

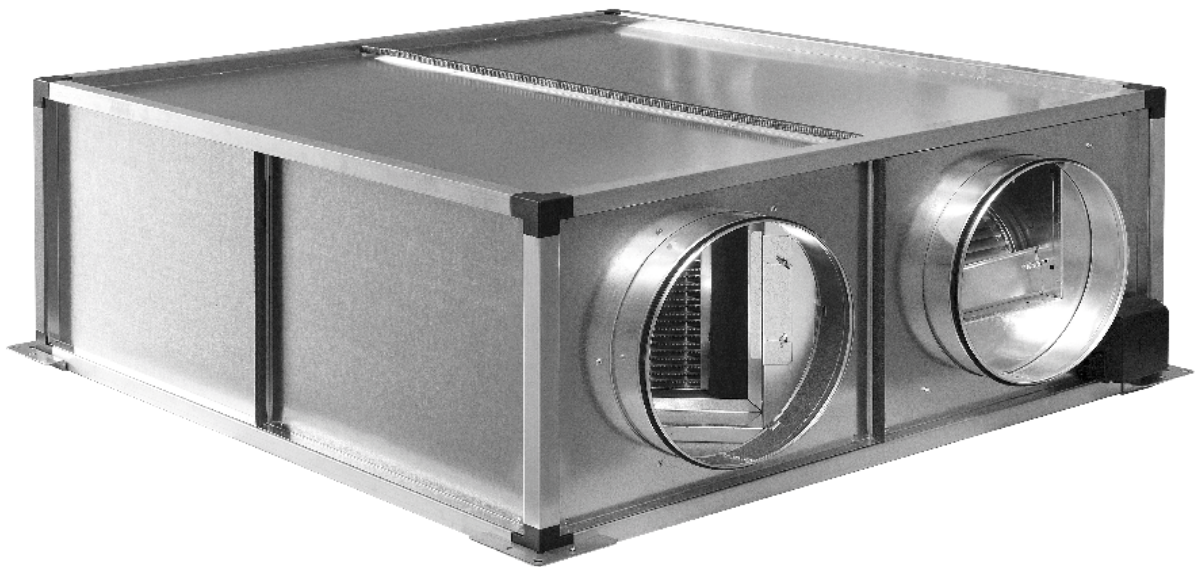


# ENERGY BOX

Recuperadores de calor

Heat recovery units

Recupérateurs de chaleur



*Manual de instalación. Instrucciones de uso  
Installation manual. Instructions for use  
Instructions de montage et d'utilisation*





## INDEX

1. Introduction	13
2. Safety regulations and “CE” marking	13
3. General instructions	13
4. Unit labelling	13
5. Handling	13
6. Instruction symbols	13
7. Installation	14
7.1. Introduction	14
7.2. Maintenance space	15
7.3. Filter installation	16
7.4. Connections	17
7.4.1. Piping and duct connections	17
7.4.1.1. Connection with air duct	17
7.4.1.2. Condensate drainage	17
7.4.2. Connecting to the mains	17
7.4.2.1. Connecting the motors	17
7.4.3. Evacuation of condensate	18
8. Start up	19
9. Inspection, maintenance and cleaning	19
9.1. Filters	19
9.2 Heat exchanger	19
9.3. Drainpipe for condensate	20
10. Operation anomalies	20

## 1. INTRODUCTION

Thank you for purchasing this appliance. It has been manufactured in full compliance with applicable safety regulations and **EU** standards. Please read this instruction book carefully, as it contains important information for your safety during the installation, use and maintenance of this product.

Keep it at hand for future reference.

Please check that the appliance is in perfect condition when you unpack it, as all factory defects are covered by the **S&P** guarantee.

## 2. SAFETY REGULATIONS AND “CE” MARKING

**S&P** technicians are firmly committed to research and development of ever more efficient products and in compliance with current safety regulations.

