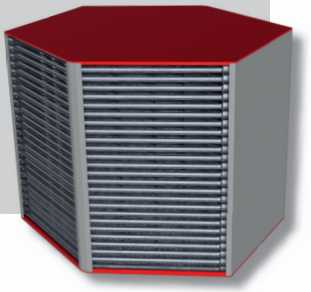
HIGH PERFORMANCE EXCHANGER

SB 3.66

Dedicated to housing market, the patented air-to-air heat exchanger SB 3.66 is the perfect balance between heat recovery and low pressure loss.
It has been designed to combine high energy performances and environmental efficiency.

SB 3.66's aeraulic and acoustic performances have been tested and approved by independent laboratories, CETIAT & CTTM, according to the European standards.



INDOOR AIR QUALITY A+++ (A+ A B C)
0 VOC certified

Low pressure loss
21 Pa at 120 m³/h

Performances tested by independent laboratories

ADVANTAGES

High energy performances

- Reducing pressure losses by 50%
- High thermal efficiency (87% & 21 Pa at 120m³/h)
- Good mechanical resistance (ΔP = 2000 Pa)
- Optimizing drainage of condensed moisture

High environmental efficiency

- 0% Volatile Organic Compounds (VOC)
- Recyclable material
- Leakage rate < 0,4%

NOMENCLATURE

SB	3.66	H300	T
Range name	Length x width (366 x 366 mm)	Model (height in mm)	With tongues (optional)

- 41 models: height from 100 to 500 mm (higher heights on request)
- Airflow: from 50 to 600 m³/h

CONSTRUCTION

			Characteristics
Exchanger technology			Counterflow
Material	Plates and caps		APET (glycol free)
	Sides		Rigid PVC (phthalates free)
	Assembly	Posts, sides & caps	Hot melt adhesive (glue) with no VOC
		Plates	Welding
	Fire classification		C according to EN13501-1 standard
Operating limits	Specific resistance		Grease, oil, alcohol, salted atmosphere
	Operating temperature		from -30°C to +50°C
Miscellaneous			Handling strap Tongues in option (see p.6), for slide rail mounting

F2A - 70 Impasse des Barmettes - Parc d'activités des 2B - F 01360 BELIGNEUX
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F2A Manufacturer
Air handling components

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PERFORMANCES

Efficiency and pressure loss (EN 308 standard)

Test conditions:

- Supply inlet temperature: 5°C
- Exhaust inlet temperature: 25°C
- Exhaust inlet wet bulb temperature: 12,9°C
- Both of the circuits in underpressure
- Dry air (relative humidity < 30%)
- Equal supply and exhaust airflow rates

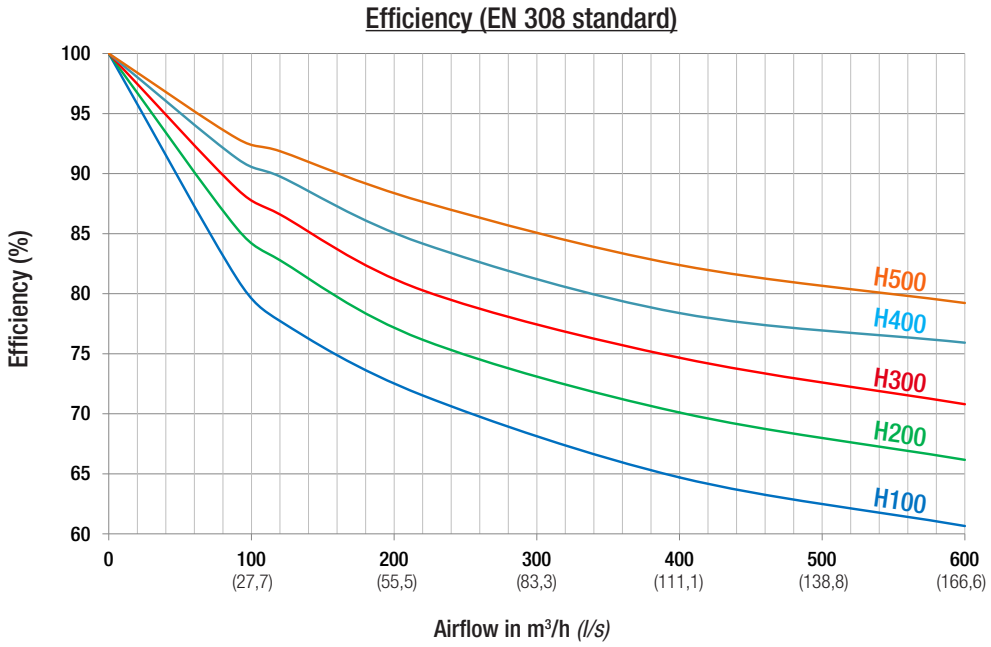
Example:

