

# AIR-HRU

## *Ultra High Efficiency Heat Recovery Unit*

- Up to 93% Efficient to BS EN 308
- EC Fan Technology For Low SFP
- From 312mm High
- Access – Bottom or Side
- External or Internal
- LPHW or Electric Heating Options
- CHW, DX Cooling or Heat Pump Available
- Bolt on Silencers
- With or Without Controls
- UK Designed & Manufactured
- ErP Compliant



0.04 m<sup>3</sup>/s to 1.3 m<sup>3</sup>/s

# INNOVATION THROUGH HERITAGE



## Company Profile

Air Handling Systems Ltd is a privately owned company established in 1986, operating from its three acre site in Shildon, County Durham.

We are specialists in full design and implementation of bespoke Air Handling Equipment for the building services industry.

*An engineering company committed to in-house manufacturing with all it's benefits.*

- Total design & flexibility offering the perfect solution.
- Exacting quality standards independently tested.
- Competitive prices.
- Quick delivery periods direct from the UK.
- Full product support and service by AHS.



## Quality

AHS are an engineering company that specializes in air handling systems. We follow our own engineering standards tried and tested for over 30 years. In addition, we manufacture and test components to the relevant BS standards.

Products are also independently tested to BS EN 1886 by BSRIA. Our test results are some of the highest in the industry. For example, we can achieve TB2 thermal bridging and L1 leakage rates.



# FEATURES



## User friendly

Filter access from bottom or side allows for easy inspection of the unit.

## Low height

Low height offering space saving solutions, starting from 312mm high.

## EC fans

Highly efficient EC fans offering great energy saving solutions.

## 93% efficiency

Counterflow heat exchanger with summer bypass offering up to 93% efficiency.

## Location

Internal or externally located with roof and base frame. Optional external coatings are available.

## Range

Heat recovery models range from 0.04m<sup>3</sup>/s up to 1.3 m<sup>3</sup>/s.

## Controls

Pre-wired controls fitted or supplied loose. Precommissioned at works.

## Accessories

Multiple options include:

- Electric heater • LPHW coil • DX/CHW coil • Attenuators • F7 supply filter
- Motorised dampers • Control interfaces and ancillaries



## **R** AUTODESK Revit

Available for all MVHR configurations

## User friendly

Multiple accesses offer the best solution for restricted areas such as ceiling voids and internal plant rooms. Units can be suspended via drop rods.

## 93% efficiency

Most applications will not need a top up heater. Resulting in reduced boiler plant or electrical load. Capital and running costs are further reduced.

## Accessories

DX and CHW coils offer extra flexibility and enhanced solutions. Standard or purpose made Attenuators to achieve NR levels.

## Low height

Ideal for modern buildings with reduced ceiling void depth. Available in acoustic lining to reduce noise breakout.

## Location

External mounted units offer solutions where ceiling voids are restricted. Ideal for noise sensitive areas as unit is removed from the ceiling void.

## Controls

Pre-wired controls reduce costs on site and offer easy installation and set up. Easy to commission with optional CO<sub>2</sub> or PIR sensors if required.

## EC fans

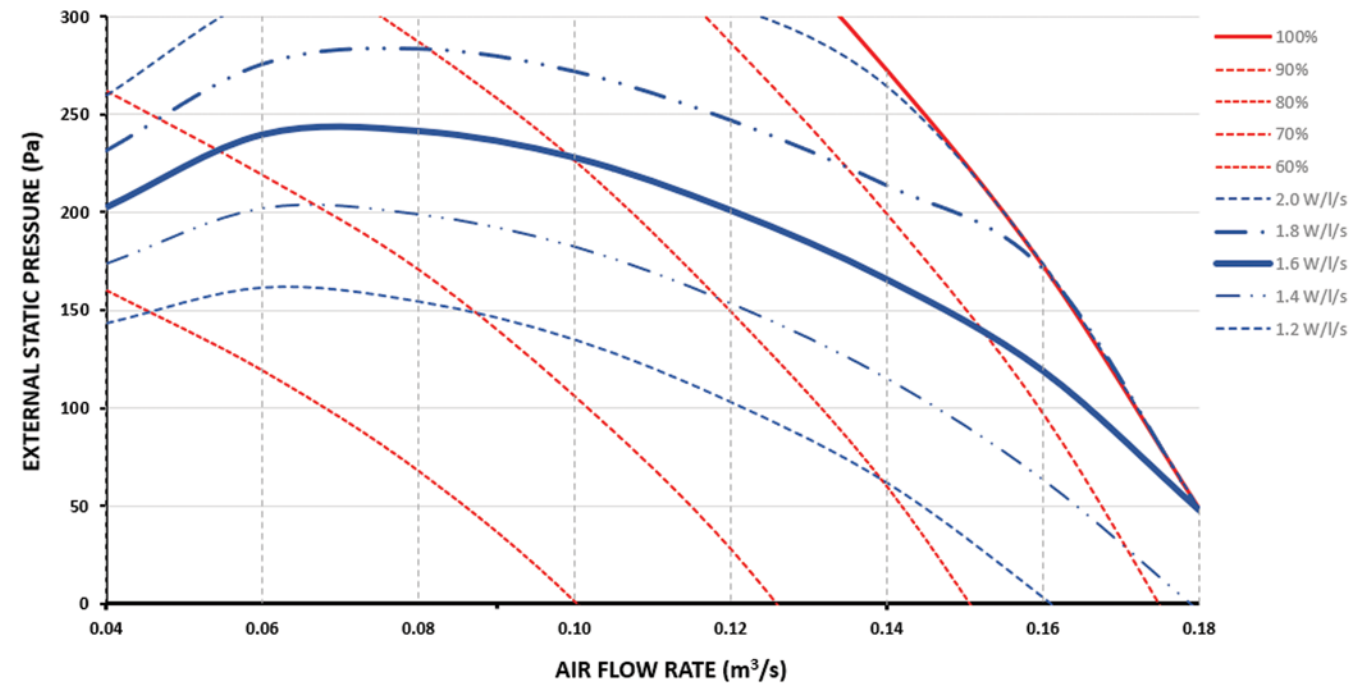
Low specific fan power helps to achieve Part L2 building compliance. 0-10VDC input allows smooth speed control from BMS or demand ventilation inputs. Reduced maintenance and easy to change.

## Range

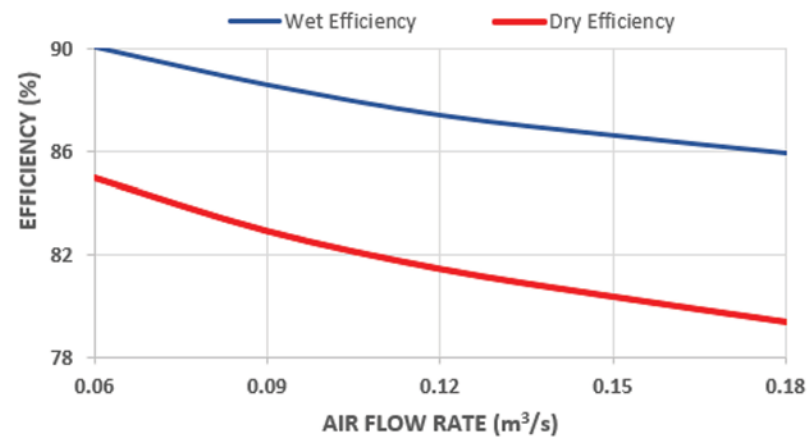
Our AIR-HRU range compliments our AirFlex range of bespoke designed units with RAC, Thermal Wheels, Plate heat exchangers. Fully compliant HTM specifications and design air volumes up to 80m<sup>3</sup>/s available.

# BENEFITS

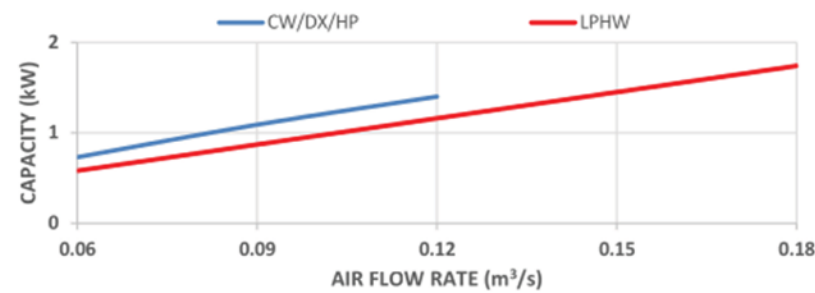
## Air Flow Rate



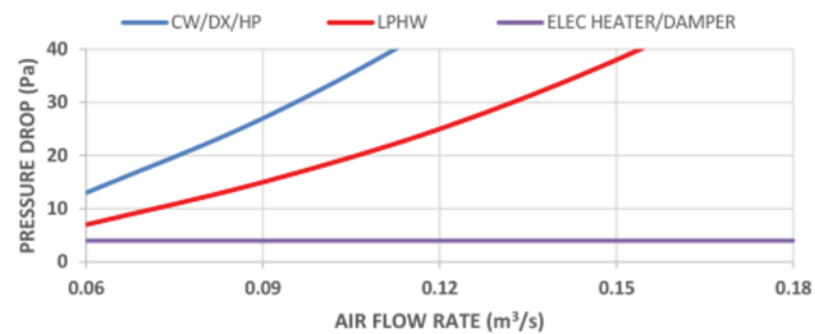
## Counterflow Heat Exchanger



## Coil Capacity



## Coil Pressure Drops



## Coil Data

## LPHW

|              |             |
|--------------|-------------|
| Duct Width:  | 235mm       |
| Duct Height: | 212mm       |
| Coil Depth:  | 150mm       |
| Connections: | 1 x ½"      |
| Dry Weight:  | 15.5kg      |
| Medium:      | 80°C / 60°C |

Bespoke coil designs available upon request

## CW

|              |            |
|--------------|------------|
| Duct Width:  | 235mm      |
| Duct Height: | 212mm      |
| Coil Depth:  | 200mm      |
| Connections: | 1 x ½"     |
| Dry Weight:  | 53.2kg     |
| Medium:      | 6°C / 12°C |

Bespoke coil designs available upon request

## DX / HP

|              |        |
|--------------|--------|
| Duct Width:  | 235mm  |
| Duct Height: | 212mm  |
| Coil Depth:  | 200mm  |
| Connections: | 1 x ½" |
| Dry Weight:  | 53.2kg |
| Medium:      | R410a  |

Bespoke coil designs available upon request

## Unit Acoustics

| DUTY CURVE |        | SOUND POWER LEVELS - Lw |        |        |       |       |       |       | RADIATED Lp |
|------------|--------|-------------------------|--------|--------|-------|-------|-------|-------|-------------|
|            |        | 125 Hz                  | 250 Hz | 500 Hz | 1 kHz | 2 kHz | 4 kHz | 8 kHz | dB(A)       |
| 100%       | INLET  | 59                      | 63     | 65     | 66    | 65    | 61    | 60    | 36          |
|            | OUTLET | 64                      | 68     | 70     | 71    | 70    | 66    | 64    |             |
| 90%        | INLET  | 59                      | 63     | 65     | 66    | 63    | 60    | 57    | 35          |
|            | OUTLET | 64                      | 68     | 70     | 71    | 68    | 65    | 62    |             |
| 80%        | INLET  | 57                      | 61     | 63     | 63    | 61    | 56    | 53    | 33          |
|            | OUTLET | 62                      | 66     | 68     | 68    | 66    | 61    | 58    |             |
| 70%        | INLET  | 55                      | 59     | 61     | 61    | 57    | 52    | 48    | 31          |
|            | OUTLET | 60                      | 64     | 66     | 66    | 62    | 57    | 53    |             |
| 60%        | INLET  | 53                      | 57     | 59     | 58    | 54    | 48    | 43    | 28          |
|            | OUTLET | 58                      | 62     | 64     | 63    | 59    | 53    | 48    |             |

## Attenuator Data

| INSERTION LOSSES (dB)    |        |        |        |       |       |       |       | DETAILS     |        |
|--------------------------|--------|--------|--------|-------|-------|-------|-------|-------------|--------|
| ATTENUATOR CODE          | 125 Hz | 250 Hz | 500 Hz | 1 kHz | 2 kHz | 4 kHz | 8 kHz | CONNECTION  | WEIGHT |
| ATT - 11-600 (600long)   | 4      | 8      | 16     | 30    | 27    | 24    | 14    | 235w x 212h | 12     |
| ATT - 11-900 (900long)   | 5      | 11     | 23     | 44    | 39    | 34    | 21    |             | 16     |
| ATT - 11-1200 (1200long) | 7      | 13     | 29     | 53    | 50    | 43    | 26    |             | 20     |

## Electric Heater Module

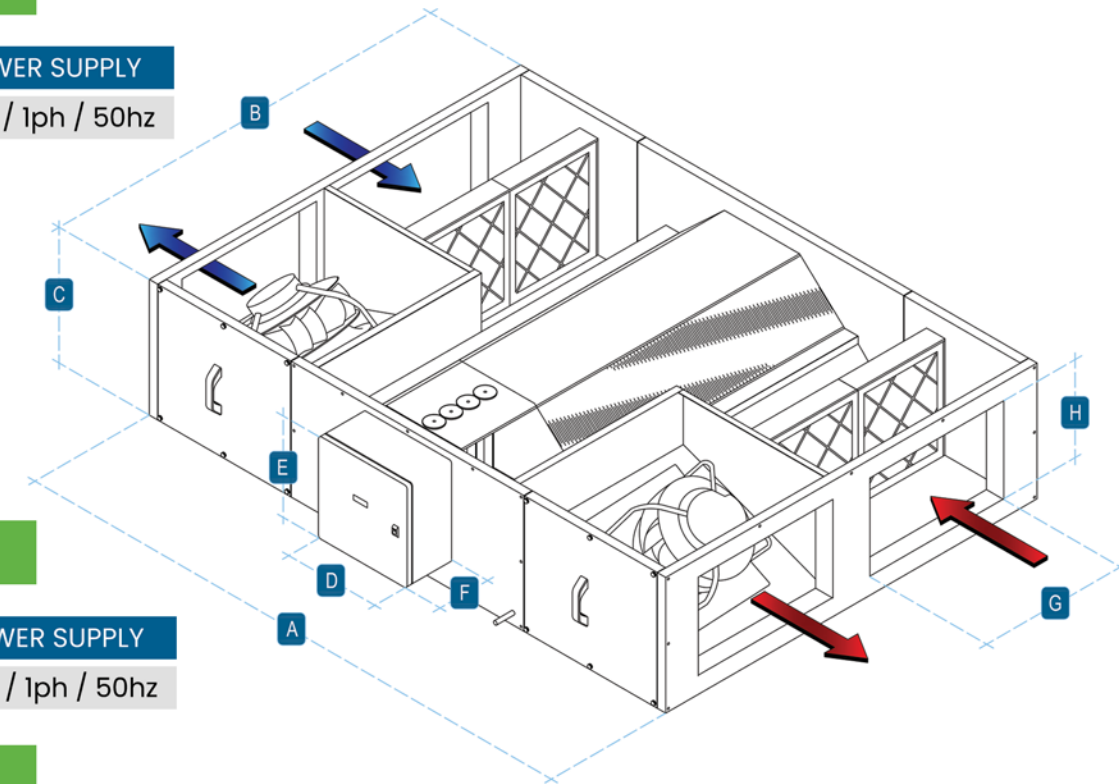
| OUTPUT | FLC    | POWER SUPPLY      |
|--------|--------|-------------------|
| 1.5kw  | 6.6amp | 230v / 1ph / 50hz |

