



**ESENSA PX FLEX**

**Swegon** 

# The easy choice

The ESENSA PX Flex air handling unit is a standardised unit that can be easily customised thanks to a number of plug-and-play options and accessories.

Suitable for light commercial applications, ESENSA PX Flex is designed for moderate airflows up to 4630 m<sup>3</sup>/h (1286 l/s). To ensure high quality and meet industry standards, the range is Eurovent certified.



## FLEXIBILITY

The ESENSA PX Flex has been specifically designed to be flexible in terms of installation possibilities. It has been configured to be placed vertically or horizontally indoors, but also horizontally outdoors thanks to its optional roof.

This makes a total of 3 different installation options with a single ventilation unit.

## UNIT CASING

The unit is made of double casing panels with prepainted steel RAL 7016 on the outer skin and galvanised steel for the inner panel. The insulation is composed of mineral wool panels 30mm or 50 mm (ESENSA PX Flex 20).

## FANS

ESENSA is equipped with high efficiency aluminium fans for most sizes, but with composite impellers for ESENSA PX Flex 05.

The fan motor is of EC type (electronically commutated) with integrated controller and the enclosure class is IP 54. The efficiency meets the requirements of ErP2018. The fans are dynamically balanced according to ISO 1940, class G6.3.

## AIR FILTERS

All ESENSA PX Flex units are equipped with high efficiency mini pleated filters. The function of the filters is to keep both the air and the internal components clean.

Standard for supply air side are compact filters of Class ISO ePM1 60%(F7) while compact ISO ePM10 50% filters (M5) are standard for the exhaust air side.

## SUMMER NIGHT COOLING

The lower temperature at night can be used to cool down the building. Thanks to the bypass section, fresh outside air can go through the bypass to cool down the rooms. The quantity of incoming air can be adapted by modulating the bypass opening.

This reduces the cooling load during the first hours of the day, avoiding use of a potential cooling coil and thus offering cost savings.

## ANTIFROST PROTECTION

**Disbalanced airflow:** supply airflow modulation to prevent freezing while exhaust airflow is kept constant.

**Modulating bypass:** The antifrost protection is achieved by modulating the cold airflow inside the heat exchanger.

**Electrical preheater:** Modulating electrical coil power to preheat outside air.

## INTERNAL HEATERS

The ESENSA PX Flex units can be supplied with internal electrical preheating and post-heating. The preheating system prevents freezing in the counterflow heat exchanger, and the post-heating function ensures a comfortable indoor climate. The heaters are delivered separately and can easily be installed in the unit on the installation site. The heaters are regulated so that constant temperature is maintained.

## EXTERNAL HEATERS/COOLERS

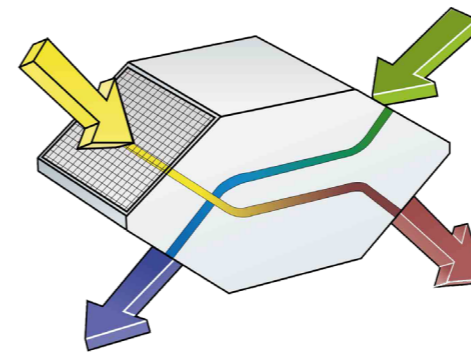
The ESENSA units can be configured with non-isolated external heaters/coolers (direct expanding DX) or with non-isolated external water based cooler.

Its output temperature can be adjusted in order to maintain a constant supply air or constant extract air temperature. The waterborne unit is supplied as option with a 3-way valve option controlled by the TAC control unit. The TAC control can also interact with an heat pump via 0-10V signal to control the power needed and can manage a cooling or heating demands.

## INSTALLATION AND MAINTENANCE

With its self-supporting structure and its compact shape, the ESENSA unit has been designed with an optimised footprint to facilitate installation and transportation within the building.

The doors have been designed for easy access to the internal components, which facilitates easy replacement and maintenance of various parts.



## CONTROLS

The in-house developed TAC control technology allows configuration and control of indoor air quality parameters such as airflow, temperature, CO<sub>2</sub>, etc.

The commissioning of the unit is easily done through a TACtouch (which is an HMI available as an option). To connect the air handling unit to a building management system (BMS), different satellite circuits are required : SAT MODBUS, SAT KNX, SAT MQTT, SAT Ethernet + WiFi, BACnet.

