

# OZONAIR HYDRONIC

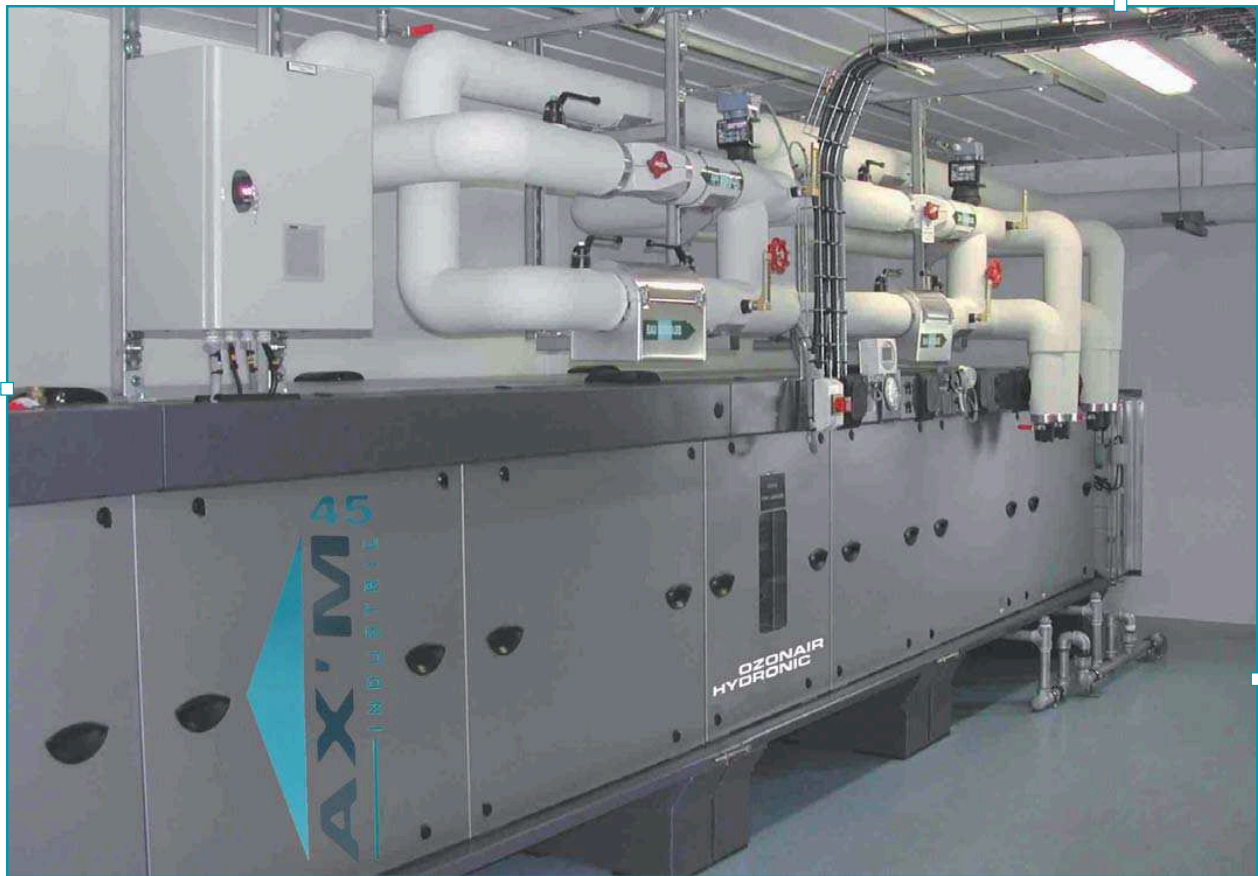
AIR HANDLING UNITS

**AX'M® Industry range**

**Air flows from 0.5 to 5.0 m<sup>3</sup>/s**

*Completely accessible via sliding doors* (Registered and Patented)

*Making air quality simple to maintain.*



- ❑ The air handling unit is completely accessible for cleaning in order to maintain the air quality