## Unit Electrical Data

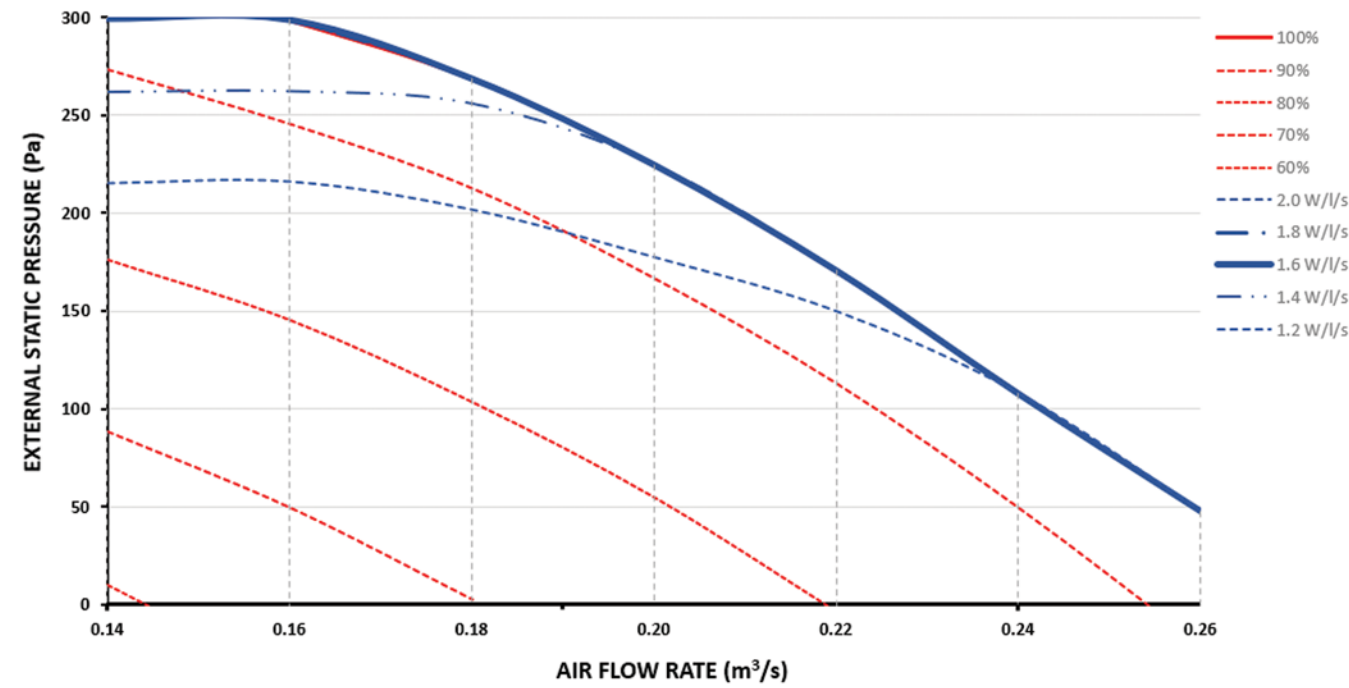
| UNIT   | FLC    | POWER SUPPLY      |
|--------|--------|-------------------|
| 0.44kw | 3.9amp | 230v / 1ph / 50hz |

## Unit Dimensions (mm)

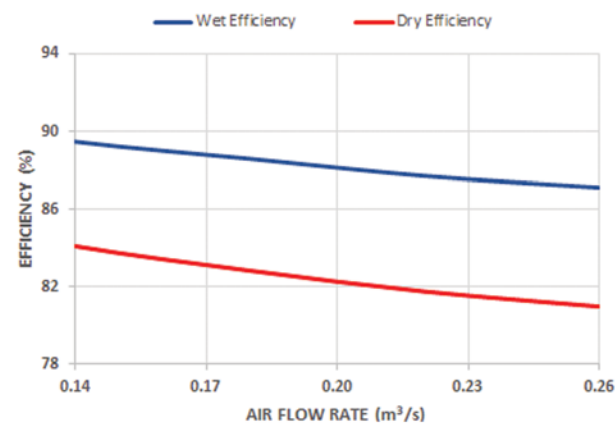
| MVHR UNIT |     |     | CONTROLS ENCLOSURE |     |     | CONNECTIONS / WEIGHT |     |     | WEATHERPROOF |
|-----------|-----|-----|--------------------|-----|-----|----------------------|-----|-----|--------------|
| A         | B   | C   | D                  | E   | F   | G                    | H   | KGS | C+           |
| 1300      | 770 | 312 | 400                | 300 | 150 | 235                  | 212 | 95  | 100          |



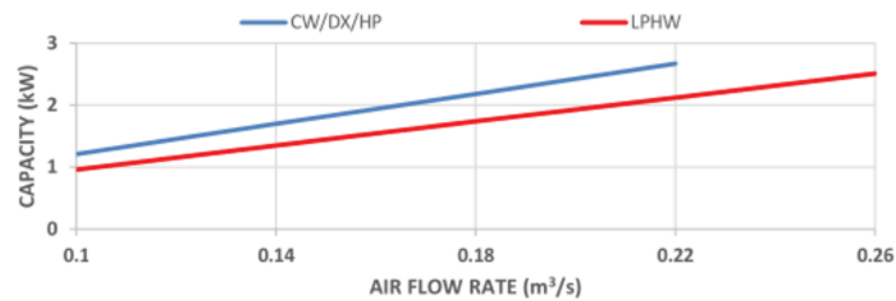
## Air Flow Rate



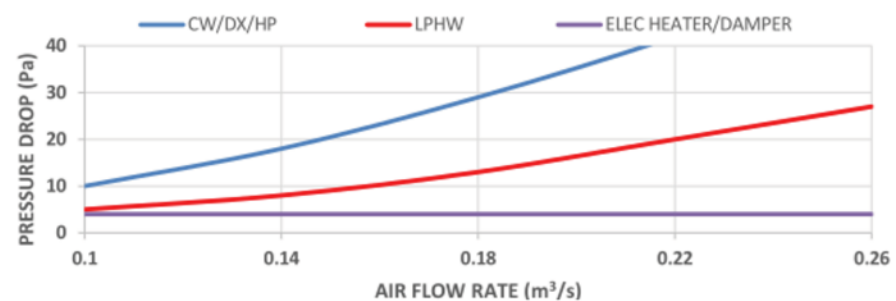
## Counterflow Heat Exchanger



## Coil Capacity



## Coil Pressure Drops



## Coil Data

## LPHW

|              |             |
|--------------|-------------|
| Duct Width:  | 450mm       |
| Duct Height: | 212mm       |
| Coil Depth:  | 150mm       |
| Connections: | 1 x ½"      |
| Dry Weight:  | 23.3kg      |
| Medium:      | 80°C / 60°C |

Bespoke coil designs available upon request

## CW

|              |            |
|--------------|------------|
| Duct Width:  | 450mm      |
| Duct Height: | 212mm      |
| Coil Depth:  | 200mm      |
| Connections: | 1 x ¾"     |
| Dry Weight:  | 61.9kg     |
| Medium:      | 6°C / 12°C |

Bespoke coil designs available upon request

## DX / HP

|              |        |
|--------------|--------|
| Duct Width:  | 450mm  |
| Duct Height: | 212mm  |
| Coil Depth:  | 200mm  |
| Connections: | 1 x ½" |
| Dry Weight:  | 62.2kg |
| Medium:      | R410a  |

Bespoke coil designs available upon request

## Unit Acoustics

| DUTY CURVE |        | SOUND POWER LEVELS - Lw |        |        |       |       |       |       | RADIATED Lp<br>dB(A) |
|------------|--------|-------------------------|--------|--------|-------|-------|-------|-------|----------------------|
|            |        | 125 Hz                  | 250 Hz | 500 Hz | 1 kHz | 2 kHz | 4 kHz | 8 kHz |                      |
| 100%       | INLET  | 62                      | 65     | 64     | 62    | 59    | 56    | 51    | 35                   |
|            | OUTLET | 67                      | 70     | 69     | 67    | 64    | 61    | 56    |                      |
| 90%        | INLET  | 61                      | 65     | 64     | 62    | 58    | 54    | 49    | 34                   |
|            | OUTLET | 66                      | 70     | 69     | 67    | 63    | 59    | 54    |                      |
| 80%        | INLET  | 59                      | 61     | 60     | 59    | 55    | 50    | 45    | 30                   |
|            | OUTLET | 64                      | 66     | 65     | 64    | 60    | 55    | 50    |                      |
| 70%        | INLET  | 56                      | 58     | 57     | 56    | 51    | 47    | 40    | 27                   |
|            | OUTLET | 61                      | 63     | 62     | 61    | 56    | 52    | 45    |                      |
| 60%        | INLET  | 53                      | 55     | 53     | 52    | 48    | 42    | 35    | 24                   |
|            | OUTLET | 58                      | 60     | 58     | 57    | 53    | 47    | 40    |                      |

## Attenuator Data

| INSERTION LOSSES (dB)    |        |        |        |       |       |       |       | DETAILS     |        |
|--------------------------|--------|--------|--------|-------|-------|-------|-------|-------------|--------|
| ATTENUATOR CODE          | 125 Hz | 250 Hz | 500 Hz | 1 kHz | 2 kHz | 4 kHz | 8 kHz | CONNECTION  | WEIGHT |
| ATT - 12-600 (600long)   | 9      | 14     | 23     | 40    | 40    | 36    | 27    | 450w x 212h | 20     |
| ATT - 12-900 (900long)   | 11     | 20     | 32     | 53    | 53    | 51    | 36    |             | 26     |
| ATT - 12-1200 (1200long) | 16     | 26     | 41     | 55    | 55    | 55    | 46    |             | 31     |

## Electric Heater Module

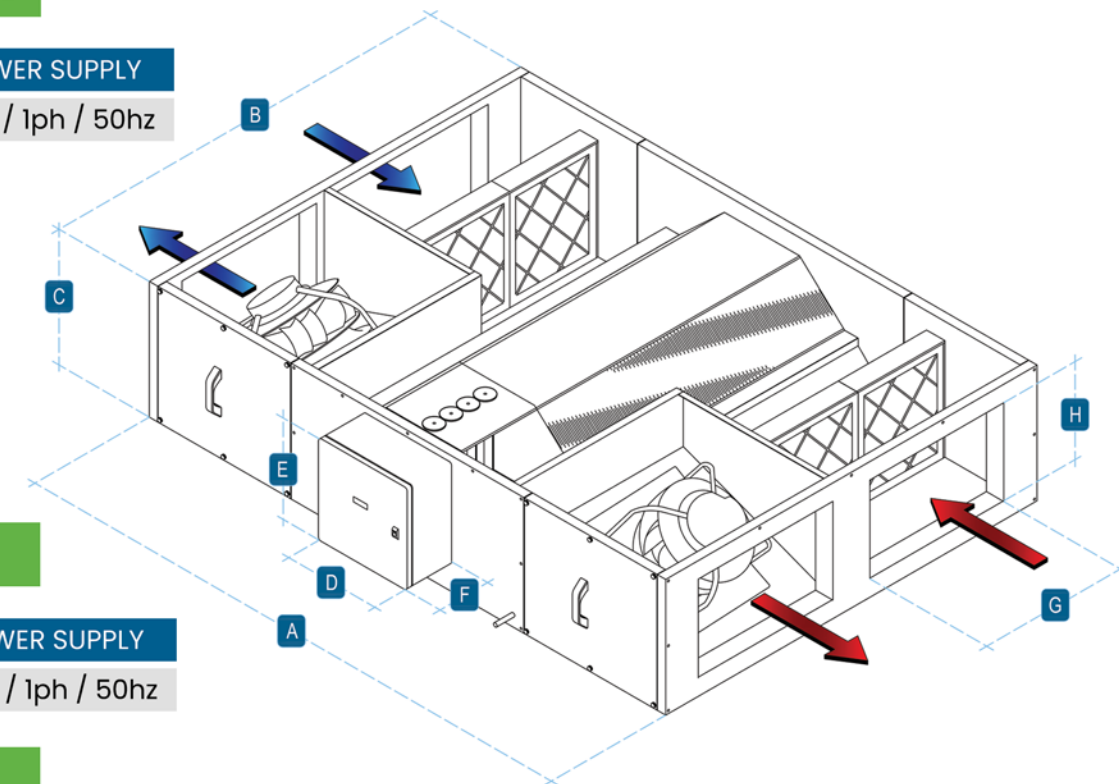
| OUTPUT | FLC     | POWER SUPPLY      |
|--------|---------|-------------------|
| 2.5kw  | 10.9amp | 230v / 1ph / 50hz |

## Unit Electrical Data

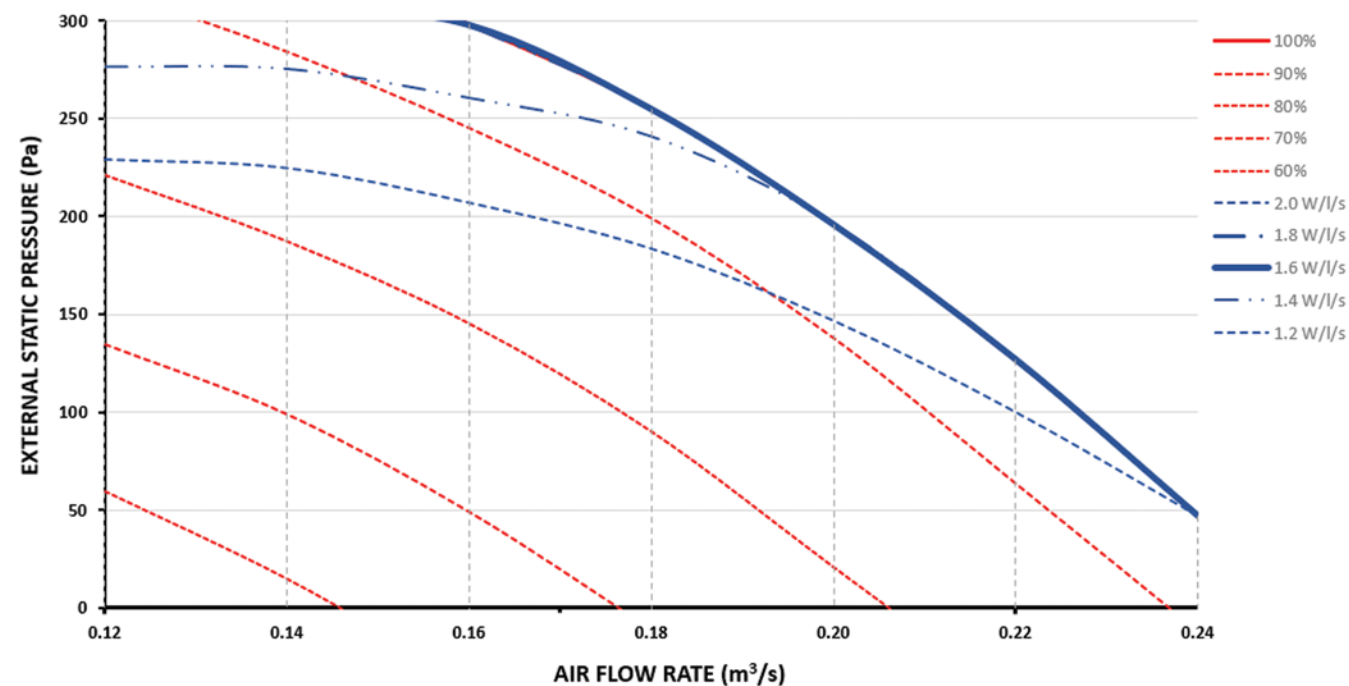
| UNIT   | FLC    | POWER SUPPLY      |
|--------|--------|-------------------|
| 0.44kw | 4.0amp | 230v / 1ph / 50hz |

