Energy Plus

Recovery Unit

TECHNICAL LEAFLET

Energy Plus
Recovery Unit

The **Energy Plus** ducted units have been designed to allow energy savings in the ventilation systems of public and private environments, such as bars, restaurants, offices, shops, etc., **by recovering the heat** from the air discharged and transferring it to the fresh air introduced into the environment.
The heat exchange between the extract air and the fresh air occurs via a static counter-flow exchanger, designed to recover **up to 94%** of the heat.

The **Energy Plus** units are equipped with centrifugal fans with backward blades and **electronic motor with continuous speed** control which allows the control at a variable flow rate, in order to reduce the electric waste to the minimum need.

The **Energy Plus** range features **4 sizes** suitable for horizontal installation and covers a range of air flows **from 300 to 2,600 m³/h**.
The Energy Plus units are **in compliance** with the mandatory standard according to the European Ecodesign Directive **(UE 1253/14 Regulation and Erp 2018)**.
The tests regard the thermal efficiency in terms of heat recovery and the **SFPint** internal specific fan power of ventilation components under nominal conditions.

CONSTRUCTION AND MAINTENANCE

External Panels: external galvanised plate sandwich panels, 24 mm thick, filled with 45 kg/m³ of polyurethane foam.

Heat Recovery Coil: the Heat Recovery Coil are static counter flow aluminium plates heat-exchangers of high efficiency. The top of the performances over 90% efficiency can beobtained thanks to the heat transfer between two air flows due to the temperature difference. Being static, there are no moving parts. This is a guarantee of very high reliability and operating safety. In order to increase the heat-exchanger efficiency, the plates surfaces are fitted with special swirlers.

The performance of the HOLMAK HEATX B.V. heat recovery unit is EUROVENT-certified.

www.eurovent-certification.com

The centrifugal discharge and intake air plug fans are with synchronous motor with permanent magnets and electronic control (EC), 230V power supply. The rotors are designed in order to guarantee an optimal air flow rate and the lowest noise level.

Air Filters. Pleated cell filters, 98 mm thick, efficiency ePM_1 55% - F7 for the intake air process and ePM_{10} 55% - M6 for the discharge air, sized to minimize pressure loss. Filters can be removed from dedicated openings provided in the casing.

Differential Pressure Switches for filter cleaning and warning in case of run out filters.

Electric Control Panel installed on the side of the unit.
The electric control panel is isolated from the air flow within a suitable box.
The electric control panelincludes main fuses and the electronic power board for the manual or automatic control of the fan operation and of the air handling accessories.
The wall control set is programmable with display and touch keypad.

Optional variable air flow operation depending on air quality (CO_2 and Relative Humidity).

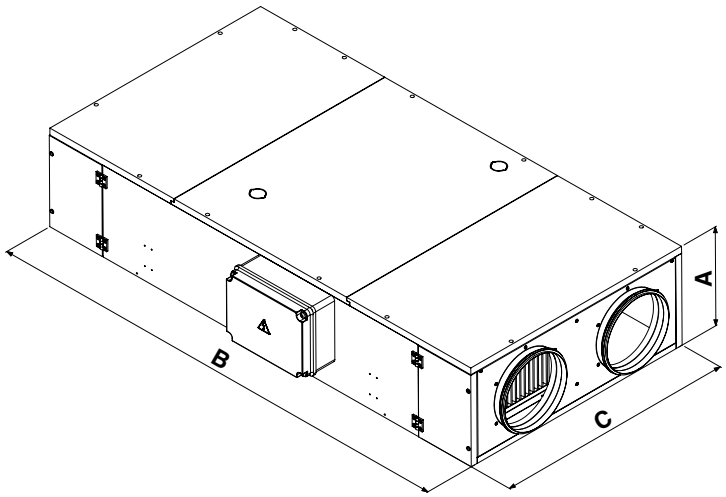
Inspection openings for maintenance, cleaning and filter change. Quick panels removal to access ventilation and recovery unit sections.

BY-Pass Damper with servocontrol. All the units are equipped with an automatic by-pass system that allows the by-pass of the recovery coil in order to let the free-cooling (or the free-heating).
The system is controlled with the logic based on the integrated temperature sensors.

Floor/ceiling installation. Optional adjustable hanging systems according to the weight of the units.

Optional extra:
- Post heating/cooling water coil.
- Plenum connectors for the Sabiana OCEAN sections.

