 | 67   | 72  | 71  | 63 | 60 | 54 | 46                | 42 |
|       | ESS3-L/2L | 1     | -    | -                | -                    | 4.5     | 6   | 0.72       | O                 | 74   | 73  | 74  | 68 | 67 | 64 | 53                | 42 |
| 4     | ESS4-E    | 1     | 2313 | 0.17             | 3.0                  | -       | -   | 14         | I                 | 68   | 72  | 71  | 67 | 63 | 60 | 56                | 43 |
|       | ESS4-L/2L | 1     | -    | -                | -                    | 5       | 8.5 | 0.92       | O                 | 74   | 74  | 74  | 72 | 71 | 68 | 64                | 43 |
| 5     | ESS5-E    | 1     | 2313 | 0.17             | 4.5                  | -       | -   | 20.5       | I                 | 73   | 71  | 72  | 67 | 63 | 62 | 58                | 43 |
|       | ESS5-L/2L | 1     | -    | -                | -                    | 5.5     | 10  | 0.92       | O                 | 79   | 74  | 76  | 72 | 72 | 69 | 66                | 43 |
| 6     | ESS6-E    | 3     | 1110 | 0.66             | 12*                  | -       | -   | 20         | I                 | 71   | 67  | 59  | 60 | 56 | 51 | 46                | 45 |
|       | ESS6-2L   | 1     | -    | -                | -                    | -       | 12  | 2.95       | O                 | 76   | 74  | 73  | 73 | 71 | 67 | 62                | 45 |

Note: there is no LPHW coil available for size 1 (ESS1). Unit has facility to open a remote motorised damper if frost protection is required.  
 \*3 - phase electrical supply required at Nuair specified design conditions.

**DIMENSIONS - ECOSMART SQRUBO SUPPLY**



**Supply - No heater**

**DIMENSIONS (mm) & WEIGHTS**

|      | Dia |     |     |     |     |     |     |     |     |      | Weight (Kg) |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-------------|
|      | A   | B   | C   | D   | E   | F   | G   | H   | J   |      |             |
| ESS1 | 160 | 230 | 640 | 125 | 150 | 150 | 330 | 140 | 115 | 7.4  |             |
| ESS2 | 185 | 302 | 630 | 150 | 150 | 150 | 330 | 140 | 150 | 8.1  |             |
| ESS3 | 235 | 350 | 700 | 200 | 150 | 150 | 330 | 140 | 170 | 13   |             |
| ESS4 | 285 | 350 | 672 | 250 | 150 | 150 | 330 | 140 | 170 | 13.8 |             |
| ESS5 | 350 | 400 | 726 | 315 | 150 | 150 | 330 | 140 | 200 | 15.2 |             |
| ESS6 | 430 | 682 | 700 | 400 | 175 | 150 | 330 | 140 | 200 | 35   |             |

**Supply - Electric heater**

**DIMENSIONS (mm) & WEIGHTS**

|        | Dia |     |      |     |     |     |     |     |     |      | Weight (Kg) |
|--------|-----|-----|------|-----|-----|-----|-----|-----|-----|------|-------------|
|        | A   | B   | C    | D   | E   | F   | G   | H   | J   |      |             |
| ESS1-E | 160 | 230 | 968  | 125 | 150 | 150 | 403 | 140 | 115 | 12.1 |             |
| ESS2-E | 185 | 302 | 968  | 150 | 150 | 150 | 403 | 140 | 150 | 14.5 |             |
| ESS3-E | 235 | 350 | 968  | 200 | 150 | 150 | 403 | 140 | 170 | 21.5 |             |
| ESS4-E | 285 | 350 | 968  | 250 | 150 | 150 | 403 | 140 | 170 | 23.4 |             |
| ESS5-E | 350 | 400 | 968  | 315 | 150 | 200 | 450 | 140 | 200 | 27.1 |             |
| ESS6-E | 430 | 682 | 1002 | 400 | 175 | 200 | 450 | 140 | 200 | 60   |             |