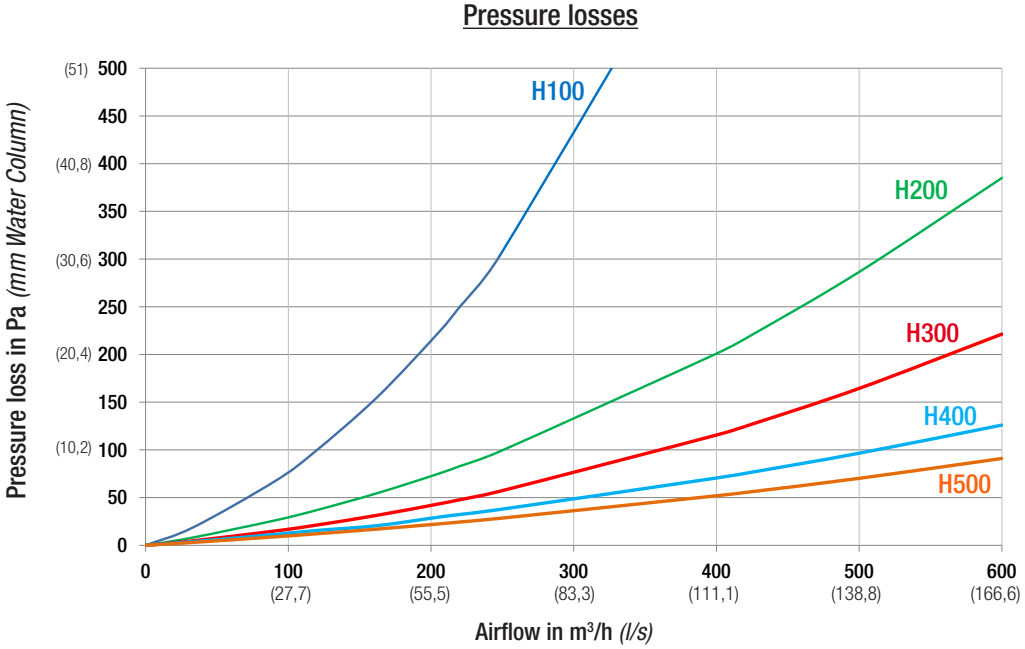
SB 3.66 H300
Airflow = 120 m³/h
Efficiency = 86,6%
Pressure loss = 21,4 Pa

Model	Airflow – m³/h *(l/s)*				
	90 m³/h *(25 l/s)*	120 m³/h *(33,3 l/s)*	220 m³/h *(61,1 l/s)*	400 m³/h *(111,1 l/s)*	600 m³/h *(166,6 l/s)*
H100	η = 81,2% 62,3 Pa	η = 77,7% 95,2 Pa	η = 71,5% 248,5 Pa		
H200	η = 85,4% 26,3 Pa	η = 82,8% 37,9 Pa	η = 76,2% 87,4 Pa	η = 70,1% 217,5 Pa	
H300	η = 88,7% 15,1 Pa	η = 86,6% 21,4 Pa	η = 80,3% 47 Pa	η = 74,7% 111 Pa	
H400	η = 91,3% 10,9 Pa	η = 89,8% 15,2 Pa	η = 84,2% 32,2 Pa	η = 78,4% 72,8 Pa	η = 75,9% 132,7 Pa
H500		η = 92,9% 11,9 Pa	η = 87,7% 24,5 Pa	η = 82,4% 53,6 Pa	η = 79,2% 95,2 Pa

PERFORMANCES

Tests carried out at equivalent supply and exhaust airflow rates.