Dimensions and weight



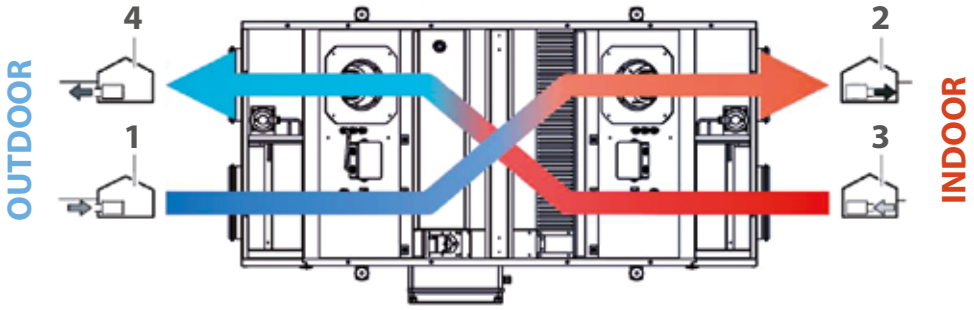
Model		ENY-P1	ENY-P2	ENY-P3	ENY-P4
Lenght **(B)**	mm	1700	1750	2100	2355
Width **(C)**	mm	850	1150	1250	1700
Height **(A)**	mm	344	385	470	610
Weight	kg	110	154	180	290

Nominal technical data

Model		ENY-P1	ENY-P2	ENY-P3	ENY-P4
Nominal and maximum return/supply air flow	m^3/h	720	1150	1700	2600
	m^3/s	0,20	0,32	0,47	0,72
Available pressure	Pa	170	220	250	250
Minimum air flow	m^3/h	270	300	600	690
Thermal efficiency UE 1253/14 (1) Regulation (1)	%	80	80	80	85
Recovered Heat Power (1)	kW	3,9	6,2	9,1	14,8
Recovery efficiency (2)	%	90	90	90	94
Max Recovery efficiency (2)	kW	6,5	10,5	15,4	24,5
Sound power level on the case	LWA	56	63	62	61
Fan number		2	2	2	2
Nominal power absorption (3)	W	330	770	1060	1460
Max current input (3)	A	2,8	3,6	4,7	6,5
Power voltage/frequency (3)	V-Ph	230-1+N 50Hz	230-1+N 50Hz	230-1+N 50Hz	230-1+N 50Hz

(1) = Dry Conditions: TAE = 5 °C and E.A.T. = 25 °C.
(2) = Air Conditions: TAE =10 °C and E.A.T. = 20 °C, URi 50% UR.
(3) = Basic version.

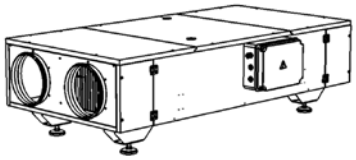
Typical air flow rates configuration



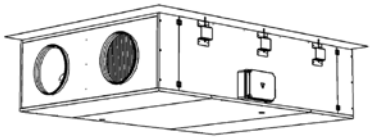
1 fresh air **2** supply air **3** extracted air **4** exhausted air

