

TECHNICAL SPECIFICATION

PROJECT DETAILS

Project Name	THH MV Ophthalmology Decant Phase 1	Quote No.	AHS 25836
Unit Reference	AHU 01	Revision	0
Unit Model	AIR FLEX 88 F	Date	25 Feb 2025

MECHANICAL STANDARD (BS EN 1886)

CASING

Strength	D1
Air Leakage	L1

THERMAL

Transmittance	T2
Bridging	TB2

PERFORMANCE DATA

SUPPLY

Air Volume	3.530	m ³ /s
Ext. Stat. Pressure	380	Pa

EXTRACT

Air Volume	3.545	m ³ /s
Ext. Stat. Pressure	360	Pa

ERP Compliance

Internal SFP	650.22	W/m ³ /s
ERP Compliance	2018	

UNIT CONSTRUCTION

PANEL

Nom. Thickness	50	mm
Outer Material	Goosewing Grey Coated Steel	
Inner Material	Coated Steel	
Insulation Type	Polyurethane Foam	

GENERAL

Location	External
Roof Type	Pitched Roof
Base Type	Full
Base Material	150 Fabricated

UNIT DIMENSIONS

BOTTOM DECK

Width	2,150	mm
Height	1,200	mm
Length	9,050	mm
Base	150	mm

TOP DECK

Width	2,150	mm
Height	1,200	mm
Length	7,775	mm
Base		mm

O/ALL

Width	2,150	mm
Height	2,650	mm
Length	9,050	mm
Weight +/- 10%	4,559	kg

SPECIFIC FAN POWER

SUPPLY FAN

3.530	m ³ /s
Filter Condition	Clean
Absorbed Power	4.34 kW
Drive Efficiency	100 %
Inverter Efficiency	100 %
Motor Efficiency	100 %

EXTRACT FAN

3.545	m ³ /s
Filter Condition	Clean
Absorbed Power	3.42 kW
Drive Efficiency	100 %
Inverter Efficiency	100 %
Motor Efficiency	100 %

SFP_v

2.19 w/l/s

NOTES

AHU will be delivered to site in 6 sections. Should further splits be required additional costs and length will be incurred.

SUPPLY PATH

INLET SECTION						Component	001
Conn. Type	None		Damper	Yes	Face Velocity	1.810	m/s
Conn. Size	N/A	mm	Location	External	Actuator	By Others	
			Type	Low Loss			
			Size (WxH)	1950 x 1000 mm			
			Material	Galvanised Steel			

PLENUM SECTION						Component	002
Access Type	Hinged Door						

INCLUDED OPTIONS / NOTES

LED Bulkhead Light c/w Plug Wired to a Common Switch
Test Point

FROST COIL SECTION						Component	003
AIR SIDE			WATER SIDE			CONSTRUCTION	
Air Volume	3.530	m ³ /s	Medium	Water		Tube Material	Cu - standard
Air on (db)	-5.00	°C	Inlet Temp.	80.00	°C	Fin Material	None
Air off (db)	-2.00	°C	Outlet Temp.	60.00	°C	Casing Material	Galv Steel
Total Duty	13.03	kW	Flow Rate	0.16	l/s	Header Material	Copper
Air Press. Drop	8	Pa	Fluid Press. Drop	9	kPa	Inlet Conn. Size	1" BSPM
Face Velocity	1.91	m/s	Internal Volume	44.25	l	Outlet Conn. Size	1" BSPM
						Dims (WxH)	2010x 1090 mm
						Dims (D)	250 mm

INCLUDED OPTIONS / NOTES

Coil Selected to be capable of -5C to 5C if required

FILTER SECTION						Component	004
AIR SIDE			SPECIFICATION			DETAILS	
Air Volume	3.530	m ³ /s	Type	Panel		Qty	6
Face Velocity	1.98	m/s	Grade	M5 ePM10 55% Metal Case		Nom. Size (WxHxD)	610x508x50 mm
Air Pd (Clean)	41	Pa	Withdrawal	Front			
Air Pd (Average)	71	Pa					
Air Pd (Dirty)	100	Pa					