*Industrial applications :*

- Clean rooms*
- Pharmaceutical process*
- Micro-electronic*
- Petrochemical*
- Cosmetic*



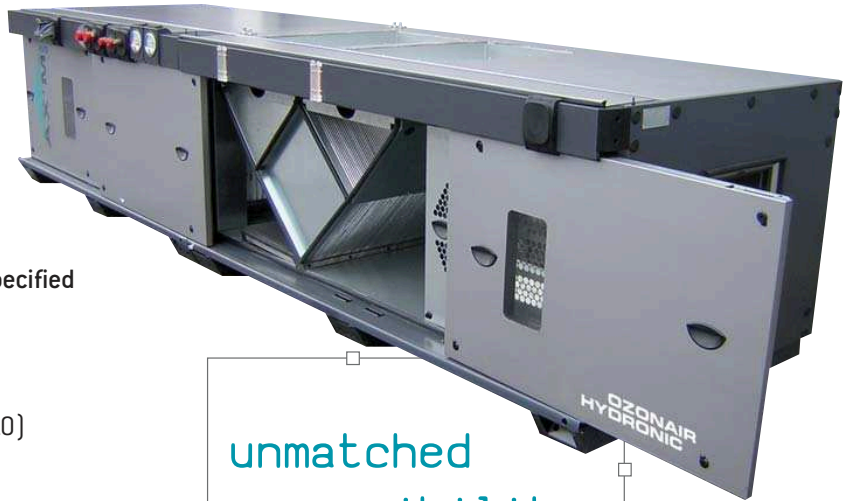
# HIGH GRADE CASING FOR BEST PERFORMANCE

Self supporting casing

Completely accessible via sliding doors  
(patented)

Complying with the most strenuous classes specified  
in standard EN1886 (2004)

- Air tightness
  - L2 as standard (if filter  $\leq$  F9)
  - as option L1 (if required or filter  $\geq$  H10)
- Resistance - D2
- Thermal insulation - T2
- Thermal bridge - TB2
- Filter panel leak - F9 or  $>$  F9



unmatched  
accessibility

As standard double skin panels 50mm  
Insulated with Rockwool density 40Kg/m<sup>3</sup>, the  
optimum between ACOUSTIC and THERMAL  
performance  
External skin pre painted 2 colours  
Internal skin with galvanised steel 275g/m<sup>2</sup>,  
Additional options : Stainless steel, paint types and  
insulation density

## ACOUSTIC EFFICIENCY

Noise reduction through AX'M panel

Frequency (Hz)	125	250	500	1000	2000	4000
Transmission loss (dB)	19	23	29	29	30	39

All characteristics tested in  
accordance with standard  
EN 13053

### Comparison between the old and revised EN 1886 "standards"

REFERENCE VALUE	EN 1886 1998	Pr EN 1886 2004	AX'M
<b>CASING STRENGTH</b>			
Deflection	> 10 mm		D3
	10 mm	1-1A	D2
		1B	
	4 mm	2-2A	D1
<b>CASING AIR LEAKAGE</b>			
"-400 Pa	" +700 Pa		
3,96 l/s/m <sup>2</sup>	5,70 l/s/m <sup>2</sup>	3A	
1,32 l/s/m <sup>2</sup>	1,90 l/s/m <sup>2</sup>	A	L3
0,44 l/s/m <sup>2</sup>	0,63 l/s/m <sup>2</sup>	B	L2
0,15 l/s/m <sup>2</sup>	0,22 l/s/m <sup>2</sup>		L1
<b>THERMAL TRANSMITTANCE</b>			
W.m-2.K-1	U $\leq$ 0,5	T1	T1
	0,5 < U $\leq$ 1	T2	T2
	1 < U $\leq$ 1,4	T3	
	1,4 < U $\leq$ 2	T4	T4
	No value	T5	T5
<b>THERMAL BRIDGING FACTOR</b>			
	0,75 < Kb < 1	TB1	TB1
	0,6 < Kb < 0,75	TB2	TB2
	0,45 < Kb < 0,6	TB3	TB3
	0,3 < Kb < 0,45	TB4	TB4
	Pas d'exigence	TB5	TB5
<b>FILTER BY PASS LEAKAGE</b>			
Under 400 Pa	No value	G1-4	
	6%	F5	G1 à F5
	4%	F6	F6
	2%	F7	F7
	1%	F8	F8
	0,5%	F9	F9