Installation

Floor installation

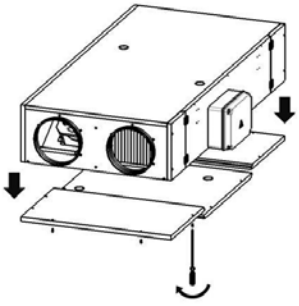


Ceiling installation

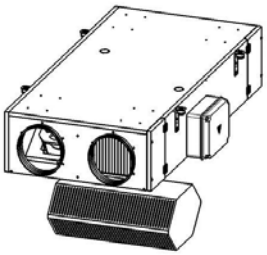


Inspection openings

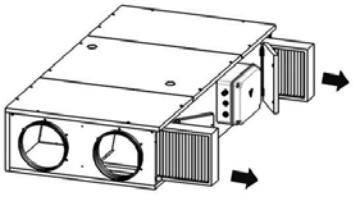
Maintenance access



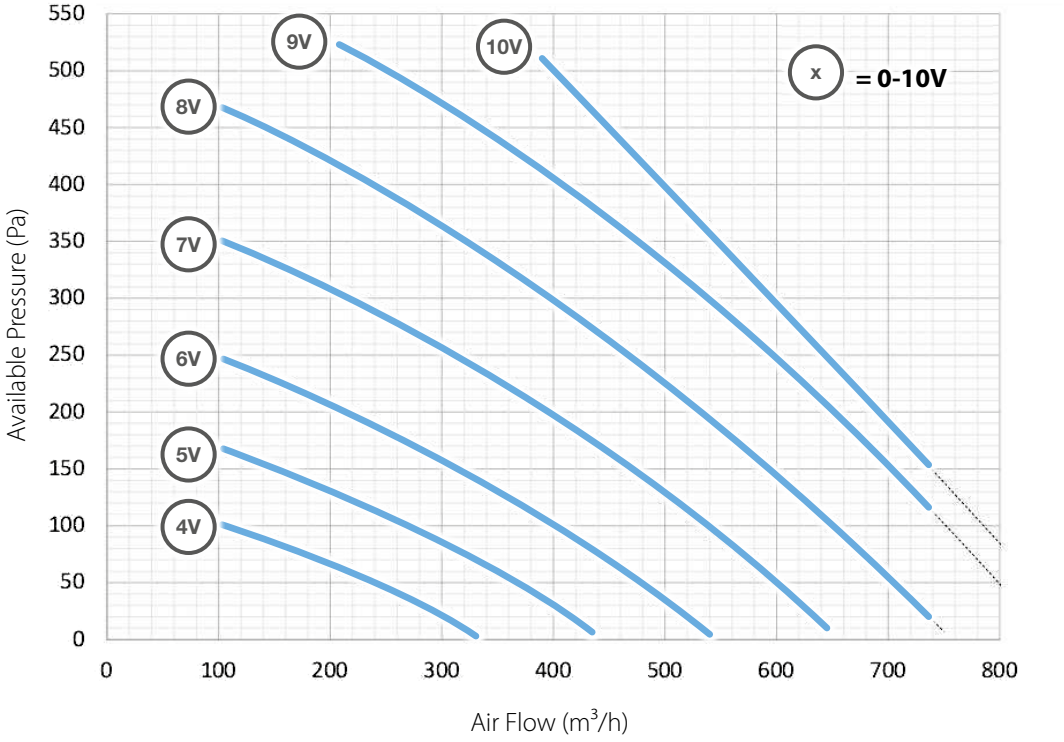
Heat-exchanger access



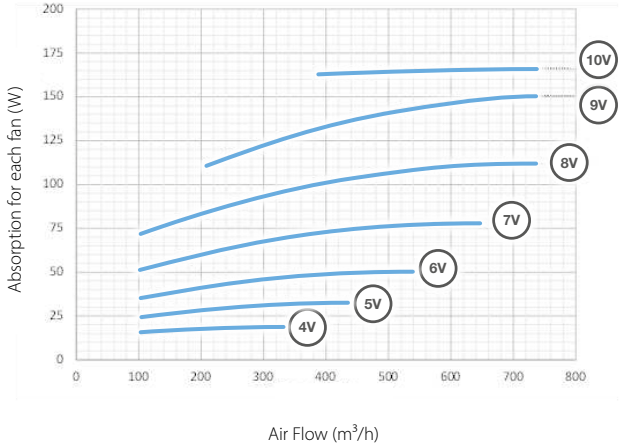
Filter



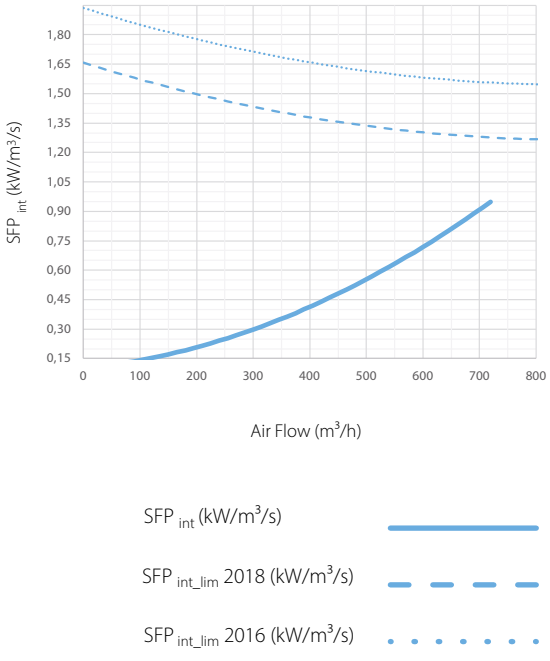
Return/Supply fans
Air flow/Available pressure



Power absorption for each fan (1)