**Supply - LPHW heater**

**DIMENSIONS (mm) & WEIGHTS**

|           | Dia |     |      |     |     |     |     |     |     |    | Weight (Kg) |
|-----------|-----|-----|------|-----|-----|-----|-----|-----|-----|----|-------------|
|           | A   | B   | C    | D   | E   | F   | G   | H   | J   |    |             |
| ESS2-L/2L | 285 | 450 | 968  | 150 | 150 | 170 | 515 | 140 | 250 | 25 |             |
| ESS3-L/2L | 285 | 450 | 968  | 200 | 150 | 170 | 515 | 140 | 250 | 25 |             |
| ESS4-L/2L | 285 | 450 | 968  | 250 | 150 | 170 | 515 | 140 | 250 | 26 |             |
| ESS5-L/2L | 350 | 450 | 968  | 315 | 150 | 170 | 515 | 140 | 250 | 29 |             |
| ESS6-L/2L | 430 | 682 | 1002 | 400 | 175 | 170 | 515 | 140 | 250 | 60 |             |

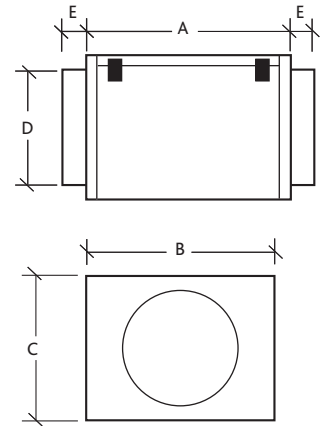
**ANCILLARIES FOR ECOSMART SQRUBO SUPPLY OR EXTRACT**

**FILTER CASSETTE**

Filter Cassettes are constructed from galvanised steel and are fitted with circular spigots. The filter media is of non woven synthetic fibres which are resistant to moisture, fungus, bacteria and frost to G4 specification. Filter media access panel with quick release clips.

Typical code: SF-100

| Code   | Dimensions (mm) |     |     |     |    | Kg | Resistance (Pa) @ Airflow (m <sup>3</sup> /s) |     |     |     |     |     |     |     |    |     |    |     |    |    |    |    |    |    |
|--------|-----------------|-----|-----|-----|----|----|---|-----|-----|-----|-----|-----|-----|-----|----|-----|----|-----|----|----|----|----|----|----|
|        | A               | B   | C   | D   | E  |    | .02   | .03 | .04 | .05 | .06 | .07 | 0.8 | .09 | .1 | .15 | .2 | .25 | .3 | .4 | .5 | .6 | .7 | .8 |
| SF-100 | 264             | 230 | 159 | 100 | 50 | 2  | 2   | 3   | 4   | 5   | -   | -   | -   | -   | -  | -   | -  | -   | -  | -  | -  | -  | -  | -  |
| SF-125 | 264             | 230 | 159 | 125 | 50 | 2  | 2   | 3   | 4   | 5   | -   | -   | -   | -   | -  | -   | -  | -   | -  | -  | -  | -  | -  | -  |
| SF-150 | 264             | 300 | 184 | 150 | 50 | 3  | 1   | 2   | 3   | 4   | 5   | 5   | 6   | 7   | 8  | -   | -  | -   | -  | -  | -  | -  | -  | -  |
| SF-200 | 264             | 350 | 234 | 200 | 50 | 4  | -   | 1   | 1   | 1   | 2   | 2   | 3   | 3   | 4  | 6   | 8  | -   | -  | -  | -  | -  | -  | -  |
| SF-250 | 264             | 350 | 284 | 250 | 50 | 6  | -   | -   | 1   | 1   | 1   | 2   | 2   | 3   | 3  | 5   | 7  | 9   | -  | -  | -  | -  | -  | -  |
| SF-315 | 264             | 400 | 349 | 315 | 50 | 9  | -   | -   | -   | 1   | 1   | 1   | 1   | 2   | 2  | 3   | 5  | 6   | 7  | 10 | -  | -  | -  | -  |
| SF-400 | 264             | 900 | 475 | 400 | 50 | 11 | -   | -   | -   | -   | -   | -   | -   | -   | 1  | 2   | 2  | 3   | 4  | 6  | 7  | 8  | 10 |    |

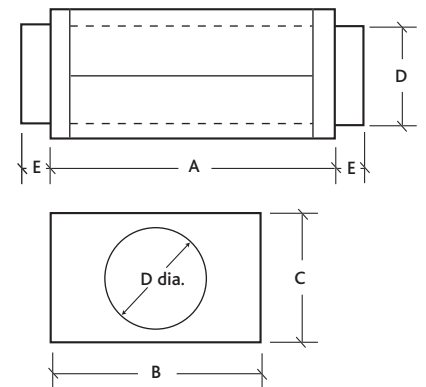


**SILENCERS**

The In-line attenuator shall be constructed in galvanised steel and be fitted with duct work connection spigots. Acoustic media shall be a low density foam to prevent material migration into the airstream. Resistance to airflow is negligible.

