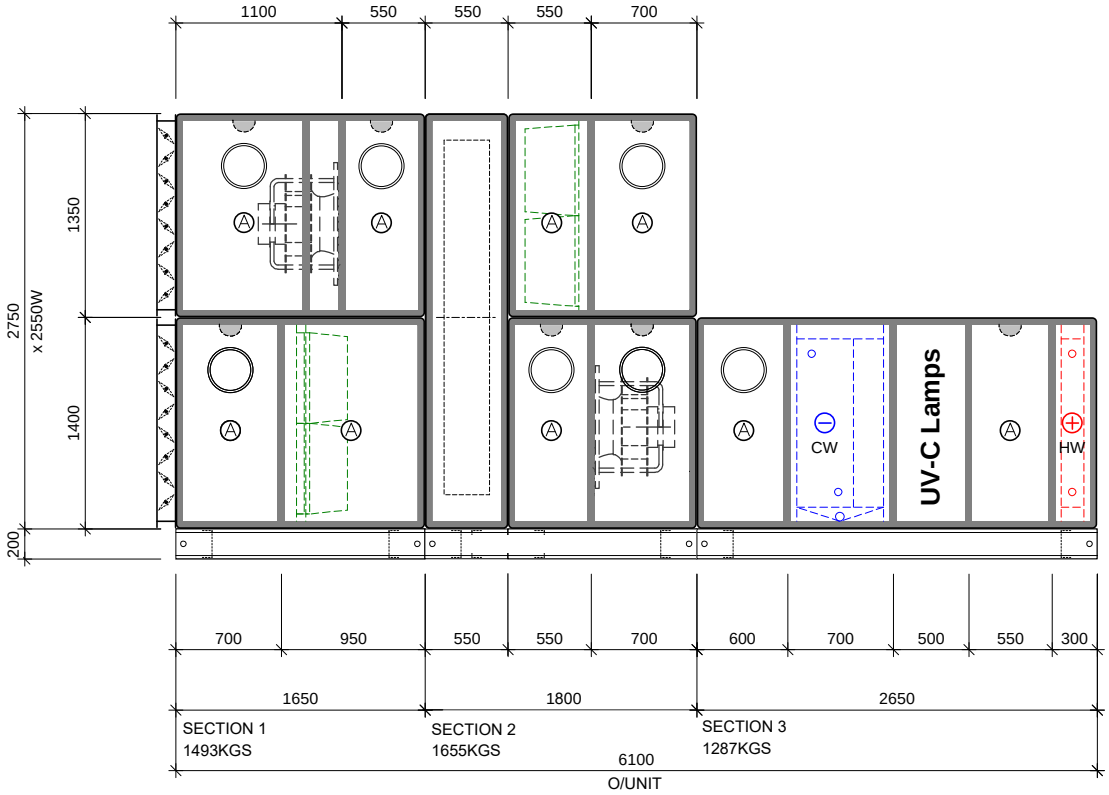
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Components in direction of airflow

**SUPPLY SIDE**

1 Supply air inlet
2 Access
3 Panel & Bag Filters
4 Thermal Wheel
5 Access
6 EC Fans
7 Access
8 Cooling coil
9 UV-C Lamps
10 Access
11 Heater

**EXTRACT SIDE**

12 Access
13 Bag Filter
14 Thermal Wheel
15 Access
16 EC Fans
17 Extract air outlet

Approximate unit weight 4435 kg

# Elevation

| | | | | | |
|---|---|---|---|---|---|
| Dalair | Project Reference: **MMU Science & Engineering** | Date: **28/06/22** | Supply Volume & External Static: **5.9m³/s @ 384Pa** | Notes: | Drawing Scale: **1:50** |
| | Unit Reference: **AHU/02** | Model Reference: **MA/12S** | Extract Volume & External Static: **5.9m³/s @ 384Pa** | | Drawing Number: **E220086H/2** |

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Project Reference : **MMU Science & Engineering**
Unit Reference : **AHU/02**
Date Printed : **28 June 2022**

# TECHNICAL DATA

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

## BASIC AHU INFORMATION

Model reference : **MA50/12/S**
Location : **Internal**
Quantity : **1**
Weight : **4435** kg

Overall Width : **2550** mm
Overall Height* : **2950** mm
Overall Length : **6100** mm
Base : **200** mm

*Note : *The overall height shown includes the base and roof, if fitted. However the overall unit dimensions, shown above, may exclude any externally fitted components such as inverters, isolators, coil stubs, spigots, dampers, louvres or cowls. Please refer to the separate AHU sketch.*

Supply volume : **5.90** m³/s
External static : **384** Pa
Supply components : (in direction of airflow)

**001 Inlet Damper**
**002 Access**
**003 Panel & Rigid Filters**
**004 Thermal Wheel**
**005 Access**
**006 EC Fans**
**007 Access**
**008 CW Cooling Coil**
**009 UV-C Lamps**
**010 Access**
**011 LPHW Main Heater**

Extract volume : **5.90** m³/s
External static : **384** Pa
Extract components : (in direction of airflow)