The instructions and recommendations given below reflect current regulations, principally regarding safety, and therefore are based on compliance with general regulations. Therefore, we recommend all people exposed to hazards to strictly follow the safety regulations in force in your country. **S&P** will not be held liable for any possible harm or damage caused by non-compliance with the safety regulations, as well as caused by modifying the product.

The CE mark and the corresponding declaration of conformity are proof of the product’s conformity with current **EU** regulations.

## 3. GENERAL INSTRUCTIONS

A hazard analysis of the product has been carried out as provided in the Machine Directive. This manual contains information for all personnel exposed to these hazards, with the aim of preventing possible harm or damage due to faulty handling or maintenance.

All maintenance operations (ordinary and extraordinary) must be carried out with the machine switched off and the electrical power supply disconnected.

To avoid a possible accidental start up, place a warning notice on the electrical control panel with the following text:

**“Attention: control disconnected for maintenance operations”**

Before connecting the power supply cable to the terminal strip, make sure the mains voltage corresponds to the voltage indicated on the specifications plate of the unit.

Regularly check the product labels. If, due to the passing of time, they are no longer legible, they must be replaced.

## 4. UNIT LABELLING

The machine may come with several pictogrammes that must not be removed. These signs are divided into:

- **Prohibition signs:** Do not repair or adjust when in operation.
- **Danger signs:** Warning of the presence of live elements inside the container bearing the sign.
- **Identification signs:** CE card, indicating product information and manufacturer’s address. The **CE** mark indicates the product’s conformity with **EEC** standards.



Danger signs

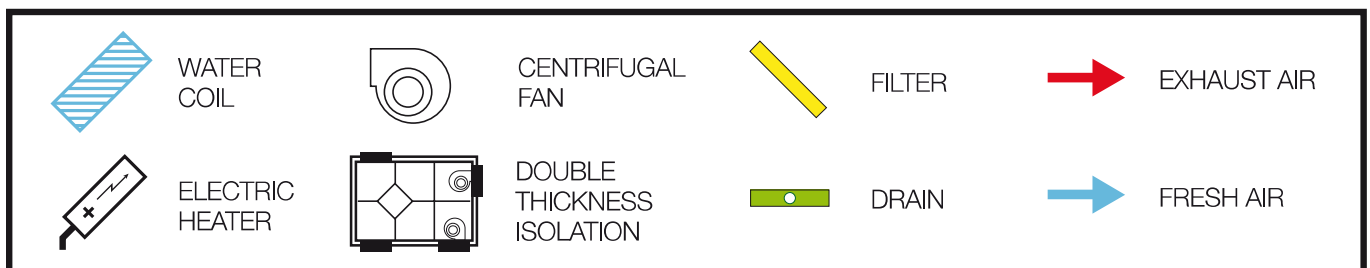


Prohibition sign

## 5. HANDLING

Before installing, make sure that the device to be used for moving and/or raising the product has sufficient capacity.

## 6. INSTRUCTION SYMBOLS



## 7. INSTALLATION

### 7.1. INTRODUCTION

Models size 500, 900, 1200, 1900, 2400 and 3300, are designed to be installed hanging from the ceiling or located inside a false ceiling. As fasteners have four metal abutments, one on each lower corner. Using studded rods ( $\varnothing$  6 mm or  $\varnothing$  8 mm), it can be secured to the ceiling and levelled.

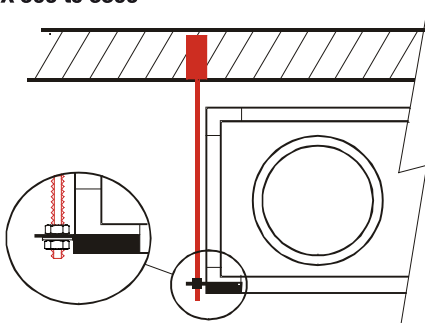
Models size 4400 and 5200 take feet and central supports. Shall be installed on a flat surface and can not hang. In order to distribute the weight of the assembly and reduce flexing of the structure, the units are mounted over one or two supports (depending on model) located in the central part of the recovery unit. These supports must be in contact with the ground or with a flat surface. It is essential that the weight of the equipment is distributed between all points of support to prevent deformation.