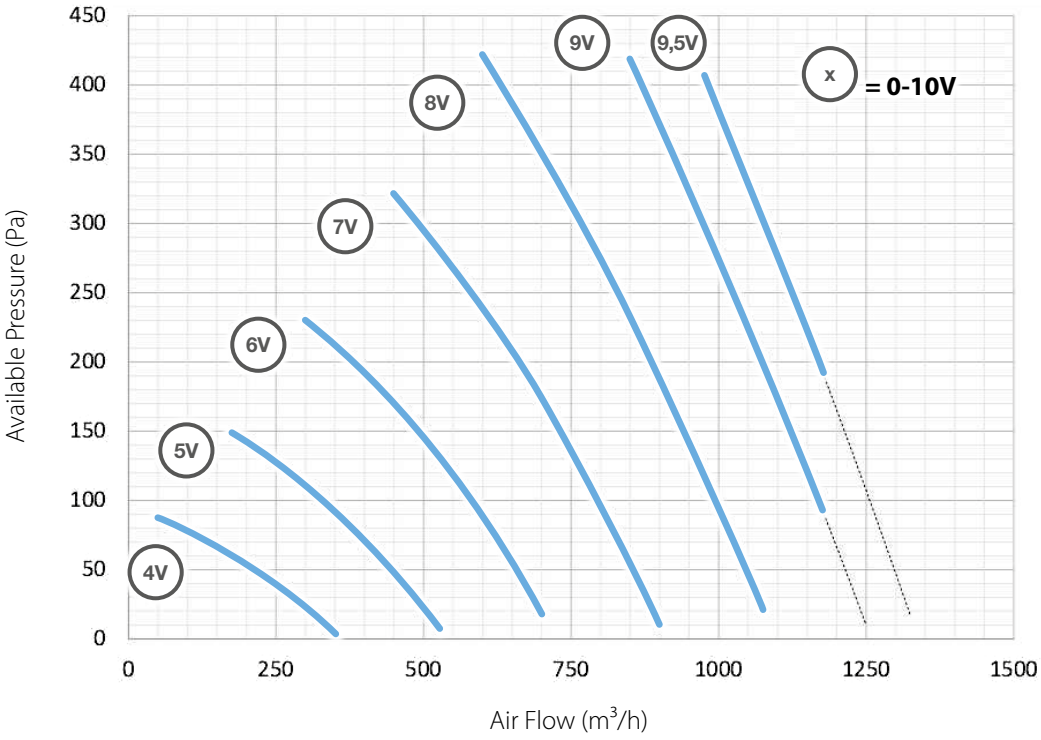


SFP int UE 1253/14

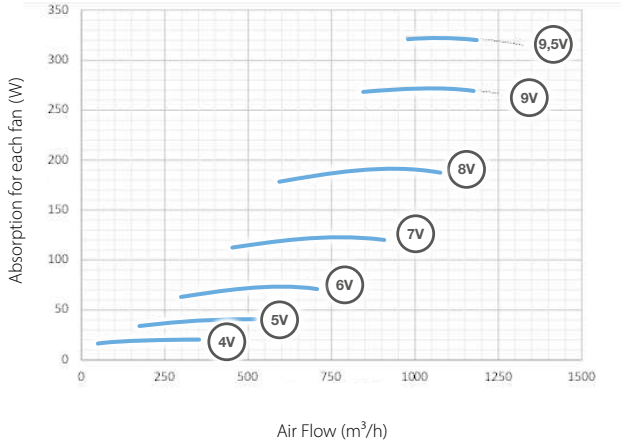


(1) = The power absorption for each fan is useful when fans are working in different conditions.

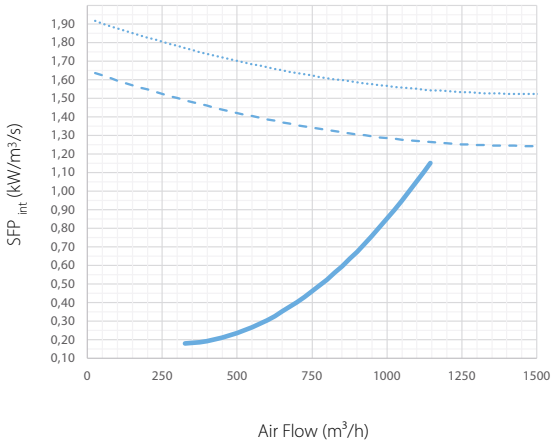
Return/Supply fans
Air flow/Available pressure



Power absorption for each fan (1)