**012 Access**
**013 Bag Filters**
**014 Access**
**015 EC Fans**
**016 Outlet Damper**

## 001 Inlet Damper

Damper : **External**
Damper material : **Galvanised MS**
Damper blade type : **Aerofoil, tip & side seals**
Operation : **Motorised by Others**

Air volume : **5.90** m³/s
Additional component : **None**

## 002 Access

Included extras :

**Bulkhead light - internally maintainable**
**View port**
**Walkway**

## 003 Panel & Rigid Filters

Type : **Pleated : cardboard frame**
Grade : **Coarse 65% [G4]**
Type : **City Carb Rigid compact**
Grade : **ePM1 70% [F7]**
Included extras :

**Magnehelic gauges (standard x2)**
**Tappings only (x2)**

Non-Std extras :

**Velocity : 2.1 m/s**

Withdrawal : **Front**
Arrangement : **4W x 2H**

## 004 Thermal Wheel

Type : **Hygroscopic rotor**
Casing material : **Alu / Zn**
Rotor material : **Aluminium**
Drive type : **V7: Variable Speed**
Purge sector : **Recommend purge angle of 5 Deg**
Supply volume : **5.90** m³/s
Extract volume : **5.90** m³/s

Arrangement: **Single Wheel**

Included extras :

**Fitted & Wired Isolator**
**Control penetration**

| | Winter | Summer | |
|---|---|---|---|
| Supply Air On Dry Bulb : | **-5** | | °C |
| Supply Air On Wet Bulb : | **-5** | | °C |
| Supply Air On RH : | **100** | | % |
| Supply Air Off Dry Bulb : | **14.5** | | °C |
| Supply Air Off Wet Bulb : | **9.8** | | °C |
| Supply Air Off RH : | **55.1** | | % |
| Exhaust Air On Dry Bulb : | **21** | | °C |
| Exhaust Air On Wet Bulb : | **14.6** | | °C |
| Exhaust Air On RH : | **50** | | % |
| Exhaust Air Off Dry Bulb : | **1.5** | | °C |
| Exhaust Air Off Wet Bulb : | **1.3** | | °C |
| Exhaust Air Off RH : | **97.3** | | % |
| Efficiency (Sup) : | **75.2** | | % |
| Heat Recovery : | **197.5 * 1** | | kW |

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## 005 Access

Included extras :
**Bulkhead light - internally maintainable**
**View port**

## 006 EC Fans

| | | | |
|---|---|---|---|
| Type : | **Plenum** | Drive : | **Direct driven** |
| Fan arrangement : | **2(W) x 1(H):2 + 0n** | Motors : | **WithFan** |
| Duty % per fan : | **50** % | Motor arrangement : | **Spider Bracket** |
| Air volume per fan : | **2.95** m³/s | Motor Type : | **EC IE5** |
| Outlet velocity : | **Na** m/s | Poles : | |
| Ext. static pressure : | **384** Pa | Motor Speed : | **1860** rpm |
| Fan total pressure : | **1105** Pa | Motor power rating : | **6.00** kW |
| Impeller : | **Backward Curve** | FLC : | **9.40** Amps |
| Fan Speed : | **1700** rpm | Operating frequency : | Hz |
| Total efficiency : | **71.22** % | Supply voltage : | **3~ 400V 50Hz** |
| System Power: | **9.1** kW | Shaft Power: | **4.55** kW |

| Frequency (Hz) : | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
|---|---|---|---|---|---|---|---|---|
| Fan discharge SWL levels (dB) : | **86** | **88** | **97** | **93** | **91** | **86** | **82** | **78** |

**Note:** Fan conforms to ErP-directive 2015

SWL levels include +4 dB fan in casework adjustment and +3 dB fan in 2 fan arrangement

Fan extras :
**Inlet guard**
**Door guard**

Motor extras :
**Thermistors included**
**Isolator fitted & wired**

Included extras :
**Bulkhead light - internally maintainable**
**View port**
**Control penetration**
**Commando Plug / Socket**

Non-Std extras :
**Tappings**

## 007 Access

Included extras :
**View port**

## 008 CW Cooling Coil

| | | | |
|---|---|---|---|
| Air volume : | **5.90** m³/s | | |
| Face Velocity : | **2.5** m/s | Air On Dry Bulb : | **25.00** °C |
| Tube material : | **Copper** | Air On Wet Bulb : | **19.00** °C |
| Fin material : | **Polyester Coated Aluminium** | Air On RH : | **57.0** % |
| Casing material : | **Galvanised** | Air Off Dry Bulb : | **16.0** °C |
| No of sections : | **1** | Air Off Wet Bulb : | **15.9** °C |
| Rows : | **8** | Air Off RH : | **99.3** % |
| Fin spacing : | **2.12mm (12/inch)** | Duty : | **64.33** kW |
| Flow Rate : | **3.08** l/s | Medium : | **Chilled water** |
| Water p.d. : | **16** KPa | Glycol : | **0** % |
| Eliminators : | **Fitted** | Flow temperature : | **14.00** °C |
| Drain tray type : | **Fixed** | Return temperature : | **19.00** °C |
| Drain tray material : | **Stainless Steel 304** | | |

