Elevation

Components in direction of airflow

SUPPLY SIDE
1 Supply air inlet
2 Bag Filter
3 Thermal Wheel
4 Access
5 Supply Fan
6 Heater

EXTRACT SIDE
7 Access
8 Bag Filter
9 Access
10 Thermal Wheel
11 Access
12 Extract Fan
13 Extract air outlet

Project Reference:
Kettering Science Park - Dining Hall

Unit Reference:
AHU 01 - Double Stacked Option

Date: 08/01/19
Model Reference: MA/3S

Supply Volume & External Static: 1.6m³/s @ 300Pa
Extract Volume & External Static: 1.6m³/s @ 300Pa

Notes: AHU TO BE SUPPLIED AS 1 SECTION.

Drawing Scale: 1:33
Drawing Number: E190009/1
Plan Layout

Components in direction of airflow

**SUPPLY SIDE**
1. Supply air inlet
2. Bag Filter
3. Thermal Wheel
4. Access
5. Supply Fan
6. Heater

**EXTRACT SIDE**
7. Access
8. Bag Filter
9. Access
10. Thermal Wheel
11. Access
12. Extract Fan
13. Extract air outlet

Project Reference:
Kettering Science Park - Dining Hall

Unit Reference:
AHU 01 - Side By Side Option

Model Reference:
MA/3S

Date:
08/01/19

Supply Volume & External Static:
1.6m³/s @ 300Pa

Extract Volume & External Static:
1.6m³/s @ 300Pa

Notes:
AHU TO BE SUPPLIED AS 1 SECTION.

Drawing Scale:
1:33

Drawing Number:
E190009/2
Reference: Kettering Science Academy - Dining Hall
AHU Reference: AHU 01 - Double Stacked Option 1
Unit Dimensions: 1650W x 2000H x 4100L (mm) including 300 base & 100 roof
The overall unit height shown above includes the base and roof, if fitted. However, overall unit dimensions exclude any externally fitted components such as spigots, dampers, louvres or cowls.

BASIC UNIT INFORMATION
Model Ref: MA50/3/S
Quantity: 1
Location: External.

<table>
<thead>
<tr>
<th>SUPPLY SIDE</th>
<th>EXTRACT SIDE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume</td>
<td>1.6 m³/s</td>
</tr>
<tr>
<td>External static</td>
<td>300 Pa</td>
</tr>
</tbody>
</table>

COMPONENTS (In direction of airflow)
<table>
<thead>
<tr>
<th>SUPPLY SIDE</th>
<th>EXTRACT SIDE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply Air Inlet</td>
<td>Service Access Section</td>
</tr>
<tr>
<td>F7 635mm Bag Filters</td>
<td>M5 380mm Bag Filters</td>
</tr>
<tr>
<td>Spacer Section</td>
<td>Service Access Section</td>
</tr>
<tr>
<td>HeatWheel ErP 2018</td>
<td>Spacer Section</td>
</tr>
<tr>
<td>Spacer Section</td>
<td>HeatWheel ErP 2018</td>
</tr>
<tr>
<td>Fan Plenum</td>
<td>Spacer Section</td>
</tr>
<tr>
<td>Direct Driven Supply Fan</td>
<td>Fan Plenum</td>
</tr>
<tr>
<td>LPHW Heating Coil</td>
<td>Direct Driven Extract Fan</td>
</tr>
<tr>
<td>Extract Air Outlet</td>
<td>Extract Air Outlet</td>
</tr>
</tbody>
</table>

SEE SEPARATE UNIT SKETCH

TECHNICAL DATA
Note: The following information is provided as a guide only and must be checked at time of order

Supply Air Inlet
- Damper (Damper Seals:- Side & Blade)
- Air Volume: 1.6 m³/s

F7 635mm Bag Filters
- Type: Bag
- Efficiency: F7
- Arrangement: 2.5W x 1H
- Withdrawal: Front
- Manometer: Magnahelic