## HMI

The TACtouch interface is a simple and user-friendly touchscreen with an intuitive commissioning and control menu. The touch screen has a 2-metre long connection cable and a magnetic bracket, which means that it can be attached anywhere on the unit. The set values are stored in the memory, which means they are not lost in the event of a power failure.

## PLATE HEAT EXCHANGER

The plate heat exchanger, which is of counterflow type, is made of corrosion resistant aluminium and has a high temperature efficiency of over 90%.

# The correct operating mode is important

Whether the ventilation system is to work with constant pressure, with a constant airflow or be controlled with voltage signal 0-10 V from a control system is dependent on the application and the requirements stipulated by the installation in question. The built-in control system ensures that the operation is always well-balanced.

## Constant airflow

This operating mode is often used in buildings that do not require variable airflows and where the airflow requirement is relatively stable.

## Demand control

Alternatively, the airflow can be adjusted automatically according to the ventilation requirements and the wishes of the users with the aid of the 0-10 V signal input, for example with a CO<sub>2</sub> sensor or using the customer's automated building management system or equivalent.

## Constant pressure

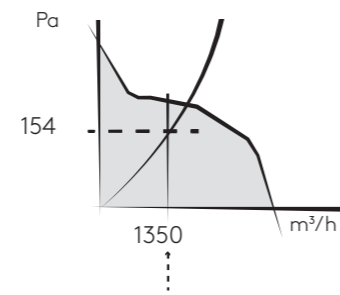
This operating mode is very well suited to premises where you ideally want to have the potential to control the airflow individually in the various rooms. A pressure sensor ensures that the pressure remains constant, even when the airflow is increased or decreased in accordance with the ventilation requirement in the room.

The airflow remains unchanged in all the other rooms, i.e. the ventilation system works constantly within its optimum operating range. Constant pressure operation requires an external pressure sensor.

## THE 3 MAIN OPERATING MODES

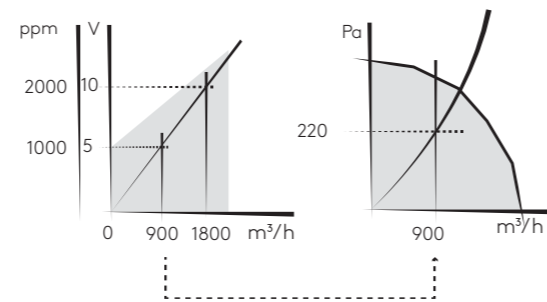
### Constant airflow

The airflow is kept constant, regardless of changes in pressure.



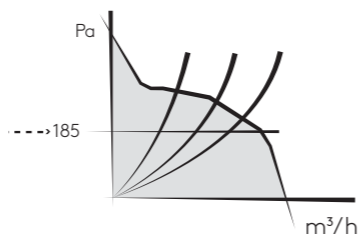
### Demand control

The airflow is a linear function of the control voltage. The airflow is regulated with a control voltage of 0-10 V.