INCLUDED OPTIONS / NOTES

Minihelic Gauge (0-250Pa)
LED Bulkhead Light c/w Plug Wired to a Common Switch
Test Point
Section Split
St/St Filter Frames

ATTENUATOR SECTION							Component	005
AIR SIDE			SPECIFICATION			CONSTRUCTION		
Air Volume	3.530	m³/s	Face Material	Melinex		Splitter Length	870	mm
Air Press. Drop	11	Pa	Painted	Yes		Splitter Width	200	mm
	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Ins. Loss (dB)	7	14	17	28	38	30	23	18

INCLUDED OPTIONS / NOTES

Section Split

PLATE HEAT EXCHANGER SECTION

Component 006

WINTER (F/A)

Air Volume	3.530	m3/s
Air on (db)	-2.00	°C
RH	77.6	%
Air off (db)	13.20	°C
RH	26.5	%
Total Duty	65	kW
Air Press. Drop	154	Pa
Tot. Efficiency	79.9	%
Dry Efficiency	73.47	%

SUMMER (F/A)

Air Volume	3.530	m3/s
Air on (db)	35.00	°C
RH	36.1	%
Air off (db)	26.90	°C
RH	57.1	%
Total Duty	-35.2	kW
Air Press. Drop	172	Pa
Tot. Efficiency	73.4	%
Dry Efficiency	73.47	%

WINTER (EXHAUST)

Air Volume	3.545	m3/s
Air on (db)	17.00	°C
RH	50	%
Air off (db)	4.10	°C
RH	100	%
Total Duty	65	kW
Air Press. Drop	157	Pa
Tot. Efficiency	79.9	%
Dry Efficiency	73.47	%

SUMMER (EXHAUST)

Air Volume	3.545	m3/s
Air on (db)	24.00	°C
RH	50	%
Air off (db)	32.00	°C
RH	31.3	%
Total Duty	-35.2	kW
Air Press. Drop	170	Pa
Tot. Efficiency	73.4	%
Dry Efficiency	73.47	%

CONSTRUCTION

Fin Material	Standard
Bypass Damper	Yes

AHU DRAIN TRAY

Material	St/St (304)	Model Type	Fixed
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INCLUDED OPTIONS / NOTES

Lifting Points Fitted to AHU Base
LED Bulkhead Light c/w Plug Wired to a Common Switch (x4)
Test Point (x4)
Section Split
Double Drain Tray

SUPPLY FAN SECTION

Component 007

DETAILS

Air Volume	3.530	m3/s
Ext. Static Pressure	380	Pa
Tot. Static Pressure	985	Pa
Starting Method	Speed Controller	
A. V. Type	N/A	
Weight (per fan)	33.48	Kg

FAN

Type	Plenum-EC
Impellor	Backward Curved
Qty	Dual
Operation	50 %
Model	8300100082
Speed	2097 RPM
Max. Speed	2480 RPM
Absorbed Power	2.62 kW
Total Efficiency	68 %

MOTOR

Efficiency	1.00
Qty	SINGLE
Power	4.15 kW
Speed	2480 RPM
Pole	N/A
Full Load Current	6.30 Amp
Electrical Supply	380/3/50

Sound Power Lw	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Fan Inlet (dB)	79	91	79	77	74	71	70	65
Fan Outlet (dB)	82	96	81	81	82	79	75	68

Note : Fan manufacturer data used in accordance with DIN 463 Part 38 & 39, BS 848 Part 2 & ISO 5136. A correction of +6dB should be applied across all octave bands for unit casing adjustment

INCLUDED OPTIONS / NOTES

Inlet Guard
Door Guard
0-10V Speed Control Required
Pre-wired isolator
Pre-wired isolator
LED Bulkhead Light c/w Plug Wired to a Common Switch
EC Fan Commando Plug (Power)
EC Fan Commando Plug (Power)
Test Point