SFP int UE 1253/14



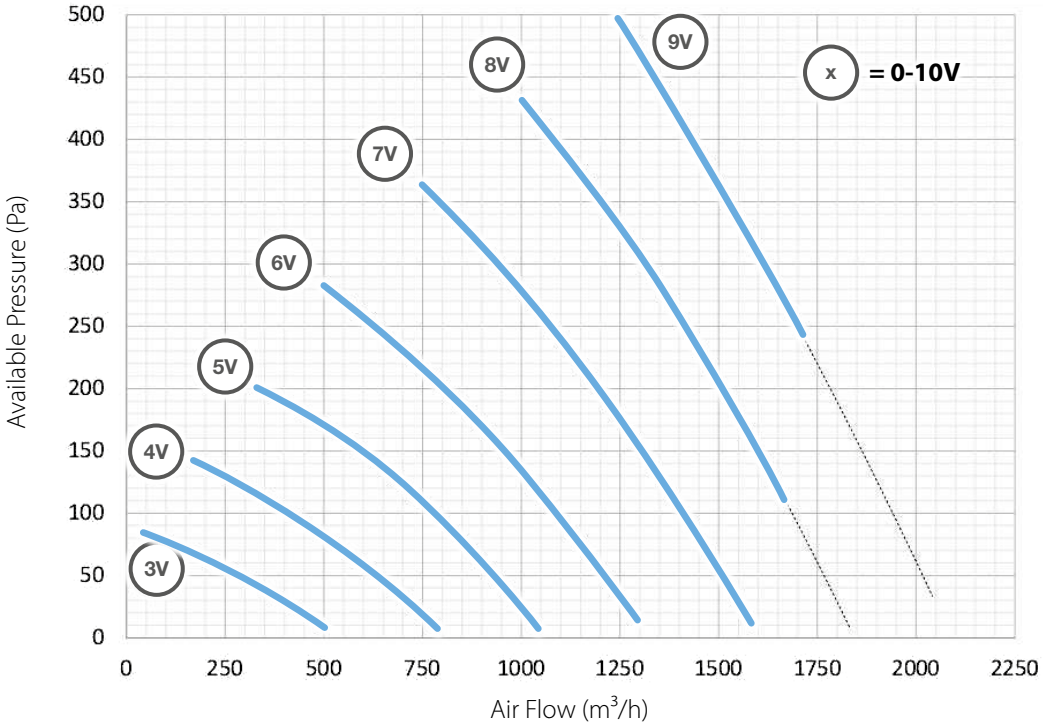
SFP int (kW/m³/s)

SFP int_lim 2018 (kW/m³/s)

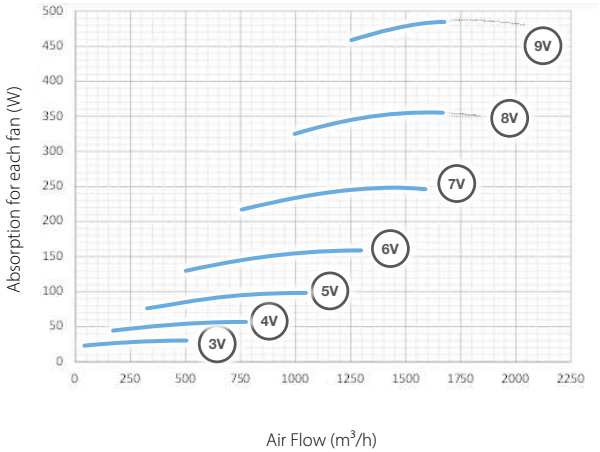
SFP int_lim 2016 (kW/m³/s)

(1) = The power absorption for each fan is useful when fans are working in different conditions.

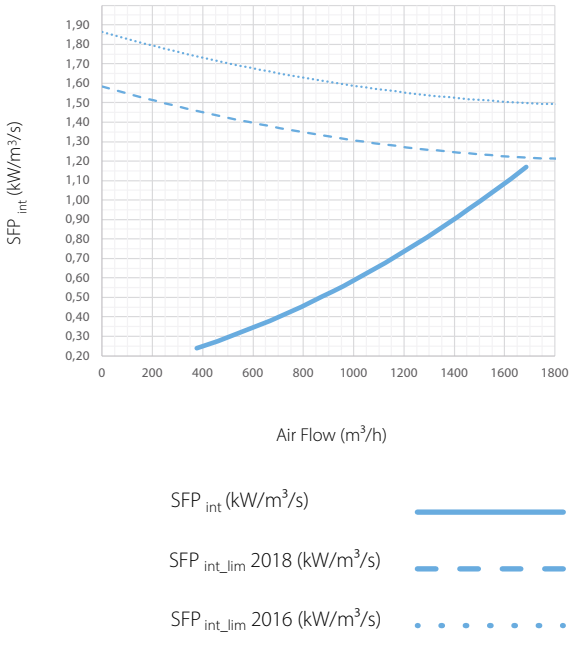
Return/Supply fans
Air flow/Available pressure



Power absorption for each fan (1)