## Unit Dimensions (mm)

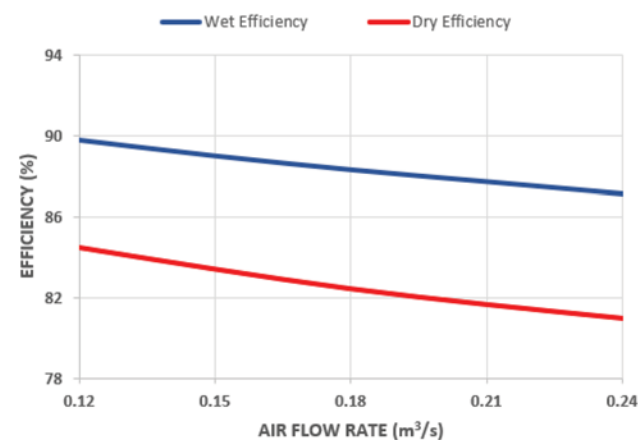
| MVHR UNIT |      |     | CONTROLS ENCLOSURE |     |     | CONNECTIONS / WEIGHT |     |     | WEATHERPROOF |
|-----------|------|-----|--------------------|-----|-----|----------------------|-----|-----|--------------|
| A         | B    | C   | D                  | E   | F   | G                    | H   | KGS | C+           |
| 1400      | 1375 | 312 | 400                | 300 | 150 | 450                  | 212 | 150 | 100          |



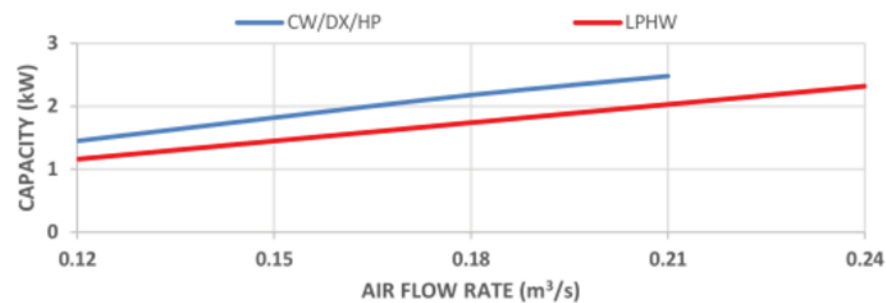
## Air Flow Rate



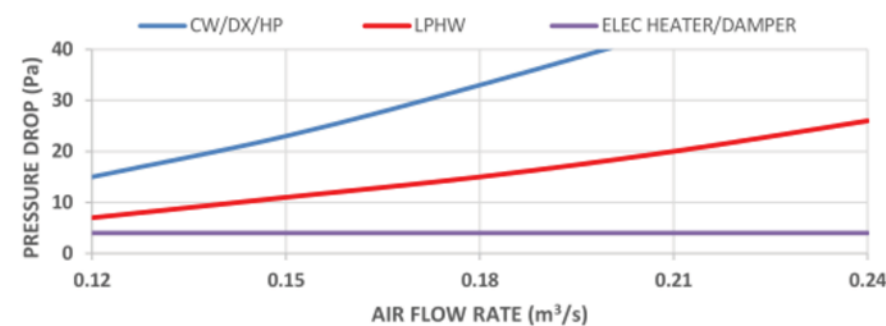
## Counterflow Heat Exchanger



## Coil Capacity



## Coil Pressure Drops



## Coil Data

## LPHW

|              |             |
|--------------|-------------|
| Duct Width:  | 350mm       |
| Duct Height: | 253mm       |
| Coil Depth:  | 150mm       |
| Connections: | 1 x ½"      |
| Dry Weight:  | 21.2kg      |
| Medium:      | 80°C / 60°C |

Bespoke coil designs available upon request

## CW

|              |            |
|--------------|------------|
| Duct Width:  | 350mm      |
| Duct Height: | 253mm      |
| Coil Depth:  | 200mm      |
| Connections: | 1 x ¾"     |
| Dry Weight:  | 59.5kg     |
| Medium:      | 6°C / 12°C |

Bespoke coil designs available upon request

## DX / HP

|              |        |
|--------------|--------|
| Duct Width:  | 350mm  |
| Duct Height: | 253mm  |
| Coil Depth:  | 200mm  |
| Connections: | 1 x ½" |
| Dry Weight:  | 60.0kg |
| Medium:      | R410a  |

Bespoke coil designs available upon request

## Unit Acoustics

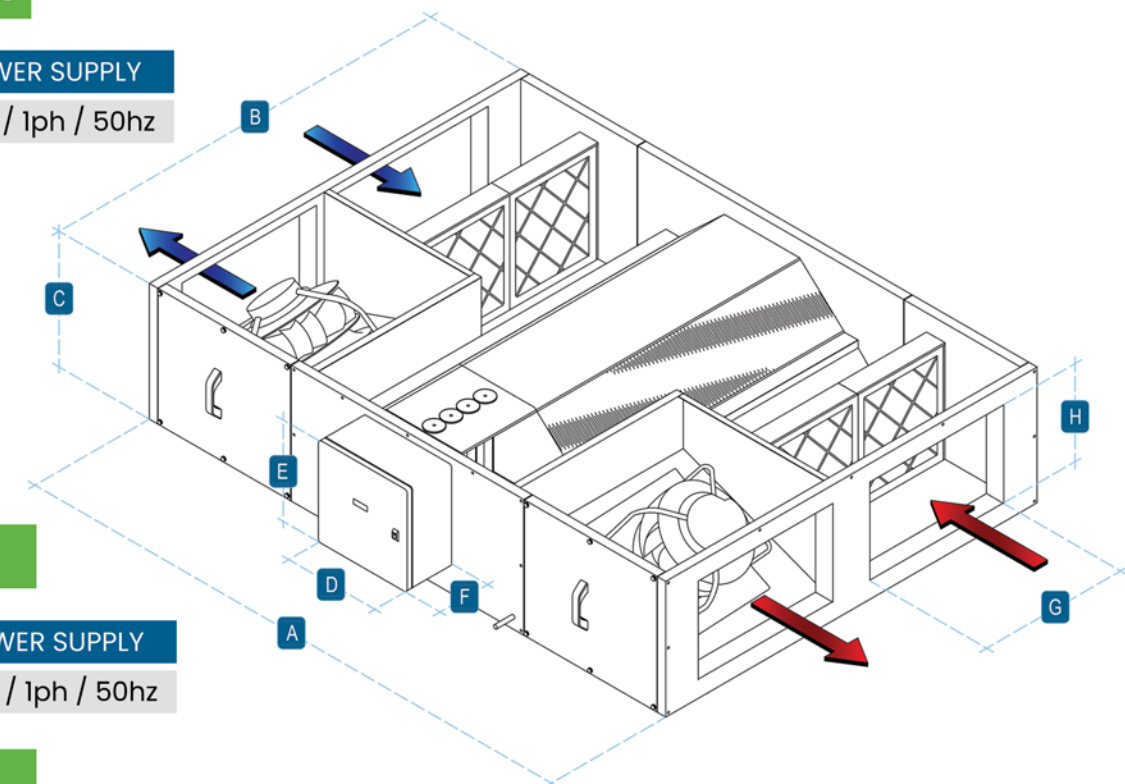
| DUTY CURVE |        | SOUND POWER LEVELS - Lw |        |        |       |       |       |       | RADIATED Lp<br>dB(A) |
|------------|--------|-------------------------|--------|--------|-------|-------|-------|-------|----------------------|
|            |        | 125 Hz                  | 250 Hz | 500 Hz | 1 kHz | 2 kHz | 4 kHz | 8 kHz |                      |
| 100%       | INLET  | 62                      | 65     | 64     | 62    | 59    | 56    | 51    | 32                   |
|            | OUTLET | 67                      | 70     | 69     | 67    | 64    | 61    | 56    |                      |
| 90%        | INLET  | 61                      | 65     | 64     | 62    | 58    | 54    | 49    | 31                   |
|            | OUTLET | 66                      | 70     | 69     | 67    | 63    | 59    | 54    |                      |
| 80%        | INLET  | 59                      | 61     | 60     | 59    | 55    | 50    | 45    | 27                   |
|            | OUTLET | 64                      | 66     | 65     | 64    | 60    | 55    | 50    |                      |
| 70%        | INLET  | 56                      | 58     | 57     | 56    | 51    | 47    | 40    | 24                   |
|            | OUTLET | 61                      | 63     | 62     | 61    | 56    | 52    | 45    |                      |
| 60%        | INLET  | 53                      | 55     | 53     | 52    | 48    | 42    | 35    | 21                   |
|            | OUTLET | 58                      | 60     | 58     | 57    | 53    | 47    | 40    |                      |

## Attenuator Data

| INSERTION LOSSES (dB)    |        |        |        |       |       |       |       | DETAILS     |        |
|--------------------------|--------|--------|--------|-------|-------|-------|-------|-------------|--------|
| ATTENUATOR CODE          | 125 Hz | 250 Hz | 500 Hz | 1 kHz | 2 kHz | 4 kHz | 8 kHz | CONNECTION  | WEIGHT |
| ATT - 13-600 (600long)   | 7      | 11     | 19     | 33    | 29    | 26    | 15    | 350w x 253h | 18     |
| ATT - 13-900 (900long)   | 9      | 16     | 28     | 46    | 42    | 36    | 22    |             | 22     |
| ATT - 13-1200 (1200long) | 12     | 21     | 35     | 55    | 52    | 46    | 28    |             | 28     |

## Electric Heater Module

| OUTPUT | FLC     | POWER SUPPLY      |
|--------|---------|-------------------|
| 2.5kw  | 10.9amp | 230v / 1ph / 50hz |



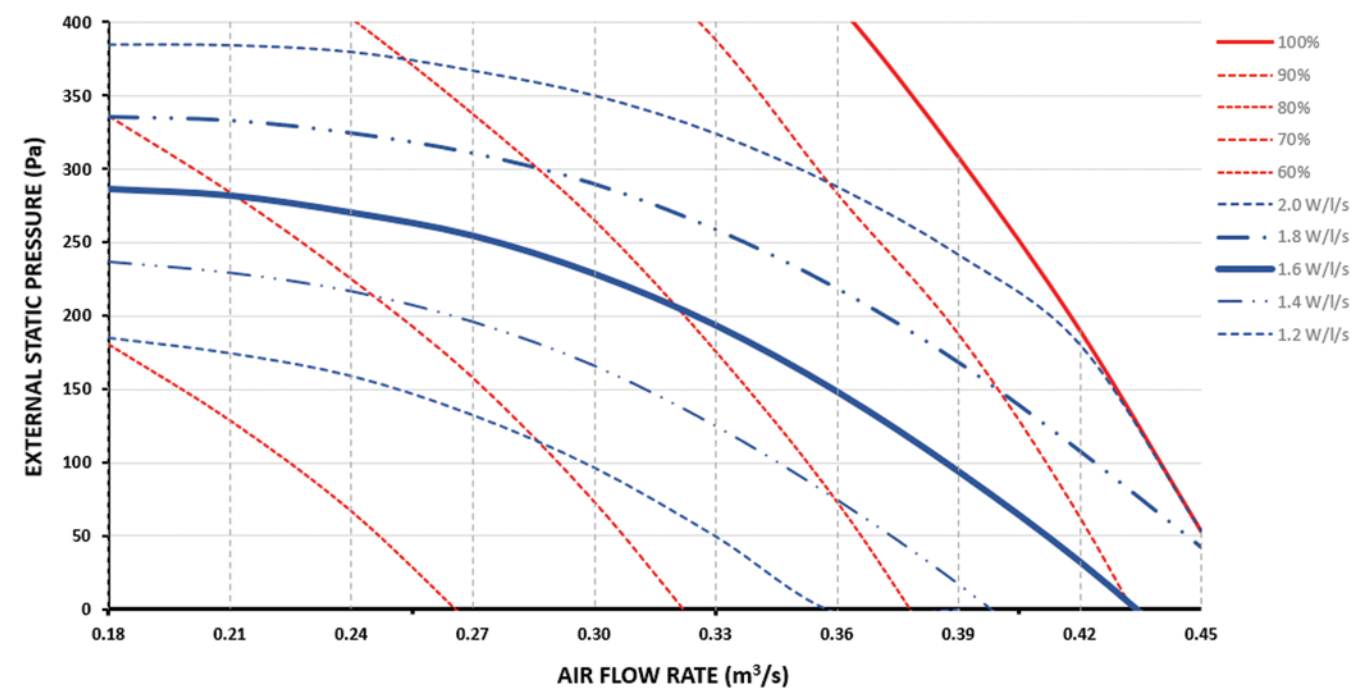
## Unit Electrical Data

| UNIT   | FLC    | POWER SUPPLY      |
|--------|--------|-------------------|
| 0.44kw | 4.0amp | 230v / 1ph / 50hz |