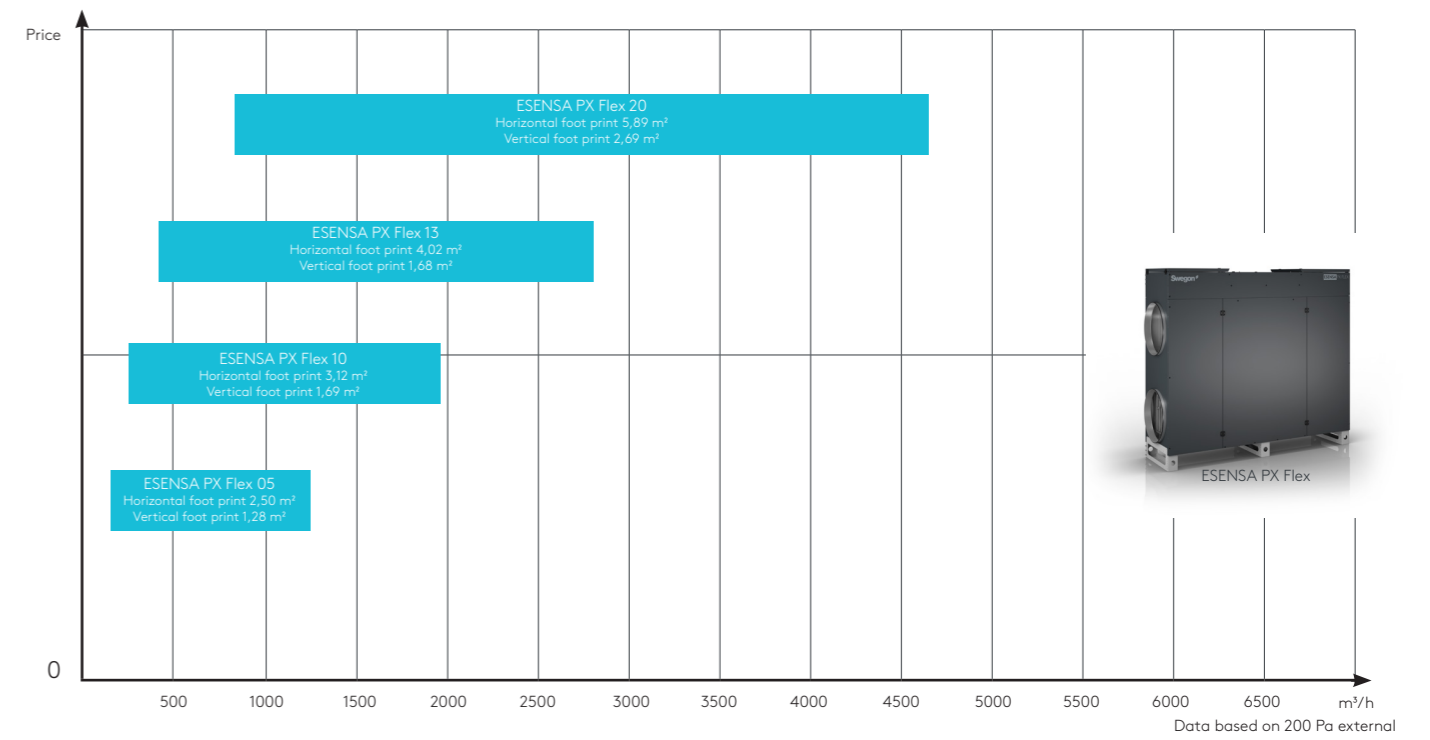


### Constant pressure mode

The pressure is kept constant, regardless of changes in the external pressure. Constant pressure operation requires an external pressure sensor.



# Selection chart

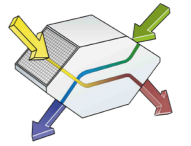
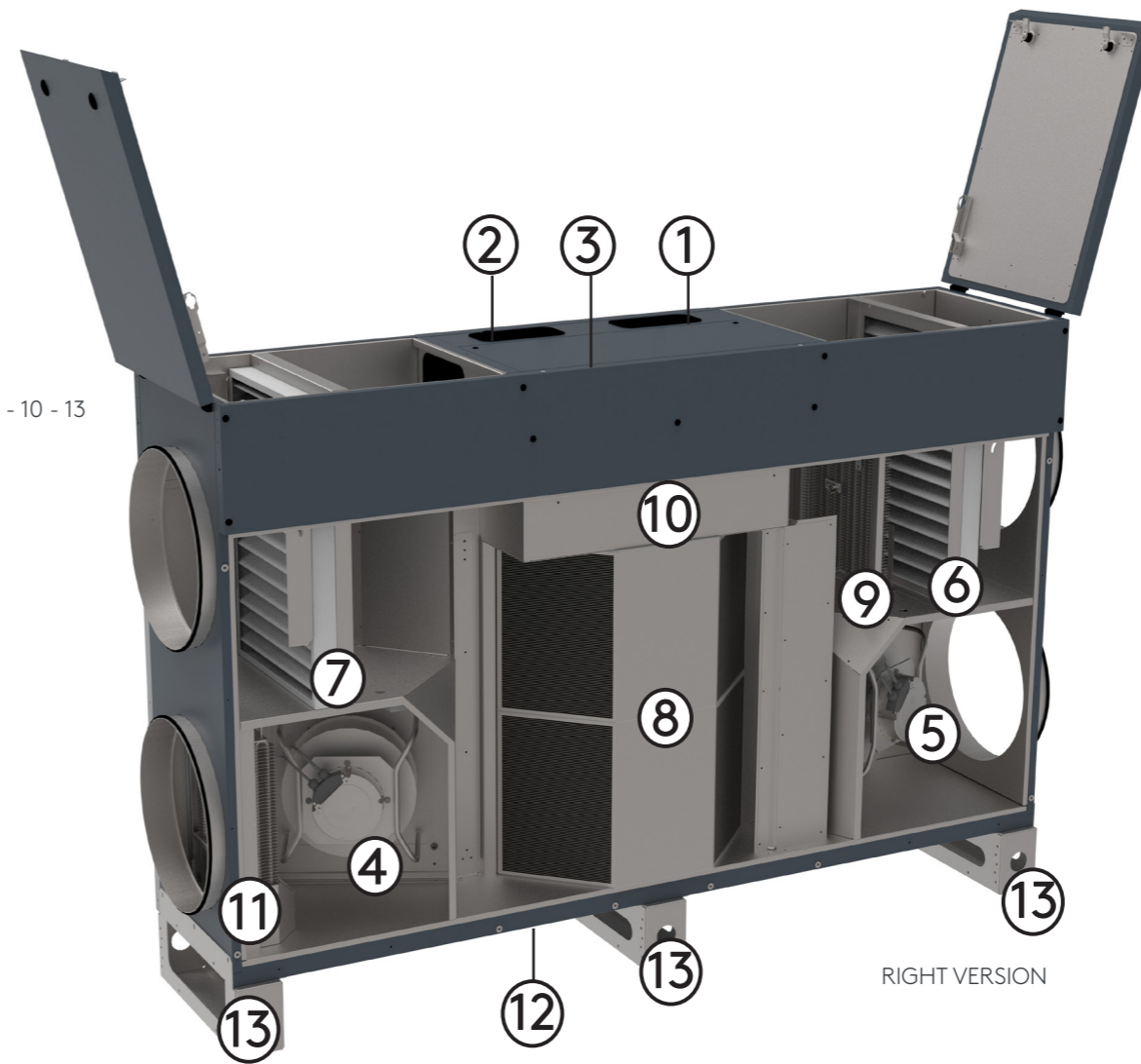