Typical code: SIL-100

| Code    | Dimensions (mm) |     |     |     |    | Weight Kg | Resistance (Pa) @ Airflow (m <sup>3</sup> /s) |     |     |     |     |     |     |  |
|---------|-----------------|-----|-----|-----|----|-----------|---|-----|-----|-----|-----|-----|-----|--|
|         | A               | B   | C   | D   | E  |           | 125   | 250 | 500 | 1K  | 2K  | 4K  | 8K  |  |
| SIL-125 | 600             | 230 | 159 | 125 | 50 | 4.8       | -11   | -13 | -16 | -26 | -39 | -21 | -13 |  |
| SIL-150 | 600             | 300 | 184 | 150 | 50 | 6.6       | -5  | -8  | -17 | -35 | -40 | -17 | -8  |  |
| SIL-200 | 600             | 350 | 234 | 200 | 50 | 9.9       | -9  | -8  | -14 | -29 | -23 | -12 | -14 |  |
| SIL-250 | 600             | 350 | 284 | 250 | 50 | 10.9      | -5  | -5  | -12 | -25 | -15 | -10 | -9  |  |
| SIL-315 | 600             | 400 | 349 | 315 | 50 | 12.2      | -3  | -4  | -10 | -22 | -14 | -10 | -11 |  |
| SIL-400 | 900             | 700 | 475 | 400 | 50 | 31.7      | -4  | -9  | -11 | -14 | -10 | -8  | -6  |  |



**ECOSMART DUCT HEATER**

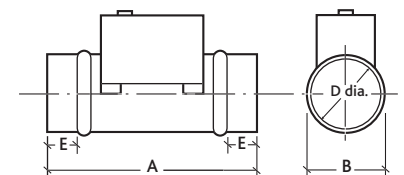
Provided to boost the air temperature if the standard heating is not sufficient. Controlled directly from the Ecosmart Sqrubo controls. Duct Heaters are constructed from galvanised steel, and can be fitted in the horizontal or vertical position. Terminals are provided for electrical connection to heating elements which are centrally located in air stream.

All heaters are fitted with a high temperature safety cut out (rated 13 amps) with a manual re-set button located on the unit terminal box.

Typical code: ESH2

| Code | Dimensions (mm) |     |     |     |    | Weight Kg | kW/ph | Resistance (Pa) @ Airflow (m <sup>3</sup> /s) |     |     |     |     |     |     |     |    |     |    |     |    |    |    |    |    |
|------|-----------------|-----|-----|-----|----|-----------|-------|---|-----|-----|-----|-----|-----|-----|-----|----|-----|----|-----|----|----|----|----|----|
|      | A               | B   | C   | D   | E  |           |       | .02   | .03 | .04 | .05 | .06 | .07 | 0.8 | .09 | .1 | .15 | .2 | .25 | .3 | .4 | .5 | .6 | .7 |
| ESH2 | 400             | 150 | 200 | 150 | 45 | 3.5       | 3/1   | -   | 6   | 11  | 16  | 21  | 26  | 32  | 38  | 45 | -   | -  | -   | -  | -  | -  | -  | -  |
| ESH3 | 400             | 200 | 250 | 200 | 45 | 4         | 3/1   | -   | -   | 6   | 9   | 12  | 15  | 17  | 20  | 36 | -   | -  | -   | -  | -  | -  | -  | -  |
| ESH4 | 400             | 250 | 300 | 250 | 45 | 5         | 3/1   | -   | -   | -   | -   | 6   | 8   | 10  | 19  | 28 | 39  | -  | -   | -  | -  | -  | -  | -  |
| ESH5 | 400             | 315 | 369 | 315 | 45 | 4.5       | 3/1   | -   | -   | -   | -   | -   | -   | -   | 9   | 14 | 20  | 26 | 40  | -  | -  | -  | -  | -  |

Note: The Duct Heater requires a separate power supply.