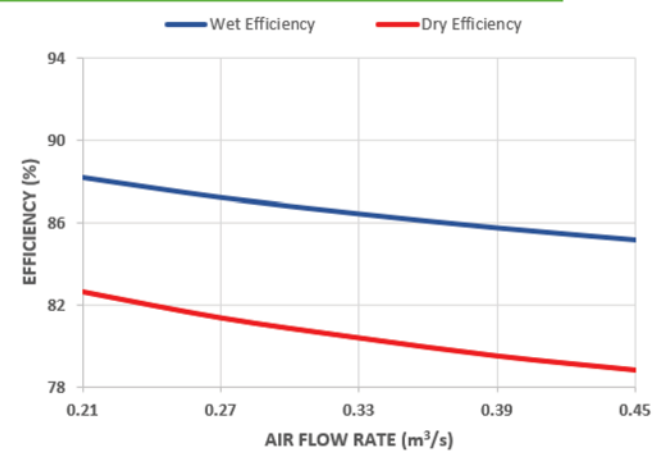
## Unit Dimensions (mm)

| MVHR UNIT |      |     | CONTROLS ENCLOSURE |     |     | CONNECTIONS / WEIGHT |     |     | WEATHERPROOF |
|-----------|------|-----|--------------------|-----|-----|----------------------|-----|-----|--------------|
| A         | B    | C   | D                  | E   | F   | G                    | H   | KGS | C+           |
| 1550      | 1065 | 353 | 400                | 300 | 150 | 350                  | 253 | 145 | 100          |

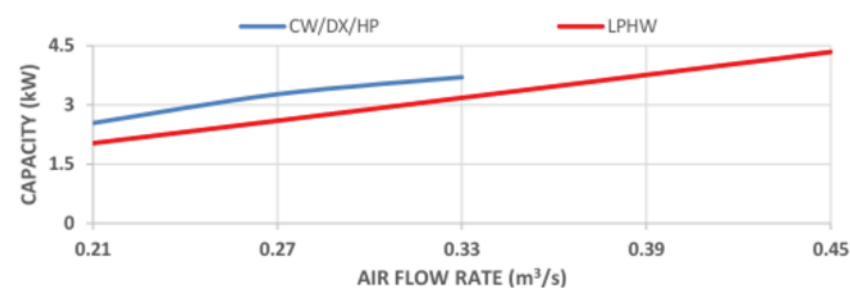
## Air Flow Rate



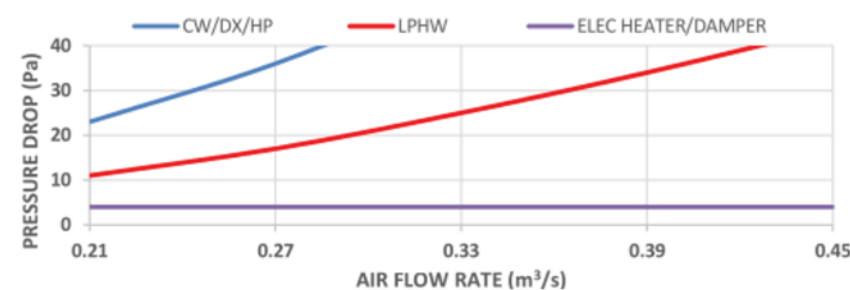
## Counterflow Heat Exchanger



## Coil Capacity



## Coil Pressure Drops



## Coil Data

## LPHW

|              |             |
|--------------|-------------|
| Duct Width:  | 425mm       |
| Duct Height: | 294mm       |
| Coil Depth:  | 150mm       |
| Connections: | 1 x ½"      |
| Dry Weight:  | 25.5kg      |
| Medium:      | 80°C / 60°C |

Bespoke coil designs available upon request

## CW

|              |            |
|--------------|------------|
| Duct Width:  | 425mm      |
| Duct Height: | 294mm      |
| Coil Depth:  | 200mm      |
| Connections: | 1 x ¾"     |
| Dry Weight:  | 64.6kg     |
| Medium:      | 6°C / 12°C |

Bespoke coil designs available upon request

## DX / HP

|              |        |
|--------------|--------|
| Duct Width:  | 425mm  |
| Duct Height: | 294mm  |
| Coil Depth:  | 200mm  |
| Connections: | 1 x ½" |
| Dry Weight:  | 65.0kg |
| Medium:      | R410a  |

Bespoke coil designs available upon request

## Unit Acoustics

| DUTY CURVE |        | SOUND POWER LEVELS - Lw |        |        |       |       |       |       | RADIATED Lp |
|------------|--------|-------------------------|--------|--------|-------|-------|-------|-------|-------------|
|            |        | 125 Hz                  | 250 Hz | 500 Hz | 1 kHz | 2 kHz | 4 kHz | 8 kHz | dB(A)       |
| 100%       | INLET  | 62                      | 65     | 64     | 62    | 59    | 56    | 51    | 32          |
|            | OUTLET | 67                      | 70     | 69     | 67    | 64    | 61    | 56    |             |
| 90%        | INLET  | 61                      | 65     | 64     | 62    | 58    | 54    | 49    | 31          |
|            | OUTLET | 66                      | 70     | 69     | 67    | 63    | 59    | 54    |             |
| 80%        | INLET  | 59                      | 61     | 60     | 59    | 55    | 50    | 45    | 27          |
|            | OUTLET | 64                      | 66     | 65     | 64    | 60    | 55    | 50    |             |
| 70%        | INLET  | 56                      | 58     | 57     | 56    | 51    | 47    | 40    | 24          |
|            | OUTLET | 61                      | 63     | 62     | 61    | 56    | 52    | 45    |             |
| 60%        | INLET  | 53                      | 55     | 53     | 52    | 48    | 42    | 35    | 21          |
|            | OUTLET | 58                      | 60     | 58     | 57    | 53    | 47    | 40    |             |

## Attenuator Data

| INSERTION LOSSES (dB)    |        |        |        |       |       |       |       | DETAILS     |        |
|--------------------------|--------|--------|--------|-------|-------|-------|-------|-------------|--------|
| ATTENUATOR CODE          | 125 Hz | 250 Hz | 500 Hz | 1 kHz | 2 kHz | 4 kHz | 8 kHz | CONNECTION  | WEIGHT |
| ATT - 14-600 (600long)   | 5      | 9      | 18     | 26    | 21    | 18    | 11    | 425w x 294h | 21     |
| ATT - 14-900 (900long)   | 7      | 13     | 26     | 37    | 30    | 26    | 16    |             | 26     |
| ATT - 14-1200 (1200long) | 9      | 17     | 33     | 47    | 38    | 33    | 20    |             | 33     |

## Electric Heater Module

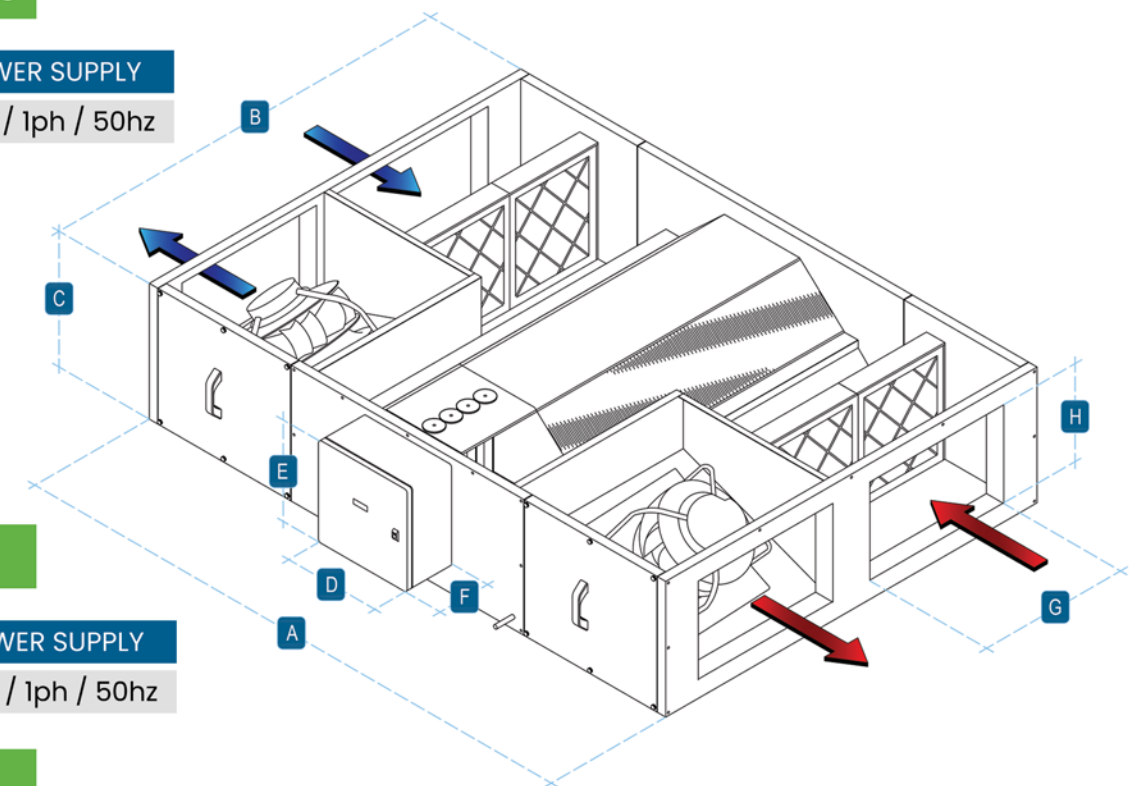
| OUTPUT | FLC     | POWER SUPPLY      |
|--------|---------|-------------------|
| 3.5kw  | 15.2amp | 230v / 1ph / 50hz |

## Unit Electrical Data

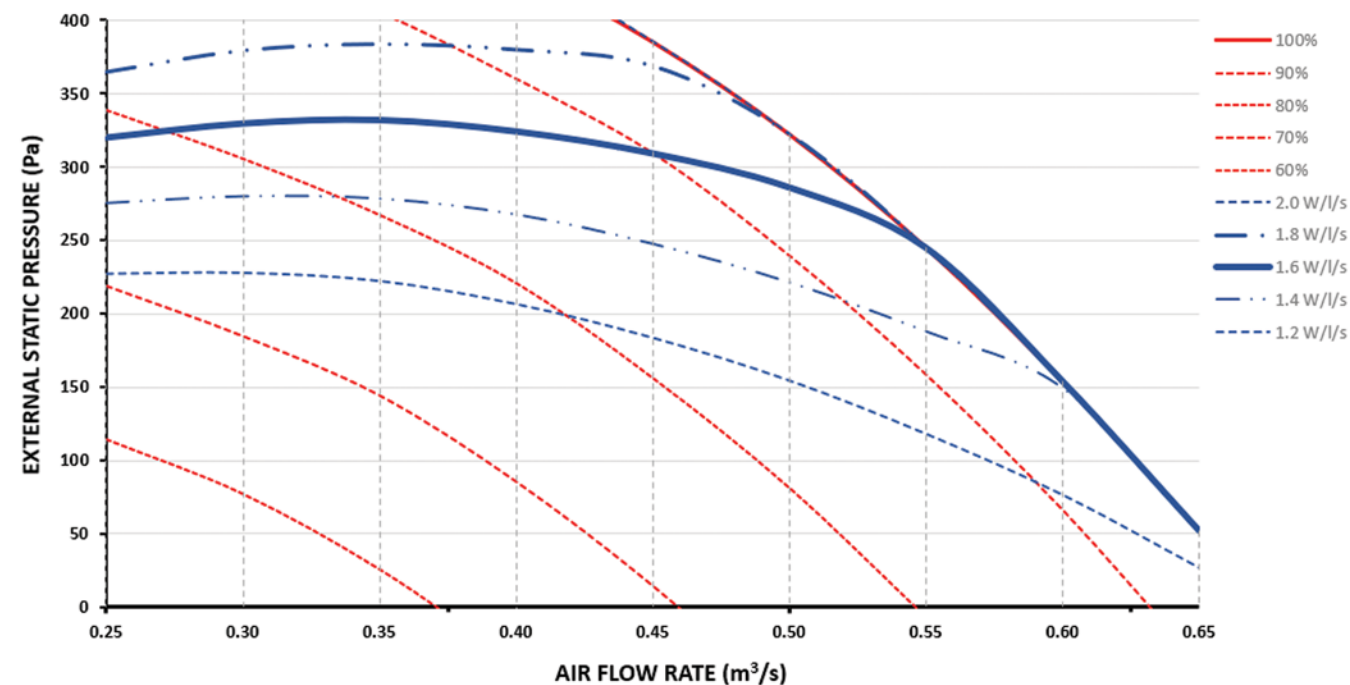
| UNIT   | FLC    | POWER SUPPLY      |
|--------|--------|-------------------|
| 1.10kw | 5.6amp | 230v / 1ph / 50hz |

## Unit Dimensions (mm)

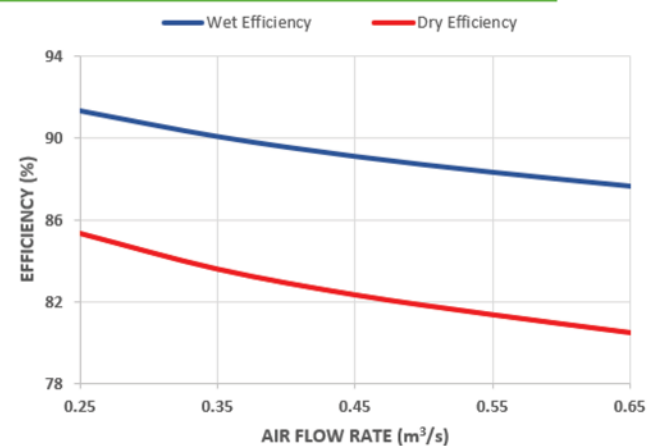
| MVHR UNIT |      |     | CONTROLS ENCLOSURE |     |     | CONNECTIONS / WEIGHT |     |     | WEATHERPROOF |
|-----------|------|-----|--------------------|-----|-----|----------------------|-----|-----|--------------|
| A         | B    | C   | D                  | E   | F   | G                    | H   | KGS | C+           |
| 1950      | 1195 | 394 | 400                | 300 | 150 | 425                  | 294 | 180 | 100          |



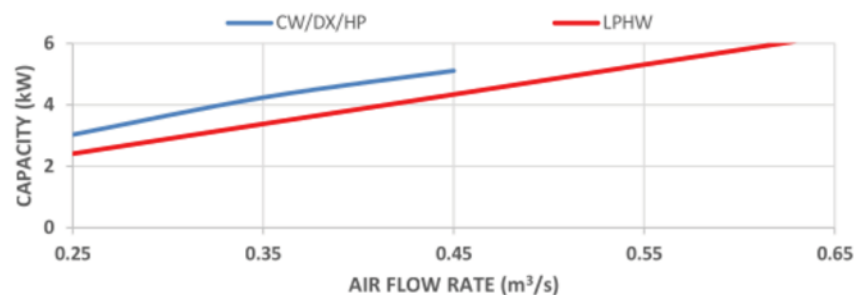
## Air Flow Rate



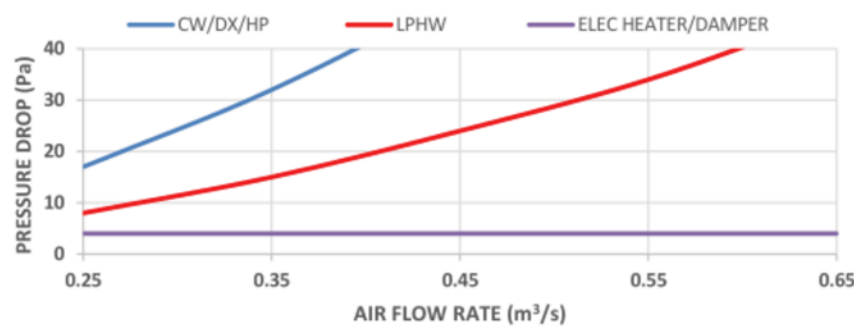
## Counterflow Heat Exchanger



## Coil Capacity



## Coil Pressure Drops



## Coil Data

## LPHW

|              |             |
|--------------|-------------|
| Duct Width:  | 460mm       |
| Duct Height: | 378mm       |
| Coil Depth:  | 150mm       |
| Connections: | 1 x ¾"      |
| Dry Weight:  | 30.0kg      |
| Medium:      | 80°C / 60°C |