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PERFORMANCES

Leakage rate

Nominal airflow = 349 m³/h at 50 Pa

	Pressure	Leakage rate	Leakage rate compared to nominal airflow	EN308 requirement
External leakage	-250 Pa	0,2 m³/h	0,1%	< 3%
	+250 Pa	0,9 m³/h	0,3%	
Internal leakage	-100 Pa	0,7 m³/h	0,2%	
	+100 Pa	0,7 m³/h	0,2%	

Test carried out with a 500 mm height heat exchanger (SB 3.66 H500)

Mechanical resistance

- Maximum pressure difference without damaging the heat exchanger = 2000 Pa
- Maximum operating pressure* = 1000 Pa

* Maximum pressure difference between the two flows without affecting heat exchanger efficiency and pressure loss

ACOUSTIC

The SB 3.66 heat exchanger has been tested in an independent laboratory according to ISO 7235 : 2009 standard. Tests under real conditions of use have been carried out on the heat exchanger in order to obtain performances that closely reflect reality,

Acoustic measures have been taken on both circuits independently: fresh air & return air.
They show similar results.

Model: SB 3.66 H500 (500 mm height)

Attenuations (dB)

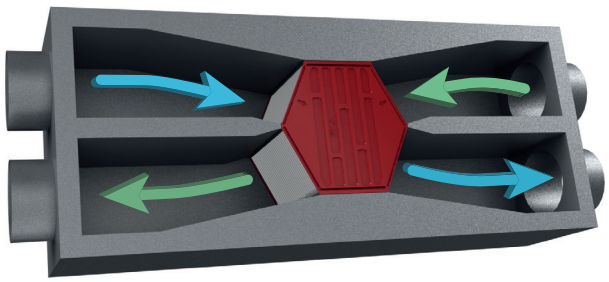
CTTM CENTRE DE TRANSFERT DE TECHNOLOGIE DU MANS

Frequencies (Hz)	125	250	500	1000	2000	4000	8000
Insertion losses	17	12	11	8	7	13	4

Regenerations (dB)

	Frequencies (Hz)						
Airflow	125	250	500	1000	2000	4000	8000
221 m³/h	28	16	14	16	18	23	30
398 m³/h	36	27	20	17	18	24	30
608 m³/h	43	35	31	26	21	24	30

Note: acoustic performances have been tested according to hereunder conditions



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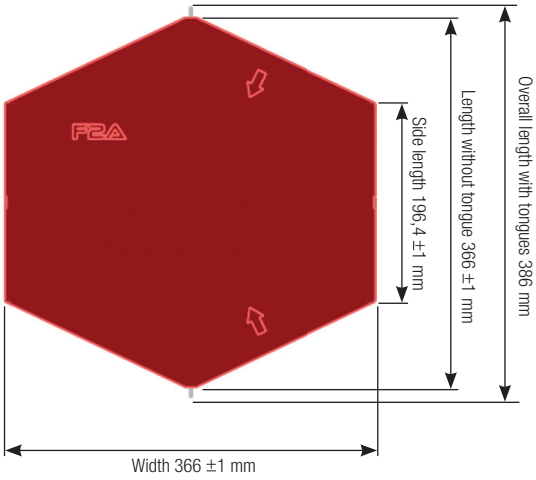
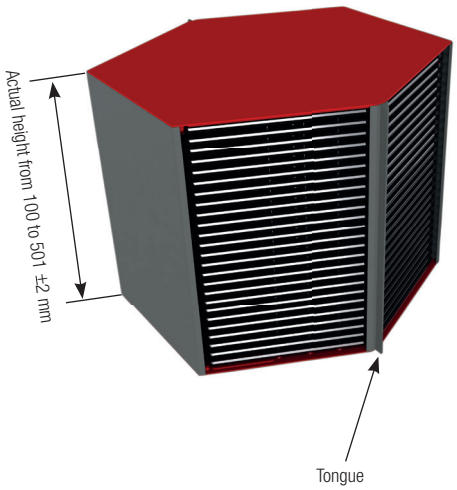
DIMENSIONS





Model	Actual height (mm)	Weight (Kg)
100	101,2	1,8
110	113	1,9
120	124,8	2,0
130	136,6	2,1
140		2,1
150	148,4	2,2
160	160,2	2,2
170	172	2,3
180	183,8	2,4
190	195,6	2,5
200		2,5
210	207,4	2,6
220	219,2	2,7
230	231	2,8
240	242,8	2,9
250	254,6	2,9
260	266,4	3,0
270		3,0
280	278,2	3,1
290	290	3,2
300	301,8	3,3
310	313,6	3,4
320	325,4	3,5
330	337,2	3,6
340		3,6
350	349	3,7
360	360,8	3,7
370	372,6	3,8
380	384,4	3,9
390	396,2	4,0
400		4,0
410	408	4,1
420	419,8	4,2
430	431,6	4,3
440	443,4	4,3
450	455,2	4,4
460	467	4,5
470		4,5
480	478,8	4,6
490	490,6	4,7
500	502,4	4,8