INCLUDED OPTIONS / NOTES

Section Split
Galvanised Back Draught Dampers
Lifting Points Fitted to AHU Base
Normal Operation 2 Fans Running (1 fan capable of operating at 80% airflow if the other fan fails)

PLENUM SECTION

Component 008

Access Type Hinged Door

INCLUDED OPTIONS / NOTES

Test Point
Door Guard
Lifting Points Fitted to AHU Base

COOLING COIL SECTION

Component 009

AIR SIDE			REFRIG. SIDE			CONSTRUCTION	
Air Volume	3.530	m3/s	Medium	R410a		Tube Material	Cu - 0.7mm
Air on (db)	35.00	°C	Evap. Temp.	6.00	°C	Fin Material	CuSn - Standard
Air on (wb)	23.00	°C	Fluid Press. Drop	NaN	kPa	Casing Material	Stainless steel 304
Relative Humid.	36.1	%	Internal Volume	17.77	l	Header Material	Copper
Air off (db)	23.00	°C	No. of Ind. Circuits	2		Inlet Conn. Size	28 mm
Air off (wb)	19.50	°C				Outlet Conn. Size	28 mm
Relative Humid.	72	%				Coil Drain Tray	Yes
Total Duty	53.99	kW				Material	St/St (304)
Sens. Duty	53.31	kW				Coil Int. Drain Tray	No
Air Press. Drop	62	Pa				Material	None
Face Velocity	1.95	m/s				Eliminator	No
Sens. Heat Ratio	99	%				Loose Flange	No
						Dims (WxH)	2010x1080 mm
						Dims (D)	190 mm

AHU DRAIN TRAY

Material St/St (304) Model Type Fixed

INCLUDED OPTIONS / NOTES

St/St HTM Compliant Cleanable Drain Tray
Cooling Only Coil
2 Gas Circuit DX Cooling Coil
Coil has been selected to suit the proposed AHS condensing unit(s) . Coil size and price may change if alternative condensing units are used

ELIMINATOR SECTION

Component 010

AIR SIDE			CONSTRUCTION	
Air Volume	3.530	m3/s	Casing Material	Stainless Steel
Air Press. Drop	11	Pa	Dims (WxH)	2010x1080 mm

INCLUDED OPTIONS / NOTES

LED Bulkhead Light c/w Switch
Test Point
Section Split

HEATING COIL SECTION

Component 011

AIR SIDE			WATER SIDE			CONSTRUCTION	
Air Volume	3.530	m3/s	Medium	Water		Tube Material	Cu - standard
Air on (db)	13.00	°C	Inlet Temp.	80.00	°C	Fin Material	Cu - Standard
Air off (db)	22.00	°C	Outlet Temp.	60.00	°C	Casing Material	Galv Steel
Total Duty	39.1	kW	Flow Rate	0.47	l/s	Header Material	Copper
Air Press. Drop	27	Pa	Fluid Press. Drop	21	kPa	Inlet Conn. Size	1" BSPM
Face Velocity	1.91	m/s	Internal Volume	20.7	l	Outlet Conn. Size	1" BSPM
						Dims (WxH)	2010x1090 mm
						Dims (D)	160 mm

FILTER SECTION

Component 012

AIR SIDE

Air Volume	3.530	m ³ /s
Face Velocity	2.03	m/s
Air Pd (Clean)	49	Pa
Air Pd (Average)	100	Pa
Air Pd (Dirty)	150	Pa

SPECIFICATION

Type	Rigid
Grade	F7 ePM1 60% A+
Withdrawal	Front

DETAILS

Qty	6
Nom. Size (WxHxD)	610x508x290 mm

INCLUDED OPTIONS / NOTES

Minihelic Gauge (0-250Pa)
LED Bulkhead Light c/w Plug Wired to a Common Switch
Test Point
St/St Filter Frames