**ANCILLARIES FOR ECOSMART SQRBO SUPPLY OR EXTRACT CONT.**

**WEATHERPROOF ENCLOSURE DIMENSIONS (mm)**

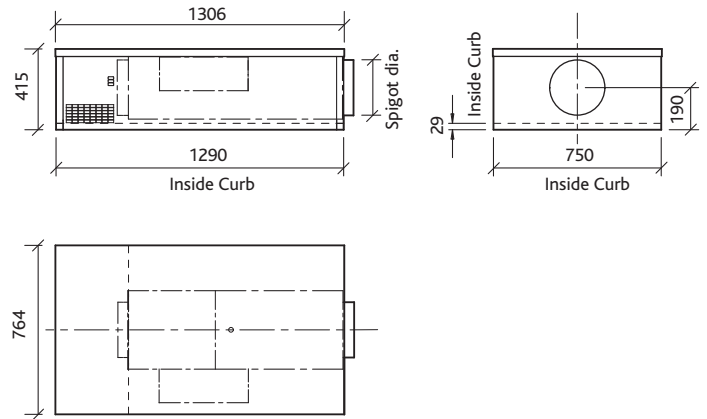
Typical code: ESS2-EWP

Dimensions (mm)

| Code     | Spigot dia. | Weight Kg |
|----------|-------------|-----------|
| ESS1-EWP | 125         | 40.1      |
| ESS2-EWP | 150         | 42.5      |
| ESS3-EWP | 200         | 49.5      |
| ESS4-EWP | 250         | 51.4      |
| ESS5-EWP | 315         | 55.1      |

Suitable for electric heater version only.

Note: Above code is fan and weatherproof enclosure.



**TERMINATOR COWLS DIMENSIONS (mm) & WEIGHTS**

To provide a weatherproof route for supply & exhaust air to your ducted system.

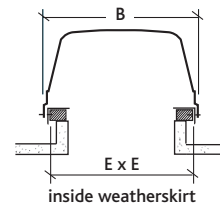
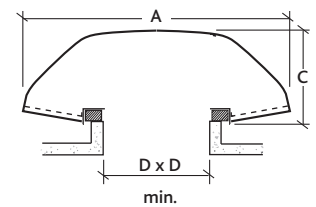
Cowls are manufactured from flame retardant polymer and can be supplied with gravity backdraught shutters, bird guards and hand guards. The terminal is finished in BS00A05 Grey as standard. All BS or RAL colours are available. The cowl will normally be fitted to the upstand by a roofing contractor or builder. The Cowl can be fitted without shutters on a 0-60 degree pitched roof with its longer side running down the roof slope. The Cowl can be fitted with its longer side running across a slope of less than 85 degrees from the horizontal. When fitted to a wall the longer side must run horizontal.

Typical code: TRTS-A Note: S = Shutters, BG = Bird Guard

Note: Air Pressure Drop of Attenuator (Pa) = Z x Q<sup>2</sup>

where Z = Factor listed in table below Q = Air Volume Flow Rate (m<sup>3</sup>/s)

| Code   | A    | B    | C   | D    | E    | Weight Kg | Discharge | Z Intake |
|--------|------|------|-----|------|------|-----------|-----------|----------|
| TRTS-A | 900  | 620  | 340 | 460  | 600  | 12.3      | 67        | 118      |
| TRTS-B | 1080 | 740  | 375 | 560  | 695  | 14.7      | 39        | 87       |
| TRTS-C | 1320 | 964  | 475 | 700  | 945  | 26.0      | 28        | 62       |
| TRTS-D | 1470 | 1076 | 490 | 800  | 1050 | 28.2      | 19        | 32       |
| TRTS-E | 1780 | 1170 | 485 | 900  | 1150 | 50.0      | 7         | 11.3     |
| TRTS-F | 2260 | 1476 | 600 | 1200 | 1452 | 88.0      | 2.5       | 3.6      |



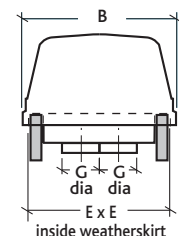
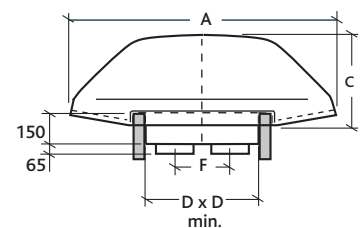
**SUPPLY/EXTRACT COWLS DIMENSIONS (mm) & WEIGHTS**

Supply/Extract Cowl: rigid flame retardant cowl, conforming with BS476 (Part 1 class 11) supplied in grey (BS 00 A 05) as standard (any BS or RAL colours available), fixing directly to the base using non-rusting sealed fixings. Air plenum is manufactured from galvanised steel incorporating supply & extract chambers. Rigid spigots are provided for connection of duct work. Supply & extract chamber is fitted with a bird guard.