HeatWheel ErP 2018
- Type: Non-Hygroscopic
- Supply Air On: -5 °C
- Supply Air Off: 14.7 °C
- Extract Air On Db: 21 °C
- Extract Air On RH: 50 %
- Efficiency (Sup): 75.6 %
- Heat Recovered: 53.2 kW
- Special Features: Speed control

Direct Driven Supply Fan
- Volume: 1.6 m³/s
- External static: 300 Pa
- Total static: 546 Pa
- Absorbed power: 1.248 kW
- Motor power: 2.2 kW (IE3)
- Fan type: PLUG / Backward curved / Direct driven
- Fan speed: 2890 RPM
- Total fan efficiency: 78.7 %
- Electrical Supply: 400V-3Ph-50Hz

Continued ...
Fan discharge SWL levels
(to BS848)
63  125  250  500  1000  2000  4000  8000 (Hz)
76  75  85  83  85  78  75  77
Includes +4dB fan in casework adjustment
Door guard fitted? YES
Suitable for inverters? YES
Isolator fitted? YES
Standby motor fitted? NO
Thermistors fitted? YES

**LPHW Heating Coil**
Volume 1.6 m³/s
Air On Coil Db 13.7 °C
Air Off Coil Db 19 °C
Duty 10.25 kW
Face velocity 2.69 m/s
Medium LTHW
Flow Temp 80 °C
Return Temp 60 °C
Flow Rate 0.125 l/s
Water Pd 8 KPa
Rows/Fins 1R/5F
No of Sections 1
Construction Copper/Aluminium/Polyester

**M5 380mm Bag Filters**
Type Bag
Efficiency F5
Arrangement 2.5W x 1H
Withdrawal Front
Manometer Magnahelic

**HeatWheel ErP 2018**

**Direct Driven Extract Fan**
Volume 1.6 m³/s
External static 300 Pa
Total static 534 Pa
Absorbed power 1.23 kW
Motor power 2.2 kW (IE3)
Fan type PLUG / Backward curved / Direct driven
Fan speed 2082 RPM
Total fan efficiency 78.5 %
Electrical Supply 400V-3Ph-50Hz
Fan discharge SWL levels
(to BS848)
63  125  250  500  1000  2000  4000  8000 (Hz)
76  75  85  83  85  78  75  77
Includes +4dB fan in casework adjustment
Door guard fitted? YES
Suitable for inverters? YES
Isolator fitted? YES
Standby motor fitted? NO
Thermistors fitted? YES

**Extract Air Outlet**
Damper (Damper Seals:- Side & Blade)
Air Volume 1.6 m³/s

Approximate weight of unit 1830 kg
**Reference**
Kettering Science Academy - Dining Hall

**AHU Reference**
AHU 01 - Side by Side Option 2

**Unit Dimensions**
1600W x 2050H x 4300L (mm) including 300 base & 100 roof
The overall unit height shown above includes the base and roof, if fitted. However, overall unit dimensions exclude any externally fitted components such as spigots, dampers, louvres or cowls.

**BASIC UNIT INFORMATION**

| Model Ref | MA50/8/S |
| Location  | External. |

**SUPPLY SIDE**

<table>
<thead>
<tr>
<th>Volume 1.6 m³/s</th>
<th>EXTRACT SIDE</th>
</tr>
</thead>
<tbody>
<tr>
<td>External static 300 Pa</td>
<td>External static 300 Pa</td>
</tr>
</tbody>
</table>

**COMPONENTS (In direction of airflow)**

**SUPPLY SIDE**

- Supply Air Inlet
- F7 635mm Bag Filters
- Spacer Section
- HeatWheel ErP 2018
- Spacer Section
- Fan Plenum
- Direct Driven Supply Fan
- LPHW Heating Coil

**EXTRACT SIDE**

- Service Access Section
- M5 380mm Bag Filters
- Service Access Section
- Spacer Section
- HeatWheel ErP 2018
- Spacer Section
- Fan Plenum
- Direct Driven Extract Fan
- Extract Air Outlet

**SEE SEPARATE UNIT SKETCH**

**TECHNICAL DATA**

Note:- The following information is provided as a guide only and must be checked at time of order