**The installer must make sure that the ceiling structure and the securing elements can bear the weight of the device, taking into account that it is a dynamic load.**

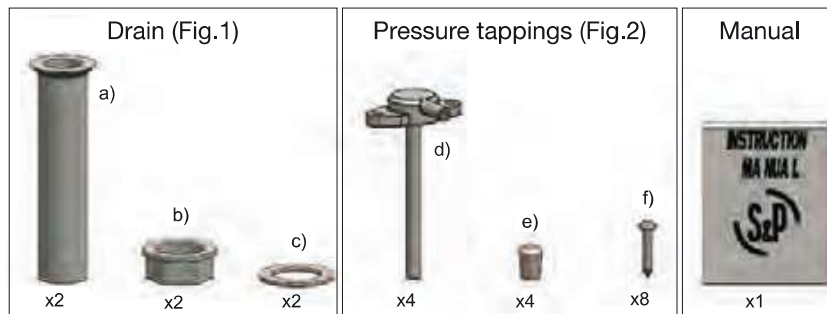
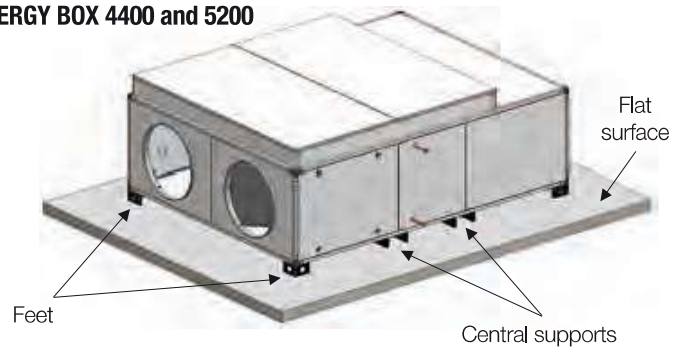
Once the device has been fitted in the correct position, the installer must connect it with the air duct, the mains connection, both for the motors, and for the batteries, if applicable, by means of the terminals in the terminal connection box and the connection with the hot water closed circuit for the water battery, if applicable. The tube for evacuating condensates will be secured according to the instructions in the corresponding section.

To prevent the transmission of vibrations from the unit to the rest of the installation, it is necessary that the installer use specific isolation elements, such as antivibration devices in the supports, flexible sleeves between the unit and the ducts, and flexible couplings between the water connections and the pipelines.