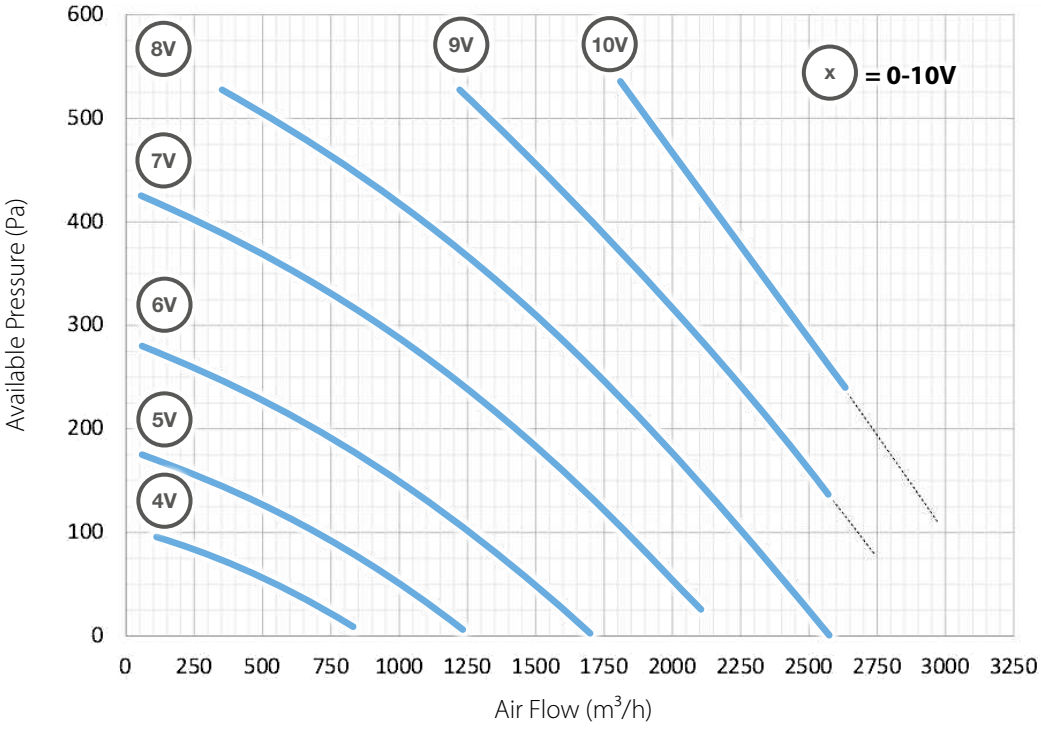


SFP int UE 1253/14

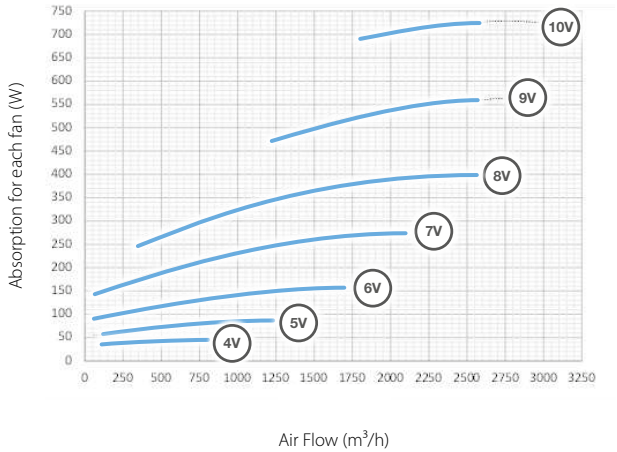


(1) = The power absorption for each fan is useful when fans are working in different conditions.

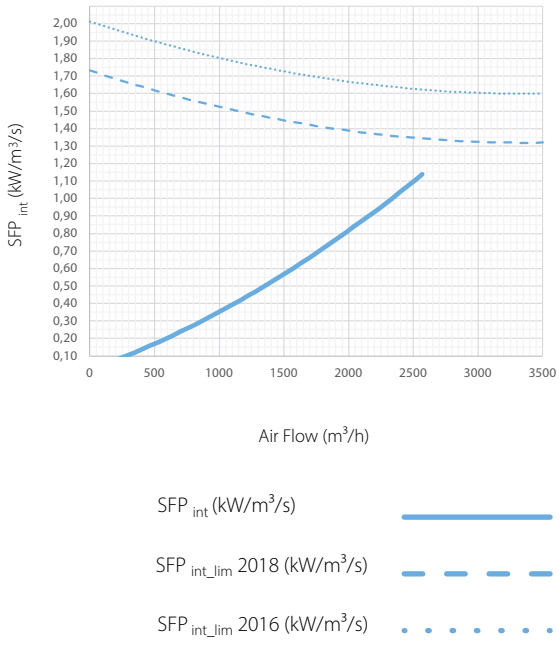
Return/Supply fans
Air flow/Available pressure



Power absorption for each fan (1)



SFP int UE 1253/14



(1) = The power absorption for each fan is useful when fans are working in different conditions.