## 009 UV-C Lamps

Included extras :
**Purpose: Cooling coil & drain pan disinfection**

## 010 Access

Included extras :
**Bulkhead light - internally maintainable**
**Walkway**

## 011 LPHW Main Heater

| | | | |
|---|---|---|---|
| Air volume : | **5.90** m³/s | Air On Dry Bulb : | **12.00** °C |
| Face Velocity : | **2.5** m/s | Air Off Dry Bulb : | **25.0** °C |
| Tube material : | **Copper** | Duty : | **92.93** kW |
| Fin material : | **Aluminium** | Medium : | **LPHW** |
| Casing material : | **Galvanised** | Flow temperature : | **70.00** °C |
| No of sections : | **1** | Return temperature : | **40.00** °C |
| Rows : | **2** | Flow rate : | **0.75** l/s |
| Fin spacing : | **4.23mm (6/inch)** | Water p.d. : | **11** KPa |

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## 012 Access

Included extras :

**Bulkhead light - internally maintainable**
**View port**

## 013 Bag Filters

| | | | |
|---|---|---|---|
| Type : | **Multipocket synthetic bag** | Withdrawal : | **Front** |
| Grade : | **ePM10 50% [M5]** | Arrangement : | **4W x 2H** |

Included extras :

**Magnehelic gauge (standard x1)**
**Tappings only (x1)**

Non-Std extras :

**Velocity : 2.1 m/s**

## 014 Access

Included extras :

**Bulkhead light - internally maintainable**
**View port**

## 015 EC Fans

| | | | | | |
|---|---|---|---|---|---|
| Type : | **Plenum** | | Drive : | **Direct driven** | |
| Fan arrangement : | **2(W) x 1(H):2 + 0n** | | Motors : | **WithFan** | |
| Duty % per fan : | **50** | % | Motor arrangement : | **Spider Bracket** | |
| Air volume per fan : | **2.95** | m³/s | Motor Type : | **EC IE5** | |
| Outlet velocity : | **Na** | m/s | Poles : | | |
| Ext. static pressure : | **384** | Pa | Motor Speed : | **1610** | rpm |
| Fan total pressure : | **647** | Pa | Motor power rating : | **3.40** | kW |
| Impeller : | **Backward Curve** | | FLC : | **5.40** | Amps |
| Fan Speed : | **1465** | rpm | Operating frequency : | | Hz |
| Total efficiency : | **71.32** | % | Supply voltage : | **3~ 400V 50Hz** | |
| System Power: | **5.32** | kW | Shaft Power: | **2.66** | kW |

| Frequency (Hz) : | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
|---|---|---|---|---|---|---|---|---|
| Fan discharge SWL levels (dB) : | **83** | **90** | **83** | **85** | **81** | **78** | **75** | **72** |

**Note:** Fan conforms to ErP-directive 2015

SWL levels include +4 dB fan in casework adjustment and +3 dB fan in 2 fan arrangement

Fan extras :

**Inlet guard**
**Door guard**

Motor extras :

**Thermistors included**
**Isolator fitted & wired**

Included extras :

**Bulkhead light - internally maintainable**
**View port**
**Control penetration**
**Commando Plug / Socket**

Non-Std extras :

**Tappings**

## 016 Outlet Damper

| | | | | | |
|---|---|---|---|---|---|
| Damper : | **External** | | Air volume : | **5.90** | m³/s |
| Damper material : | **Galvanised MS** | | Additional component : | **None** | |
| Damper blade type : | **Aerofoil, tip & side seals** | | | | |
| Operation : | **Motorised by Others** | | | | |

## SPECIFIC FAN POWER

| | Supply fan | | | Extract fan | |
|---|---|---|---|---|---|
| Filter conditions : | **Clean** | | Filter conditions : | **Clean** | |
| Fan efficiency : | **71** | % | Fan efficiency : | **71** | % |
| Drive efficiency : | **100** | % | Drive efficiency : | **100** | % |
| Inverter efficiency : | **100** | % | Inverter efficiency : | **100** | % |
| Motor efficiency : | **100** | % | Motor efficiency : | **100** | % |
| Air volume : | **5.90** | m³/s | Air volume : | **5.90** | m³/s |
| AHU SFP : | **2.0** | W/l/s | | | |

## ECODESIGN DIRECTIVE DATA

| | | | | | |
|---|---|---|---|---|---|
| Unit typology : | **BVU (Bi-directional Ventilation Unit)** | | | | |
| Operation : | **NRVU (Non Residential Ventilation Unit), Airflow >1000m3/h** | | | | |
| Heat recovery type : | **Heat Wheel** | | Thermal efficiency of heat recovery system EN308 : | **75.20** | % |
| Requirements for internal specific fan power of ventilation components | | | | | |
| ERP 2016 : | **1146.00** | W/m³/s | ERP 2018 : | **866.00** | W/m³/s |
| SFPInt message : | | | | | |
| Calculated SFPInt : | **630.33** | W/m³/s | SFPInt conforms to : | **2018** | |