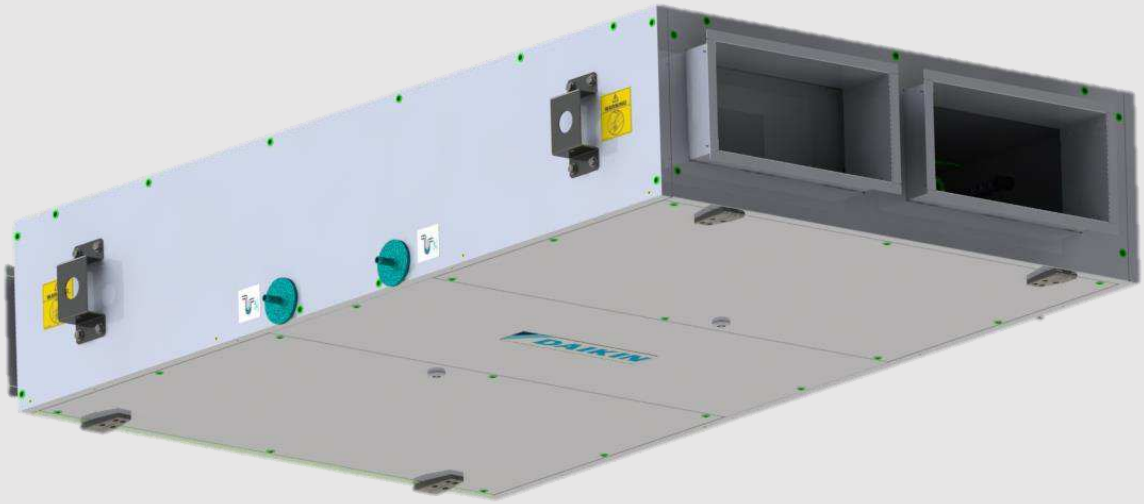
Air Handling Unit
Technical Data

Modular L Smart



ASTRA WEB version 10.0.1.1

28/09/2018

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Features

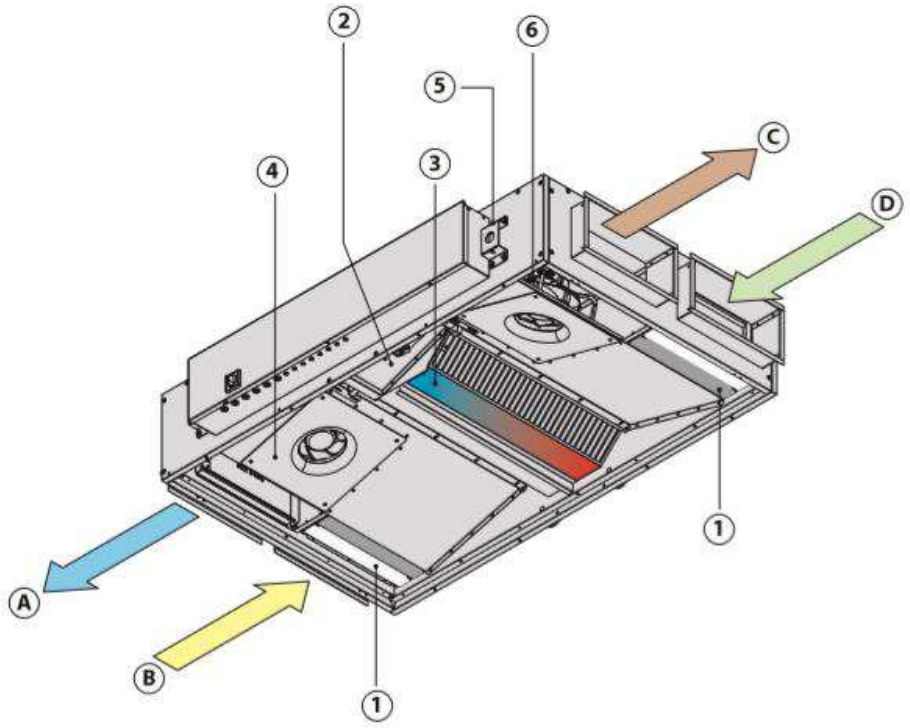
Heat recovery unit for decentralized ventilation system

- Available in 6 sizes with an air flow up to 3450 m3/h
- External static pressure up to 600 Pa, depending on the model sizes and airflow
- Smallest size is 280 mm of height, while the biggest size is 500 mm of height
- Energy saving solution thanks to the 100% automatic bypass
- Reduced energy consumption thanks to EC fans with IE4 motor efficiency
- Free-cooling operation
- Counter-flow plate heat exchanger with efficiency up to 93%
- Double stage filters on supply and return, up to F7+F9 filtration level
- Possibility to have pre–filter (G4, M5, F7)
- CO2 level management thanks to optional CO2 sensor
- 50mm double skin panels, mineral wool insulated
- Possibility of direct integration into VRV & SkyAir installation.
- Ideal solution for light commercial applications as: retail shops, small and large offices, hotels, cinemas, theatres, school, colleges, universities, etc
- Left or right versions*



* For left/right handing please refer to page 6

Unit description



Components

1 Filter and pre filter

2 By - pass

3 Heat exchanger

4 Supply fan

5 Bracket for ceiling suspension

6 Return fan

Airflow direction

A Supply air

B Return air

C Exhaust air

D Fresh air

Standard material name – Base module

	Product		Components	Size		Connection side	Model revision	Controls
Digit	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Character	**A**	**L**	**B**	**0**	**2**	**R**	**B**	**S**
	A = Ahu	L = Modular L	B = Base module	02= Size 02 03= Size 03 : : 07 = Size 07		R = Right L = Left	A = First release B = Second release	M = Microtech S = Smart Solution (Daikin PCB)

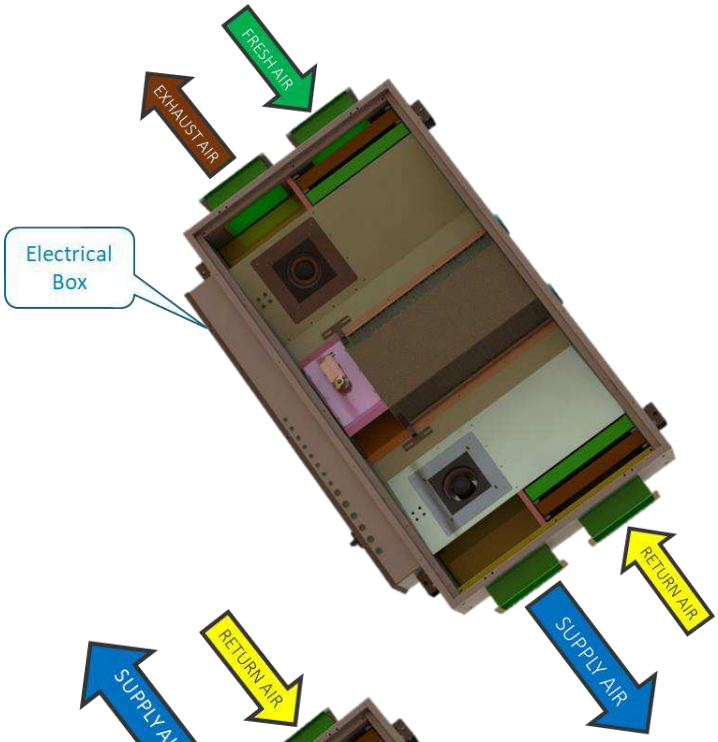
Standard unit will be provided with: Smart Controller (Daikin PCB), aluminium counter-flow plate heat exchanger, F7 filter on supply air, M5 filter on return air. Double skin panel (inner Aluzinc AZ185, outer skin pre-painted).
In the table below, there are mentioned the 12 material names for both connection side (right and left handing). For a better explanation please refer to the next page.

Modular L Smart	Material name		
	Right		**Left**
Size 02	ALB02RBS		ALB02LBS
Size 03	ALB03RBS		ALB03LBS
Size 04	ALB04RBS		ALB04LBS
Size 05	ALB05RBS		ALB05LBS
Size 06	ALB06RBS		ALB06LBS
Size 07	ALB07RBS		ALB07LBS

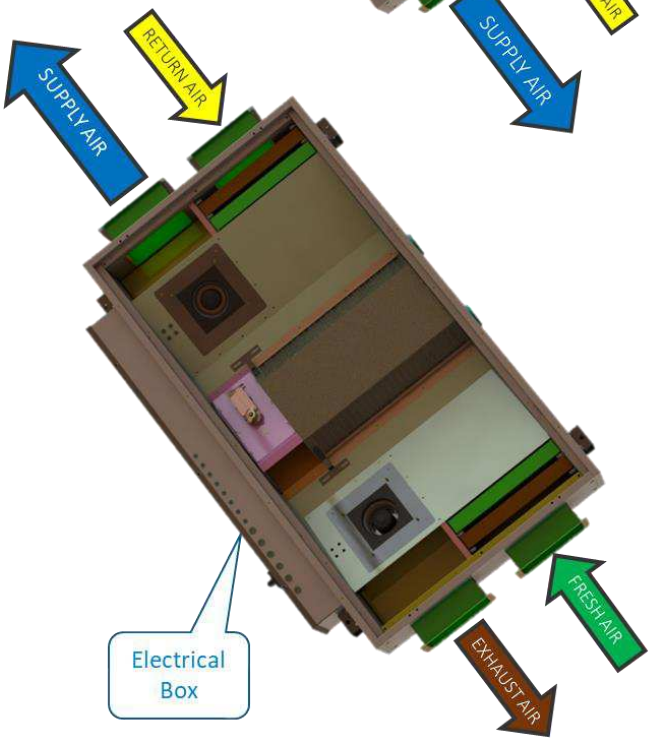
Connection side: Right and left handing

The below images refer to a **bottom view** of the Modular L Smart installed in the false ceiling.
The rule that is used to determine the connection side (right or left handing) is the following:
“Location of the electrical box looking in the supply air direction (bigger blue arrow), standing below the unit ceiling suspended”.

Left handing



Right handing



Specifications

Technical data

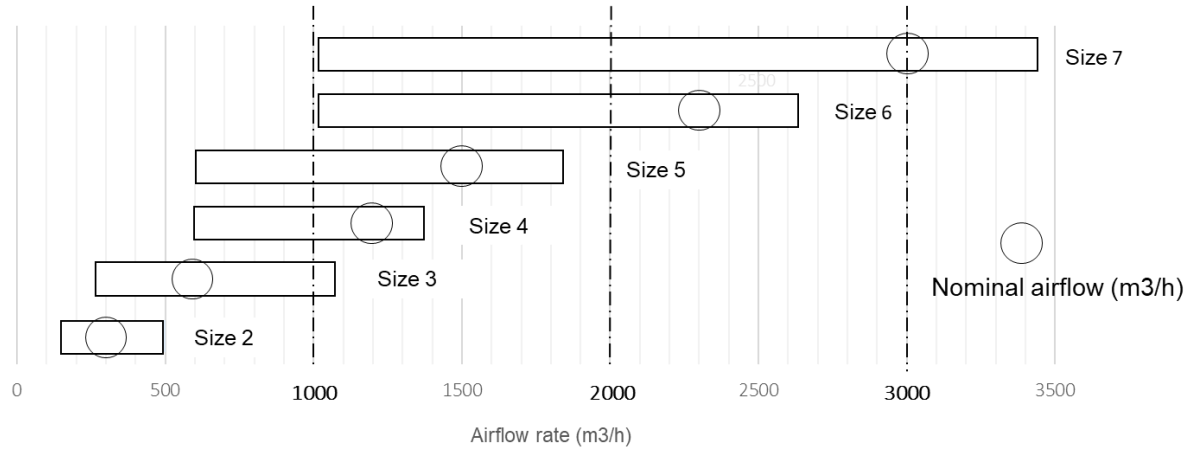
			ALB02*BS	ALB03*BS	ALB04*BS	ALB05*BS	ALB06*BS	ALB07*BS
Nominal Airflow		m^3/h	300	600	1200	1500	2300	3000
HE* Thermal efficiency [1.]		%	90	91	90	90	92	91
External static pressure	Nominal	Pa	100	100	100	100	100	100
Temperature after HE *[1.]	Nominal	°C	19,4	19,5	19,4	19,2	19,8	19,5
Max ESP @ nom. airflow		Pa	400	450	260	270	250	210
Current	Nominal	A	0,52	1,17	1,91	2,48	3,76	5,39
Power input	Nominal	kW	0,12	0,27	0,44	0,57	0,87	1,24
SFPv [2.]		$kW/m^3/s$	1,24	1,49	1,28	1,32	1,32	1,46
Electrical supply	Phase	ph	1	1	1	1	1	1
	Frequency	Hz	50/60	50/60	50/60	50/60	50/60	50/60
	Voltage	V	220/240 Vac	220/240 Vac	220/240 Vac	220/240 Vac	220/240 Vac	220/240 Vac
Main unit Dimensions	Width	mm	920	1100	1600	1600	2000	2000
	Height	mm	280	350	415	415	500	500
	Length	mm	1660	1800	2000	2000	2000	2000
Rectangular duct flange	Width	mm	250	400	500	500	700	700
	Height	mm	150	200	300	300	400	400
Unit sound power level		dBA	48	54	57	53	60	57
Unit sound pressure level [3.]		dBA	34	39	41	37	44	41
Weight unit		kg	125	180	270	280	355	360

* HE = Heat exchanger

1. Winter design condition: Outdoor: -5°C, 90% Indoor: 22°C,50%

2. SFPv is a parameter that quantifies the fan efficiency (the lower it is the better will be). This reduces if airflow decreases.