Supply air conditions: E.A.T. = 20 °C – R.H. = 50%

Model		TAE: +10 °C			TAE: +5 °C			TAE: 0 °C			TAE: -5 °C			TAE: -10 °C		
	Q_v	P_h	ε_t	m_w	P_h	ε_t	m_w	P_h	ε_t	m_w	P_h	ε_t	m_w	P_h	ε_t	m_w
	m^3/h	kW	%	kg/h	kW	%	kg/h	kW	%	kg/h	kW	%	kg/h	kW	%	kg/h
ENY-P1	100	0,30	90,4	0,00	0,46	90,5	0,15	0,62	91,7	0,26	0,79	94,3	0,36	0,97	96,5	0,44
	150	0,44	88,2	0,00	0,67	88,3	0,21	0,90	89,8	0,38	1,17	92,7	0,53	1,44	95,4	0,65
	300	0,85	84,6	0,00	1,28	84,7	0,42	1,74	86,4	0,72	2,26	90,0	1,03	2,81	93,2	1,25
	450	1,25	82,6	0,00	1,87	82,7	0,62	2,55	84,5	1,09	3,34	88,4	1,52	4,16	91,9	1,85
	600	1,63	81,2	0,00	2,45	81,3	0,81	3,35	83,2	1,43	4,39	87,3	2,01	5,49	90,9	2,47
	750	2,01	80,1	0,00	3,03	80,2	0,96	4,13	82,2	1,71	5,43	86,4	2,43	6,80	90,1	3,01
ENY-P2	200	0,60	89,4	0,00	0,90	89,5	0,29	1,22	90,8	0,51	1,57	93,5	0,70	1,93	96,0	0,86
	250	0,74	88,2	0,00	1,11	88,3	0,36	1,50	89,7	0,63	1,94	92,7	0,88	2,40	95,3	1,08
	500	1,42	84,6	0,00	2,13	84,7	0,69	2,90	86,4	1,20	3,77	90,0	1,72	4,69	93,2	2,08
	750	2,08	82,5	0,00	3,12	82,6	1,04	4,25	84,5	1,81	5,56	88,4	2,52	6,93	91,8	3,09
	1000	2,72	81,1	0,00	4,08	81,2	1,35	5,57	83,1	2,38	7,31	87,2	3,35	9,14	90,8	4,12
	1250	3,35	80,0	0,00	5,04	80,1	1,68	6,88	82,1	2,85	9,04	86,3	4,05	11,32	90,0	5,00
ENY-P3	300	0,89	88,4	0,00	1,34	88,5	0,43	1,81	89,9	0,76	2,34	92,9	1,06	2,88	95,5	1,31
	400	1,17	86,9	0,00	1,75	87,0	0,56	2,38	88,5	1,00	3,08	91,8	1,37	3,81	94,6	1,69
	800	2,24	83,4	0,00	3,36	83,5	1,10	4,57	85,2	1,91	5,97	89,0	2,66	7,44	92,4	3,36
	1200	3,27	81,4	0,00	4,92	81,5	1,64	6,71	83,4	2,88	8,79	87,4	3,90	10,99	91,0	4,97
	1650	4,42	79,8	0,00	6,63	79,9	2,20	9,06	81,9	3,88	11,91	86,1	5,31	14,92	89,9	6,57
	2000	5,29	78,9	0,00	7,95	79,0	2,53	10,87	81,0	4,54	14,31	85,4	6,49	17,95	89,2	8,05
ENY-P4	400	1,28	95,3	0,00	1,92	95,4	0,63	2,58	96,1	1,10	3,27	97,5	1,50	3,97	98,7	1,75
	550	1,72	93,5	0,00	2,59	93,6	0,84	3,49	94,5	1,49	4,44	96,4	1,98	5,42	98,0	2,43
	1100	3,31	89,7	0,00	4,97	89,8	1,61	6,72	91,1	2,82	8,65	93,8	3,89	10,64	96,1	4,74
	1700	4,98	87,4	0,00	7,48	87,5	2,45	10,14	89,0	4,34	13,13	92,1	5,87	16,23	94,9	7,25
	2300	6,62	85,8	0,00	9,94	85,9	3,22	13,50	87,5	5,77	17,53	90,9	7,90	21,74	93,9	9,83
	2900	8,23	84,6	0,00	12,36	87,4	4,02	16,81	86,4	6,97	21,88	90,0	9,99	27,19	93,2	12,09