Bespoke coil designs available upon request

## CW

|              |            |
|--------------|------------|
| Duct Width:  | 460mm      |
| Duct Height: | 378mm      |
| Coil Depth:  | 200mm      |
| Connections: | 1 x ¾"     |
| Dry Weight:  | 69.8kg     |
| Medium:      | 6°C / 12°C |

Bespoke coil designs available upon request

## DX / HP

|              |        |
|--------------|--------|
| Duct Width:  | 460mm  |
| Duct Height: | 378mm  |
| Coil Depth:  | 200mm  |
| Connections: | 1 x ½" |
| Dry Weight:  | 70.5kg |
| Medium:      | R410a  |

Bespoke coil designs available upon request

## Unit Acoustics

| DUTY CURVE |        | SOUND POWER LEVELS - Lw |        |        |       |       |       |       | RADIATED Lp<br>dB(A) |
|------------|--------|-------------------------|--------|--------|-------|-------|-------|-------|----------------------|
|            |        | 125 Hz                  | 250 Hz | 500 Hz | 1 kHz | 2 kHz | 4 kHz | 8 kHz |                      |
| 100%       | INLET  | 71                      | 71     | 70     | 66    | 64    | 63    | 58    | 39                   |
|            | OUTLET | 76                      | 76     | 75     | 71    | 69    | 68    | 63    |                      |
| 90%        | INLET  | 70                      | 70     | 68     | 65    | 62    | 60    | 55    | 38                   |
|            | OUTLET | 75                      | 75     | 73     | 70    | 67    | 65    | 60    |                      |
| 80%        | INLET  | 68                      | 67     | 65     | 62    | 59    | 57    | 51    | 35                   |
|            | OUTLET | 73                      | 72     | 70     | 67    | 64    | 62    | 56    |                      |
| 70%        | INLET  | 65                      | 64     | 62     | 59    | 56    | 53    | 47    | 32                   |
|            | OUTLET | 70                      | 69     | 67     | 64    | 61    | 58    | 52    |                      |
| 60%        | INLET  | 62                      | 60     | 59     | 55    | 52    | 49    | 42    | 29                   |
|            | OUTLET | 67                      | 65     | 64     | 60    | 57    | 54    | 47    |                      |

## Attenuator Data

| ATTENUATOR CODE          | INSERTION LOSSES (dB) |        |        |       |       |       |       | DETAILS     |        |
|--------------------------|-----------------------|--------|--------|-------|-------|-------|-------|-------------|--------|
|                          | 125 Hz                | 250 Hz | 500 Hz | 1 kHz | 2 kHz | 4 kHz | 8 kHz | CONNECTION  | WEIGHT |
| ATT - 15-600 (600long)   | 8                     | 13     | 20     | 28    | 24    | 20    | 13    | 460w x 378h | 25     |
| ATT - 15-900 (900long)   | 12                    | 19     | 28     | 37    | 33    | 27    | 18    |             | 33     |
| ATT - 15-1200 (1200long) | 15                    | 24     | 36     | 43    | 38    | 33    | 22    |             | 42     |

## Electric Heater Module

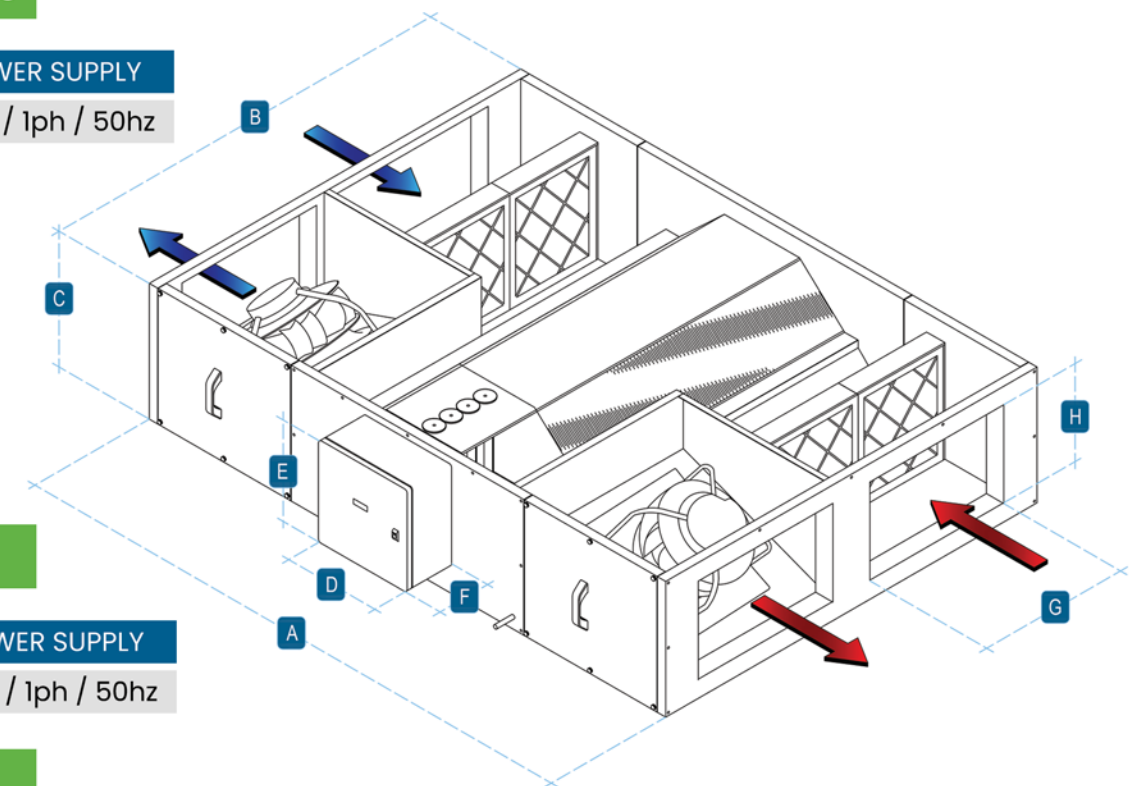
| OUTPUT | FLC     | POWER SUPPLY      |
|--------|---------|-------------------|
| 6.0kw  | 26.0amp | 230v / 1ph / 50hz |

## Unit Electrical Data

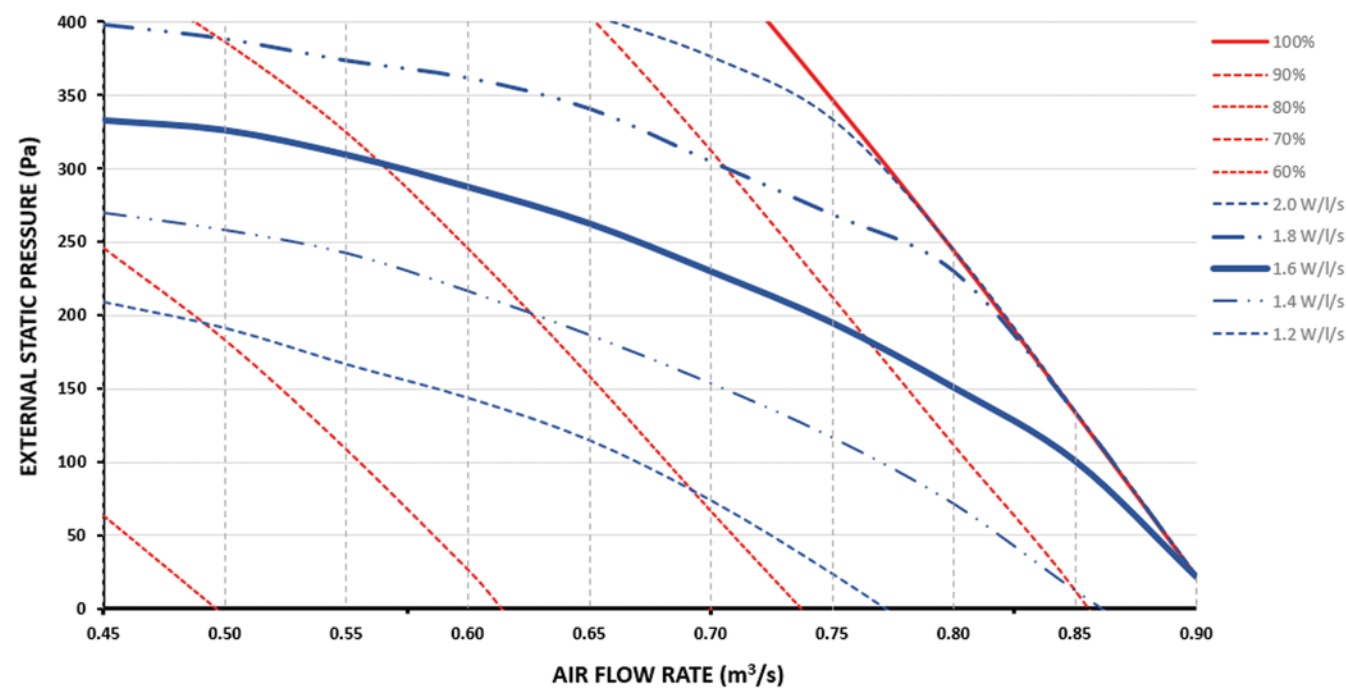
| UNIT   | FLC    | POWER SUPPLY      |
|--------|--------|-------------------|
| 1.10kw | 5.6amp | 230v / 1ph / 50hz |

## Unit Dimensions (mm)

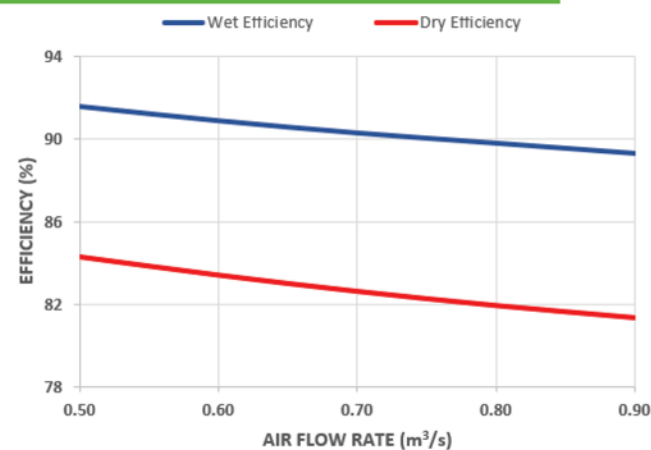
| MVHR UNIT |      |     | CONTROLS ENCLOSURE |     |     | CONNECTIONS / WEIGHT |     |     | WEATHERPROOF |
|-----------|------|-----|--------------------|-----|-----|----------------------|-----|-----|--------------|
| A         | B    | C   | D                  | E   | F   | G                    | H   | KGS | C+           |
| 1950      | 1505 | 478 | 400                | 300 | 150 | 460                  | 378 | 250 | 100          |



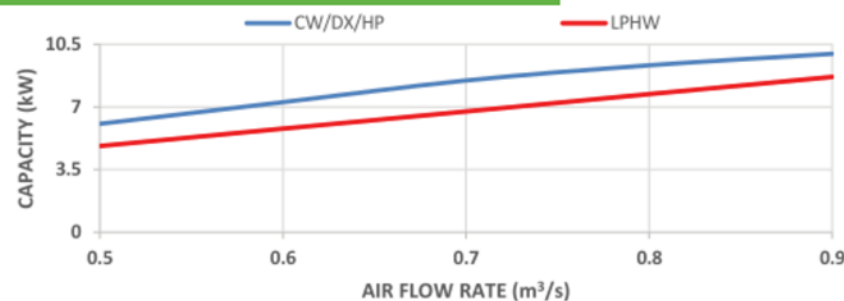
## Air Flow Rate



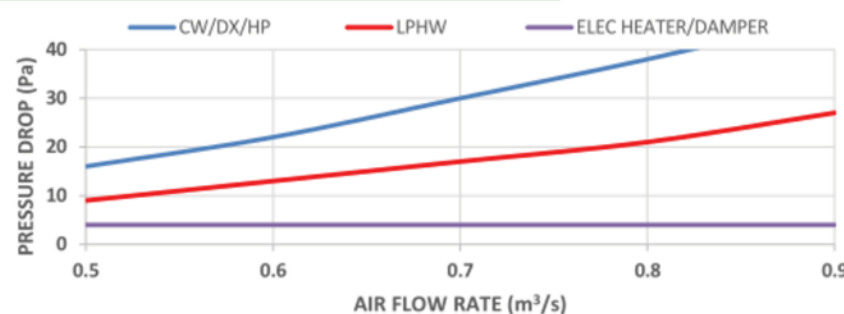
## Counterflow Heat Exchanger



## Coil Capacity



## Coil Pressure Drops



## Coil Data

## LPHW

|              |             |
|--------------|-------------|
| Duct Width:  | 600mm       |
| Duct Height: | 515mm       |
| Coil Depth:  | 150mm       |
| Connections: | 1 x ¾"      |
| Dry Weight:  | 41.9kg      |
| Medium:      | 80°C / 60°C |

Bespoke coil designs available upon request

## CW

|              |            |
|--------------|------------|
| Duct Width:  | 600mm      |
| Duct Height: | 515mm      |
| Coil Depth:  | 200mm      |
| Connections: | 1 x ¾"     |
| Dry Weight:  | 82.8kg     |
| Medium:      | 6°C / 12°C |

Bespoke coil designs available upon request

## DX / HP

|              |        |
|--------------|--------|
| Duct Width:  | 600mm  |
| Duct Height: | 515mm  |
| Coil Depth:  | 200mm  |
| Connections: | 1 x ½" |
| Dry Weight:  | 85.5kg |
| Medium:      | R410a  |