AX'M

D2

L2

L1

T2

TB2

F9

## OZONAIR-HYDRONIC DESIGN ACHIEVEMENTS

Air quality is improved by designing the inside of the AHU to have totally smooth surfaces, this makes the unit easier to clean and has reduced dust traps considerably.

The AHU performance is maximised by careful consideration of the aerodynamics, each component assembly has been designed giving the best, air flow, with reduced energy and noise levels. An example of this is the fan section, which can have a specially designed plug fan, also available is a secured mesh door (replacing the drive belt guard).

The AHU size is minimised but without the loss of good aerodynamics by designing carefully sized sections and expansion boxes. Making the unit one of the most compact on the market.

The AHU design offers benefits such as low, energy consumption, air, and water pressure drops.

To reduce energy consumption further the AXM offers EFF1 electric motors as an option (EFF2 is the standard AXM motor efficiency).

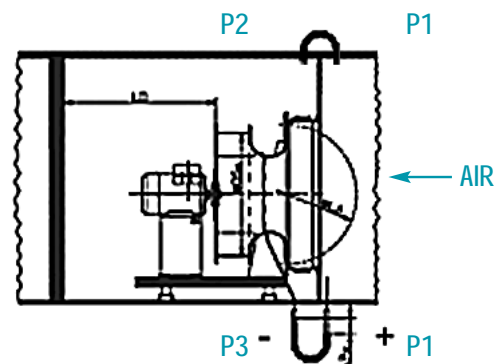


Optional mesh guard at the fan section. The removal of this guard requires the use of an allen key

## AIR FLOW METER/CONTROL - PLUG FAN



One of the benefits of using a plug fan is that it is possible to measure, and adjust the air flow using an electric measuring device, (an option that is available to the AXM). The measured air flow can be obtained manually:-  
For air flow measure points P1 and P2  
For air pressure measure points P1 and P3

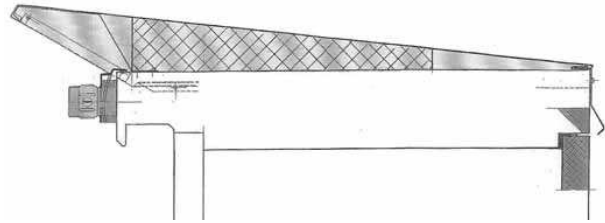


## EXTERNAL UNIT



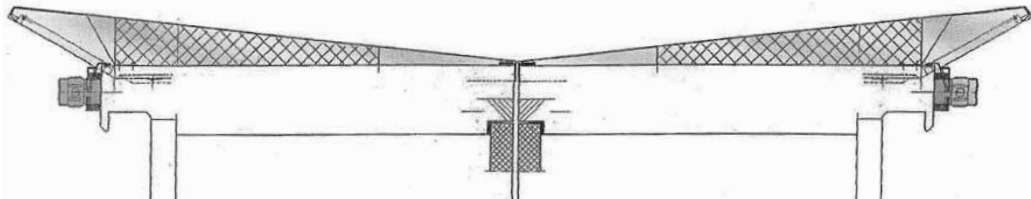
Externally mounted AX'M 45 with sloping roof and inlet louvre

For side by side units, the roof is provided with an axial seal to be fixed, once the ahu is installed (detail below).



For external applications, the AX'M is equipped with a sloping roof, extending over the access side to protect components which are fitted in the multi service bulkhead.

For transport and handling reason the roof is delivered fitted, but flat. When the AHU is installed the roof is moved and fixed into its sloping position.