# Components

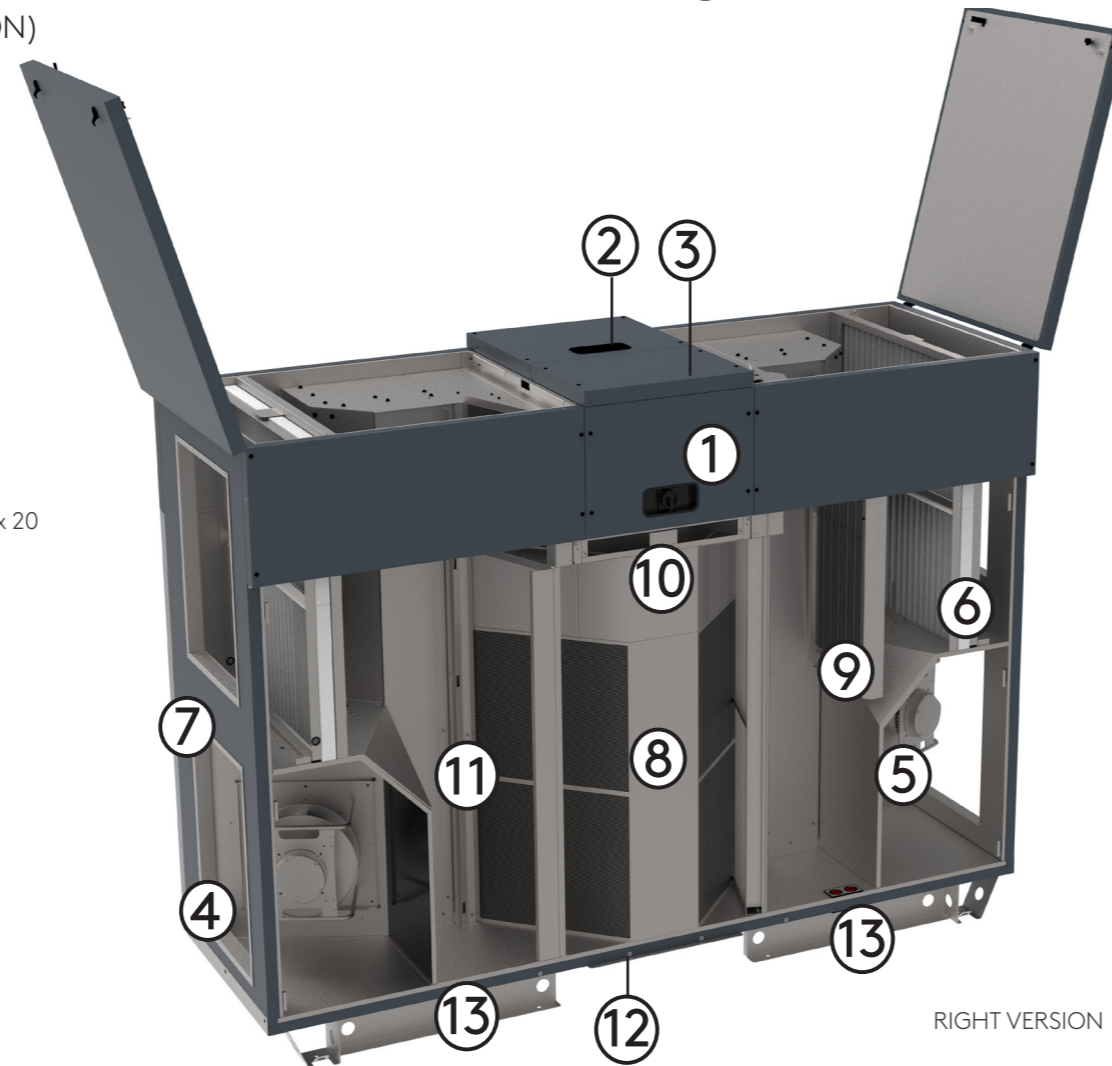
## ESENSA PX Flex Horizontal/Vertical

1. MAIN SWITCH
2. CABLE INLET
3. INTEGRATED ELECTRICAL CABINET
4. SUPPLY AIR FAN
5. EXTRACT AIR FAN
6. SUPPLY AIR FILTER(MINI-PLEATED)
7. EXTRACT AIR FILTER (MINI-PLEATED)
8. HIGH EFFICIENT PLATE HEAT EXCHANGER
9. INTEGRATED PREHEATING ELECTRICAL (OPTION)