3. According to EN3744. Surrounding, Directivity (Q) = 2, @ 1,5m distance



Max airflow calculated @100 Pa of ESP

For any performances out of the nominal conditions here above mentioned kindly refer to the online selection available online at tools.daikinapplied.eu

Electrical data

			ALB02*BS	ALB03*BS	ALB04*BS	ALB05*BS	ALB06*BS	ALB07*BS
Power supply	Phase	ph	1 ~					
	Frequency	Hz	50/60					
	Voltage	V	200 - 240	200 - 277				
Full Load	FLA	A	2,8	4,5	4,5	4,7	8,9	9,3
Condition	FLI	W	371	1033	1033	1033	2033	2033

Declaration EU. REG. 1253/2014

			ALB02*BS	ALB03*BS	ALB04*BS	ALB05*BS	ALB06*BS	ALB07*BS
Manufacturer's name			Daikin Applied Europe S.p.A.					
Typology (NRVU,UVU or BVU)*			NRVU BVU					
Type of drive			Variable Speed Drive					
Type of HRS			Other					
Thermal efficiency of the HR		%	77,8	79,6	81,9	80,4	82,1	80,7
Nominal NRVU Flow rate	Supply	m3/s	0,15	0,32	0,4	0,54	0,76	1,01
	Return	m3/s	0,15	0,32	0,4	0,54	0,76	1,01
Effective Electric Power Input	Total	kW	0,31	0,71	0,64	0,9	1,23	1,71
SFP Internal		W/(m3/s)	848	1195	630	783	815	1002
Face velocity at design flow rate	Supply	m/s	1,5	2	1,4	1,9	1,7	2,3
	Return	m/s	1,5	2	1,4	1,9	1,7	2,3
Internal Pressure Drop of	Supply	Pa	227	351	167	242	221	314
Ventilation Components	Return	Pa	218	347	165	242	220	317
Nominal External Pressure	Supply	Pa	30					
	Return	Pa	30					
Static efficiency of fans**	Supply	%	53	59	52	61	53	61
	Return	%	53	59	53	63	56	65
Maximum External Leakage Rate	+400	%	< 4%	< 3%	< 4%	< 3%	< 3%	< 2%
	-400	%	< 4%	< 3%	< 4%	< 3%	< 3%	< 2%
Maximum Internal Leakage Rate		%	< 2%	< 2%	< 2%	< 2%	< 2%	< 2%
Summer Outdoor Conditions	Temperature	°C	34					
	Humidity	%	50					
Winter Outdoor Conditions	Temperature	°C	-10					
	Humidity	%	90					
Filter Energy Classification			-					
Filter Service Warning***			Displayed on HMI Controller					
Sound Power Level		dBA	53	61	61	58	63	60
Pre-/Dis- assembly Instructions			http://www.daikinapplied.eu/en/index/page/download/1350					

* In accordance with Commission Regulation (EU) No 1253/2014 of July 2014
** In accordance with Regulation (EU) No 327/2011
***Clean/Replace Filter(s) when maximum pressure drop is reached or when warning is displayed on Room Controller

Bearing structure

The units feature double-skin panels that consist of two folded panels.
Panel thickness is 50 mm for all unit sides.
The standard versions provide Aluzinc AZ185® (C4 corrosion resistance) for the inner skin and pre-coated panel (C5 corrosion resistance) for the outer skin.
The units are constructed with removable or hinged doors allowing full maintenance access from bottom side. The units are equipped with rectangular flanges to be connected to a rectangular ducts network.
If needed transition from rectangular to circular flange can be ordered as an accessory.

Operating conditions

The unit operates on 220/240 V AC, 50/60 Hz single-phase main supply.
The unit is able to operate within working limits of -5ºC to +45ºC outdoor temperatures.
In case of electrical pre-heater installation, the operating limit will be -20°C for size 02/03/05/07 and -25°C for sizes 04/06.

Insulation

Insulation material used is Mineral Wool with a density of 120 kg/m^3 (EN 1602).
Thermal conductivity is 0.036 W/m°K and mineral wool is A1 class for fire classification (EN13501-1).

Heat exchanger

The units feature a counter-flow plate heat exchanger (PHE).
The PHE can recover above 93% of thermal energy in wet conditions.
They are made of aluminium alloy with a minimum content of iron and copper (to avoid corrosion issues).
PHE is Eurovent certified and protected by minimum M5 & F7 grade pleated filters on extract and supply.
PHE incorporates an automatic bypass with actuator and a condensation drain pan with opportune slope.

Fan

The units comply with ErP 2018 rated and have IP54 EC fan/motor assemblies.
EC fans are of IE4 class.
Fans provide low specific fan power (SFP) and a stepless speed control along with optimized energy balance, performances, flow and noise characteristics.
Fans can run at 2 speeds (to be selected among 45 different operating points).
In terms of power supply, the unit must operate on 220/240 V AC, 50/60 Hz single-phase main supply.

Filter

Filter types are plane (compact) with 48mm of thickness.
All the filters - regardless of their type – are mounted in opportune rails equipped with a mechanical frame that maintains the filters in pressure.
The total filter list is: G4, M5, F7 and F9. They can be combined in order to meet any kind of requirement.
The units come standard with M5 (new nomenclature ePM_{10} 75%) and F7 (new nomenclature ePM_1 50%) filters respectively for extract and supply air side.
In accordance with the EN 16798-3:2017, the unit is able to reach SUP 1 level from ODA 3 level (See the table below).

Outdoor Air Quality	**Supply air class**			
	SUP 1 (High)	SUP 2 (Medium)	SUP 3 (Moderate)	SUP 4 (Low)
ODA 1 (Pure Air)	M5+F7	F7	F7	F7
ODA 2 (Dust)	F7 + F7	M5 + F7	F7	F7
ODA 3 (Very high concentration of dust)	F7 + F9	F7 + F7	M6 + F7	F7

For easy reference the EN779 will be replaced by the ISO 16890. The new namings are included in the following table.

Filter name (EN 779)	**Filter name (ISO 16890)**	ePM_1	$ePM_{2,5}$	ePM_{10}
G4	ISO Coarse 55%	N/A		
M5	ePM_{10} 75%	44%	55%	83%
F7	ePM_1 50%	59%	67%	87%
F9	ePM_1 80%	86%	89%	95%

The units, in fact, can accommodate on supply air stream two filters: F7 ePM_1 50% and F9 ePM_1 80%.
In order to avoid the fast clogging of the fine filter from gross particles, units can also provide a class G4 pre - filter either on Supply and Exhaust side.
Filter frames are designed in such a way they can be easily extracted and cleaned.
The filter replacement is carried out from the bottom side opening the hinged doors.
The filters replacement trigger is activated through pressure differential switches, following the provision of EU 1253.
Replacement filters are available as a standard accessory.

Control

Modular L Smart can be directly integrated into DIII-net and controlled through any Daikin local, centralised controllers (iTAB, iTM, iTC) or Cloud controllers (Daikin Cloud Service). This communication, based on the common F1-F2 and P1-P2 protocol, guarantees also fully compatibility with SkyAir and VRV systems.
The remote controller BRC1[E/H] is **not provided** with the main module.
Modular L Smart comes standard with 2 sensors fitted on the fresh and return air side.
The temperature control done by the unit is to compare outside temperature with inside temperature, to decide whether to operate in “heat exchange” or in “bypass mode” in case the user selects “auto mode” (please refer to the table below)

Mode	Description
Auto mode	Using information from the air conditioner (cooling, heating, fan and set temperature) and heat reclaim ventilation unit (indoor and outdoor temperatures), this mode automatically changes between Energy Reclaim Ventilation and Bypass mode
Energy Reclaim Ventilation mode	The outdoor air is supplied to the room after passing through a heat exchange element, where heat is exchanged with the return air
Bypass mode	The outdoor air bypasses the heat exchange element. This means that outdoor air is supplied to the room without heat exchange with the return air

The unit is connectable to a Cloud monitoring system (optional).
BACnet or Modbus integration is possible through interfaces (optional).
The unit is able to control the indoor air quality by controlling and monitoring the CO2 level (CO2 sensor is optional).

Modular L Smart Control	
Control platform	Daikin Control PCB
Remote controller	Room controller: Optional BRC1[E/H]
CO2 control	Optional, consult factory
BACnet or Modbus integration	Through interfaces (optional)
Cloud connection	Daikin Cloud Service

Accessories

Accessories list

		ALB02*BS	ALB03*BS	ALB04*BS	ALB05*BS	ALB06*BS	ALB07*BS
Compact filter	G4	ALF02G4A	ALF03G4A	ALF05G4A		ALF07G4A	
	M5	ALF02M5A	ALF03M5A	ALF05M5A		ALF07M5A	
	F7	ALF02F7A	ALF03F7A	ALF05F7A		ALF07F7A	
	F9	ALF02F9A	ALF03F9A	ALF05F9A		ALF07F9A	
Silencer	900 mm depth	ALS0290A	ALS0390A	ALS0590A		ALS0790A	
Probes	CO2	Consult factory					
Coil module	Electric pre -heating	ALD02HEFB	ALD03HEFB	ALD05HEFB		ALD07HEFB	
Mechanical accessories	Rail	ALA02RLA	ALA03RLA	ALA05RLA		ALA07RLA	
	Rectangular-Circular duct transition	ALA02RCA	ALA03RCA	ALA05RCA		ALA07RCA	
Control	Room Thermostat (**Not** included in Main Unit)	BRC1[E/H]					

Installation location (air direction)

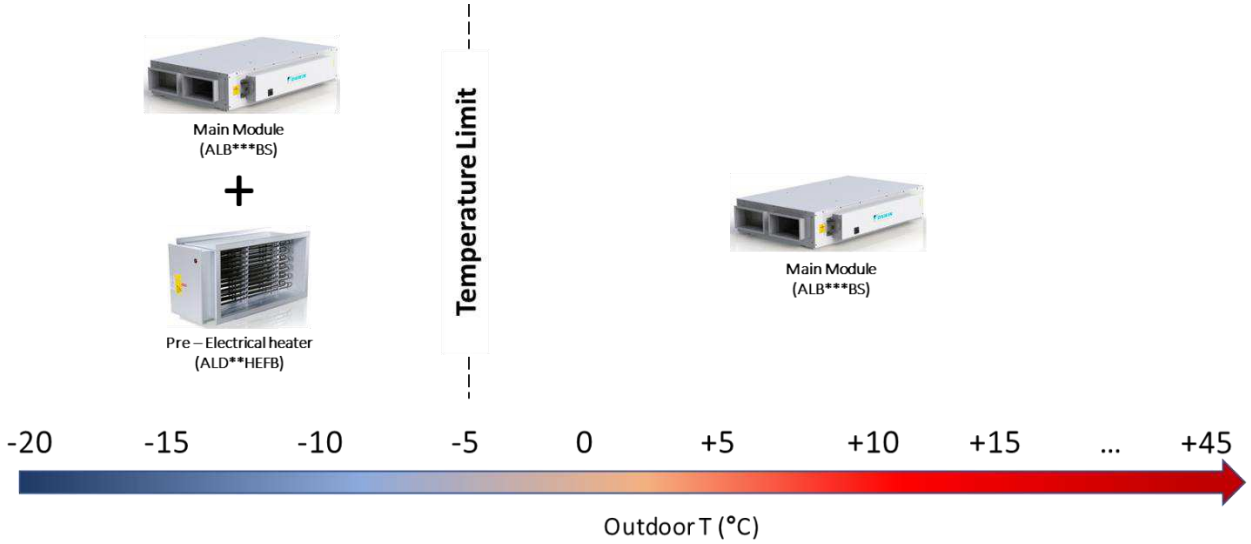
		Installation location (air direction)			
		Supply	**Fresh**	**Return**	**Exhaust**
Coil	Electric pre - heating		●		
Silencer	900 mm depth	●	●	●	●
Compact filter	Filter		●	●	
Probes	C02				●
Mechanical accessories	Rectangular - circular duct transition	●	●	●	●

Note:
- Pre-heating coil (ALD**HEFB) is equipped with an additional probe for temperature control purpose that must be fitted in the duct downstream the electrical coil on fresh air side (please refer to the installation and operational manual of such accessory)
- Room thermostat (BRC1[E/H]) is NOT supplied with the main unit
- The unit get delivered with its nominal air flow rate set up at factory. To adjust its operation to the selected parameters, kindly refer to the IOM of the unit.

External electric coil

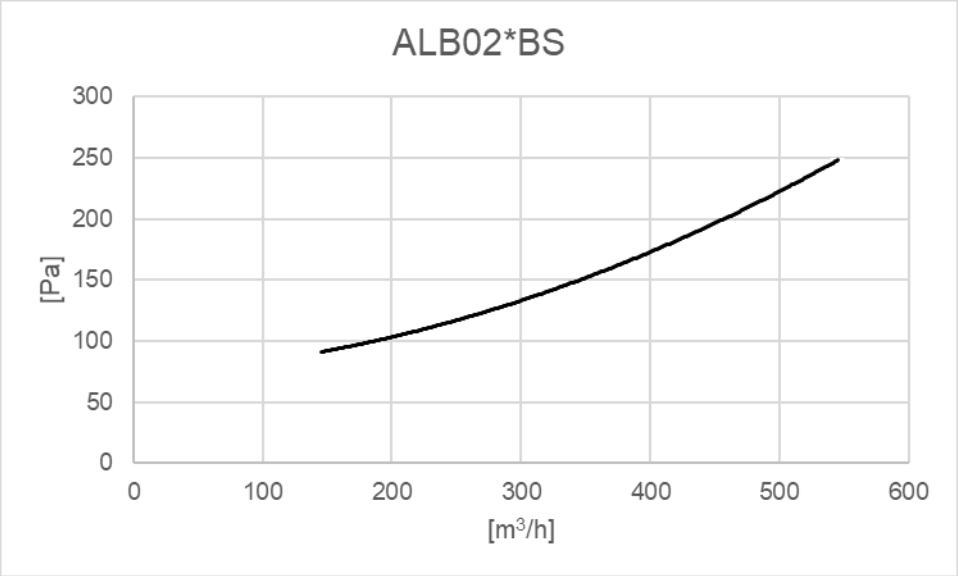
Material Name	Main unit size	Description	Depth (mm)	Width (mm)	Height (mm)	Weight (kg)	V,ph,Hz	Output (kW)
ALD02HEFB	02	Electric pre - heating	370	470	193	7	230/1/50	1,5
ALD03HEFB	03		370	620	243	10		3
ALD05HEFB	04		370	720	343	15	400/3/50	7,5
	05							
ALD07HEFB	06		370	920	443	21	400/3/50	15
	07							

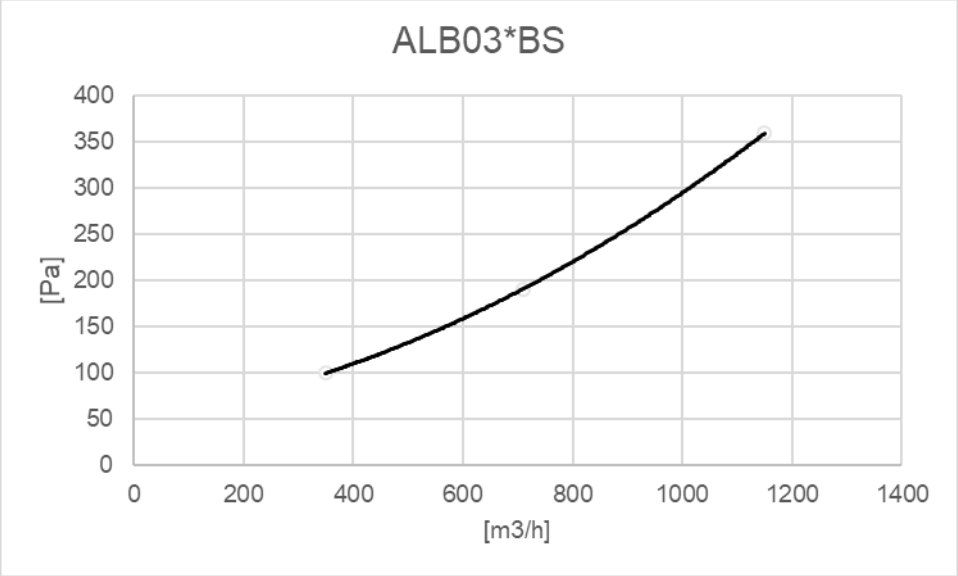
In accordance with the image here below showed, adding a pre-electrical heater (ALD**HEFB) is mandatory for outdoor temperature lower than -5°C for either tackling or preventing frost issue.