#### ENERGY BOX 500 to 3300



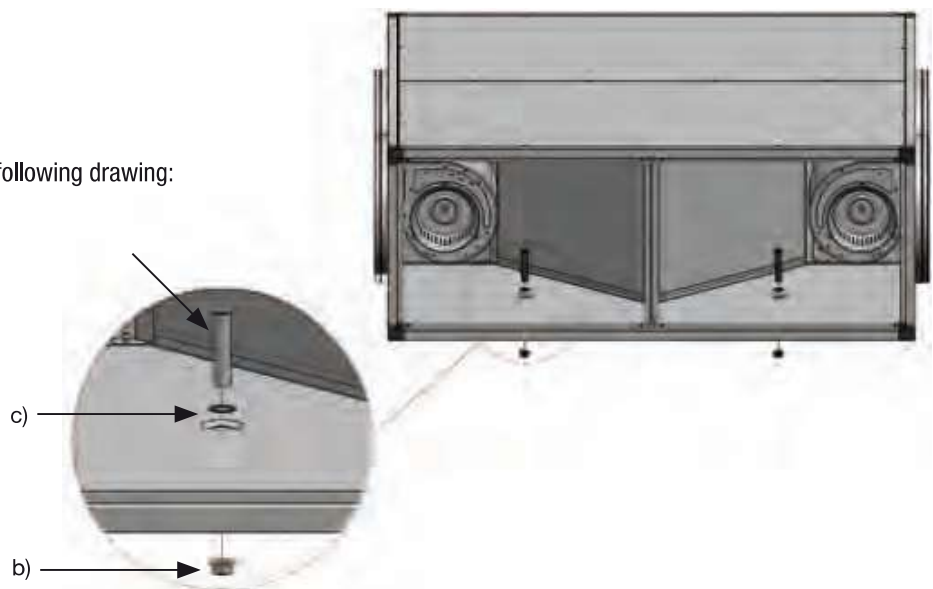
#### ENERGY BOX 4400 and 5200



#### Drain (Fig.1)

- a) Drainpipe
- b) Female screw
- c) Joint ring

Install the two drains as indicated in the following drawing:



**Pressure tappings (Fig.2)**

Both pressure tappings (d) as the caps (e) and the screws (f) necessary for installation are supplied in a plastic bag.

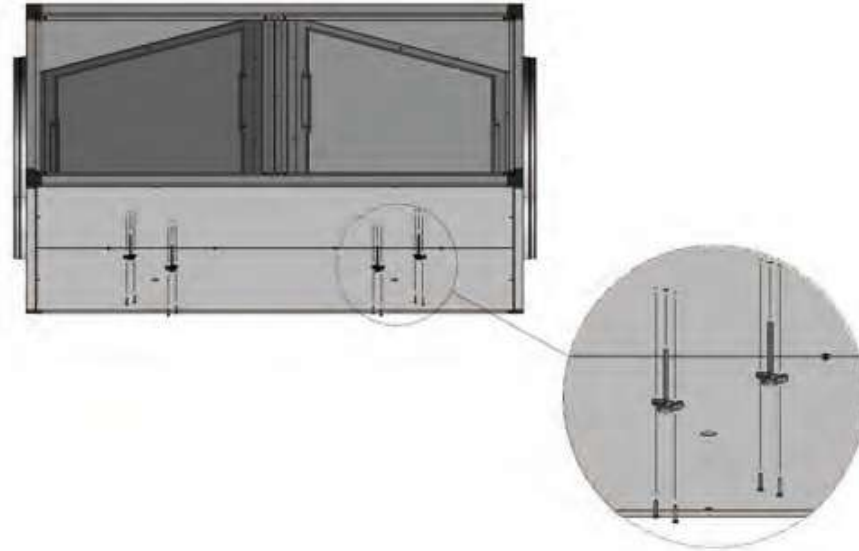
These pressure tappings (d) should be installed on the panel in the area of filters. Using the pre drilled holes.

The pressure tappings (d) have to be installed. If the tappings (d) are not used, the holes have to be closed with the plastic caps (e) to avoid leakages.