External mounted side by side units

## FACTORY OR SITE FITTED ELECTRICAL/CONTROL WIRING



AX'M unit with electrical box fitted and wired to internal components

### Connection

The sliding doors make access to component connections inside the unit easy.

The Multi-service bulkhead gives easy access to pressure tappings, electrical power and control wiring.

The AX'M configuration and multi service bulkhead simplifies the factory or site fitting of electrical services to:-

- fitted components
- Complete wiring to fitted components
- Partial wiring for future requirements
- electrical equipment box provided mounted and pre-wired.



# The AXM range of air handling units include the following standard features



SLIDING DOORS

THE MULTI SERVICE BULKHEAD

EASY ACCESS TO THE MULTI SERVICE BULKHEAD

SMOOTH INTERNAL PANELS

STAINLESS STEEL AND SLOPING DRAIN TRAY, completely and easily REMOVABLE

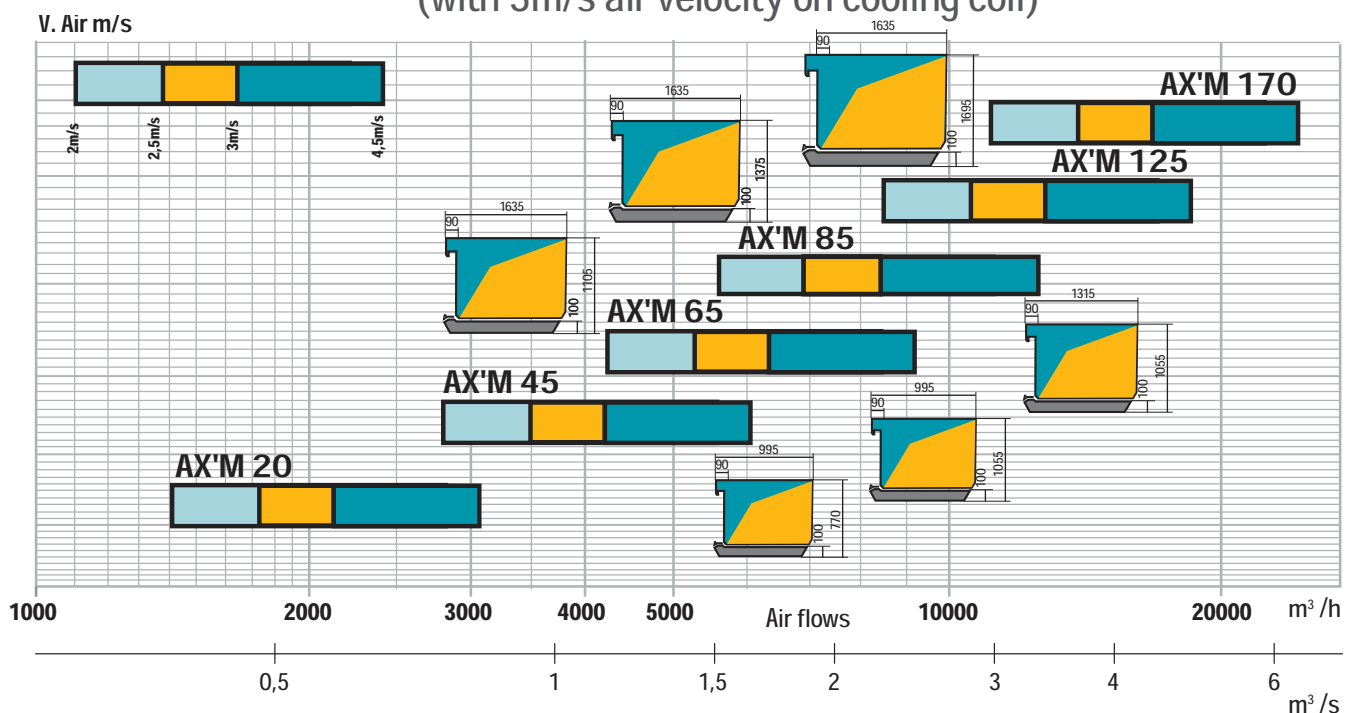
TUBE MANOMETER FITTED at each filter stage