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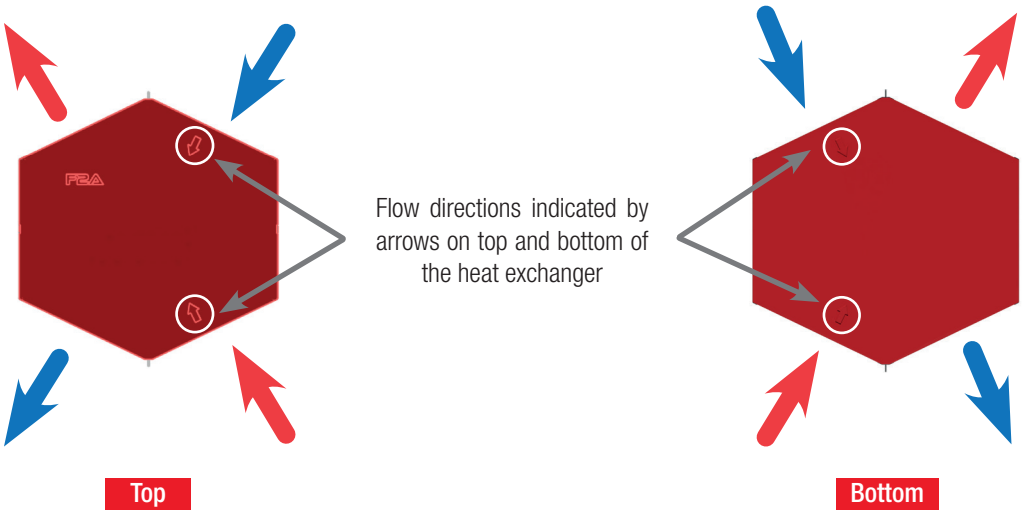
RECOMMENDATIONS FOR INSTALLATION

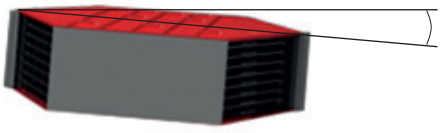
Flow directions to be respected



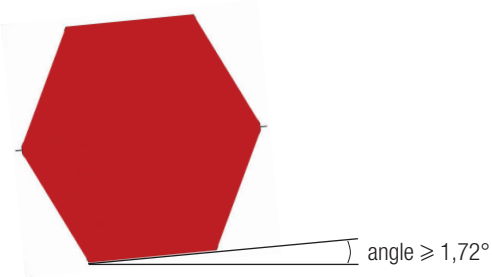
Flow directions indicated by arrows on top and bottom of the heat exchanger

Drainage of condensed moisture

For horizontal or on-side mounting orientation, an angle of 1,72° (3%) minimum is required to ensure efficient evacuation of condensed moisture as shown below:



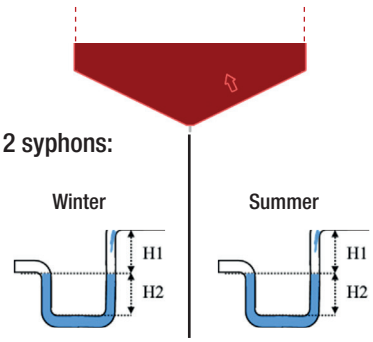
For horizontal orientation,
F2A marking must be pointed upward.



A standard mounting orientation (vertical) does not require any angle.

We recommend to use 2 different syphons (winter and summer) at the outlet of the condensate drain pan.
The syphons' height needs to be at least twice higher than maximum pressure difference in the ventilation system.

Reminder: 1 mm Water Column = 10 Pa



Example:

Air Handling Unit's differential pressure = 200 Pa
200 Pa = 20 mm WC
H1 = 20 mm x 2 = 40 mm
H2 = 20 mm x 2 = 40 mm
→ Syphons' height must be 80 mm minimum.