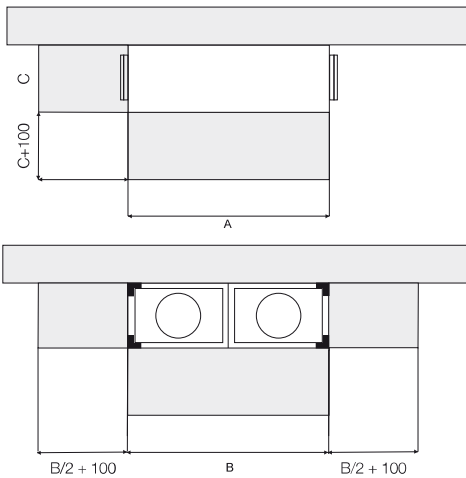
d) Pressure tapping

e) Cap

f) Screw: to fix the pressure tappings



**7.2. MAINTENANCE SPACE**



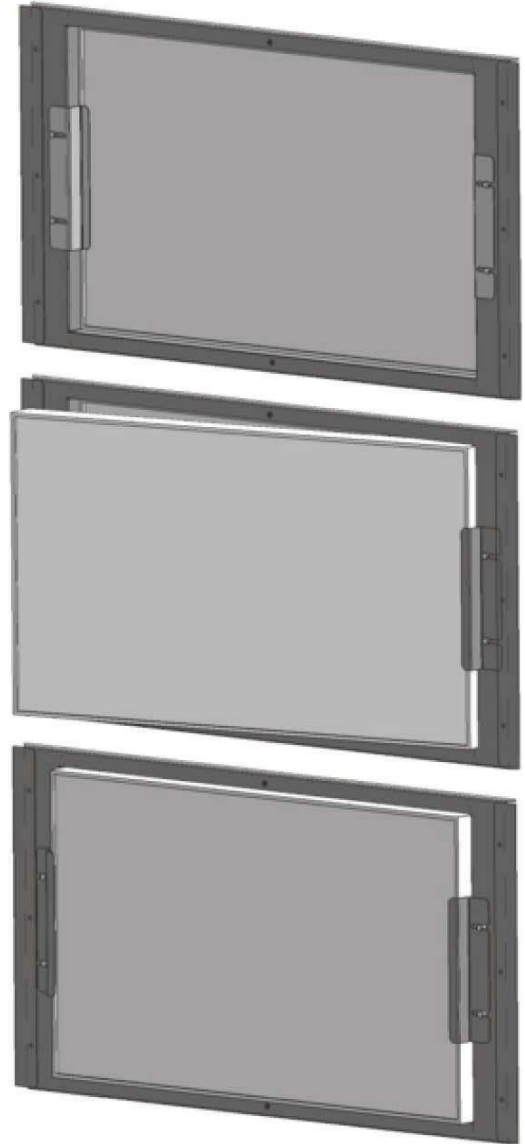
MODEL	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	Ø (mm)
ENERGY BOX 500	650	650	360	180	178	200
ENERGY BOX 900	850	850	360	180	228	250
ENERGY BOX 1200	1050	1050	500	250	278	315
ENERGY BOX 1900	1150	1150	500	250	303	355
ENERGY BOX 2400	1300	1300	530	265	340	355
ENERGY BOX 3300	1500	1500	530	265	390	400
ENERGY BOX 4400	1600	1600	600	300	415	450
ENERGY BOX 5200	2000	2000	650	325	515	500

### 7.3. FILTER INSTALLATION

The heat recovery is supplied with mounted filters. On the extract air side, it is possible to install two filters in one filter holder, to create the desired combination: G4+F7, F7+F9, M5+F7, etc... To mount an additional filter, follow this procedure:

#### Installation two filters

1. Loosen the two sets of filter support brackets.
2. Loosen the two sets of filter support brackets.
3. Fit the second filter ensuring that the direction of air is correct (indicated in the frame of the filter).
4. Ensure that the first filter the air passes is the lower grade of filtration.
5. Once both filters have been through fitted place the filter supports symmetrically and tighten the 4 brackets.



## 7.4. CONNECTIONS

### 7.4.1. PIPING AND DUCT CONNECTIONS

#### 7.4.1.1. CONNECTION WITH A R DUCT

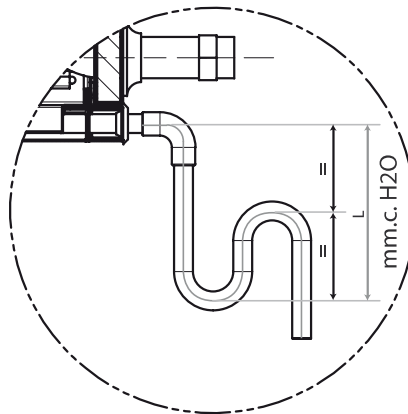
The fans are always blowing out with regard to the machine.  
The fans must not be positioned in a manner different to the one indicated.

#### 7.4.1.2. CONDENSATE DRAINAGE

The units are supplied with 2 drains (one for each circuit). For added security it has to connect two drains to the condensate discharge pipe. This connection must be made through a pipe of 22 mm of inner diameter and a flange for secure fixation.