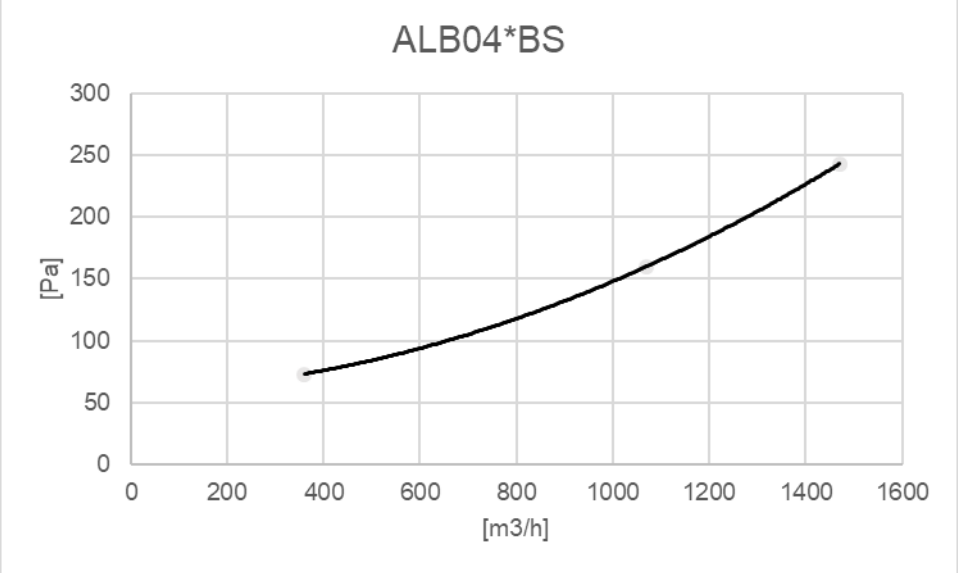


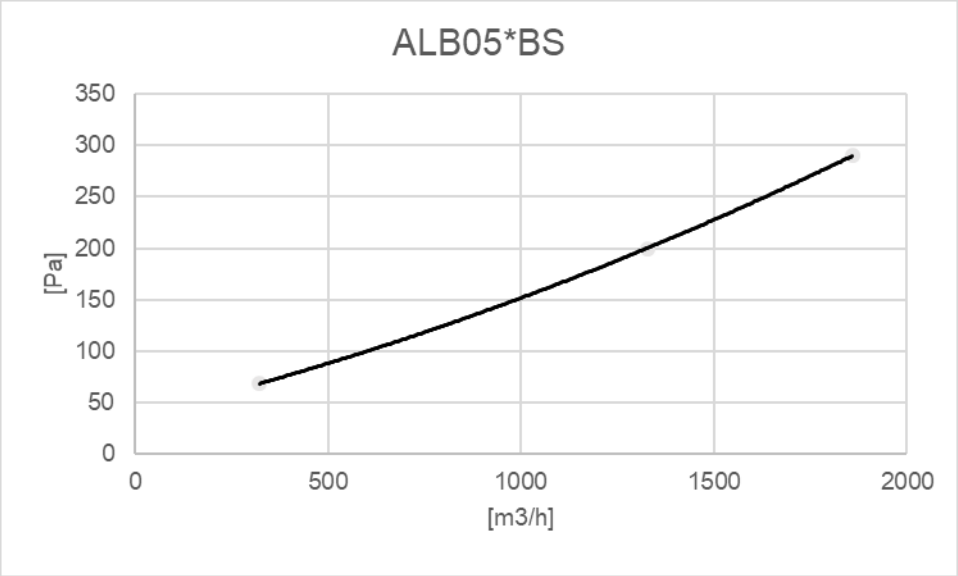
The unit has been equipped with a differential pressure switch in order to prevent a possible risk of icing at heat exchanger level. The differential pressure switch has been set on nominal air flow conditions as per the below values.
If the Modular L Smart will operate at different condition from the nominal ones, the installer must adjust the setting according to the chart below.

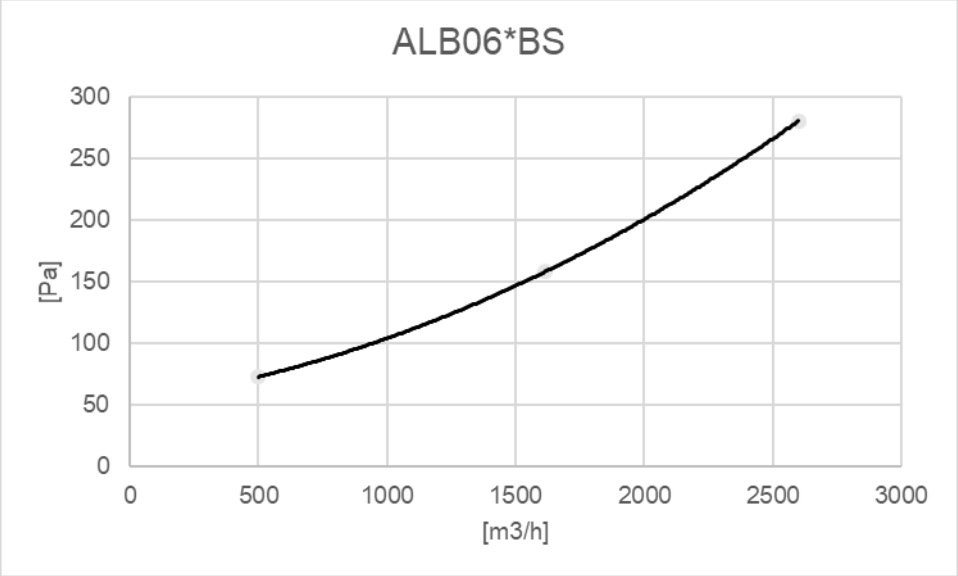
Frost prevent differential pressure switch factory settings						
Size	ALB02*BS	ALB03*BS	ALB04*BS	ALB05*BS	ALB06*BS	ALB07*BS
Airflow(m3/h)	300	600	1200	1500	2300	3000
DPS (Pa)	125	150	175	225	250	325

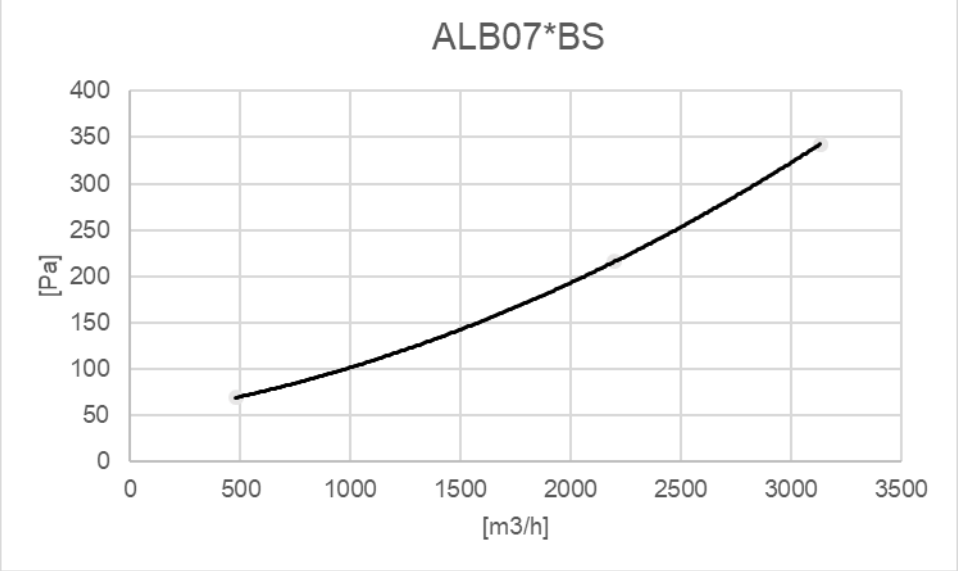

ALB02*BS
300
250
200
150
100
50
0
[Pa]
0
100
200
300
400
500
600
[m3/h]


ALB03*BS
400
350
300
250
200
150
100
50
0
[Pa]
0
200
400
600
800
1000
1200
1400
[m3/h]


ALB04*BS
300
250
200
150
100
50
0
[Pa]
0
200
400
600
800
1000
1200
1400
1600
[m3/h]


ALB05*BS
350
300
250
200
150
100
50
0
[Pa]
0
500
1000
1500
2000
[m3/h]


ALB06*BS
300
250
200
150
100
50
0
[Pa]
0
500
1000
1500
2000
2500
3000
[m3/h]


ALB07*BS
400
350
300
250
200
150
100
50
0
[Pa]
0
500
1000
1500
2000
2500
3000
3500
[m3/h]

Unit operation below -5°C with Pre-heater: The electrical pre-heater disposes of a temperature probe* that measure the fresh air temperature incoming to the unit (probe positioned downstream of the electrical heater) and commands the heater capacity which modulates proportionally until the set point is reached.
The set point value can be adjusted manually by the installer via a trigger positioned on the electrical pre-heater.

* Please refer to the IOM for the correct positioning of the probe

Rails

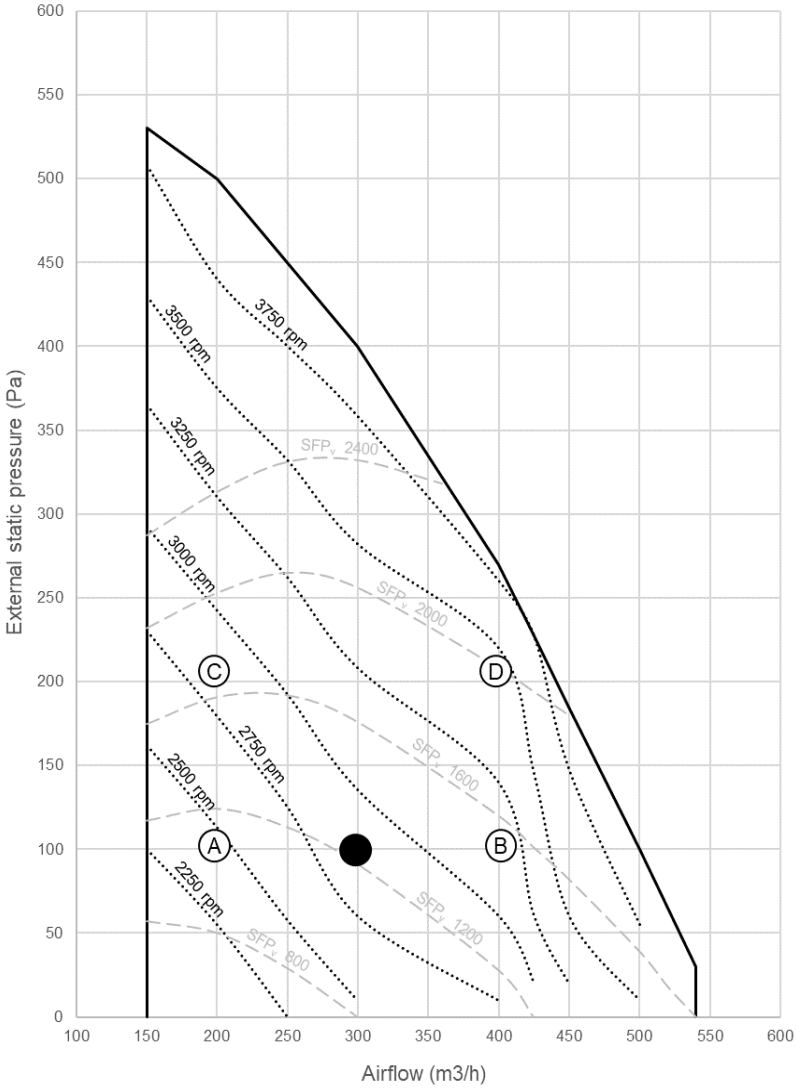
Material Name	Main unit size	Description	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
ALA02RLA	02	Rail	1660	101,5	51	3,5
ALA03RLA	03		1800	101,5	51	3,5
ALA05RLA	04		2000	101,5	51	3,92
	05		2000	101,5	51	3,92
ALA07RLA	06		2000	101,5	51	4,3
	07		2000	101,5	51	4,3

Compact filter

Material Name	Size	Description	Pressure drop clean filter (Pa)
ALF02G4A	02	G4 Compact Filter	76
ALF03G4A	03		92
ALF05G4A	04		72
	05		90
ALF07G4A	06		92
	07		120
ALF02M5A	02	M5 Compact Filter	44
ALF03M5A	03		53
ALF05M5A	04		41
	05		51
ALF07M5A	06		53
	07		69
ALF02F7A	02	F7 Compact Filter	61
ALF03F7A	03		74
ALF05F7A	04		58
	05		72
ALF07F7A	06		74
	07		96
ALF02F9A	02	F9 Compact Filter	76
ALF03F9A	03		92
ALF05F9A	04		72
	05		90
ALF07F9A	06		92
	07		120

The pressure drop is referring to nominal airflow

Performance data: size 02



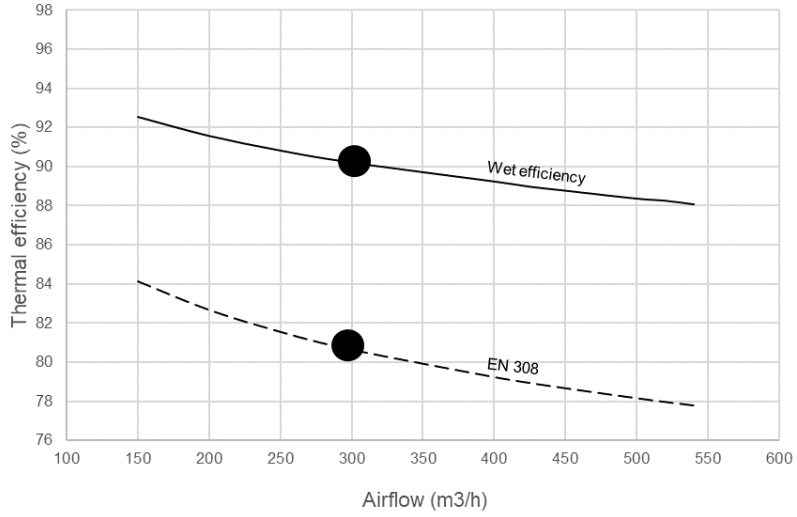
The diagram shows the available external pressure for the duct system given an airflow.

SFPv = Specific Fan Power (W/m3/s)

The SFPv curves are referring to the complete unit. Moreover, it includes power to both supply and extract fan divided by either the supply or extract volume whichever is the greater.