DRAIN PLUG AND AIR VENT CAP on each set of THREADED HEADERS

TRANSVERSE SUPPORT FEET ALSO USED FOR LIFTING



6 sizes of air handling units for aiflows from 0,5 m<sup>3</sup>/s to 5 m<sup>3</sup>/s (with 3m/s air velocity on cooling coil)



# OPTIMISED GENERAL ARRANGEMENT

DIFFERENT ARRANGEMENTS AND CONFIGURATIONS			
AX'M INDUSTRY	HORIZONTAL	INTERNAL IN LINE DOUBLE DECK SIDE BY SIDE	EXTERNAL IN LINE DOUBLE DECK SIDE BY SIDE
		VERTICAL (see RANGE CCM 20 up to 170)	

**STEAM HUMIDIFIERS**  
Section provided empty or with lance sprayer

**SOUND ATTENUATORS**  
4 available lengths from 600mm up to 1700mm  
2 possible efficiencies for each length



**DAMPERS**  
2 way mixing box  
3 way mixing box  
Air inlets  
Internal or external dampers  
Class 1 or class 3 tightness  
Manual or motorized operation



**PREFILTERS G4 / F5**  
**FILTERS F5 / F6 / F7 / F8 / F9**  
**COMBINED FILTERS**  
Convenient mounting, in slide rails, eccentric sealing of frames up to F9  
Each filter stage equipped with a tube manometer as standard



**OZONAIR HYDRONIC COILS**  
**HOT or COLD WATER**  
Mounted in slide rails  
Connections terminating in multi service duct are fitted with drain plugs and air vents.  
Easily removable sloping drain tray manufactured from stainless steel.  
Headers and return bends are covered with smooth blanking plates to prevent dust and contamination.



AX'M Industry AHU with total access

Protection guard at fan section opening



# COMPONENTS FOR EACH FUNCTION



Once support pillar or complete

up to 1500mm  
length

Maintenance friendly



**MOISTURE ELIMINATOR  
BLADES OR MESH**  
Mounted in slide rails  
**ANTIFROST DRAWER WITH SENSOR**  
**FITTED AND WIRED**  
Mounted in slide rails



**FILTERS H10 / H11 / H12 /  
H13 / H14**  
Mounted in positive sealing HEPA filter frames  
Optional DOP test point.  
Positive sealing HEPA filter frames.



**TRADITIONAL DOUBLE INLET  
BACKWARD CURVED OR FORWARD  
CURVED FANS**  
Fitted with tubular seal  
or flexible sleeve  
**PLUG FAN**  
Fitted with seal and anti-vibration pads  
Optional frequency inverter fitted  
**PLUG FAN OPTION ONLY**  
Airflow measuring device

Total access to all components

**PLATE HEAT EXCHANGERS**

In line arrangement  
Double deck arrangement  
Side by side arrangement  
2 efficiencies available : H2 and H4

**HEAT WHEELS**

Horizontal or vertical arrangements  
2 efficiencies available: H2 and H4



# AVAILABLE OPTIONS

Factory fitted options :

- **ACTUATORS FITTED AND WIRED**  
To the multi service bulkhead
- **MAGNAHELIC GAUGES**  
can be fitted instead  
of standard tube manometers
- **PRESSURE SWITCH**  
Fitted to standard tube manometers
- **ANTIFROST DRAWER**  
Sensor wired to the multi service bulkhead
- **ELECTRICAL LIGHTING**  
Wired to the switch in the multi service bulkhead
- **PORTHOLE**  
Set in a sliding door
- **EXTERNAL LOCAL ISOLATOR**  
Fitted and wired to electrical motor
- **FREQUENCY INVERTER**  
Fitted in the AHU and wired to the motor  
OR  
integrated with the motor
- **Wiring of the AHU**  
Pre-wired electrical equipment box

For the full range of factory fitted options and accessories see our selection software.