10. BYPASS
11. INTEGRATED POST-HEATING ELECTRICAL (OPTION)
12. DRAIN PAN
13. BASE FRAME

ESENSA PX Flex 05 - 10 - 13

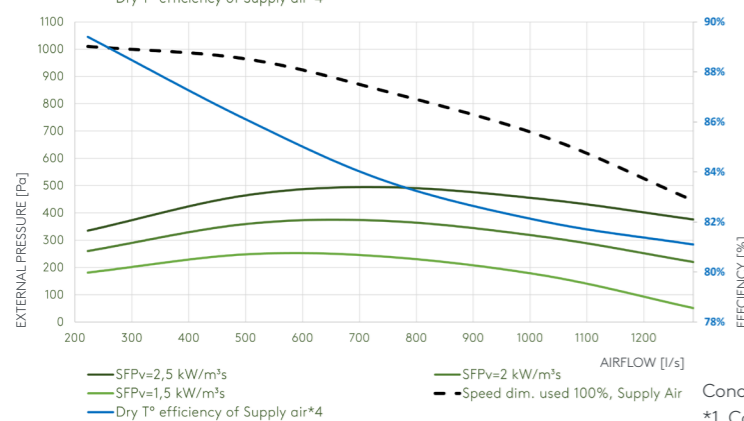
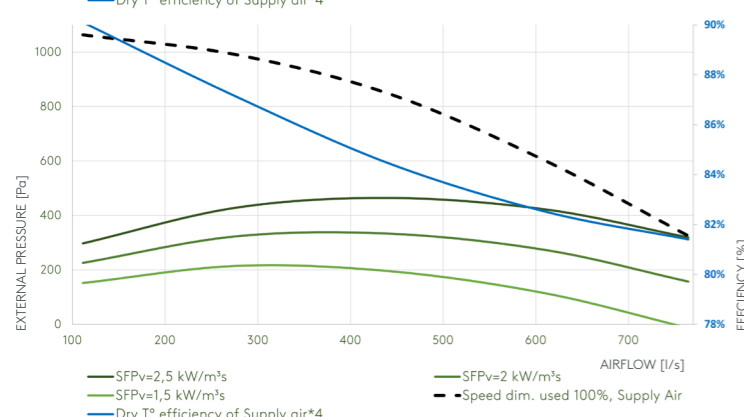
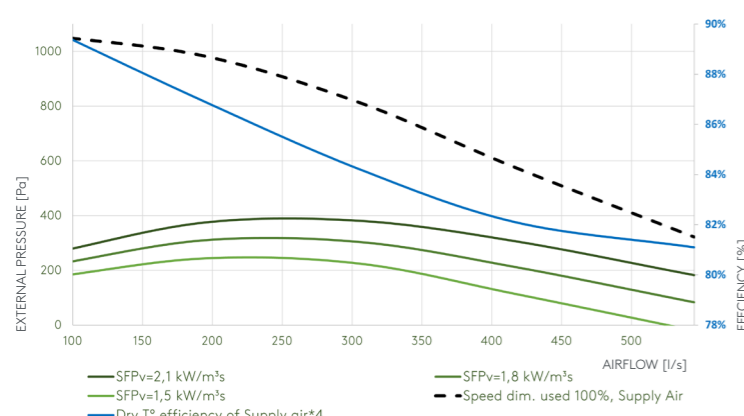
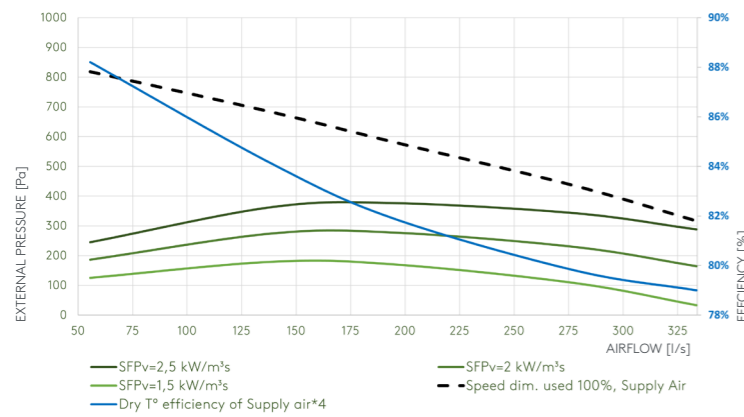
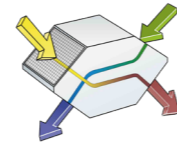