OUTLET SECTION

Component 013

Conn. Type	None	Damper	Yes	Face Velocity	1.810	m/s
Conn. Size	N/A	Location	External	Actuator	By Others	
		Type	Low Loss			
		Size (WxH)	1950 x 1000 mm			
		Material	Galvanised Steel			

EXTRACT PATH

INLET SECTION

Component 014

Conn. Type	None		Damper	Yes	Face Velocity	1.820	m/s
Conn. Size	N/A	mm	Location	External	Actuator	By Others	
			Type	Low Loss			
			Size (WxH)	1950 x 1000 mm			
			Material	Galvanised Steel			

ATTENUATOR SECTION

Component 015

AIR SIDE			SPECIFICATION			CONSTRUCTION		
Air Volume	3.545	m ³ /s	Face Material	Melinex		Splitter Length	1470	mm
Air Press. Drop	13	Pa	Painted	No		Splitter Width	200	mm
	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Ins. Loss (dB)	10	21	26	41	45	40	34	26

FILTER SECTION

Component 016

AIR SIDE			SPECIFICATION			DETAILS		
Air Volume	3.545	m ³ /s	Type	Panel		Qty	6	
Face Velocity	1.99	m/s	Grade	M5 ePM10 55% Metal Case		Nom. Size (WxHxD)	610x508x50	mm
Air Pd (Clean)	42	Pa	Withdrawal	Front				
Air Pd (Average)	71	Pa						
Air Pd (Dirty)	100	Pa						

INCLUDED OPTIONS / NOTES

Minihelic Gauge (0-250Pa)
LED Bulkhead Light c/w Plug Wired to a Common Switch
Test Point
St/St Filter Frames

PLENUM SECTION

Component 017

Access Type None

Component 018

EXHAUST FAN SECTION

Component 019

DETAILS			FAN			MOTOR		
Air Volume	3.545	m ³ /s	Type	Plenum-EC		Efficiency	1.00	
Ext. Static Pressure	360	Pa	Impellor	Backward Curved		Qty	SINGLE	
Tot. Static Pressure	718	Pa	Qty	Dual		Power	4.15	kW
Starting Method	Speed Controller		Operation	50	%	Speed	2480	RPM
A. V. Type	N/A		Model	8300100082		Pole	N/A	
Weight (per fan)	33.48	Kg	Speed	1858	RPM	Full Load Current	6.30	Amp
			Max. Speed	2480	RPM	Electrical Supply	380/3/50	
			Absorbed Power	1.88	kW			
			Total Efficiency	71	%			
Sound Power Lw	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Fan Inlet (dB)	74	81	71	71	71	69	68	61
Fan Outlet (dB)	78	84	74	76	78	76	72	64

Note : Fan manufacturer data used in accordance with DIN 463 Part 38 & 39, BS 848 Part 2 & ISO 5136. A correction of +6dB should be applied across all octave bands for unit casing adjustment

INCLUDED OPTIONS / NOTES

Inlet Guard
Door Guard
0-10V Speed Control Required
Pre-wired isolator

INCLUDED OPTIONS / NOTES

Pre-wired isolator
LED Bulkhead Light c/w Plug Wired to a Common Switch
EC Fan Commando Plug (Power)
EC Fan Commando Plug (Power)
Test Point
Galvanised Back Draught Dampers
Lifting Points Fitted to AHU Base
Normal Operation 2 Fans Running (1 fan capable of operating at 80% airflow if the other fan fails)

ATTENUATOR SECTION Component 020

AIR SIDE			SPECIFICATION			CONSTRUCTION		
Air Volume	3.545	m ³ /s	Face Material	Melinex		Splitter Length	870	mm
Air Press. Drop	11	Pa	Painted	Yes		Splitter Width	200	mm
	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Ins. Loss (dB)	7	14	17	28	38	30	23	18