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<th>Damper (Damper Seals:- Side &amp; Blade)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Volume 1.6 m³/s</td>
<td></td>
</tr>
</tbody>
</table>

**F7 635mm Bag Filters**

- Type: Bag
- Efficiency: F7
- Arrangement: 1W x 2.5H
- Withdrawal: Side
- Manometer: Magnahelic

**HeatWheel ErP 2018**

- Type: Non-Hygroscopic
- Supply Air On: -5 °C
- Supply Air Off: 14.7 °C
- Extract Air On Db: 21 °C
- Extract Air On RH: 50 %
- Efficiency (Sup): 75.6 %
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- Special Features: Speed control

**Direct Driven Supply Fan**

- Volume 1.6 m³/s
- External static 300 Pa
- Total static 546 Pa
- Absorbed power 1.248 kW
- Motor power 2.2 kW (IE3)
- Fan type: PLUG / Backward curved / Direct driven
- Fan speed 2090 RPM
- Total fan efficiency 78.7 %
- Electrical Supply 400V-3Ph-50Hz

Continued ...
Fan discharge SWL levels 63 125 250 500 1000 2000 4000 8000 (Hz) (to BS848)
76 75 85 83 85 78 75 77
Includes +4dB fan in casework adjustment
Door guard fitted? YES
Suitable for inverters? YES
Isolator fitted? YES
Standby motor fitted? NO
Thermistors fitted? YES

LPHW Heating Coil
Volume 1.6 m³/s
Air On Coil Db 13.7 °C
Air Off Coil Db 19 °C
Duty 10.25 kW
Face velocity 2.69 m/s
Medium LTHW
Flow Temp 80 °C
Return Temp 60 °C
Flow Rate 0.125 l/s
Water Pd 12 KPa
Rows/Fins 1R/5F
No of Sections 1
Construction Copper/Aluminium/Polyester

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Type Bag
Efficiency F5
Arrangement 1W x 2.5H
Withdrawal Side
Manometer Magnahelic

HeatWheel ErP 2018
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Door guard fitted? YES
Suitable for inverters? YES
Isolator fitted? YES
Standby motor fitted? NO
Thermistors fitted? YES

Extract Air Outlet
Damper (Damper Seals:- Side & Blade)
Air Volume 1.6 m³/s

Approximate weight of unit 1919 kg
### Calculation of Specific Fan Power (SFPv) for Part L Building Regulations (Direct Drive Fans)

<table>
<thead>
<tr>
<th>AHU No</th>
<th>Air Volume  m³/s = q</th>
<th>Motor Rating kW</th>
<th>Total Pressure kPa</th>
<th>Fan Efficiency</th>
<th>Motor Efficiency</th>
<th>Inverter Efficiency</th>
<th>System Efficiency</th>
<th>Individual Fan SFP</th>
<th>Total unit mains Input Power = Psf + Pef</th>
<th>Air Handling Unit SFP (w/l/s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHU 01 - Supply</td>
<td>1.60</td>
<td>2.20</td>
<td>0.500</td>
<td>0.787</td>
<td>0.867</td>
<td>0.98</td>
<td>0.67</td>
<td>0.75</td>
<td>1.20</td>
<td></td>
</tr>
<tr>
<td>AHU 01 - Extract</td>
<td>1.60</td>
<td>2.20</td>
<td>0.500</td>
<td>0.785</td>
<td>0.867</td>
<td>0.98</td>
<td>0.67</td>
<td>0.75</td>
<td>1.20</td>
<td></td>
</tr>
</tbody>
</table>

2. Specific fan power calculations are based upon Clean Filter conditions as stated in BS EN 13779:2007 Ventilation for non-residential buildings - Performance requirements for ventilation and room-conditioning systems.
3. Mains Input Power Psf (supply side) and Pef (Extract Side) is obtained from the individual fan SFP x Airflow q (m³/s).
4. The efficiency of the motor is based upon it being at 3/4 Load.
5. No allowance is made for wiring and switchgear to the AHU.