ESENSA PX Flex 20



# Fan diagrams

## ESENSA PX Flex



Conditions :

\*1. Calculated values at 200 Pa of external pressure (150 SUP/50 ODA & 150 ETA/50 EHX)

\*2. SFPv & Absorbed power calculated with clean filters

\*3. Speed dim. is the maximal pressure available with semi-dirty filters

\*4. T° efficiency following EN308

# Options

COMMUNICATION	HMI	MODULES	
ESENSA	TACTouch	BACnet	KNX MODBUS MQTT WIFI-ETHERNET
CIRCULAR-CIRCULAR ADAPTER		Inlet dimensions [mm]	Outlet dimensions [mm]
ESENSA PX Flex 05	Ø315	Ø355	Ø355
ESENSA PX Flex 10	Ø400	Ø500	Ø500
ESENSA PX Flex 13	Ø400	Ø500	Ø500
FLEXIBLE SLEEVE		Internal dimensions [mm]	External dimensions [mm]
ESENSA PX Flex 05	Ø355	Ø355	Ø355
ESENSA PX Flex 10	Ø500	Ø500	Ø500
ESENSA PX Flex 13	Ø500	Ø500	Ø500
ESENSA PX Flex 20	700 x 500	740 x 540	740 x 540
FILTERS		Supply Dimensions [mm]/ (Quantity [pc])	Exhaust Dimensions [mm]/ (Quantity [pc])
ESENSA PX Flex 05	455 x 426 x 47 (1)	455 x 426 x 47 (1)	455 x 426 x 47 (1)
ESENSA PX Flex 10	630 x 566 x 47 (1)	630 x 566 x 47 (1)	630 x 566 x 47 (1)
ESENSA PX Flex 13	630 x 566 x 47 (1)	630 x 566 x 47 (1)	630 x 566 x 47 (1)
ESENSA PX Flex 20	848 x 500 x 47 (2)	848 x 500 x 47 (2)	848 x 500 x 47 (2)
DAMPER with spring return motor		Internal dimensions [mm]	External dimensions [mm]
ESENSA PX Flex 05	Ø355	Ø355	Ø355
ESENSA PX Flex 10	Ø500	Ø500	Ø500
ESENSA PX Flex 13	Ø500	Ø500	Ø500
ESENSA PX Flex 20	660 x 460	740 x 540	740 x 540
ELECTRICAL COIL		PREHEATING COIL POWER	POST-HEATING COIL POWER
ESENSA PX Flex 05	4,5 kW	4,5 kW	4,5 kW
ESENSA PX Flex 10	9 kW	9 kW	9 kW
ESENSA PX Flex 13	12 kW	12 kW	12 kW
ESENSA PX Flex 20	18 kW	18 kW	18 kW
DUCTED COOLING COIL		Direct expansion - DX dimensions [mm]	Water dimensions [mm]
ESENSA PX Flex 05	Ø315	Ø315	Ø315
ESENSA PX Flex 10	Ø500	Ø500	Ø500
ESENSA PX Flex 13	Ø500	Ø500	Ø500
VEX ROOF Horizontal installation only		Dimensions [mm]	
ESENSA PX Flex 05	2.270 x 1.370		
ESENSA PX Flex 10	2.420 x 1.550		
ESENSA PX Flex 13	2.420 x 2.000		
ESENSA PX Flex 20	3.060 x 2.305		