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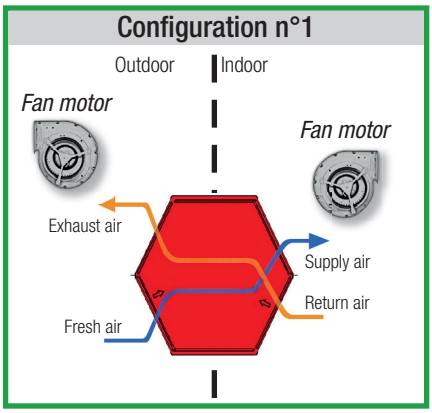
RECOMMENDATIONS FOR INSTALLATION: FAN POSITIONS

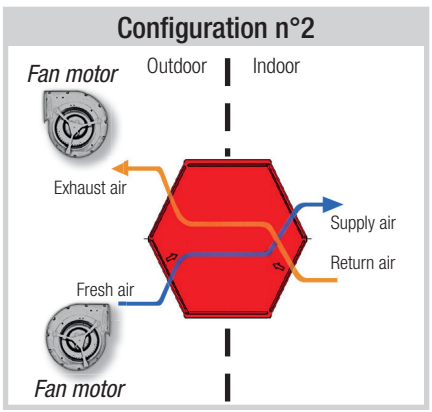
Configuration n°1



[Recommended by F2A]

- Optimum flow distribution leading to a better efficiency
- Low pressure difference between plates reducing internal leakage
- Heat recovery from motor on supply-air side

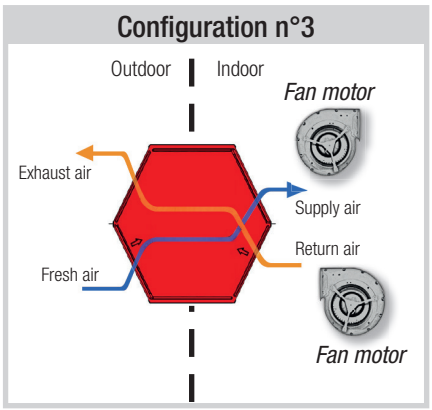
Configuration n°2



[Possible configuration]

- Better acoustic attenuations than configuration n°1
- Reducing freezing risk but affecting the heat exchanger efficiency
- High pressure difference between plates affecting internal leakage

Configuration n°3



[Possible configuration]

- High heat recovery from motors (in winter)
- Heat gain on exhaust-air side

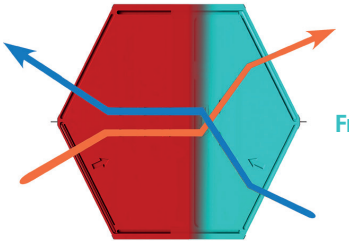
	Fans positions		Indoor acoustic		Thermal performances (Winter)	
	Supply air	Exhaust air	Supply-air side	Exhaust-air side	Efficiency	Heat recovery from motor
Configuration n°1	Inlet	Outlet	0	+	++	+
Configuration n°2	Outlet	Outlet	+	+	0	+
Configuration n°3	Inlet	Inlet	0	0	+	++

LIMITS OF USE: FREEZING RISK

The exhaust air contains moisture which condenses in contact with cold exchanger plates (fresh-air side) and turns into water. This condensed moisture may freeze if exhaust air is below 0°.

A mechanism into the ventilation system is needed to avoid freezing, such as:

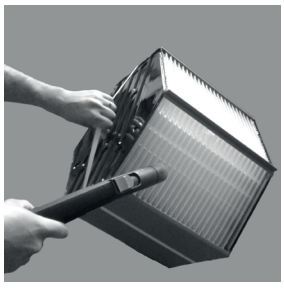
- Reducing intake airflow rate
- Bypassing the heat exchanger with or without post-heating mechanism
- Preheating by earth tubes or geothermal heating



STORAGE, USE AND CLEANING INSTRUCTIONS

- Indoor storage, no sunlight
- Storage temperature: from -30°C to +50°C
- Operating temperature: from -30°C to +50°C
- Pressure difference between the two flows must not exceed 2000 Pa
- Use filters for exhaust and fresh air to keep the exchanger interior clean
- Do not cut the handling strap

1 – Take the heat exchanger out by pulling the strap.
Pay attention to its orientation into the ventilation system



2 – Remove the dust with a household vacuum cleaner

3 – Put the heat exchanger back in place by pushing it carefully

Download the SB 3.66's 2D (DWG, DXF, PDF) & 3D (IGS, STEP) drawings by scanning this code

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