Bespoke coil designs available upon request

## Unit Acoustics

| DUTY CURVE |        | SOUND POWER LEVELS - Lw |        |        |       |       |       |       | RADIATED Lp |
|------------|--------|-------------------------|--------|--------|-------|-------|-------|-------|-------------|
|            |        | 125 Hz                  | 250 Hz | 500 Hz | 1 kHz | 2 kHz | 4 kHz | 8 kHz | dB(A)       |
| 100%       | INLET  | 75                      | 75     | 70     | 70    | 68    | 68    | 73    | 46          |
|            | OUTLET | 84                      | 84     | 80     | 80    | 78    | 74    | 72    |             |
| 90%        | INLET  | 73                      | 73     | 70     | 68    | 67    | 67    | 70    | 43          |
|            | OUTLET | 80                      | 80     | 78     | 78    | 77    | 72    | 70    |             |
| 80%        | INLET  | 69                      | 69     | 67     | 65    | 63    | 64    | 62    | 40          |
|            | OUTLET | 77                      | 77     | 74     | 74    | 73    | 68    | 66    |             |
| 70%        | INLET  | 65                      | 65     | 63     | 62    | 60    | 62    | 56    | 37          |
|            | OUTLET | 74                      | 74     | 72     | 72    | 71    | 65    | 64    |             |
| 60%        | INLET  | 61                      | 61     | 59     | 59    | 56    | 57    | 47    | 33          |
|            | OUTLET | 69                      | 69     | 68     | 68    | 66    | 60    | 56    |             |

## Attenuator Data

| ATTENUATOR CODE          | INSERTION LOSSES (dB) |        |        |       |       |       |       | DETAILS     |        |
|--------------------------|-----------------------|--------|--------|-------|-------|-------|-------|-------------|--------|
|                          | 125 Hz                | 250 Hz | 500 Hz | 1 kHz | 2 kHz | 4 kHz | 8 kHz | CONNECTION  | WEIGHT |
| ATT - 16-600 (600long)   | 8                     | 12     | 15     | 18    | 14    | 11    | 6     | 600w x 515h | 34     |
| ATT - 16-900 (900long)   | 12                    | 19     | 28     | 37    | 33    | 27    | 18    |             | 45     |
| ATT - 16-1200 (1200long) | 15                    | 24     | 36     | 43    | 38    | 33    | 22    |             | 55     |

## Electric Heater Module

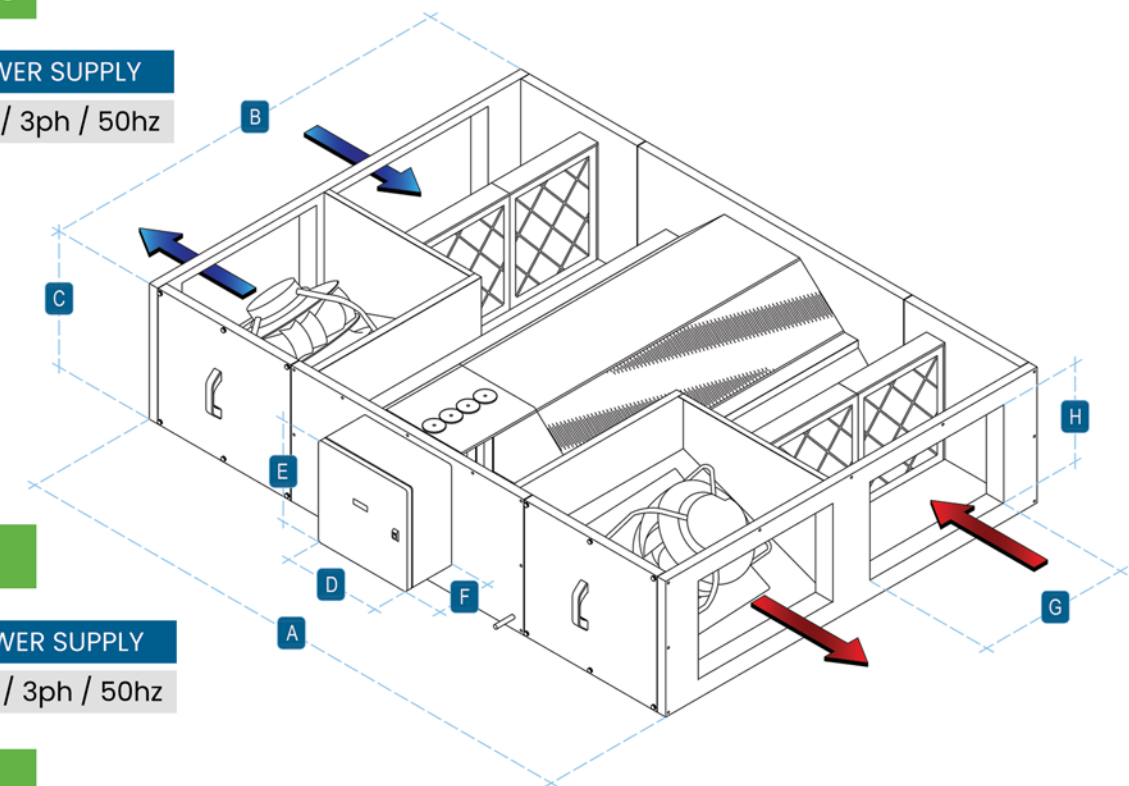
| OUTPUT | FLC     | POWER SUPPLY      |
|--------|---------|-------------------|
| 9.0kw  | 13.0amp | 400v / 3ph / 50hz |

## Unit Electrical Data

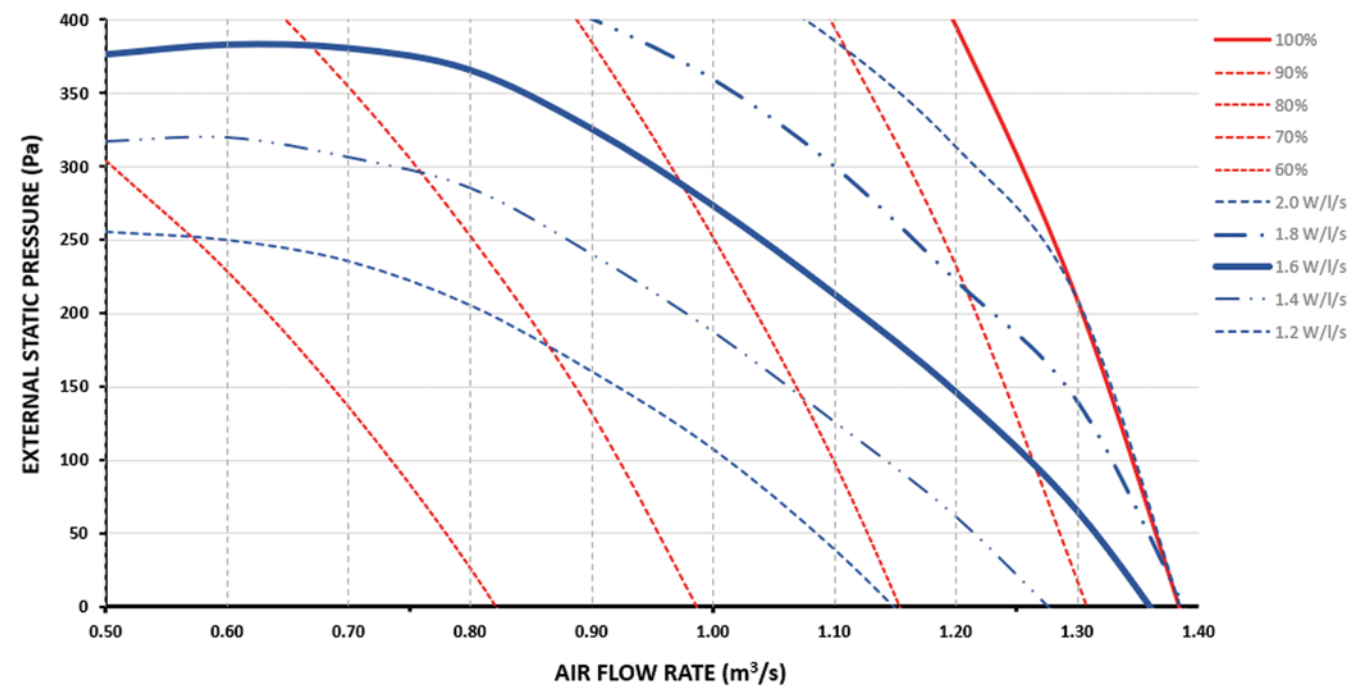
| UNIT   | FLC    | POWER SUPPLY      |
|--------|--------|-------------------|
| 2.20kw | 4.8amp | 400v / 3ph / 50hz |

## Unit Dimensions (mm)

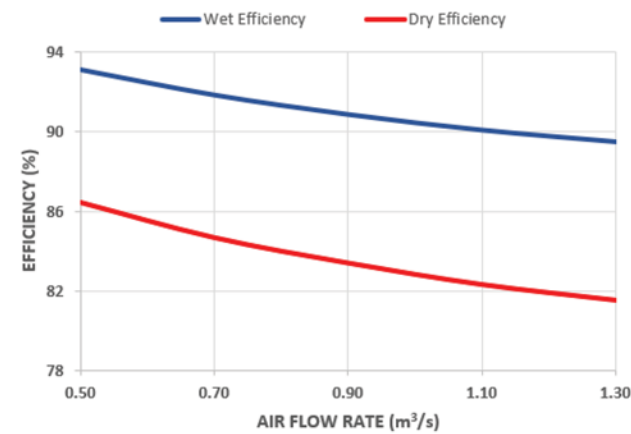
| MVHR UNIT |      |     | CONTROLS ENCLOSURE |     |     | CONNECTIONS / WEIGHT |     |     | WEATHERPROOF |
|-----------|------|-----|--------------------|-----|-----|----------------------|-----|-----|--------------|
| A         | B    | C   | D                  | E   | F   | G                    | H   | KGS | C+           |
| 2150      | 1575 | 690 | 400                | 300 | 150 | 600                  | 515 | 430 | 25           |



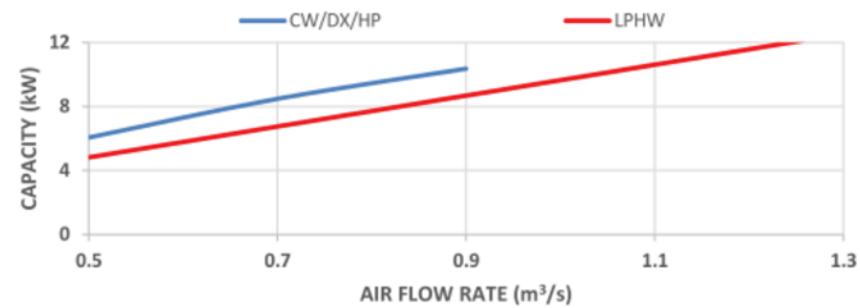
## Air Flow Rate



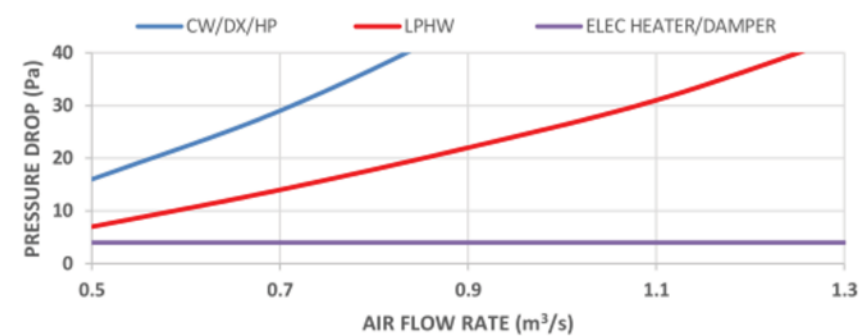
## Counterflow Heat Exchanger



## Coil Capacity



## Coil Pressure Drops



## Coil Data

## LPHW

|              |             |
|--------------|-------------|
| Duct Width:  | 670mm       |
| Duct Height: | 515mm       |
| Coil Depth:  | 150mm       |
| Connections: | 1 x ¾"      |
| Dry Weight:  | 44.8kg      |
| Medium:      | 80°C / 60°C |

Bespoke coil designs  
available upon request

## CW

|              |            |
|--------------|------------|
| Duct Width:  | 670mm      |
| Duct Height: | 515mm      |
| Coil Depth:  | 200mm      |
| Connections: | 1 x ¾"     |
| Dry Weight:  | 87.8kg     |
| Medium:      | 6°C / 12°C |

Bespoke coil designs  
available upon request

## DX / HP

|              |        |
|--------------|--------|
| Duct Width:  | 670mm  |
| Duct Height: | 515mm  |
| Coil Depth:  | 200mm  |
| Connections: | 1 x ½" |
| Dry Weight:  | 89.7kg |
| Medium:      | R410a  |

Bespoke coil designs  
available upon request

## Unit Acoustics

| DUTY CURVE |        | SOUND POWER LEVELS - Lw |        |        |       |       |       |       | RADIATED Lp |
|------------|--------|-------------------------|--------|--------|-------|-------|-------|-------|-------------|
|            |        | 125 Hz                  | 250 Hz | 500 Hz | 1 kHz | 2 kHz | 4 kHz | 8 kHz | dB(A)       |
| 100%       | INLET  | 76                      | 78     | 74     | 74    | 73    | 77    | 77    | 43          |
|            | OUTLET | 76                      | 78     | 76     | 79    | 79    | 78    | 78    |             |
| 90%        | INLET  | 74                      | 78     | 73     | 73    | 72    | 75    | 75    | 42          |
|            | OUTLET | 75                      | 78     | 75     | 78    | 78    | 78    | 76    |             |
| 80%        | INLET  | 69                      | 73     | 69     | 69    | 69    | 72    | 67    | 39          |
|            | OUTLET | 70                      | 73     | 71     | 76    | 75    | 75    | 69    |             |
| 70%        | INLET  | 67                      | 67     | 67     | 67    | 67    | 69    | 59    | 36          |
|            | OUTLET | 67                      | 67     | 69     | 74    | 73    | 73    | 63    |             |
| 60%        | INLET  | 65                      | 64     | 64     | 64    | 64    | 64    | 54    | 33          |
|            | OUTLET | 65                      | 65     | 66     | 71    | 69    | 66    | 58    |             |

## Attenuator Data

| ATTENUATOR CODE          | INSERTION LOSSES (dB) |        |        |       |       |       |       | DETAILS     |        |
|--------------------------|-----------------------|--------|--------|-------|-------|-------|-------|-------------|--------|
|                          | 125 Hz                | 250 Hz | 500 Hz | 1 kHz | 2 kHz | 4 kHz | 8 kHz | CONNECTION  | WEIGHT |
| ATT - 17-600 (600long)   | 8                     | 12     | 15     | 18    | 14    | 11    | 6     | 670w x 515h | 36     |
| ATT - 17-900 (900long)   | 10                    | 16     | 21     | 25    | 20    | 16    | 9     |             | 48     |
| ATT - 17-1200 (1200long) | 13                    | 20     | 27     | 31    | 24    | 20    | 11    |             | 59     |