● Nominal working point

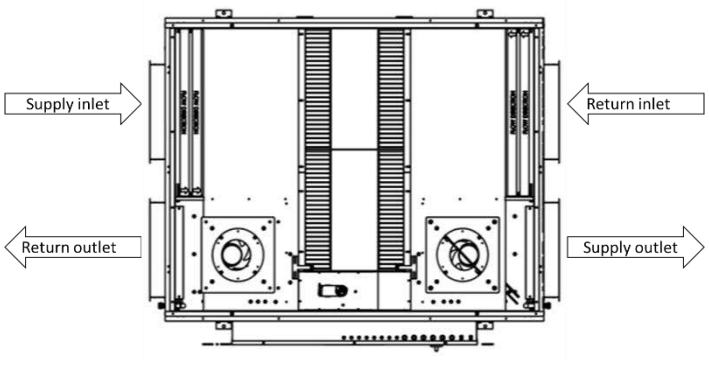
Ⓐ Ⓑ Ⓒ Ⓓ Sound data
(see next page)



Thermal efficiency

- Wet efficiency: -5°C/ RH 90% Outdoor and +22°C/50% Indoor
- With air ratio 1:1 and according to EN 308

Sound level: size 02



Surrounding power level

The airborne is the sound power emitted by the unit. The surrounding power level is the logarithmic sum of the two airborne values (supply and return).

Surrounding pressure level

It is calculated in accordance with EN3744. The evaluation is done at 1,5m from the source and with a directivity factor equal to 2.

Point Ⓐ

Frequency (Hz)		63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	54	55	53	44	45	42	28	18	50
	Supply outlet	59	62	67	65	59	60	52	47	67
	Return inlet	54	55	54	45	45	42	28	19	50
	Return outlet	59	63	67	66	59	61	53	47	67
	Surrounding power	62	54	50	48	39	38	31	20	48
Surrounding pressure (dBA)										31

Point Ⓑ

Frequency (Hz)		63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	58	56	56	47	48	47	36	29	54
	Supply outlet	64	64	69	68	63	66	60	57	71
	Return inlet	58	56	55	47	48	47	36	28	53
	Return outlet	63	64	69	67	62	66	60	57	51
	Surrounding power	67	55	52	50	43	43	38	30	52
Surrounding pressure (dBA)										35

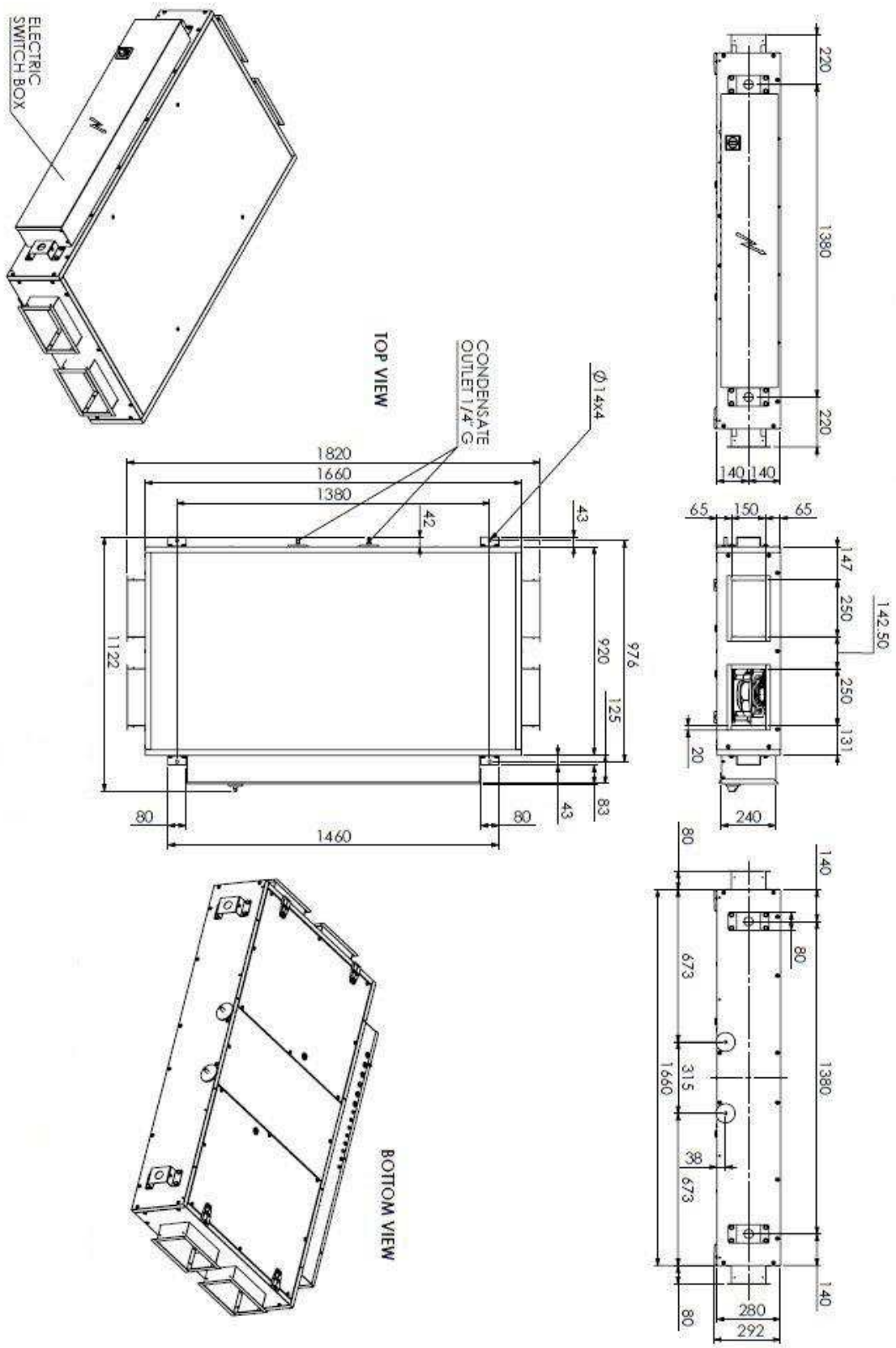
Point Ⓒ

Frequency (Hz)		63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	57	58	57	49	48	46	32	24	54
	Supply outlet	62	66	71	70	62	64	57	52	71
	Return inlet	57	59	58	49	48	46	33	24	54
	Return outlet	62	66	71	70	63	64	57	52	71
	Surrounding power	65	57	54	52	43	42	35	25	52
Surrounding pressure (dBA)										35

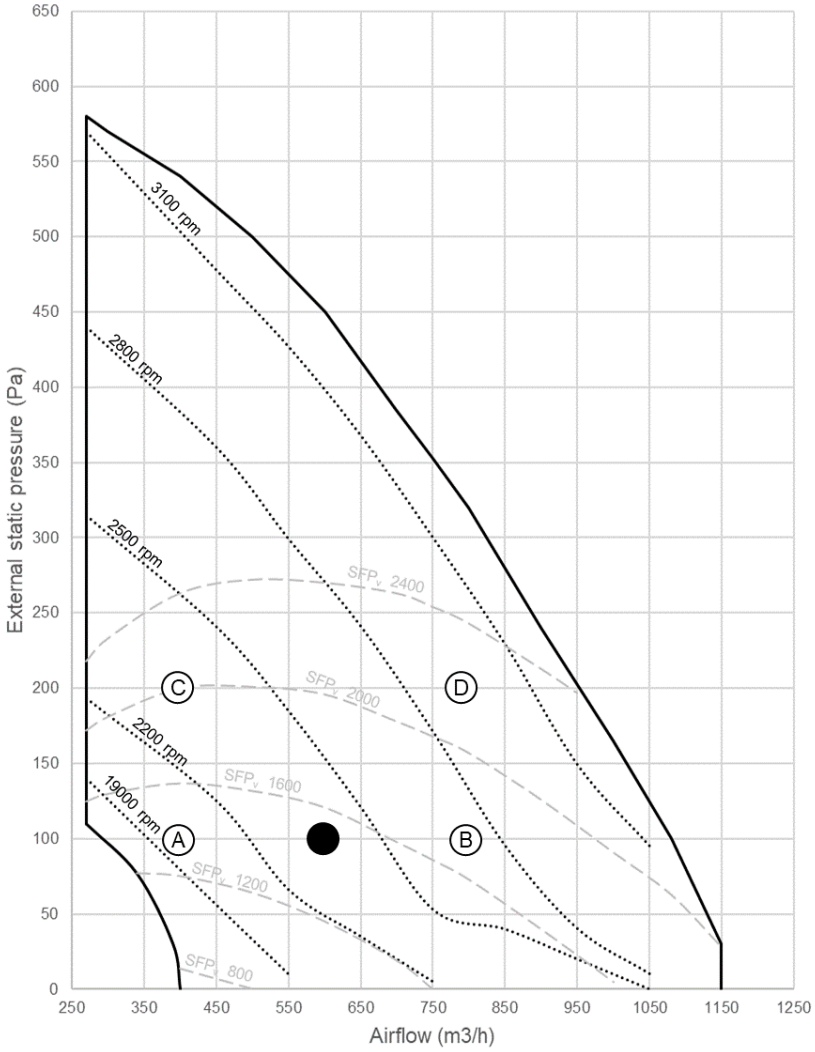
Point Ⓓ

Frequency (Hz)		63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	60	59	59	50	51	49	38	31	56
	Supply outlet	65	67	72	71	66	68	63	59	74
	Return inlet	60	59	59	50	51	49	38	31	56
	Return outlet	65	66	72	71	65	68	62	59	74
	Surrounding power	68	58	55	53	45	45	40	33	54
Surrounding pressure (dBA)										37

Dimensional drawing: size 02



Performance data: size 03



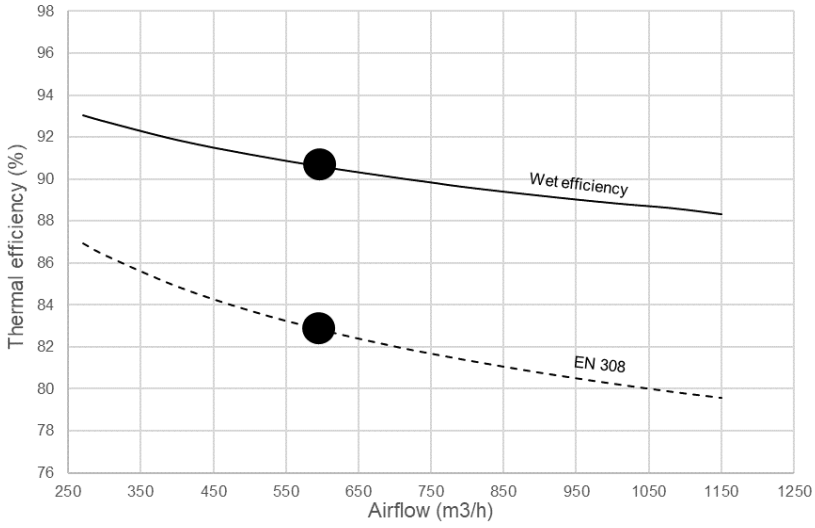
The diagram shows the available external pressure for the duct system given an airflow.

SFPv = Specific Fan Power (W/m3/s)

The SFPv curves are referring to the complete unit. Moreover, it includes power to both supply and extract fan divided by either the supply or extract volume whichever is the greater.

● Nominal working point

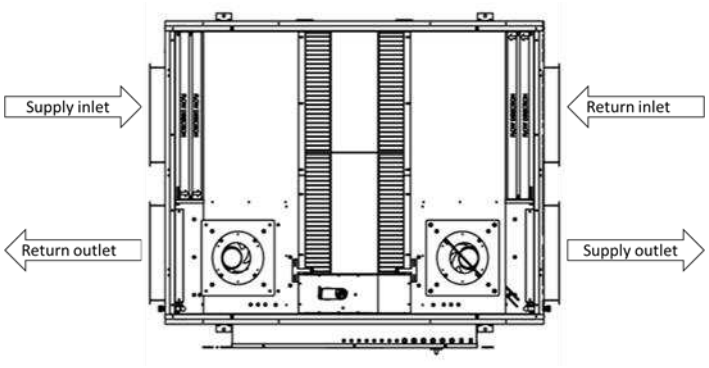
Ⓐ Ⓑ Ⓒ Ⓓ Sound data
(see next page)



Thermal efficiency

- Wet efficiency: -5°C/ RH 90% Outdoor and +22°C/50% Indoor
- With air ratio 1:1 and according to EN 308

Sound level: size 03



Surrounding power level

The airborne is the sound power emitted by the unit. The surrounding power level is the logarithmic sum of the two airborne values (supply and return).

Surrounding pressure level

It is calculated in accordance with EN3744. The evaluation is done at 1,5m from the source and with a directivity factor equal to 2

Point Ⓐ

Frequency (Hz)		63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	62	64	62	53	51	46	32	20	58
	Supply outlet	67	72	76	74	65	64	56	48	74
	Return inlet	62	64	62	53	51	46	32	20	58
	Return outlet	67	72	76	74	65	64	56	48	74
	Surrounding power	70	63	59	56	45	42	34	21	56
Surrounding pressure (dBA)										39

Point Ⓑ

Frequency (Hz)		63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	67	69	63	51	52	50	38	28	59
	Supply outlet	72	76	77	72	66	68	62	56	75
	Return inlet	68	69	64	53	53	51	39	29	60
	Return outlet	73	77	78	74	67	69	63	57	76
	Surrounding power	76	68	61	55	47	47	41	30	59
Surrounding pressure (dBA)										42

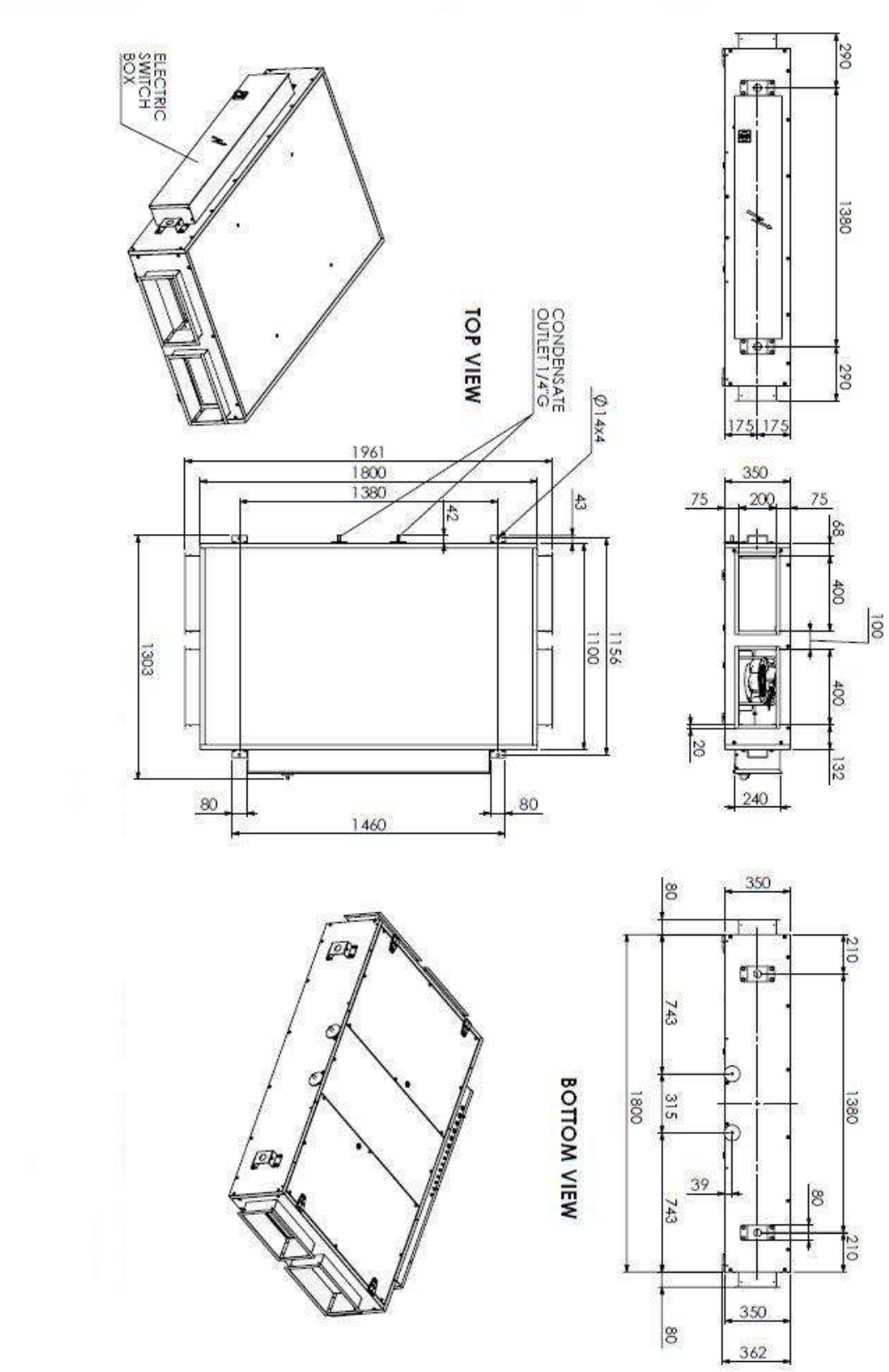
Point Ⓒ

Frequency (Hz)		63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	64	67	66	56	54	49	36	24	61
	Supply outlet	69	75	80	77	68	68	60	52	77
	Return inlet	64	68	66	57	54	49	36	24	61
	Return outlet	69	75	80	77	68	68	60	53	78
	Surrounding power	72	66	63	60	48	45	38	26	60
Surrounding pressure (dBA)										43