INCLUDED OPTIONS / NOTES

Lifting Points Fitted to AHU Base

PLENUM SECTION Component 021

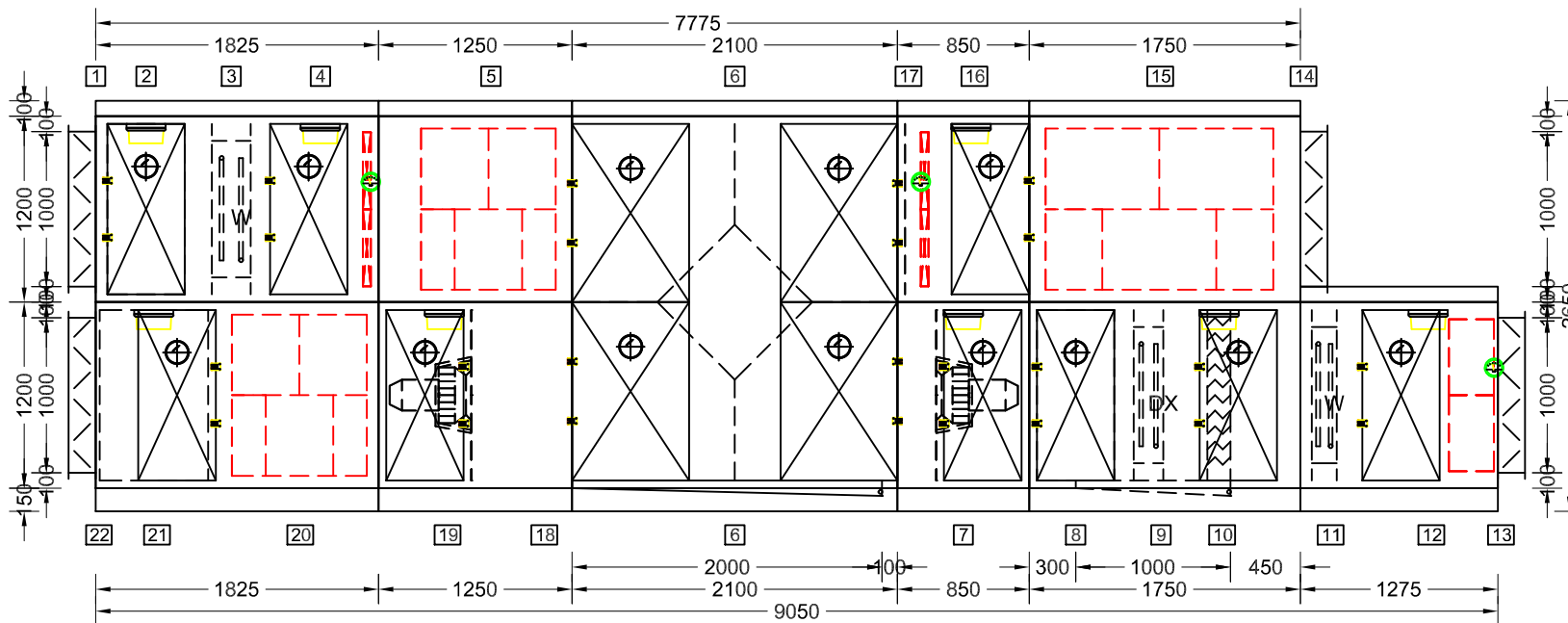
Access Type Hinged Door

INCLUDED OPTIONS / NOTES

LED Bulkhead Light c/w Switch
Test Point

OUTLET SECTION Component 022

Conn. Type	None	Damper	Yes	Face Velocity	1.820	m/s
Conn. Size	N/A	Location	External	Actuator	By Others	
		Type	Low Loss			
		Size (WxH)	1950 x 1000 mm			
		Material	Galvanised Steel			