External local isolator



Pressure switch



Magnahelic gauge



Airflow controller for plug fan



Frequency inverter



Actuator fitted and wired



Switch for electrical lighting

# SOFTWARE WHICH OPTIMISES YOUR AIR HANDLING UNIT

Ozonair Hydronic has the benefit of a complete manufacturing facility. From marketing, design and development right through to production and control, which all meet ISO 9001.

OZONAIR-HYDRONIC designed and created their own technical selection software USER-FRIENDLY and RELEVANT SOFTWARE WHICH OPTIMISES "YOUR AIR HANDLING NEEDS" According to the PRIORITIES you select, this can be...

- PRICE
- SOUND LEVEL
- OVERALL SIZE
- ABSORBED POWER
- HEAT RECOVERY

- VARIABLE SPEED
- A WIDE RANGE OF FACTORY FITTED OPTIONS



## SELECTION EXAMPLE

### On air handling unit "AX'M 125 Industry" type

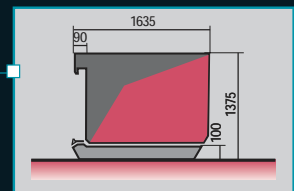
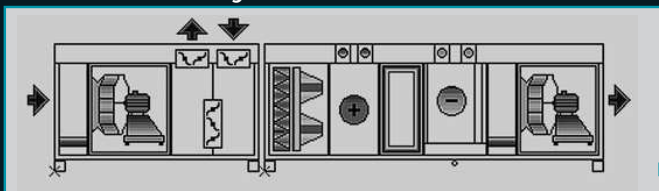
Location : internal Position : horizontal  
 Sliding panels for complete access  
 Service Bulkhead for hydraulic and electrical connections

Selection conditions : Elevation : 0 m  
 Reference air temperature : 20°C  
 Filters condition : half dirty  
 Supply airflow : 3.11 m³/s

SOUND POWER SPECTRUM (SWL)									
FREQUENCIES (Hz)	63	125	250	500	1000	2000	4000	8000	
In duct AHU discharge	82	86	91	91	87	81	74	69	
In duct AHU inlet	76	80	85	85	79	71	56	51	
Breakout noise level	70	71	71	62	53	45	38	37	
TOTAL SOUND POWER LEVEL	dBlin		dBa						
In duct AHU discharge	96		91						
In duct AHU inlet	89		84						
Breakout noise level	76		65						

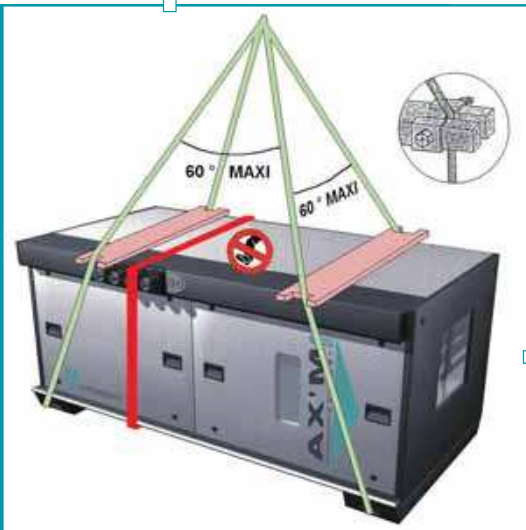
\* Sound spectrum available for use frequency.

### AX'M 125 Industry dimensions



# SIMPLE INSTALLATION AND COMMISSIONING

## Handling



## High level mounting Safety kit



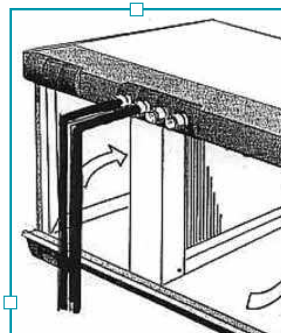
## Fitting at lower part of casings



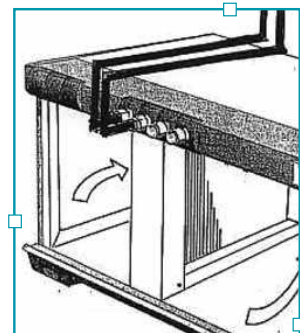
Threaded coil headers can be connected in the orientations shown here. Ensure that the components within the unit are still able to be removed, such as anti-frost drawer, droplet eliminators or drain tray, if applicable.