Typical code: TRSE1

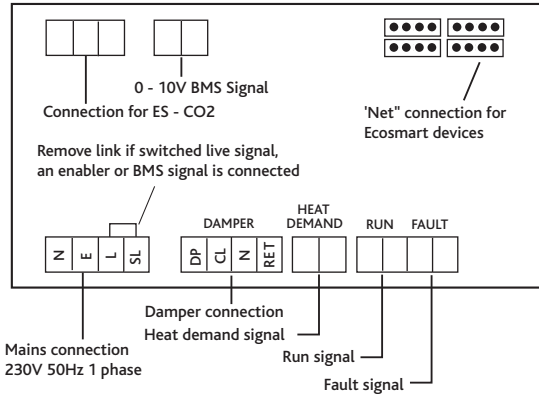
| Code  | A    | B    | C   | D   | E    | F   | G   | Weight Kg |
|-------|------|------|-----|-----|------|-----|-----|-----------|
| TRSE1 | 900  | 620  | 340 | 460 | 600  | 200 | 100 | 14        |
| TRSE2 | 900  | 620  | 340 | 460 | 600  | 200 | 125 | 14        |
| TRSE3 | 900  | 620  | 340 | 460 | 600  | 200 | 150 | 14        |
| TRSE4 | 1320 | 964  | 475 | 700 | 945  | 345 | 200 | 30        |
| TRSE5 | 1320 | 964  | 475 | 700 | 945  | 345 | 250 | 30        |
| TRSE6 | 1320 | 964  | 475 | 700 | 945  | 345 | 315 | 30        |
| TRSE7 | 1780 | 1170 | 485 | 900 | 1150 | 450 | 400 | 57        |

Resistance to airflow of this item is negligible.