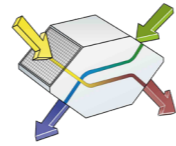
FEET KIT: This kit is used to change the unit from a vertical to a horizontal version (150 mm height).

OUTDOORS HOODS: This accessory protects air inlets and outlets from bad weather.

ADDITIONAL FEET: This extension allows direct 90° elbow connection to the room below and also allows an extra snow protection for outdoor flat roof application (200 mm height).

DEFROST KIT: This accessory prevents the freezing of the plate heat exchanger.

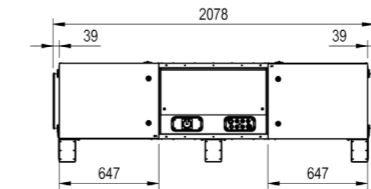
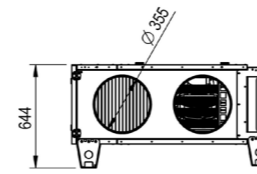
# General overview ESENSA PX Flex



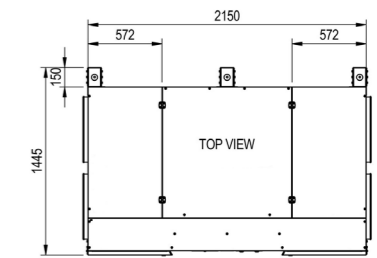
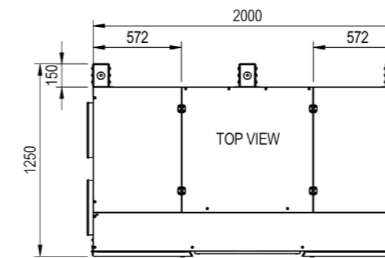
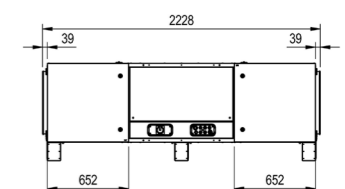
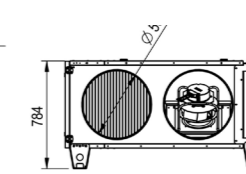
	ESENSA PX FLEX 05	ESENSA PX FLEX 10	ESENSA PX FLEX 13	ESENSA PX FLEX 20
● Standard equipment ○ Available as option, needs to be assembled by the installer on site - Not available				
Airflow m <sup>3</sup> /h   min-max (Ecodesign)	200 - 1.200	300 - 1.960	400 - 2.750	800 - 4.630
Airflow l/s   m <sup>3</sup> /s   min-max (Ecodesign)	56 - 333   0,06 - 0,33	83 - 544   0,08 - 0,54	111 - 764   0,11 - 0,76	222 - 1.286   0,22 - 1,29
Weight w/o option	215 kg	290 kg	360 kg	680 kg
Dimensions Depth/Width/Height (vertical)	494/2.000/1.250 mm	634/2.150/1.445 mm	634/2.150/1.870 mm	956/2.800/2.003 mm
Foot print (horizontal   vertical)	2,50   1,29 m <sup>3</sup>	3,11   1,69 m <sup>3</sup>	4,02   1,69 m <sup>3</sup>	5,61   3,10 m <sup>3</sup>
Base frame height	150 mm	150 mm	150 mm	150 mm
Mineral wool panel thickness	30 mm	30 mm	30 mm	50 mm
Heat exchanger	Plate heat exchanger	Plate heat exchanger	Plate heat exchanger	Plate heat exchanger
Filter type	Mini-pleated	Mini-pleated	Mini-pleated	Mini-pleated
Filter class Supply/Exhaust	ePM1 60%/ePM10 50%	ePM1 60%/ePM10 50%	ePM1 60%/ePM10 50%	ePM1 60%/ePM10 50%
Fan impeller	Composite	Aluminium	Aluminium	Aluminium
Installation	Indoors/Outdoors	Indoors/Outdoors	Indoors/Outdoors	Indoors/Outdoors
Operating range	- 20°C ... + 40°C	- 20°C ... + 40°C	- 20°C ... + 40°C	- 20°C ... + 40°C
Power connection w/o option Max current	1 x 230 V 4,9 A	1 x 230 V 6,9 A	3 x 400 V + N 4,0 A	3 x 400 V + N 6,0 A
Recommended fuses	D6A - 10kA -AC3	D10A - 10kA -AC3	D6A - 10kA -AC3	D10A - 10kA -AC3
Communication TACtouch	○	○	○	○
Communication modules BACnet, Modbus RTU, KNX, MQTT, Ethernet-WiFi	○	○	○	○
Defrost kit	○	○	○	○
Dampers	○	○	○	○
IRS adapter	-	-	-	○
Circular-circular adapter	○	○	○	-
Flexible sleeves	○	○	○	○
Roof	○	○	○	○
Outdoor hoods	-	-	-	○
Internal electrical preheater	○	○	○	○
Internal electrical postheater	○	○	○	○
Non isolated external DX coil	○	○	○	○
Non isolated external water coil	○	○	○	○
Additional feet	○	○	○	○
EN1886	T3/TB3/L2/D2/F9	T3/TB3/L2/D2/F9	T3/TB3/L2/D2/F9	T2/TB3/L2/D2/F9
Certification	Eurovent	Eurovent	Eurovent	Eurovent
Unit version	Left/Right	Left/Right	Left/Right	Left/Right