Upper side



Lower side



Opposite side

## AHU Installation

Each section is equipped with 2 or 3 transverse feet to ease the handling operations and to enable an easy setting on a plinth or frame.

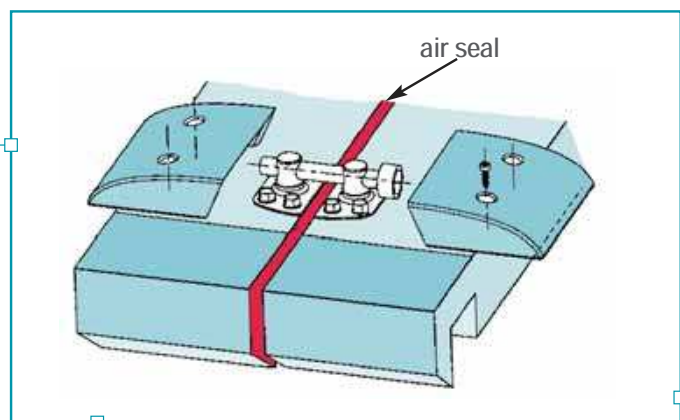
When mounting at height, **OZONAIR-HYDRONIC** can provide a safety kit to lock the sliding doors.

The joining of sections has been simplified, fit the air seal, and then using four tightening devices adjust to form an air tight seal. The tightening devices can be fitted internally or external to the sections.

The drain tray pipe is to be protected during handling operation. This allows easy siphon fitting, the size of which is determined by the pressure drop.

Optional, longitudinal beams or special supports are available.

## Joining of sections with seal in position.

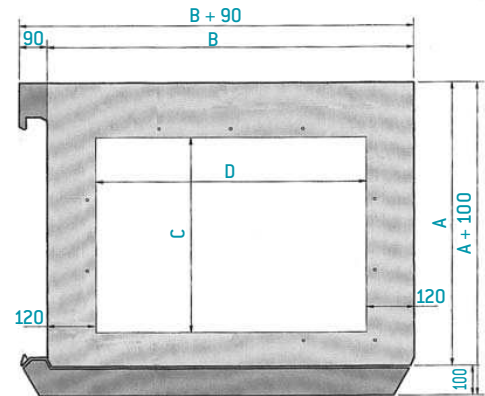


## Different connections of coils headers

# AIR INLET AND DISCHARGE CONNECTIONS

## AHU inlet and discharge dimensions

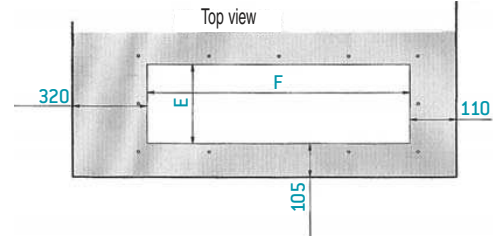
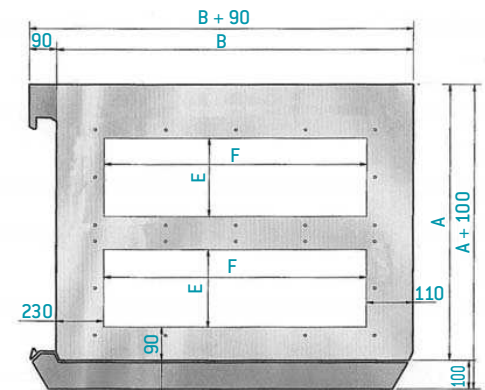
Size	Height	Width		(+)	
	A	B	C	D	
20	670	905	310	665	
45	955	905	610	665	
65	955	1225	610	985	
85	1005	1545	710	1305	
125	1275	1545	910	1305	
170	1595	1545	1310	1305	