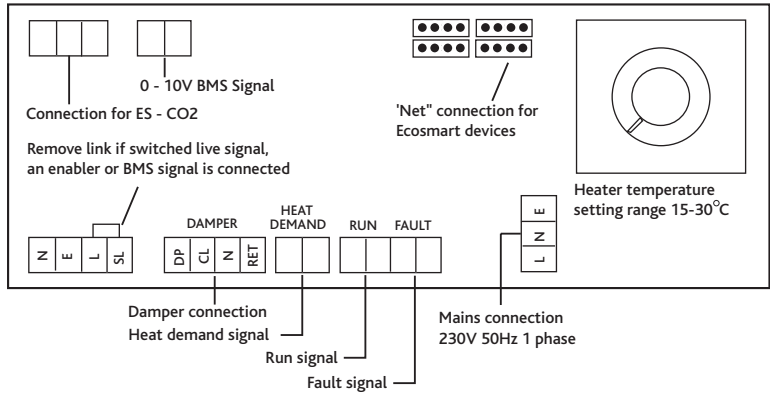


**WIRING - ECOSMART SQRUBO SUPPLY**

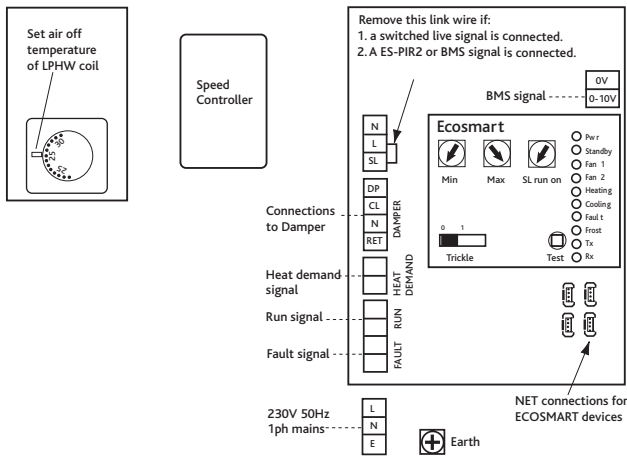
**ESS1-5 LPHW**



**ESS1-5E (Electric Coil)**

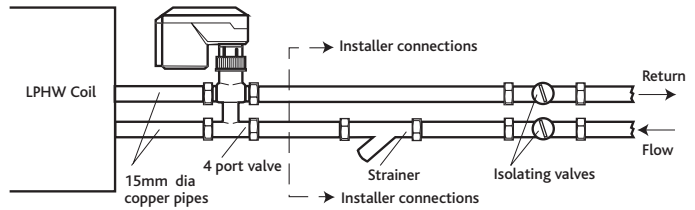


**ESS6-L (LPHW Coil)**

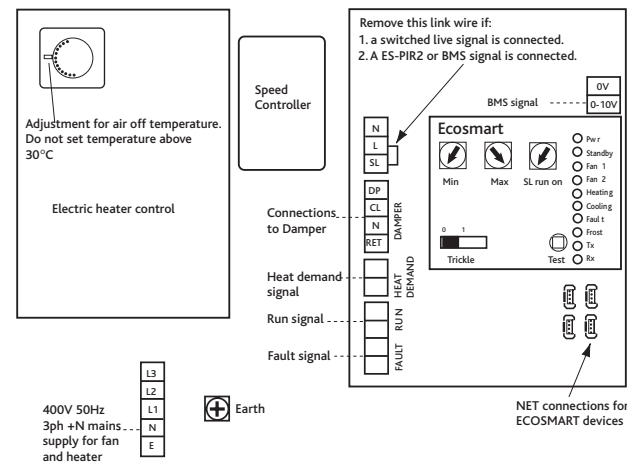


**Installing the water circuit**

It is recommended that a strainer and isolating valves are fitted (by others) for ease of maintenance.



**ESS6-E (12kW Electric Coil)**



## CONSULTANTS SPECIFICATION

### MAKE UP AIR SUPPLY UNIT SPECIFICATION

The Unit shall be configured and arranged as detailed on the drawings and in accordance with the schedule of equipment. Unit shall be manufactured from acoustically lined, heavy gauge pre-galvanised, corrosion resistant steel. The units shall provide exceptional thermal and acoustic insertion. The general construction is to class A leakage.

The unit will be manufactured to provide a low height solution to enable it to be located in low depth ceiling and floor voids. For ease of installation the unit shall be provided with a single point mounting bracket with integrated, anti vibration strips.

The fan impeller and motor shall be selected to provide the most energy efficient solution conforming to part L regulations and shall be direct drive with high efficiency motors to BS5000 as standard. The fan impeller shall be a high efficiency backward curved centrifugal design, manufactured in galvanised steel.

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.

The unit and ancillaries shall be of the Ecosmart Sqrbo type as manufactured by Nuair Ltd.

All other components shall be in accordance with the manufacturer's specification.

### CONTROL SPECIFICATION

The fan unit shall be supplied with one of the following control options:-

### ECOSMART CONTROLS

The compact Ecosmart control system complete with all necessary controls to facilitate the operation of the ventilation system. It shall be come complete with an integral factory fitted Ecosmart PCB which will control the fan unit within the desired design parameters and provide the interface between all external control devices and the unit itself.

The Unit shall have the following energy saving components integrally mounted, pre-wired to interface with the purpose made PCB, all components pre-wired, configured and factory fitted by the manufacturer: -

- Integral Frequency inverter/speed controller.
- Integral maximum and minimum speed adjustment for commissioning.
- Integral adjustable run on timer.
- Integral BMS interfaces – heating/cooling switching, 0-10V speed adjustment. (using ES - CI).
- Volt free failure and status indication.
- Integral air off temperature adjustment.
- Integral background ventilation switch (trickle switch).
- Multiple IDC sockets for interconnection of sensors or fans using pre-plugged 4-core low voltage cable.
- Volt free frost alarm/heat demand interface.
- Frost protection/hold off stat for LPHW units.

### COIL TYPES AND CONTROLS

- Low Pressure Hot Water.

The Low Pressure Hot Water heating coil shall be factory fitted with a 4-port valve, double regulating valve, drain cocks and air vents. The actuator controlling the 4-port valve shall be controlled via the on-board PCB by the off coil temperature sensor. All components pre-piped, assembled and tested by the manufacturers.

The control for the coils shall be fully integrated and shall maintain a constant off coil temperature. The system shall have frost protection which shall, at temperatures below 4 degrees C, fully open the 4-port valve and only start the fan when the temperature at the filter has risen above the designated set point. Unit shall have contacts which shall act as a frost alarm and/or signal boiler and circulating pumps to switch on.

### ELECTRIC HEATER BATTERY

The Electric Heater Battery shall be factory fitted and pre-wired to an integral closed loop thyristor control.

NOTE: Heaters will need an enable signal for heater (ES-LCD, 0-10V Bms or ES-CI).

The Fan unit shall have a 5 year warranty.

All equipment to be as manufactured by Nuair Ltd.