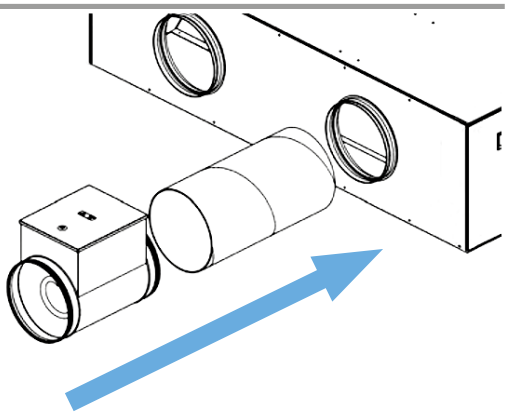
LEGEND:
TAE = Outside air temperature.
Q_v = Supply air flow rate.
P_h = Heat power recovered by supply air.
ε_t = Heat recovery efficiency with balanced air flow rates.
m_w = Condensate generation.

FORMULAS:

$$\varepsilon_t = \frac{2980\ P_h}{Q_v\ (t_i - TAE)}$$

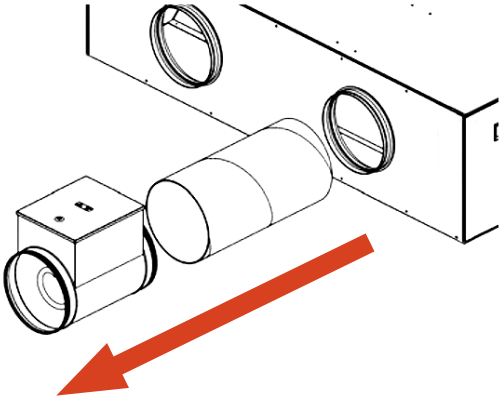
BEP **Antifreeze electric heater**

- Ducted electric heater
- IP 43
- Doubled anti-condensate protection
- PWM control

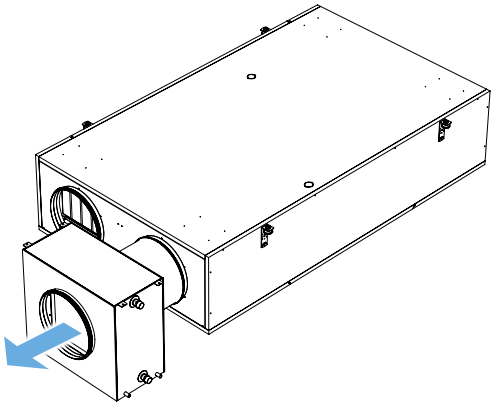


BER **Post-heating electric heater**

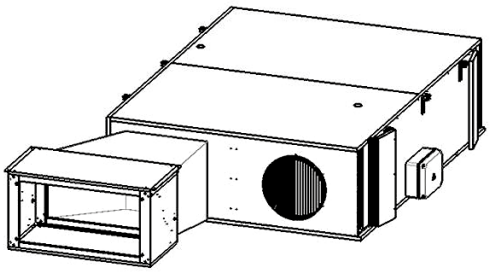
- Ducted electric heater
- IP 43
- PWM control



BAE **Water coil**

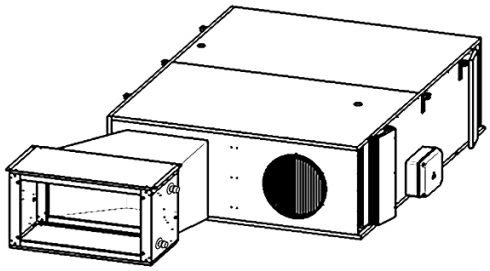


SFE-DP **Auxiliary section with pre-filter and electrostatic filter**



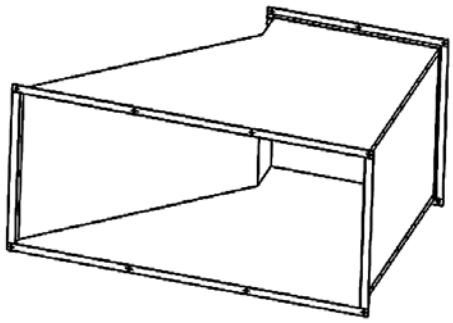
SBF **Auxiliary cooling section with 4 row-coil**

(for horizontal installations only)



ENP **Connecting duct section**

made from galvanised plate, insulated inside with closed cell polyethylene foam.



T-EP **Wall control (mandatory)**

- Nominal speed setting fan supply
- Nominal speed setting fan discharge
- Time setting
- Parameters of operation
- Control fan speed mode
- Manual setting
- Weekly program
- Automatic setting (in case of connection with a CO2-RH external sensor)
- Post heating/cooling setting mode
- Visualization of the operative parameters.

04/2023

SABIANA
IL CLIMA AMICO

A company of Arbonia Group
ARBONIA

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