Section A: Weight +/- 10% = 470Kgs

Components

- 1 Inlet Section
- 2 Plenum Section
- 3 Frost Coil
- 4 Panel Filter

Section B: Weight +/- 10% = 336Kgs

Components

- 5 Attenuator

Section C: Weight +/- 10% = 843Kgs

Components

- 6 Plate Heat Exchanger

Section D: Weight +/- 10% = 270Kgs

Components

- 7 Plenum Fan

Section E: Weight +/- 10% = 446Kgs

Components

- 8 Plenum Section
- 9 DX Cooling Coil
- 10 Eliminator

Section F: Weight +/- 10% = 516Kgs

Components

- 11 LPHW Heating Coil
- 12 Rigid Bag Filter
- 13 Outlet Section

Section G: Weight +/- 10% = 606Kgs

Components

- 14 Inlet Section
- 15 Attenuator

Section H: Weight +/- 10% = 151Kgs

Components

- 16 Panel Filter
- 17 Plenum Section

Section I: Weight +/- 10% = 331Kgs

Components

- 18 MANUAL
- 19 Plenum Fan

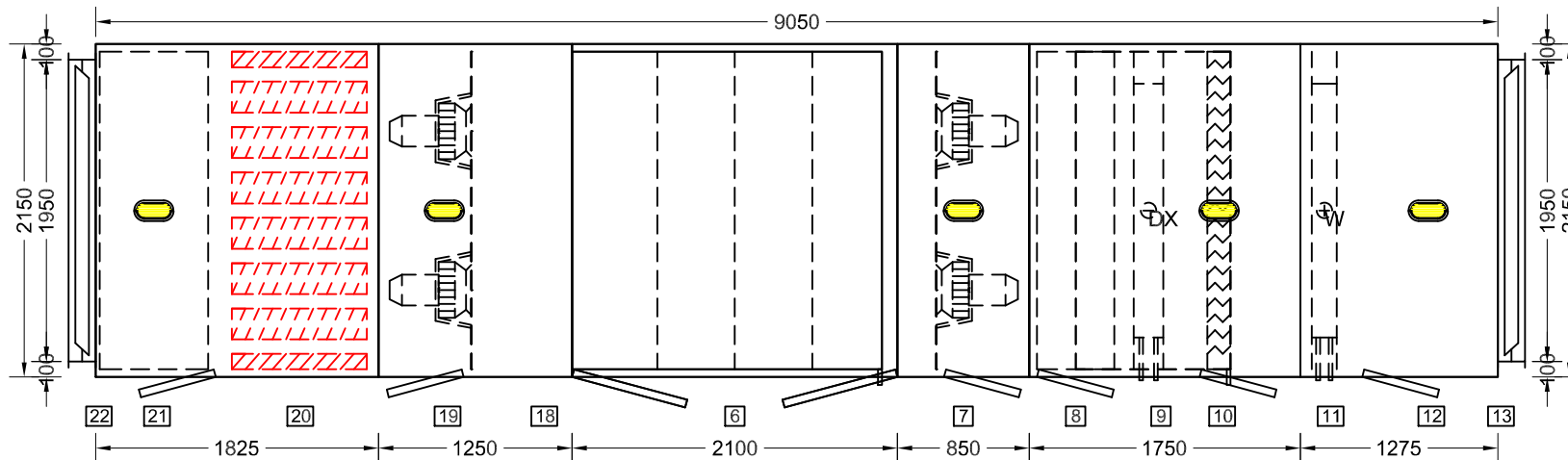
Section J: Weight +/- 10% = 591Kgs

Components

- 20 Attenuator
- 21 Plenum Section
- 22 Outlet Section

ELEVATION

Customer	SMP	Air flow	3.53/3.55	m3/s	Not To Scale All Dimensions shown are in mm		This Drawing is property of AHS and should not be re-produced in any form		AIR HANDLING SYSTEMS LTD. 3 - 5 FURNACE INDUSTRIAL ESTATE SHILDON, COUNTY DURHAM. DL4 1QB	No.	Revision	Date
Project	THH MV Ophthalmology Decant Phase 1	Weight	4559	Kg	AHU No.	1						
Location	AHU 01	E.S.P	380 / 360	Pa	Dwg No.	25836-1-0						
Model	AIR FLEX 88 F / AIR FLEX 88 F	Quantity	1	Nos.								