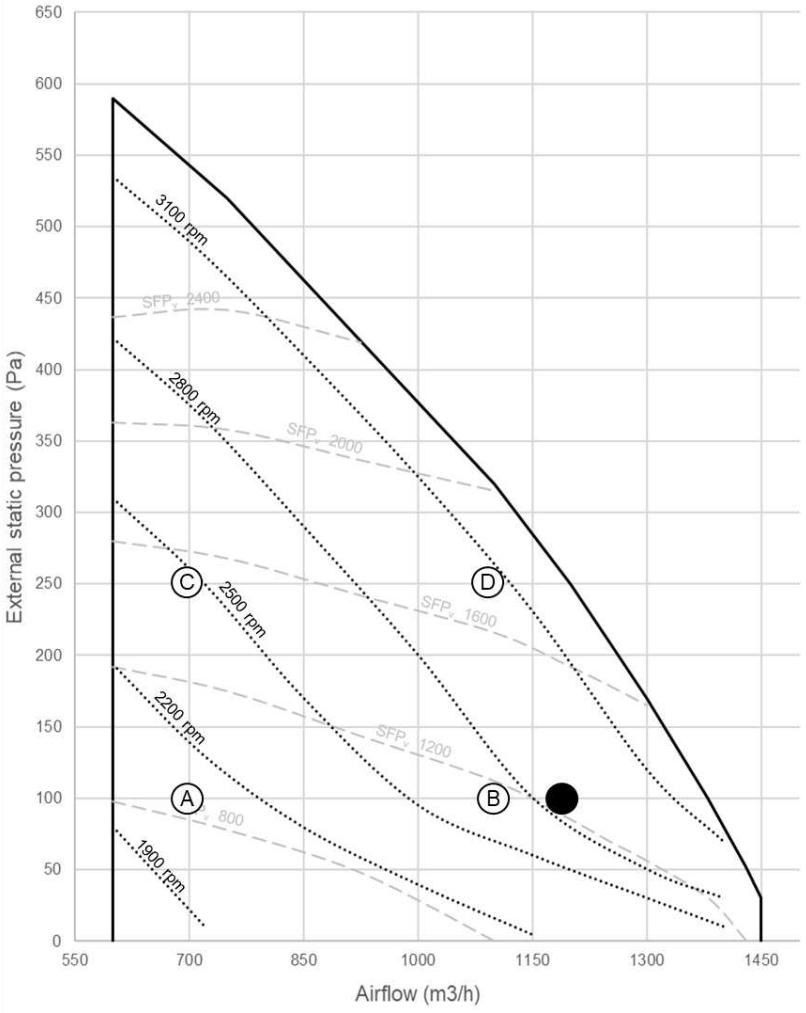
Point Ⓓ

Frequency (Hz)		63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	69	70	66	55	55	52	41	31	62
	Supply outlet	74	78	80	76	69	71	65	59	78
	Return inlet	69	71	67	56	56	53	41	32	63
	Return outlet	74	79	81	77	70	72	66	60	79
	Surrounding power	77	70	64	59	50	49	44	33	61
Surrounding pressure (dBA)										44

Dimensional drawing: size 03



Performance data: size 04



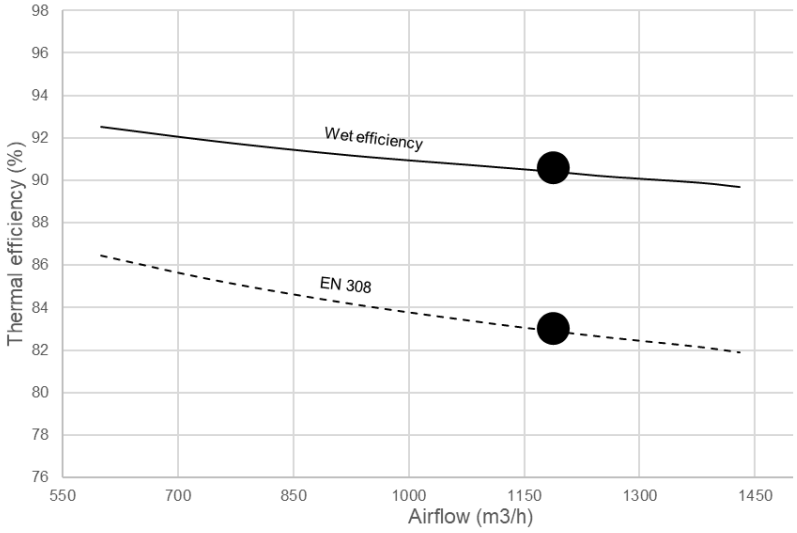
The diagram shows the available external pressure for the duct system given an airflow.

SFPv = Specific Fan Power (W/m3/s)

The SFPv curves are referring to the complete unit. Moreover, it includes power to both supply and extract fan divided by either the supply or extract volume whichever is the greater.

● Nominal working point

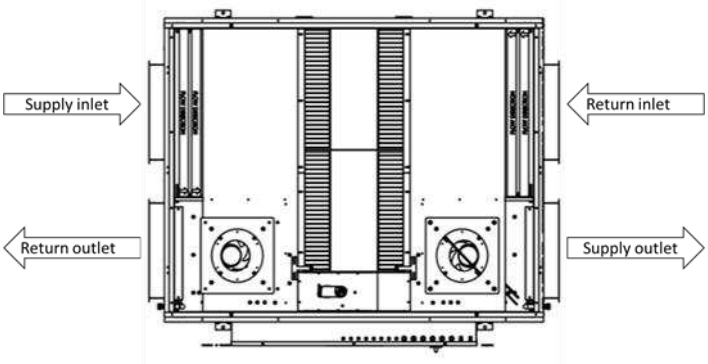
Ⓐ Ⓑ Ⓒ Ⓓ Sound data
(see next page)



Thermal efficiency

- Wet efficiency: -5°C/ RH 90% Outdoor and +22°C/50% Indoor
- With air ratio 1:1 and according to EN 308

Sound level: size 04



Surrounding power level

The airborne is the sound power emitted by the unit. The surrounding power level is the logarithmic sum of the two airborne values (supply and return).

Surrounding pressure level

It is calculated in accordance with EN3744. The evaluation is done at 1,5m from the source and with a directivity factor equal to 2

Point Ⓐ

Frequency (Hz)		63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	63	64	57	44	46	44	31	20	53
	Supply outlet	68	72	71	65	60	62	56	48	69
	Return inlet	64	64	58	45	46	44	32	21	54
	Return outlet	68	72	71	66	60	63	56	49	69
	Surrounding power	71	63	54	48	40	40	34	22	52
Surrounding pressure (dBA)										34

Point Ⓑ

Frequency (Hz)		63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	58	61	60	50	52	51	40	31	57
	Supply outlet	63	68	73	71	66	70	64	59	75
	Return inlet	60	62	60	50	52	51	40	31	58
	Return outlet	65	70	74	71	66	70	65	60	75
	Surrounding power	67	60	57	53	46	47	43	33	55
Surrounding pressure (dBA)										37

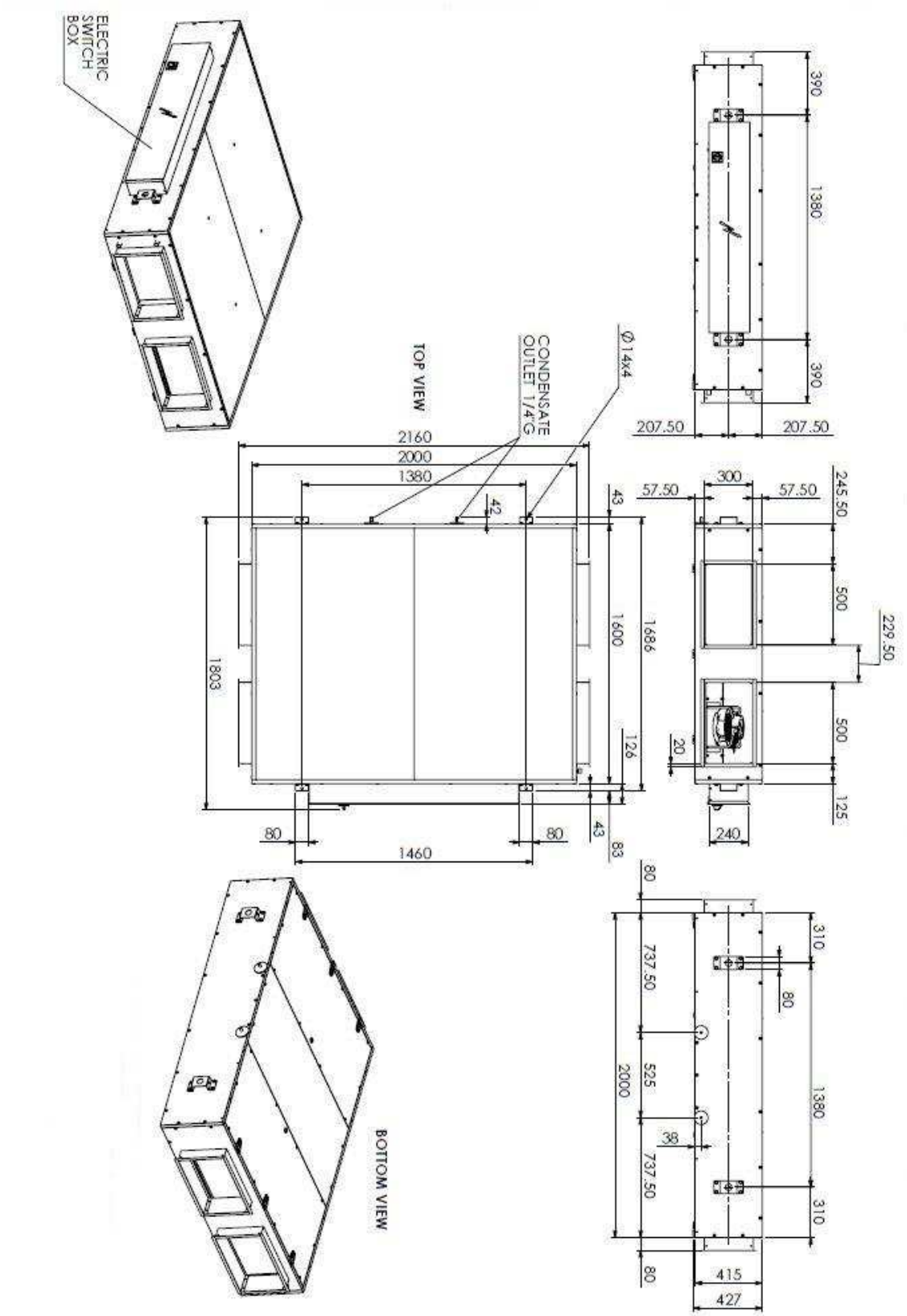
Point Ⓒ

Frequency (Hz)		63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	65	67	61	50	50	47	35	24	57
	Supply outlet	70	74	75	70	64	66	60	53	73
	Return inlet	65	67	62	50	50	48	35	25	57
	Return outlet	70	74	75	71	74	66	60	53	73
	Surrounding power	73	65	58	53	44	44	37	26	56
Surrounding pressure (dBA)										38

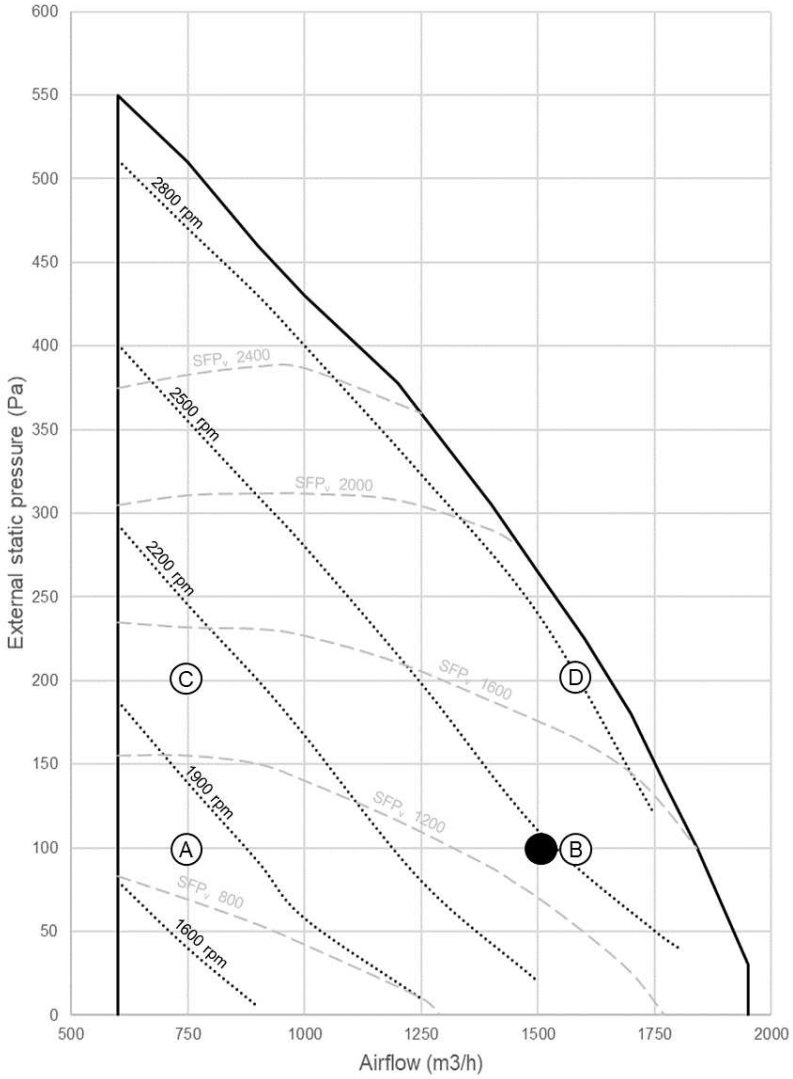
Point Ⓓ

Frequency (Hz)		63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	68	69	64	52	53	52	42	32	60
	Supply outlet	73	76	78	72	68	71	66	61	77
	Return inlet	69	69	64	52	53	52	42	33	60
	Return outlet	74	77	78	73	68	71	66	61	77
	Surrounding power	76	68	61	55	47	48	44	34	59
Surrounding pressure (dBA)										41