##### Drainage system

- To ensure the removal of draining condensate from the tray a siphon must be installed with pressure head difference in mmWG greater than the pressure provided by the fan.



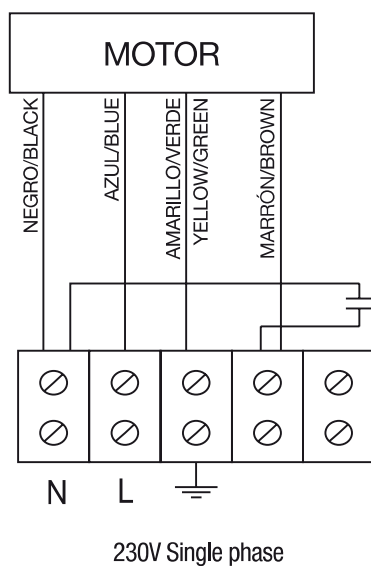
- The horizontal sections should have a minimum slope of 2%.

### 7.4.2. CONNECTING TO THE MAINS

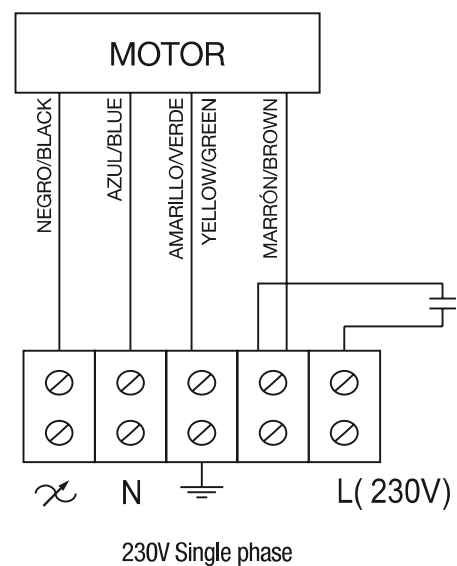
#### 7.4.2.1. CONNECTING THE MOTORS

Models 500 and 900

##### FACTORY WIRING FOR DIRECT SUPPLY



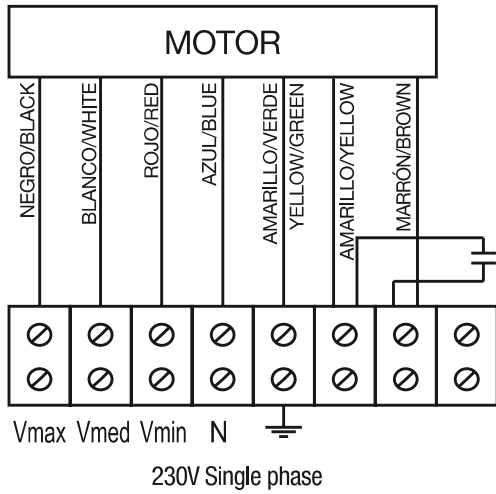
##### WIRING WHEN USED WITH A 3 WIRES VOLTAGE REGULATOR