# Technical drawings (mm)

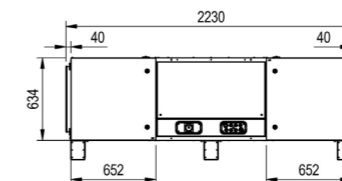
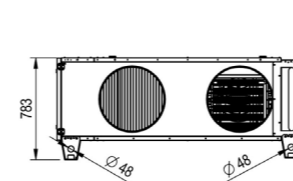
ESENSA PX Flex 05



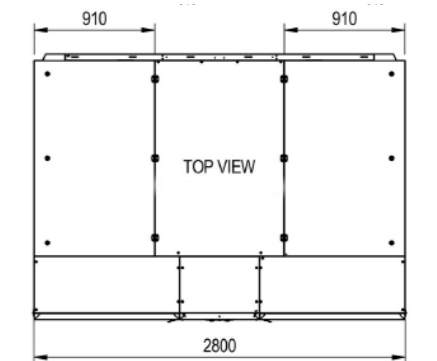
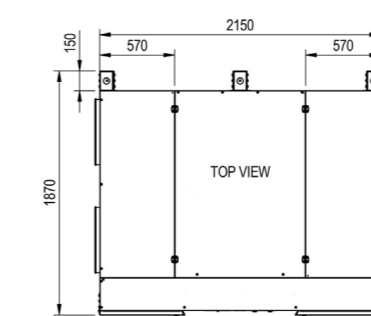
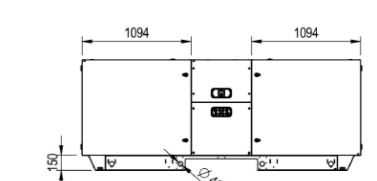
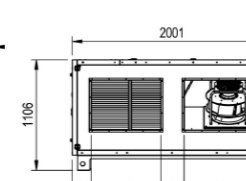
ESENSA PX Flex 10



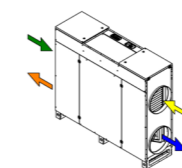
ESENSA PX Flex 13



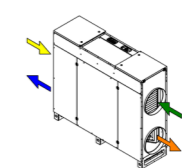
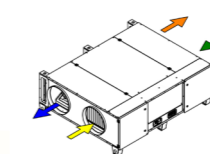
ESENSA PX Flex 20



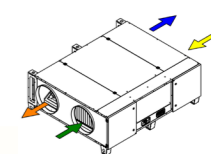
1. Outdoor air
2. Extract air
3. Exhaust air
4. Supply air



LEFT VERSION



RIGHT VERSION



Feel good **inside**



**Swegon** 