Dimensional drawing: size 04



Performance data: size 05



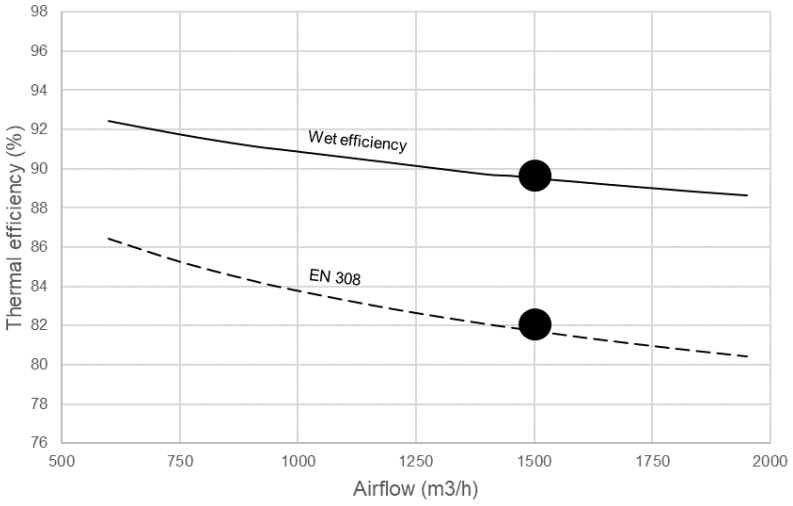
The diagram shows the available external pressure for the duct system given an airflow.

SFPv = Specific Fan Power (W/m3/s)

The SFPv curves are referring to the complete unit. Moreover, it includes power to both supply and extract fan divided by either the supply or extract volume whichever is the greater.

● Nominal working point

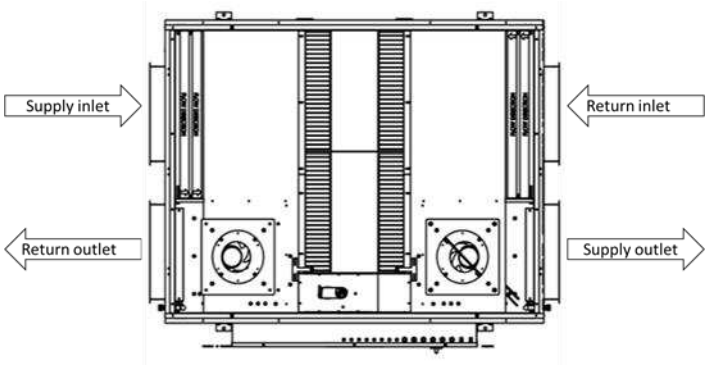
Ⓐ Ⓑ Ⓒ Ⓓ Sound data
(see next page)



Thermal efficiency

- Wet efficiency: -5°C/ RH 90% Outdoor and +22°C/50% Indoor
- With air ratio 1:1 and according to EN 308

Sound level: size 05



Surrounding power level

The airborne is the sound power emitted by the unit. The surrounding power level is the logarithmic sum of the two airborne values (supply and return).

Surrounding pressure level:

It is calculated in accordance with EN3744. The evaluation is done at 1,5m from the source and with a directivity factor equal to 2

Point Ⓐ

Frequency (Hz)		63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	68	68	58	43	42	38	30	16	54
	Supply outlet	66	75	70	64	58	61	54	46	68
	Return inlet	68	69	59	43	42	38	30	17	55
	Return outlet	66	76	71	64	58	62	55	46	69
	Surrounding power	69	67	54	47	38	39	33	19	53
Surrounding pressure (dBA)										35

Point Ⓑ

Frequency (Hz)		63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	73	69	62	51	50	47	39	31	59
	Supply outlet	64	66	74	69	64	69	62	58	73
	Return inlet	74	70	64	52	51	48	40	32	59
	Return outlet	67	68	75	69	65	69	62	59	74
	Surrounding power	69	58	57	52	45	46	40	32	55
Surrounding pressure (dBA)										37

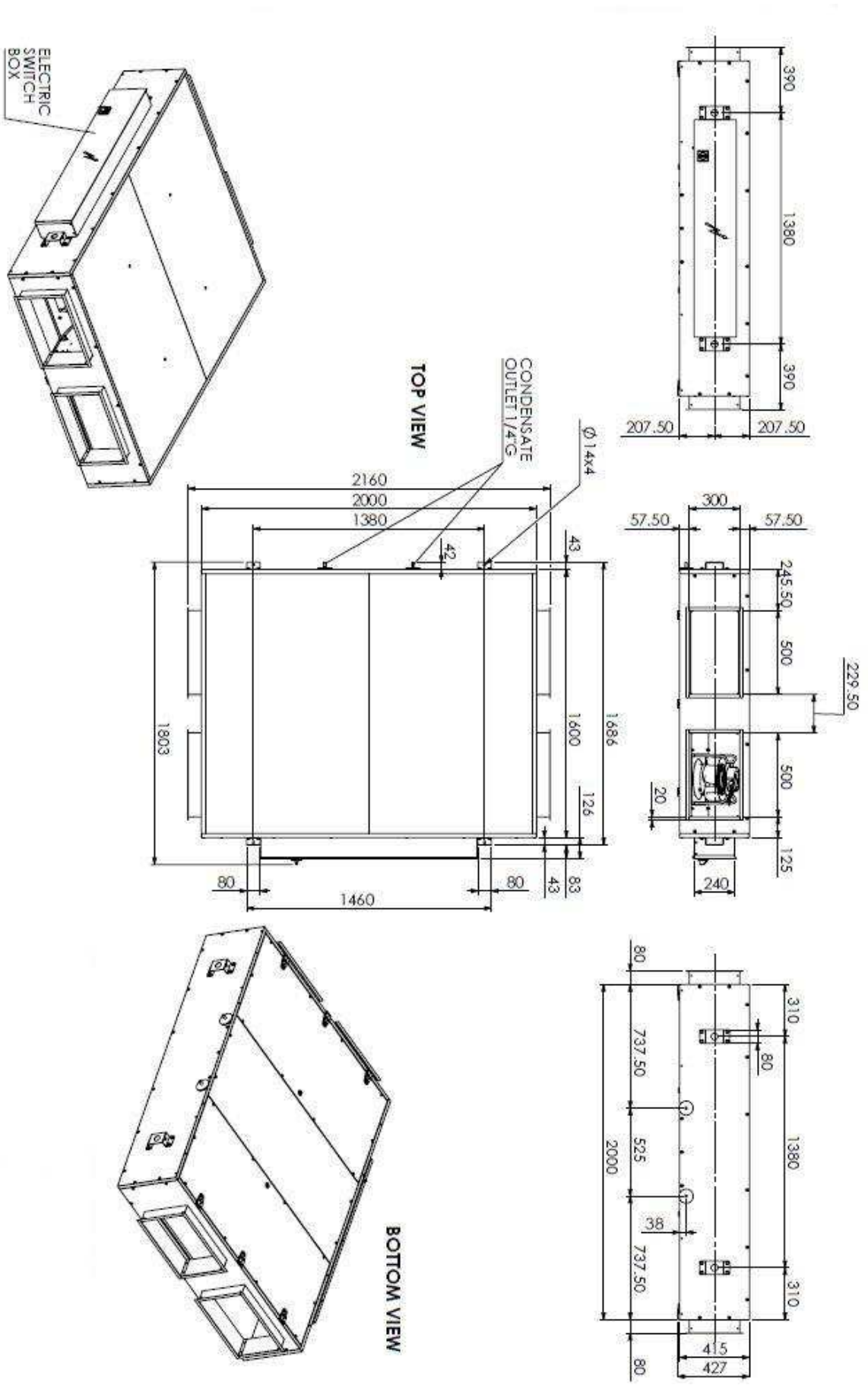
Point Ⓒ

Frequency (Hz)		63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	70	73	64	48	46	42	35	22	60
	Supply outlet	73	81	77	70	63	67	59	51	74
	Return inlet	70	73	65	48	46	42	35	22	60
	Return outlet	73	81	77	70	63	67	59	51	74
	Surrounding power	76	72	60	53	43	44	37	24	59
Surrounding pressure (dBA)										41

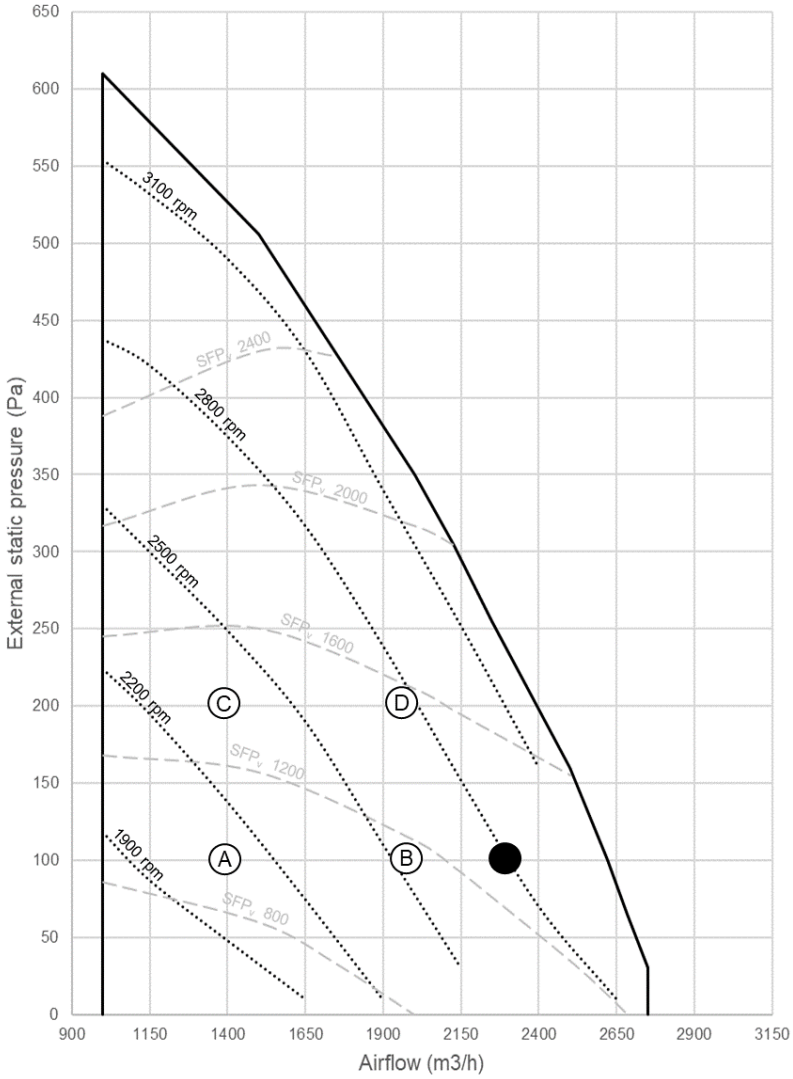
Point Ⓓ

Frequency (Hz)		63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	74	72	66	53	52	48	41	32	61
	Supply outlet	70	70	77	72	66	71	64	61	76
	Return inlet	74	72	66	54	52	49	42	32	62
	Return outlet	70	71	78	73	68	72	66	63	77
	Surrounding power	73	62	61	55	47	49	43	35	58
Surrounding pressure (dBA)										40

Dimensional drawing: size 05



Performance data: size 06



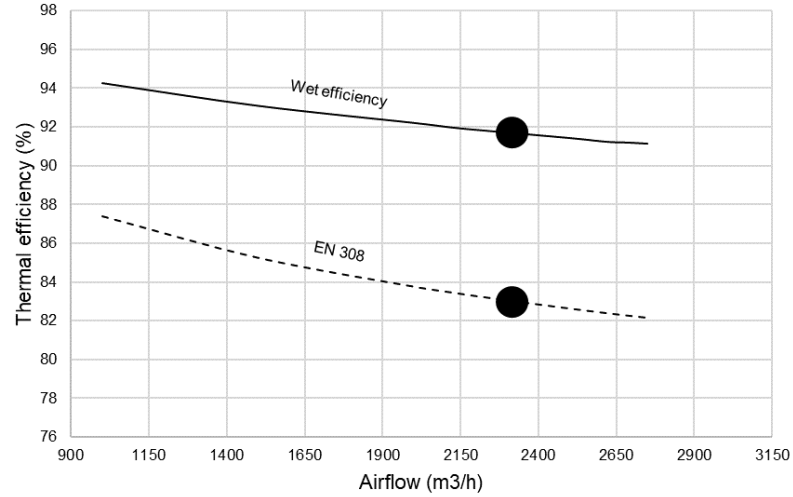
The diagram shows the available external pressure for the duct system given an airflow.

SFPv = Specific Fan Power (W/m3/s)

The SFPv curves are referring to the complete unit. Moreover, it includes power to both supply and extract fan divided by either the supply or extract volume whichever is the greater.

● Nominal working point

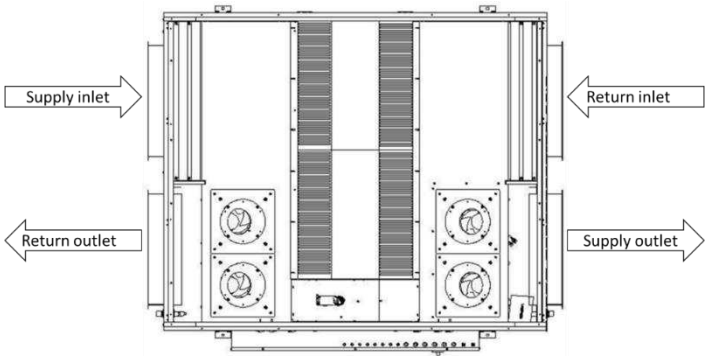
Ⓐ Ⓑ Ⓒ Ⓓ Sound data
(see next page)



Thermal efficiency

- Wet efficiency: -5°C/ RH 90% Outdoor and +22°C/50% Indoor
- With air ratio 1:1 and according to EN 308

Sound level: size 06



Surrounding power level

The airborne is the sound power emitted by the unit. The surrounding power level is the logarithmic sum of the two airborne values (supply and return).