Section A: Weight +/- 10% = 470Kgs

Components

- 1 Inlet Section
- 2 Plenum Section
- 3 Frost Coil
- 4 Panel Filter

Section B: Weight +/- 10% = 336Kgs

Components

- 5 Attenuator

Section C: Weight +/- 10% = 843Kgs

Components

- 6 Plate Heat Exchanger

Section D: Weight +/- 10% = 270Kgs

Components

- 7 Plenum Fan

Section E: Weight +/- 10% = 446Kgs

Components

- 8 Plenum Section
- 9 DX Cooling Coil
- 10 Eliminator

Section F: Weight +/- 10% = 516Kgs

Components

- 11 LPHW Heating Coil
- 12 Rigid Bag Filter
- 13 Outlet Section

Section G: Weight +/- 10% = 606Kgs

Components

- 14 Inlet Section
- 15 Attenuator

Section H: Weight +/- 10% = 151Kgs

Components

- 16 Panel Filter
- 17 Plenum Section

Section I: Weight +/- 10% = 331Kgs

Components

- 18 MANUAL

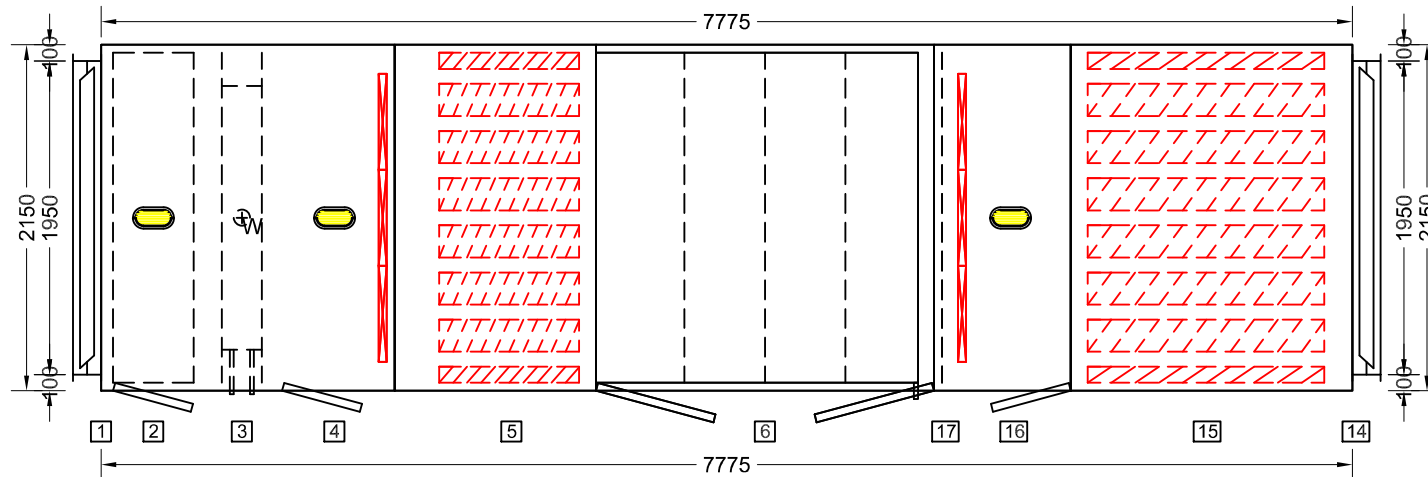
Section J: Weight +/- 10% = 591Kgs

Components

- 19 Plenum Fan
- 20 Attenuator
- 21 Plenum Section
- 22 Outlet Section

PLAN LOWER DECK

Customer	SMP	Air flow	3.53/3.55	m3/s	Not To Scale All Dimensions shown are in mm		This Drawing is property of AHS and should not be re-produced in any form		AIR HANDLING SYSTEMS LTD. 3 - 5 FURNACE INDUSTRIAL ESTATE SHILDON, COUNTY DURHAM. DL4 1QB	No.	Revision	Date
Project	THH MV Ophthalmology Decant Phase 1	Weight	4559	Kg	AHU No.	1						
Location	AHU 01	E.S.P	380 / 360	Pa	Dwg No.	25836-1-0						
Model	AIR FLEX 88 F / AIR FLEX 88 F	Quantity	1	Nos.								