## Two way mixing box inlet dimensions

2 way mixing box

Size	Height	Width
	E	F
20	210	565
45	310	565
65	310	885
85	310	1205
125	410	1205
170	510	1205



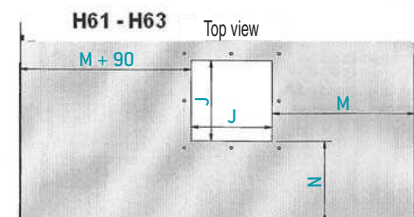
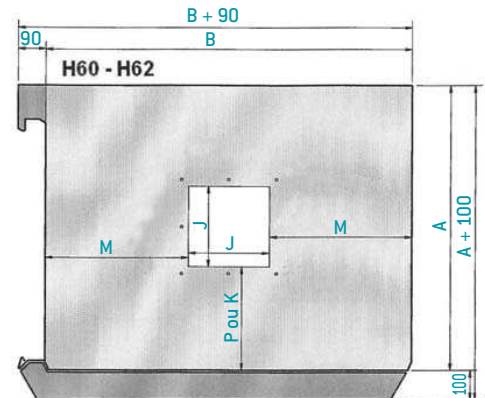
## Fan discharge dimensions for different orientations H60-H61-H62-H63

Nominal fan size

Size	Nominal	J	K	P	M	N
20	∅ 200	305	186,5	76,5	300	158,5
45	∅ 250	371	231,5	102,5	267	192,5
65	∅ 315	453	267,5	100,5	386	223,5
85	∅ 355	502	273,5	81,5	521,5	255,6
125	∅ 450	618	362	118,5	463,5	312,5
170	∅ 500	687	384,5	116,5	429	322,5

Maximum fan size

Size	Maximum	J	K	P	M	N
20	∅ 225	337	176	55	284	166,5
45	∅ 280	410	250	102	247,5	213,7
65	∅ 355	502	273,5	81,5	361,5	255,6
85	∅ 400	556	284,5	66,5	494,5	281,6
125	∅ 500	687	384,5	116,5	429	322,5
170	∅ 560	764	418,5	145,5	390,5	366,5



# The solution for all applications and design requirements

*Ozonair Hydronic's experience and capabilities make it possible to find specific solutions to suit each individual application and air flow. Ozonair Hydronic have developed the following ranges:*

## CTB<sub>2</sub> 15 to 60

- shallow AHU's for ceiling void applications
- air flow from 0.25 to 1.50 m<sup>3</sup>/s



## AX'M Comfort 20 to 170

- completely accessible AHU's
- commercial applications
- air flow from 0.5 to 5.0 m<sup>3</sup>/s



## AX'M Medical 20 to 170

- completely accessible AHU's
- Health applications
- air flow from 0.5 to 5.0 m<sup>3</sup>/s



## AX'M Industry 20 to 170

- completely accessible AHU's
- clean rooms and industrial applications
- air flow from 0.5 to 5.0 m<sup>3</sup>/s



## CCM 210 to 315

- commercial, industrial and medical applications
- air flow from 6.0 to 10.0 m<sup>3</sup>/s



## CTHb 295 to 510

- commercial and industrial AHU's
- direct gas fired burner
- air flow from 10.0 to 14.0 m<sup>3</sup>/s



## CTH 600 to 1300

- large air flows AHU's for clean rooms, industrial and commercial applications.
- direct gas fired burner
- air flow from 16.0 to 36.0 m<sup>3</sup>/s and above



(front page : picture from GLAXO Laboratories)

# OZONAIR HYDRONIC

Technical and Contract Administration  
16d, Lakeside Park, Neptune Close, Rochester, KENT ME2 4LT  
Tel : 01634 291 131 - Fax: 01634 291 121

<http://www.ozonair-hydronic.co.uk>  
contact@ozonair-hydronic.co.uk