Surrounding pressure level:

It is calculated in accordance with EN3744. The evaluation is done at 1,5m from the source and with a directivity factor equal to 2

Point Ⓐ

Frequency (Hz)		63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	66	67	70	47	49	47	34	23	56
	Supply outlet	71	75	74	68	63	66	59	51	72
	Return inlet	67	68	62	49	50	48	36	25	58
	Return outlet	72	76	75	70	64	67	70	53	73
	Surrounding power	75	67	57	51	44	44	38	26	56
Surrounding pressure (dBA)										38

Point Ⓑ

Frequency (Hz)		63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	72	71	62	48	47	43	35	23	58
	Supply outlet	68	76	74	68	63	66	60	52	72
	Return inlet	73	73	65	51	49	45	38	25	61
	Return outlet	71	79	78	71	65	68	62	54	75
	Surrounding power	73	69	59	52	44	44	38	26	57
Surrounding pressure (dBA)										39

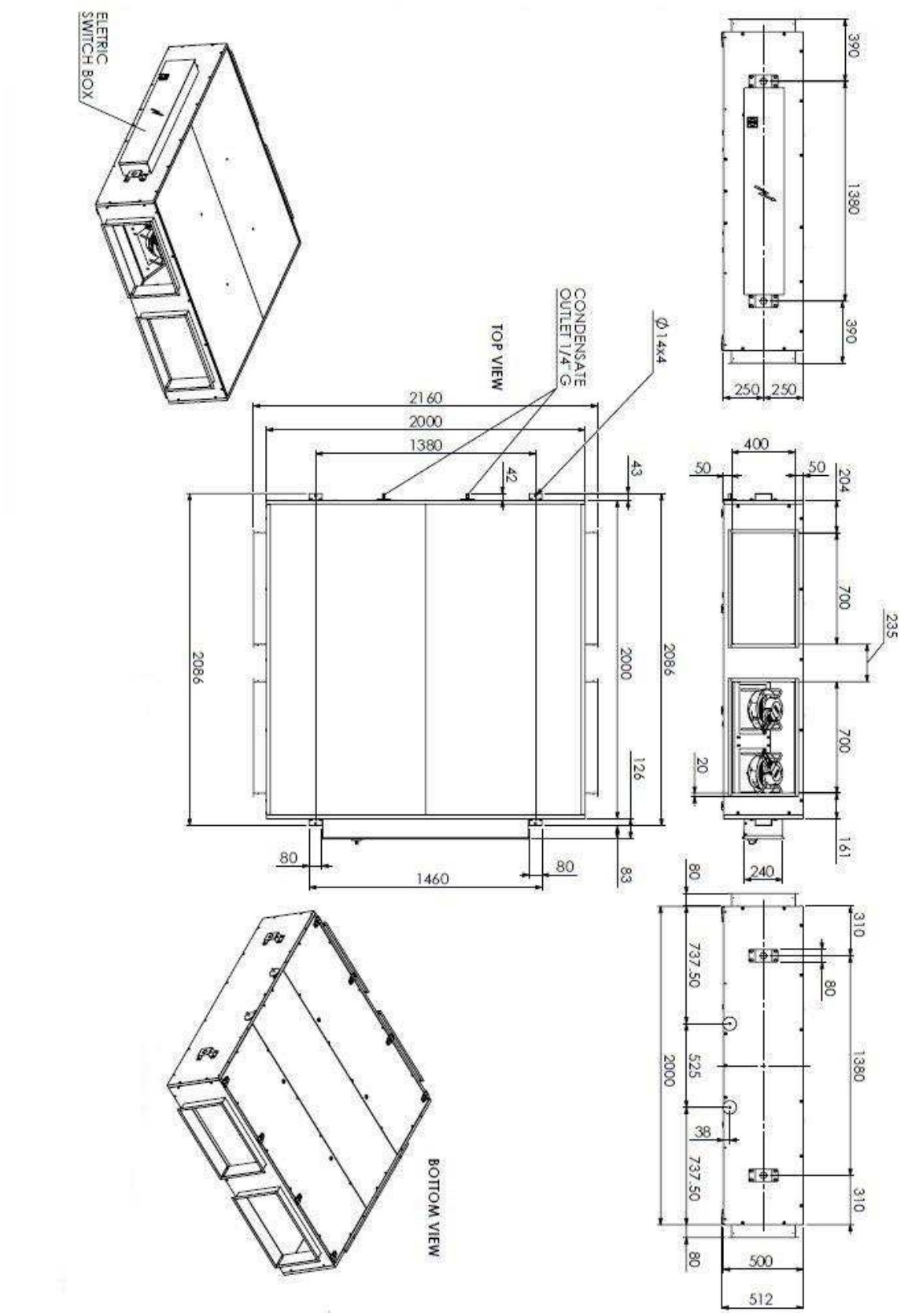
Point Ⓒ

Frequency (Hz)		63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	68	70	64	53	53	50	38	28	60
	Supply outlet	73	77	78	73	67	69	63	56	76
	Return inlet	69	70	66	54	54	52	39	29	61
	Return outlet	74	78	79	75	69	70	64	57	77
	Surrounding power	77	69	62	57	48	47	41	30	60
Surrounding pressure (dBA)										42

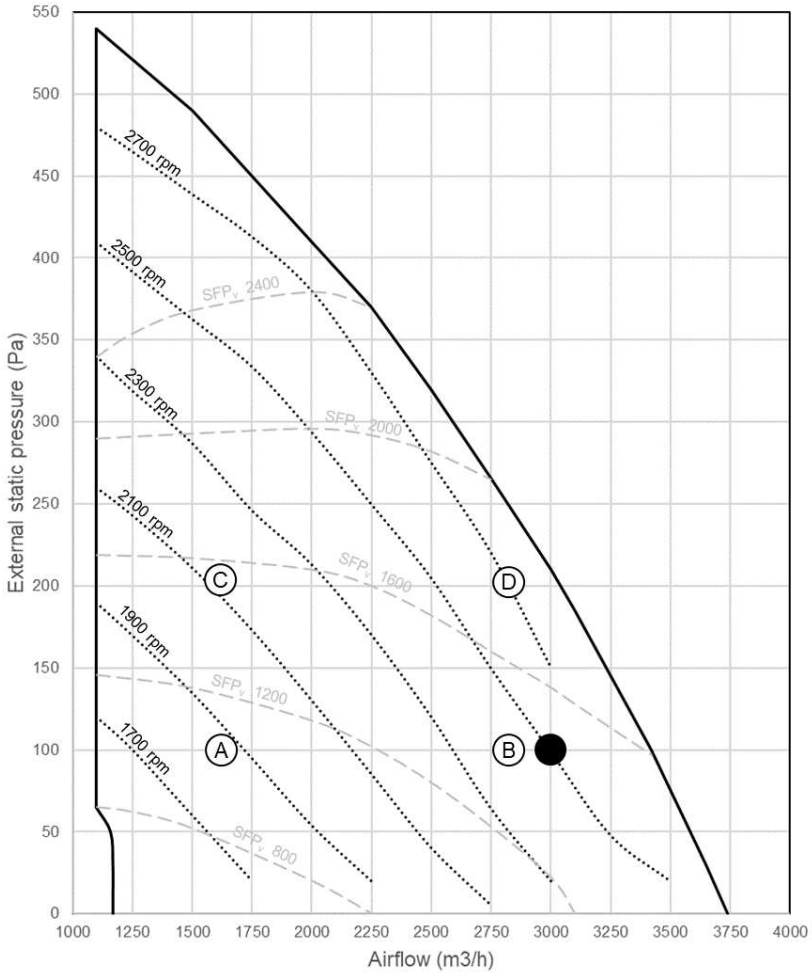
Point Ⓓ

Frequency (Hz)		63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	74	74	67	54	50	46	39	27	62
	Supply outlet	72	80	82	73	66	69	63	56	77
	Return inlet	75	75	70	57	51	47	41	28	64
	Return outlet	73	81	87	76	66	70	64	58	80
	Surrounding power	76	72	68	57	46	47	42	30	62
Surrounding pressure (dBA)										44

Dimensional drawing: size 06



Performance data: size 07



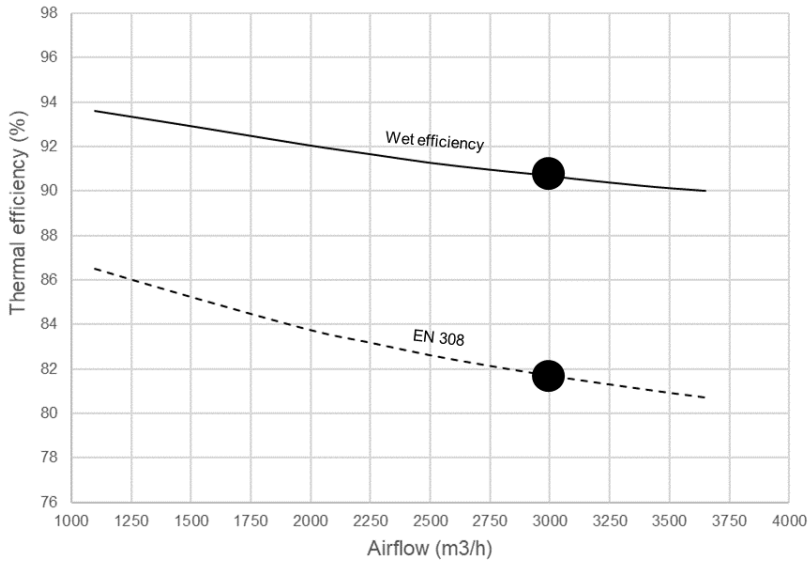
The diagram shows the available external pressure for the duct system given an airflow.

SFPv = Specific Fan Power (W/m3/s)

The SFPv curves are referring to the complete unit. Moreover, it includes power to both supply and extract fan divided by either the supply or extract volume whichever is the greater.

● Nominal working point

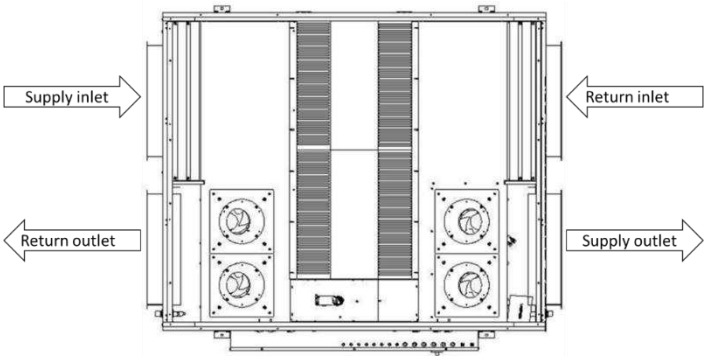
Ⓐ Ⓑ Ⓒ Ⓓ Sound data
(see next page)



Thermal efficiency

- Wet efficiency: -5°C/ RH 90% Outdoor and +22°C/50% Indoor
- With air ratio 1:1 and according to EN 308

Sound level: size 07



Surrounding power level

The airborne is the sound power emitted by the unit. The surrounding power level is the logarithmic sum of the two airborne values (supply and return).

Surrounding pressure level:

It is calculated in accordance with EN3744. The evaluation is done at 1,5m from the source and with a directivity factor equal to 2

Point Ⓐ

Frequency (Hz)		63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound pow er (dB)	Supply inlet	71	71	61	46	45	41	32	20	57
	Supply outlet	68	78	73	66	61	64	57	49	71
	Return inlet	72	74	64	48	46	42	35	22	60
	Return outlet	72	82	76	70	64	67	60	51	74
	Surrounding pow er	73	71	58	51	42	43	36	23	58
Surrounding pressure (dBA)										40

Point Ⓑ

Frequency (Hz)		63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound pow er (dB)	Supply inlet	76	72	65	53	52	50	42	33	61
	Supply outlet	66	69	76	71	66	70	64	60	75
	Return inlet	76	74	68	56	54	51	43	34	63
	Return outlet	72	73	80	74	68	72	66	62	78
	Surrounding pow er	73	62	61	55	47	49	43	34	58
Surrounding pressure (dBA)										40

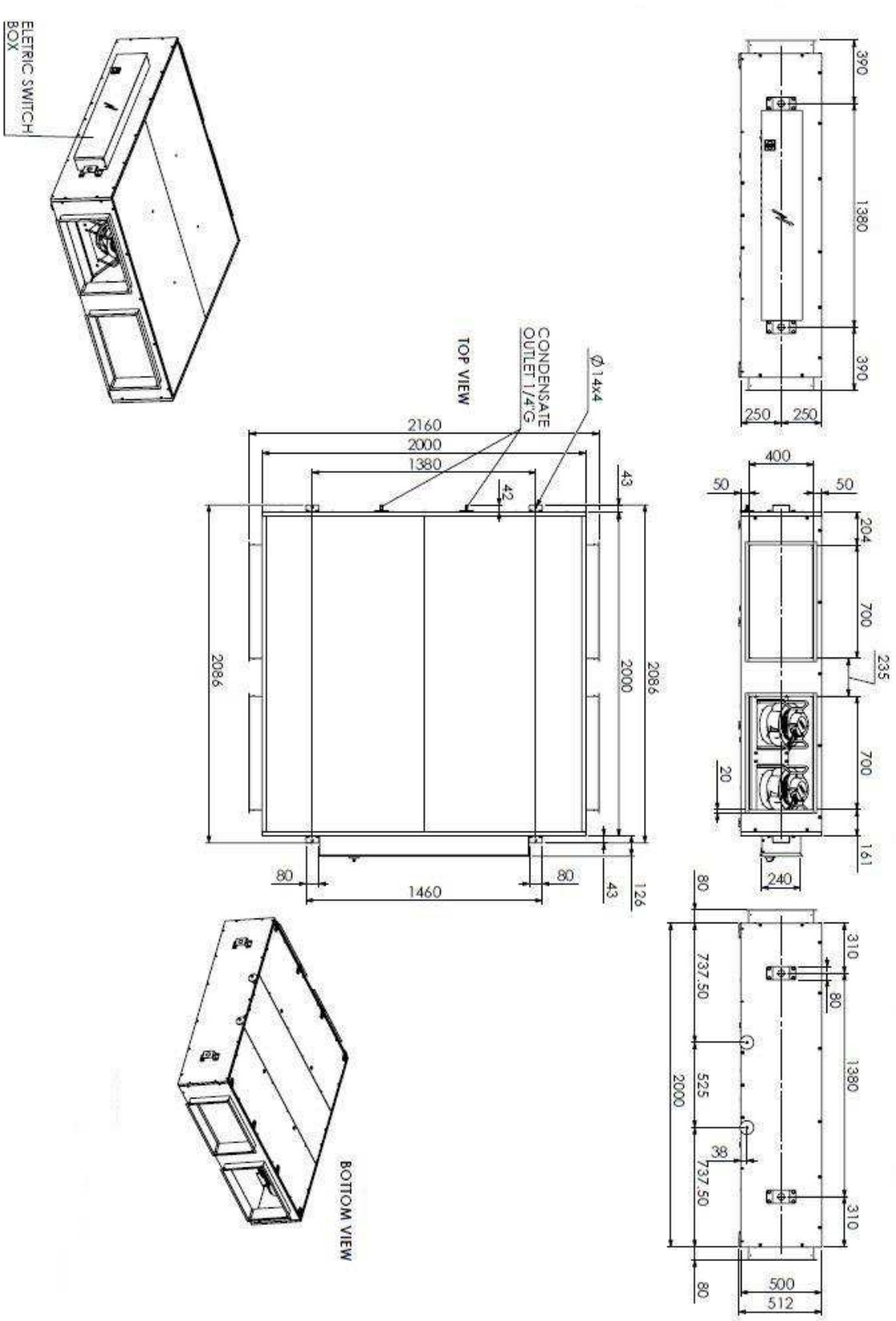
Point Ⓒ

Frequency (Hz)		63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound pow er (dB)	Supply inlet	74	71	66	53	51	48	40	31	61
	Supply outlet	70	70	78	72	65	70	63	59	75
	Return inlet	74	72	66	54	51	48	41	31	61
	Return outlet	71	71	79	72	66	70	64	60	76
	Surrounding pow er	74	62	62	55	46	47	42	33	58
Surrounding pressure (dBA)										40

Point Ⓓ

Frequency (Hz)		63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound pow er (dB)	Supply inlet	76	74	68	56	54	51	43	34	63
	Supply outlet	72	73	80	74	68	72	66	62	78
	Return inlet	77	76	70	58	55	52	45	35	65
	Return outlet	75	75	83	77	71	76	69	66	81
	Surrounding pow er	77	65	64	58	50	52	46	37	61
Surrounding pressure (dBA)										43

Dimensional drawing: size 07



Factory configuration

Factory set values for nominal operating airflow and corresponding setting for the BRC1[E/H].
Please refer to the IOM, in order to determine new operating points and new unit setting for various speeds.