PLAN UPPER DECK

Section A: Weight +/- 10% = 470Kgs

Components

- 1 Inlet Section
- 2 Plenum Section
- 3 Frost Coil
- 4 Panel Filter

Section B: Weight +/- 10% = 336Kgs

Components

- 5 Attenuator

Section C: Weight +/- 10% = 843Kgs

Components

- 6 Plate Heat Exchanger

Section D: Weight +/- 10% = 270Kgs

Components

- 7 Plenum Fan

Section E: Weight +/- 10% = 446Kgs

Components

- 8 Plenum Section
- 9 DX Cooling Coil
- 10 Eliminator

Section F: Weight +/- 10% = 516Kgs

Components

- 11 LPHW Heating Coil
- 12 Rigid Bag Filter
- 13 Outlet Section

Section G: Weight +/- 10% = 606Kgs

Components

- 14 Inlet Section
- 15 Attenuator

Section H: Weight +/- 10% = 151Kgs

Components

- 16 Panel Filter
- 17 Plenum Section

Section I: Weight +/- 10% = 331Kgs

Components

- 18 MANUAL
- 19 Plenum Fan

Section J: Weight +/- 10% = 591Kgs

Components

- 20 Attenuator
- 21 Plenum Section
- 22 Outlet Section

Customer	SMP	Air flow	3.53/3.55	m3/s	Not To Scale All Dimensions shown are in mm		This Drawing is property of AHS and should not be re-produced in any form		AIR HANDLING SYSTEMS LTD. 3 - 5 FURNACE INDUSTRIAL ESTATE SHILDON, COUNTY DURHAM. DL4 1QB	No.	Revision	Date
Project	THH MV Ophthalmology Decant Phase 1	Weight	4559	Kg	AHU No.	1						
Location	AHU 01	E.S.P	380 / 360	Pa	Dwg No.	25836-1-0						
Model	AIR FLEX 88 F / AIR FLEX 88 F	Quantity	1	Nos.								

Project: THH MV Ophthalmology

AHU Ref : AHU 1

Heating Duty : NA

Cooling Duty : 57kw

No of Stages : 2



Outdoor Unit			GM2801AT8-E
Cooling Range (min-max)		kW	4.6 - 27.0
Heating Range (min-max)		kW	4.6 - 31.5
SCOP Max (Energy Efficiency Class)			3.51 (A)
Ambient Operating Range Cooling/Heating		°C	-15 to 46 / -15 to 15
Sound	Pressure Level	dB(A)	63
	Power Level	dB(A)	80
Unit	Appearance		Silky Shade
	Heat Exchanger		Finned Tube
	Compressor Type		Hermetic Twin Rotary
	Compressor Power	kW	5.6
Refrigerant	Height x Width x Depth	mm	1550 x 1010 x 370
	Weight	kg	142
	Control		Pulse Motor Valve
	Gas Type (pre-charge)		R32
Pipe Connections	Base Charge/Chargless To	kg/m	5.0/30
	Additional Charge Main Liquid Side	g/m	80
	Compatible with		R410a
	Min-Max Length	m	5-60
Electrical	Height Difference Outdoor to AHU	m	30
	Gas Side	inch	1-1/8*
	Liquid Side	inch	1/2
	Power Supply	V/ph/Hz	380-415/3/50-20
Control Interface Box	Maximum Run Current	A	13.04
	Suggested Fused Supply	A	20
	Available in single phase		No
Control Interface Box			
Unit	Height x Width x Depth	mm	300 x 300 x 150
	Weight	kg	10