## Electric Heater Module

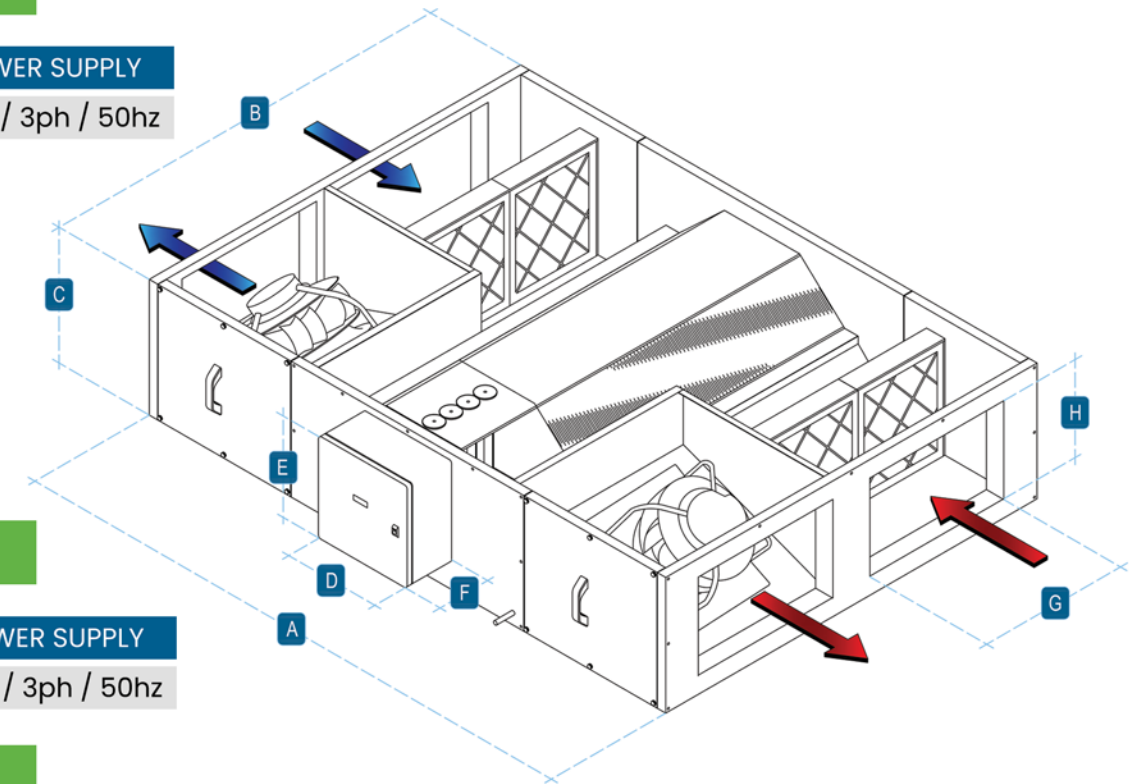
| OUTPUT | FLC     | POWER SUPPLY      |
|--------|---------|-------------------|
| 9.0kw  | 13.0amp | 400v / 3ph / 50hz |

## Unit Electrical Data

| UNIT   | FLC    | POWER SUPPLY      |
|--------|--------|-------------------|
| 3.10kw | 6.0amp | 400v / 3ph / 50hz |

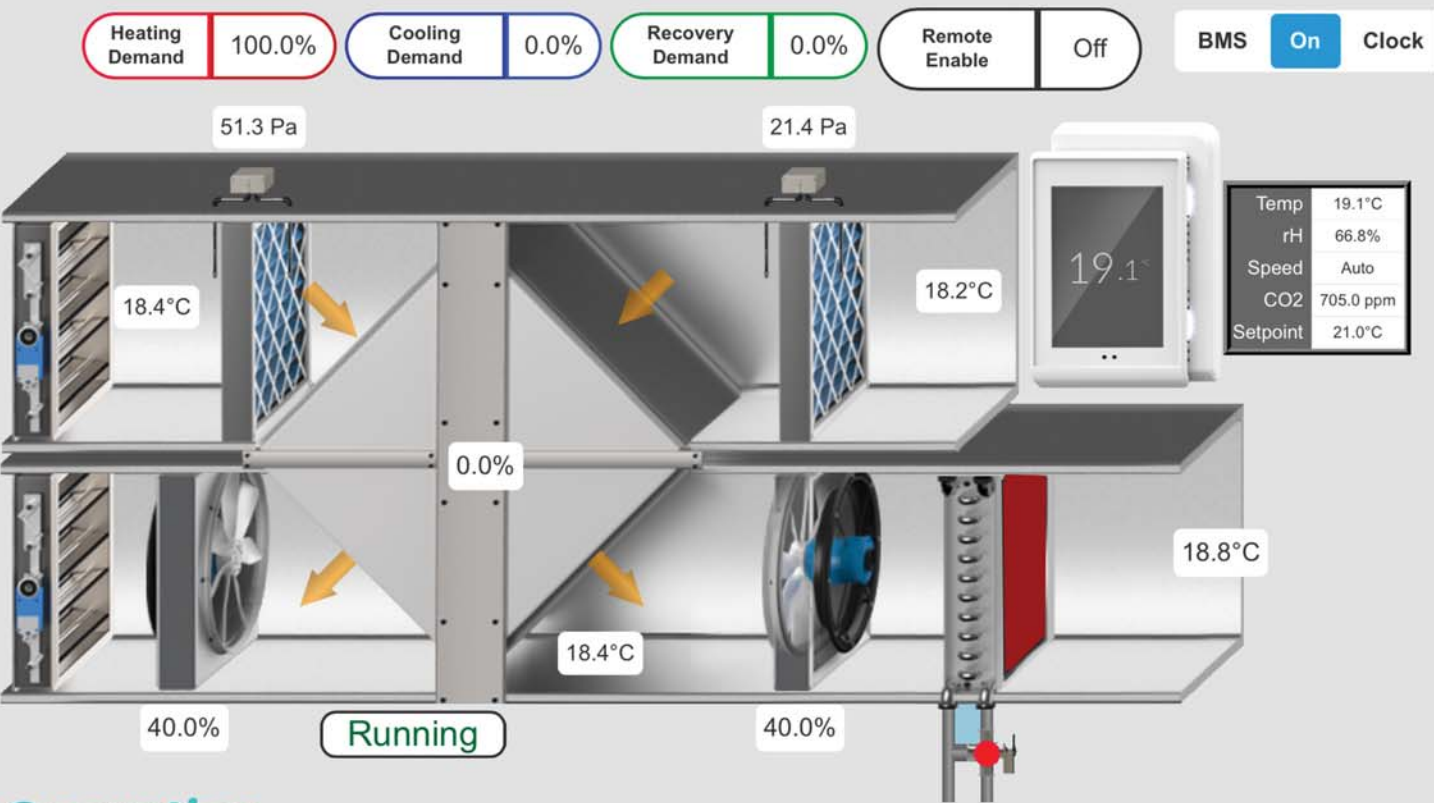
## Unit Dimensions (mm)

| MVHR UNIT |      |     | CONTROLS ENCLOSURE |     |     | CONNECTIONS / WEIGHT |     |     | WEATHERPROOF |
|-----------|------|-----|--------------------|-----|-----|----------------------|-----|-----|--------------|
| A         | B    | C   | D                  | E   | F   | G                    | H   | KGS | ADD+         |
| 2150      | 2155 | 690 | 400                | 300 | 150 | 670                  | 515 | 460 | 25           |



# CONTROLS

The BACnet controller offers network connectivity via BACnet over IP, and can be run as a standalone controller with interface via the fitted WiFi dongle. It has a preprogrammed control philosophy to suit the operation of a heat recovery air handling unit and has outputs to control a heater or a cooler. The unit will run on a constant air volume unless a CO2 sensor or PIR sensor is fitted, in which case a trickle and boost air volume mode will be selected. There are 2 operation strategies to choose from, which will allow you to run the unit on supply air temperature control or to run on return air temperature control. All units with prewired controls are tested at works prior to dispatch.



## Operation

The controller is preloaded with standard control philosophies to allow flexibility in operation. At the point of order a number of functions can be enabled within the controller, for instance to allow the control of shutoff dampers, control of heaters or coolers, and control via PIR or CO2 sensors.

Shut off dampers will ensure no cold (or hot) air enters the room while the unit is not in use. This is especially important for frost protection.

Heaters and Coolers can operate either in a Supply Air or Return Air temperature control mode. The onboard signal from the controller will modulate the control valve (by others) to ensure accurate temperature control.

PIR or CO2 sensors enable a trickle and boost mode, which allows reduced air changes (60% of design speed) when the room is not occupied or there is no CO2 build up (as applicable) and when the PIR or CO2 sensor senses a demand, the fan speed will progressively ramp up to design (commissioned) duty. There is also an air balancing mode which allows fan speeds to be commissioned without the need of a laptop or BMS engineer.



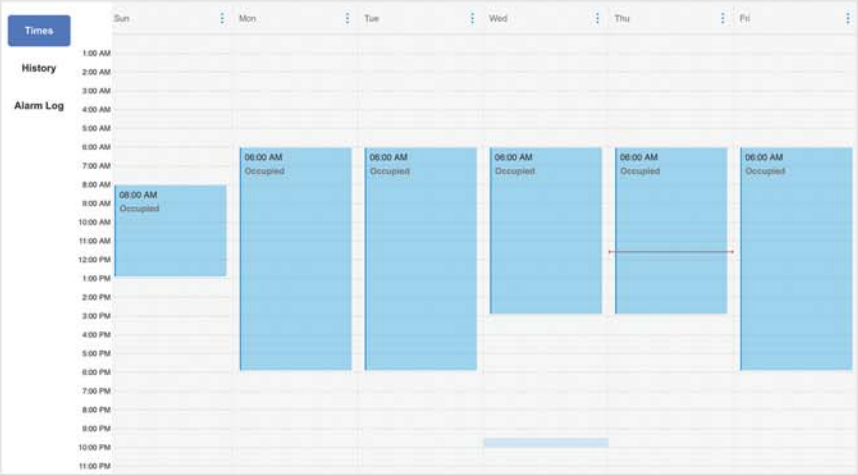
| Graphic   | Unit Setpoints                    | Unit Configuration Settings     | Filter Alarm Setpoints        |
|-----------|-----------------------------------|---------------------------------|-------------------------------|
| Settings  | Temperature Setpoint: 21.0 °C     | Heat/Cool Mode: HW Valve        | Filter Dirty: 80.0 Pa         |
| Times     | Frost Shutdown Setpoint: 3.0 °C   | PIR Selection: Not Used         | Extract Dirty: 80.0 Pa        |
| History   | PIR Run On: 120.0 sec             | Control Point: Supply           | Filter Blocked: 100.0 Pa      |
| Alarm Log | Supply Balanced Speed: 40.0 %     | Remote Enable Contact: Used     | Extract Blocked: 100.0 Pa     |
|           | Extract Balanced Speed: 40.0 %    | Unilouch: Used                  | Filter Missing: 5.0 Pa        |
|           | Unilouch Temp: 19.1 °C            | SmartAirSensor: Not Used        | Extract Missing: 5.0 Pa       |
|           | Unilouch RH: 66.7 %               | Inlet Dampers: Filter           | Filter Alarm Delay: 600.0 sec |
|           | Unilouch CO2: 705.0 ppm           | Remote Enable/PIR Status: Off   |                               |
|           | Unilouch Temp SP: 21.0 °C         | Control via Return Sensor: Auto |                               |
|           | Unilouch Speed: Auto              | CO2 Control: Not Used           |                               |
|           | Trickle Speed % of Design: 60.0 % |                                 |                               |
|           | Supply Minimum Temp: 12.0 °C      |                                 |                               |
|           | Supply Maximum Temp: 30.0 °C      |                                 |                               |

## Settings Screen

The settings screen shows an overview of all temperature set points, actual temperature readings, control mode, status, etc. In this screen, setpoints can be adjusted (using the appropriate user level login).

## Timeswitch

For standalone operation, the Timeswitch setting should be used. This allows the Operator to set predefined operating times per day.



## Alarms

When an alarm is triggered the Status will update and the alarm will be logged with a time stamp. Alarm indication available for Fire Alarm (Volt free fire alarm terminals are provided as standard to shut down under a fire condition), Freeze Alarm (to ensure the HRU doesn't supply cold air into the sapce should the heating fail), Filter condition (including alarm for misssing or blocked filters), Airflow Failure, etc.

A volt free contact is provided for hard wired common fault indication in addition to BMS indication.

| Graphic   | Search                                                 | Unacked: 3                                               | Acknowledge            | Clear         | Speaker | Share | Menu |
|-----------|--------------------------------------------------------|----------------------------------------------------------|------------------------|---------------|---------|-------|------|
| Settings  | <input type="checkbox"/> Source                        | Message Text                                             | Timestamp              | Current State | Status  |       |      |
| Times     | <input type="checkbox"/> Device 187001/Binary Value 10 | AirHRU_2432\Sensor Status\Notification Class 1\OffNormal | 08/14/2025 10:19:53 AM | OffNormal     | 🔔       |       |      |
| History   | <input type="checkbox"/> Device 187001/Binary Value 18 | AirHRU_2432\HRU Common Alarm\OffNormal                   | 08/14/2025 9:47:30 AM  | OffNormal     | 🔔       |       |      |
| Alarm Log | <input type="checkbox"/> Device 187001/Binary Value 2  | AirHRU_2432\Fire_Shutdown\Notification Class 1\OffNormal | 08/14/2025 9:47:32 AM  | OffNormal     | 🔔       |       |      |

## Wall Controllers/Sensor

The wall mounted controllers are available with glass front panel, touchscreen and LCD colour display. Both Power and communications pass through a single Cat 5e cable.

Unitouch controllers can provide temperature only, or temperature & CO2 control depending on its application, and allows temperature adjustment and manual fan speed control. Other room and duct mounted control sensors available on request.



# SPECIFICATION



**High quality, high efficiency heat recovery units covering an air volume range from 0.04 m<sup>3</sup>/s to 1.3 m<sup>3</sup>/s.**

## Casing Construction

The casing is constructed from a unique, compact, frameless system, using folded corrosion resistant coated steel, insulated with high density rigid foam. All panels are double skinned to a thickness of 25mm on the sides, ends and top of the casing. Access is via removable panels fitted with screw fixings and handles.

Casing Constructed to the following classes in accordance with BS EN1886:2007:

Case Strength: D1  
Case Leakage: L2  
Thermal Transmittance: T3  
Thermal Bridging: TB3

## Counter-flow Plate Heat Exchanger (ERI)

Eurovent certified, long life, hygienic, aluminium, counter-flow type, plate heat exchanger fitted with sloping drain pan for efficient collection of condensation. The exchanger is tested to BS EN 308, producing efficiencies of up to 93%. Heat recovery by-pass damper is fabricated in coated steel and complete with fitted blade seals.