Size02			
Supply		**Exhaust**	
Volume Flow Rate	ESP	Volume Flow Rate	ESP
300	100	300	100
RPM		RPM	
2889		2853	
Fan Speed (High - Ultra high)			
17(27)-4-01			
Fan Curve Supply		**Fan Curve Return**	
19(29)-2-07		**19(29)-3-04**	

Size03			
Supply		**Exhaust**	
Volume Flow Rate	ESP	Volume Flow Rate	ESP
600	100	600	100
RPM		RPM	
2360		2387	
Fan Speed (High - Ultra high)			
17(27)-4-01			
Fan Curve Supply		**Fan Curve Return**	
19(29)-2-07		**19(29)-3-04**	

Size04			
Supply		**Exhaust**	
Volume Flow Rate	ESP	Volume Flow Rate	ESP
1200	100	1200	100
RPM		RPM	
2891		2913	
Fan Speed (High - Ultra high)			
17(27)-4-02			
Fan Curve Supply		**Fan Curve Return**	
19(29)-2-09		**19(29)-3-07**	

Size05			
Supply		**Exhaust**	
Volume Flow Rate	ESP	Volume Flow Rate	ESP
1500	100	1500	100
RPM		RPM	
2479		2529	
Fan Speed (High - Ultra high)			
17(27)-4-02			
Fan Curve Supply		**Fan Curve Return**	
19(29)-2-08		**19(29)-3-06**	

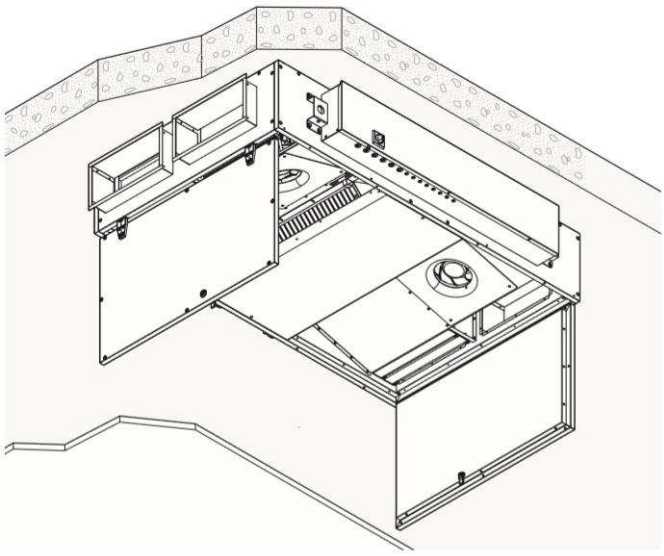
Size06			
Supply		**Exhaust**	
Volume Flow Rate	ESP	Volume Flow Rate	ESP
2300	100	2300	100
RPM		RPM	
2816		2933	
Fan Speed (High - Ultra high)			
17(27)-4-02			
Fan Curve Supply		**Fan Curve Return**	
19(29)-2-09		**19(29)-3-07**	

Size07			
Supply		**Exhaust**	
Volume Flow Rate	ESP	Volume Flow Rate	ESP
3000	100	3000	100
RPM		RPM	
2504		2679	
Fan Speed (High - Ultra high)			
17(27)-4-02			
Fan Curve Supply		**Fan Curve Return**	
19(29)-2-08		**19(29)-3-09**	

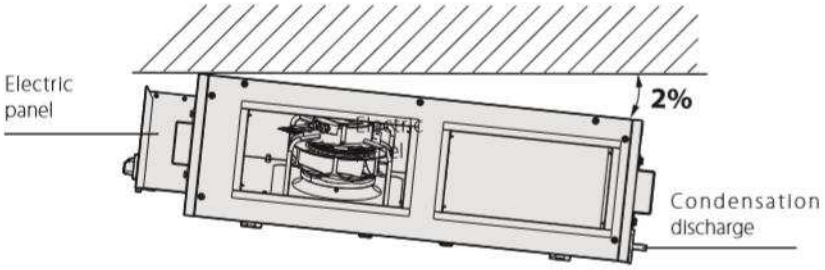
Unit installation

Modular L Smart perfectly fits with false ceiling applications. The ceiling must be:

- Perfectly flat and without roughness
- Able to support the weight of the unit considering an appropriate safety margin

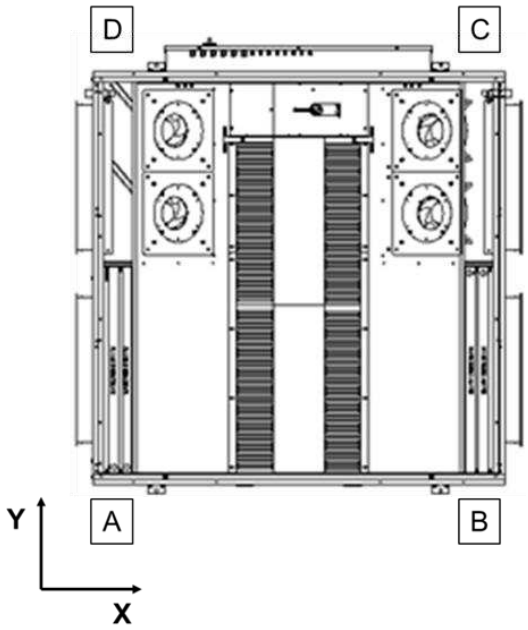


The unit must be tilted by approximately 2% of the width (lifting it towards the electrical panel).



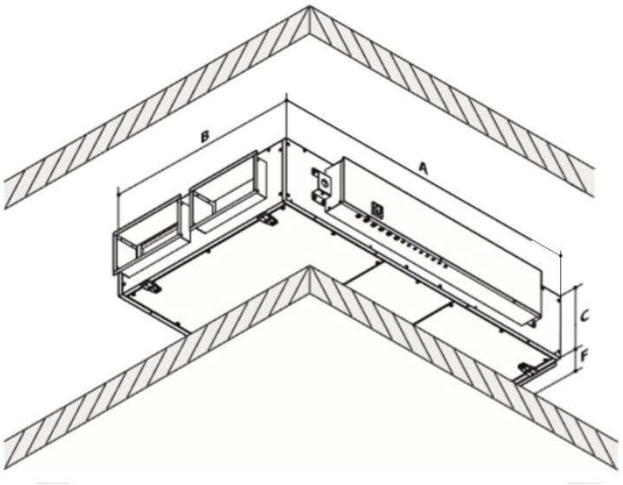
Make sure to connect both drain panel outlet to the drainage circuit. Please make reference to the IOM for more details.

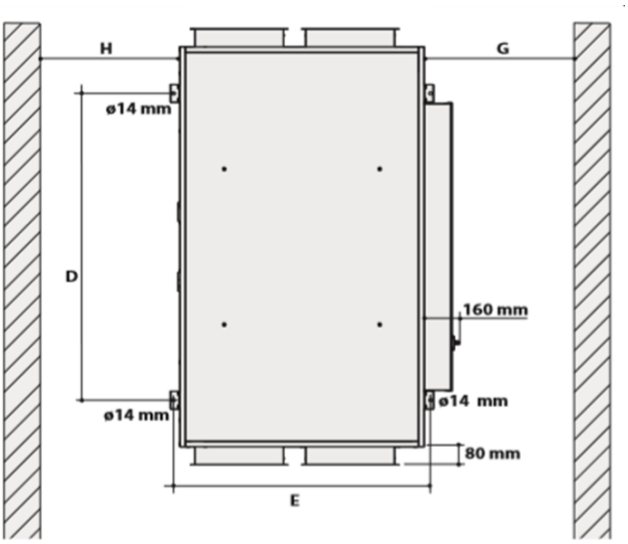
Centre of gravity



Size	Centre of gravity (mm)		Load (kg)			
	X	**Y**	**A**	**B**	**C**	**D**
ALB02*BS	830	485,2	32	32	36	36
ALB03*BS	900	573	46	46	50	50
ALB04*BS	1000	837	69	69	76	76
ALB05*BS	1000	838	70	70	77	77
ALB06*BS	1000	1048	93	93	102	102
ALB07*BS	1000	1051	93	93	103	103

Unit clearances



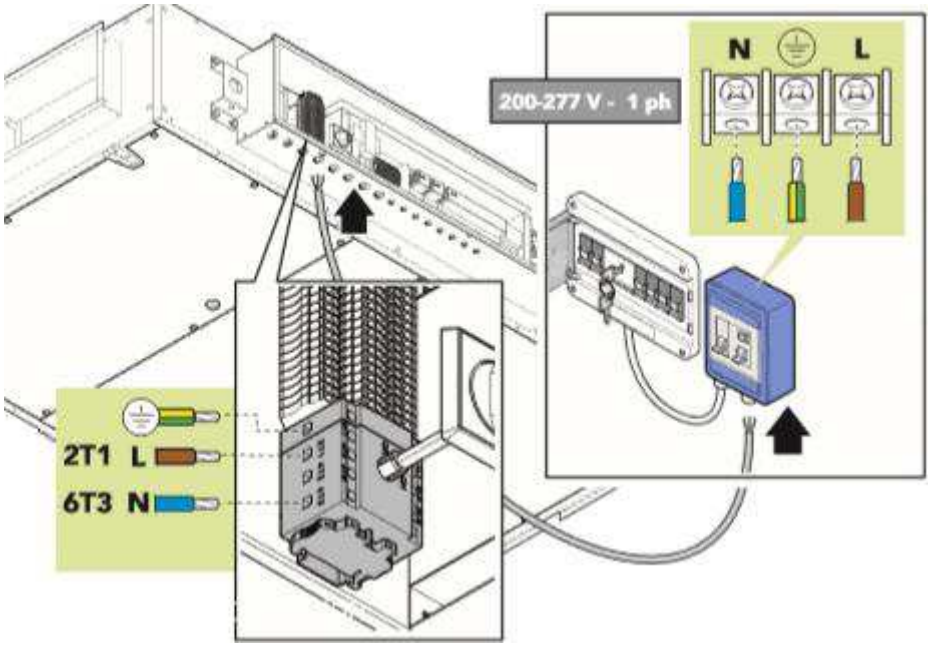


		ALB02*BS	ALB03*BS	ALB04*BS	ALB05*BS	ALB06*BS	ALB07*BS
A	mm	1660	1800	2000			
B	mm	920	1100	1600		2000	
C	mm	280	350	415		500	
D	mm	1380					
E	mm	976	1156	1656		2056	
F*	mm	630	670	675			
F**	mm	100					
G	mm	500					
H	mm	300					

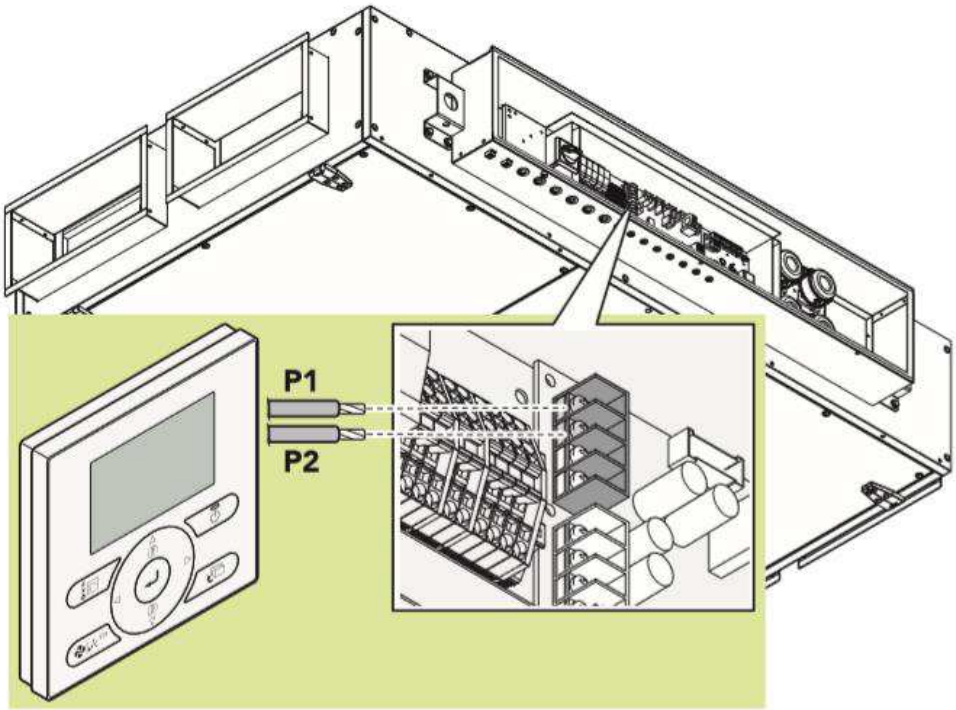
Note:
* Hinged doors
** Sliding doors with optional rails (ALA**RLA)

Wiring diagram

Unit connection to the power supply



For the unit start up please connect the BRC controller (purchasable separately) to the terminals P1–P2 as shown in the picture below.
This communication, based also on the common P1-P2 protocol, guarantees fully compatibility with SkyAir and VRV systems.



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All the technical data and performances included within this document are subject to change without prior notice. Please refer to the last version of selection software available online for updated information (tools.daikinapplied.eu)