## EC Fans (EBM Papst)

High performance EC fans using a high efficiency, aerofoil section, backward curved impeller direct driven by a variable speed EC motor. The impeller is statically & dynamically balanced and uses pre-greased, sealed for life, maintenance free ball bearings. The motor is fully speed controllable using a 0-10VDC control signal.

## Filters (Camfil)

Disposable panel filters with water resistant cardboard frame on Supply and Extract, G4 Coarse 65%, unless upgraded to F7 ePM1 55% on Supply. The filters are of a high capacity design for lower air pressure drop and maximum efficiency. Filters are housed within slide channels for easy removal.

## Controls (Distech)

To maximise the energy saving benefits and control flexibility of the AIR-HRU range, AHS offer a packaged BACnet over IP controller. The controller is provided prewired with standard operation philosophies preloaded.

## Heating Module LPHW

Heating module using LPHW, the coil is constructed from copper tubes with bonded aluminium fins mounted within a heavy gauge galvanised steel insulated casing.

## Heating Module Electric

The electric heater uses mineral insulated elements sheathed in highly corrosion resistant Incoloy and comes complete with a manual reset thermal cut-out plus a backup automatic reset cut-out.

## DX Cooling or Heat Pump Module

Our DX Cooling or Heat Pump Module is available on all sizes and specifically designed to match our selected DX Condensing Units.

## Controls Specification

To fully utilize the energy saving benefits of the AIR-HRU range, AHS offer the BACnet controller. The controller can be provided either fully fitted or supplied separately for remote mounting on site.

- Robust IP55 enclosure.
- WiFi dongle.
- Supply Fan Maximum (commissioned) fan speed control (adjustable via WiFi).
- Extract Fan Maximum (commissioned) fan speed control (adjustable via WiFi).
- By-pass damper control by comparison of fresh air and return air temperatures against temperature set point (adjustable via WiFi).
- Facility for use with combined room CO<sub>2</sub>/Temp sensor (optional ancillary) which enables the unit to run at the set trickle speed when room CO<sub>2</sub> and temperature are within the dead band (adjustable via WiFi) conditions. When CO<sub>2</sub> levels or temperatures rise, the air flows increases to assist in reducing CO<sub>2</sub> and offer increased air changes.
- Facility for use with Remote On/Off signal or PIR sensor (optional ancillary) which enables the timed HRU to run at the set commissioned speed and has a run-on facility to ensure air is still delivered if occupants are still.
- Volt free contacts for Remote Enable.
- Volt free contacts for Common Fault Alarm indication (Common Alarm includes fan fault, frost protection fault, filter blocked fault, etc).
- Change Filter alarm. The unit will continue to operate, and the alarm will clear when filters are replaced (spare filters available on request).
- Operation of shut-off dampers (optional ancillary). Dampers will open before fans operate.
- Remote On/Off via hardwired contactor or over BACnet IP.
- Night time purge cooling via BMS over BACnet IP.
- Volt free Fire alarm interlock facility.
- Heating demand modulating control (control valve by others).
- Cooling demand modulating control (control valve by others).
- Volt free contacts for enabling DX or other remote control ancillary equipment.
- All heating/cooling (optional ancillary) control via duct mounted sensor mounted in supply air duct for supply air control, via a room or unit mounted return temp sensor for room/return air control.

## Ancillaries are provided as standard with your HRU BACnet controller:

- **WiFi Dongle** allows full interrogation and setting up of controls via personal device browser
- **Internal Timeswitch** feature for use on standalone control
- **Fresh air Sensor** air temperature on to the heat exchanger
- **Return air Sensor** air temperature on to the return of heat exchanger
- **Heat Exchanger air off Sensor** air temperature after heat recovery (before any coil if fitted)
- **Supply Air Sensor** supply air temperature
- **Heat Exchanger bypass damper Actuator** open/close operation of bypass for free cooling
- **Filter Pressure Sensors** to alarm for dirty filter conditions and for fan flow failure

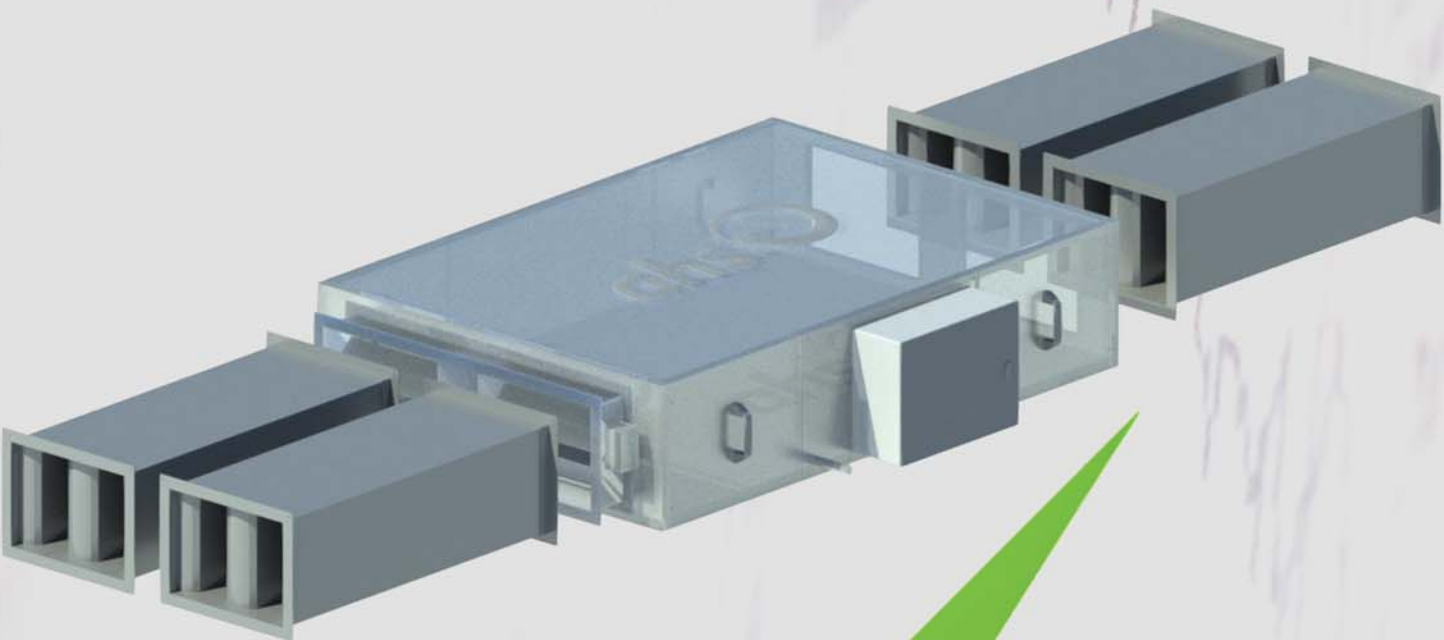
## Optional ancillaries for your BACnet controller:

- **IP54 Damper Actuator**  
Actuator provided when shut off dampers are purchased with the unit.
- **Room mounted PIR Sensor**  
Passive Infrared (PIR) motion sensor. Ensure positioned to cover movement anywhere within the area being served.
- **Combined duct mounted CO<sub>2</sub> / Temperature Sensor**  
CO<sub>2</sub> / Temperature transmitter suitable for mounting within the return air duct. We breathe out carbon dioxide, and controlling the HRU fan speed based on levels of CO<sub>2</sub> detected can be an energy efficient way of automatically adjusting the fresh air demand in line with the direct requirements of occupants in the area served. It can ensure that CO<sub>2</sub> is kept at levels low enough for a healthy environment i.e. those levels required by recent legislation for school classrooms.
- **Combined room mounted CO<sub>2</sub> / Temperature Sensor**  
As the above but for surface wall mounting in the room.
- **Wall mounted Controller with inbuilt Temperature Sensor**  
Comes in the form of the Unitouch controller for surface wall mounting in the room. Displays temperature on the touch screen and allows the temperature to be adjusted.
- **Wall mounted Controller with inbuilt Temperature/CO<sub>2</sub> Sensor**  
Comes in the form of the Unitouch controller for surface wall mounting in the room. Displays temperature/CO<sub>2</sub> on the touch screen and allows for adjustment.
- **DX relay box**  
Interfaces with the Toshiba DXC AHU Controller.

**AIR HRU 10 SERIES MODEL CODE DEFINITIONS**

AIR HRU 11 / SL / IM / BAC / HW / DG / F7

| HANDING       |                           | CONSTRUCTION   |                  | CONTROLS | COIL | DAMPERS                       | FILTERS |                            |    |
|---------------|---------------------------|----------------|------------------|----------|------|-------------------------------|---------|----------------------------|----|
| SIDE ACCESS   |                           | INTERNAL UNITS |                  |          |      |                               |         |                            |    |
| SL            | Side Access LHS           | IM             | Standard Finish  | BAC      | X    | No Coil                       | X       | G4 Filters                 |    |
| SR            | Side Access RHS           | IP             | Grey Outer Skin  |          | EHT  | Electric Heater c/w Thyristor | DG      | Motorised Shut Off Dampers | F7 |
| BOTTOM ACCESS |                           | EXTERNAL UNITS |                  |          | HW   | 1R LPHW Coil                  | DP      | Motorised Shut Off Dampers |    |
| BL            | Bottom Access Filters LHS | EM             | Standard Finish* |          | CW   | 2R CW Coil                    |         |                            |    |
| SR            | Bottom Access Filters RHS | EP             | Grey Outer Skin  |          | HP   | 2R DX Heat Pump Coil          |         |                            |    |



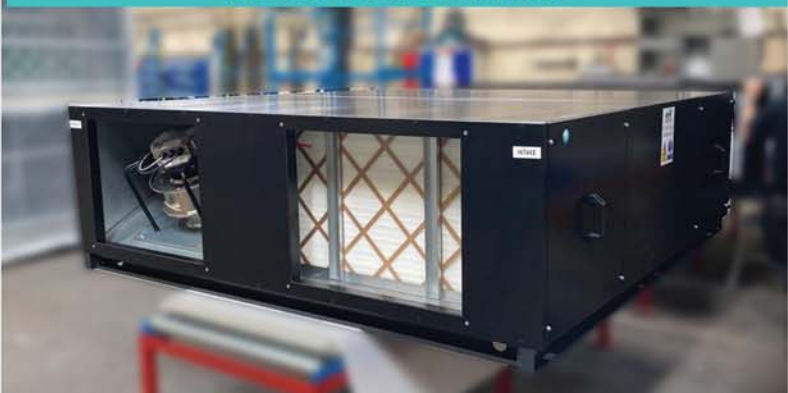
**NoiseCheck**

Total Acoustic Guarantee

AHS can perform a ventilation analysis to assist in predicting room or environmental acoustics. We provide advice to ensure your specific acoustic requirements are achieved.

Often a combination of a larger model selection with slower running fans, combined with close coupled attenuators will result in significantly lower room noise levels.

BLACK OUTER PLASTISOL



MOTORISED SHUT OFF DAMPERS



GREY OUTER PLASTISOL



HEATING COIL ADD ON



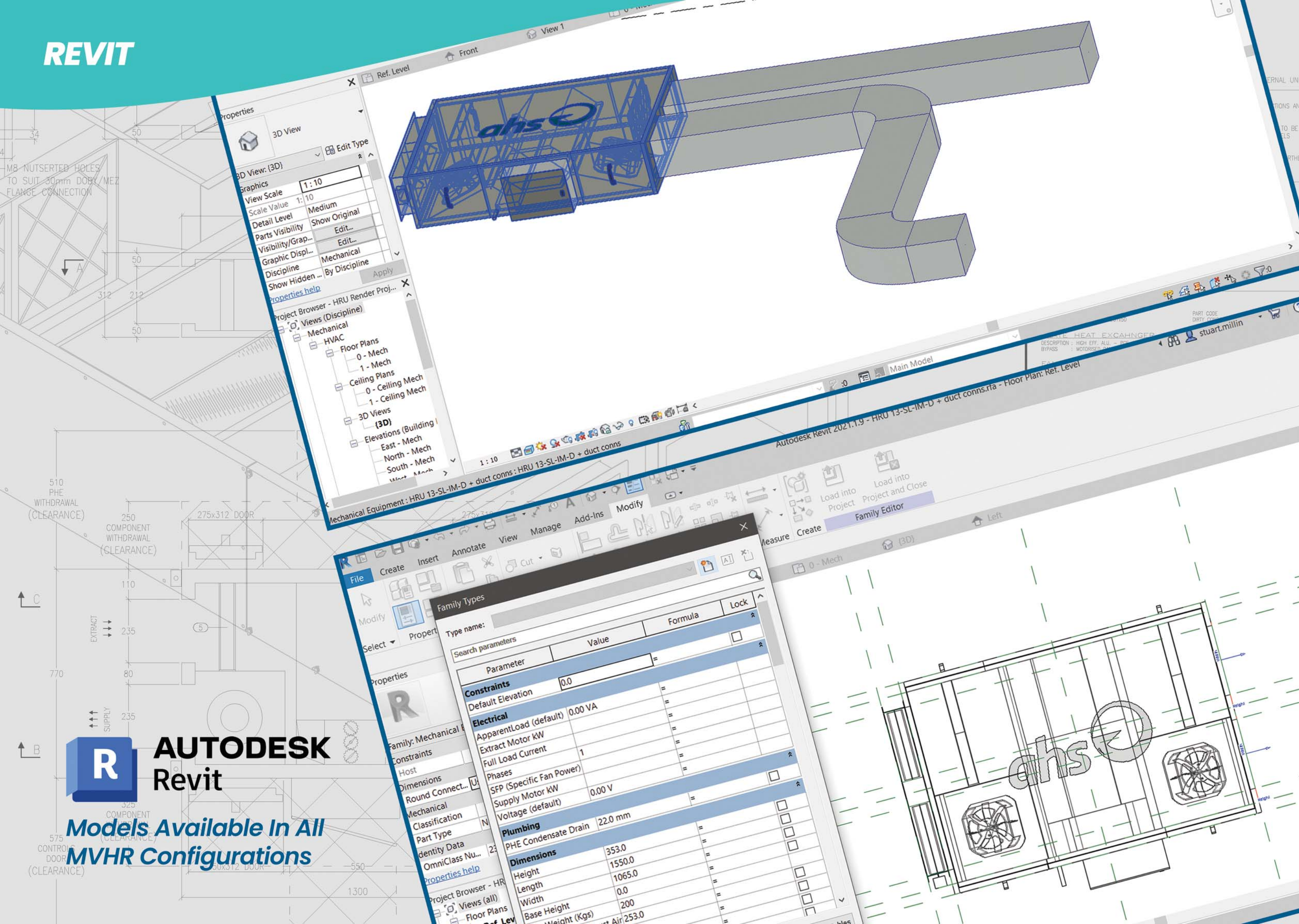
PRE WIRED BACNET CONTROLS



REMOTE CONTROL PANEL



# REVIT



## AUTODESK Revit

Models Available In All  
MVHR Configurations



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