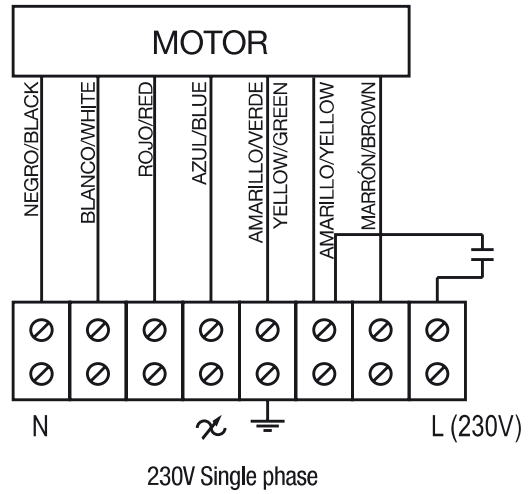


**Models 1200, 1900, 2400 and 3300**

**FACTORY WIRING  
FOR DIRECT SUPPLY**

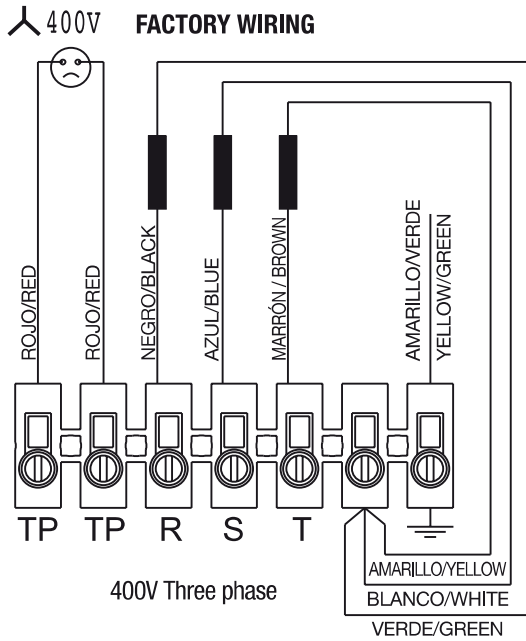


**WIRING WHEN USED WITH A  
3 WIRES VOLTAGE REGULATOR**

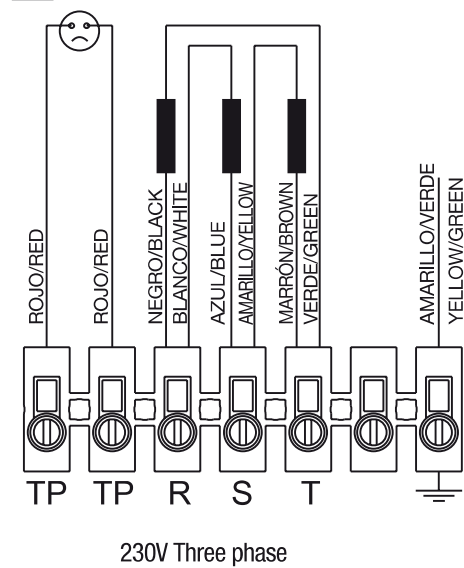


**Models 4400 and 5200**

**400V FACTORY WIRING**



**230V**



**7.4.3. EVACUATION OF CONDENSATE**

The equipment is supplied with two drains (one for each circuit). **For increased security both drains should be connected to the condensate drain.** This connection should be made with minimum 22 mm diameter tube with suitable connectors for safe operation. A siphon must be connected to prevent condensate return.

## 8. START UP

Before starting, it is recommendable to carry out the following verifications:

- Make sure there are no foreign bodies inside the device and that all components are secured on their positions.
- Ensure manually that the fan does not touch the walls.
- Make sure that the inspection hatch is closed.

### ATTENTION:

**If the outlets of the fan are not ducted an adequate protection net must be fitted.**

**Check the earth connection.**

**The electrical connection should be made by qualified personnel.**

## 9. INSPECTION, MAINTENANCE AND CLEANING

### 9.1. FILTERS

The Pro-Reg control incorporates a function of supervision of the filters clogging. When the filter replacement is required, the display shows the exact location of the filters is identified by a label in the profile that indicates the type of filter and its characteristics.



#### FALLING OBJECTS

**By loosening the screws that hold the panels, they will be released. In units installed in ceiling, pay special attention to this operation to prevent the fall of a panel. During the maintenance signaling the area below the heat recovery unit and prevent personnel access to it.**

- **Models ENERGY BOX 500 to 3300.** The access to filters can be done by the bottom panel and by the lateral panel.
- **Models ENERGY BOX 500 to 3300.** The access to filters can be done by the top panel and by the lateral panel.



Replacement filters are delivered in a plastic bag for extra protection. Remove the bag before installing into the unit. Before installing the filter make sure that the airflow direction is correct. (indicated by arrow in the filter).

### 9.2 HEAT EXCHANGER

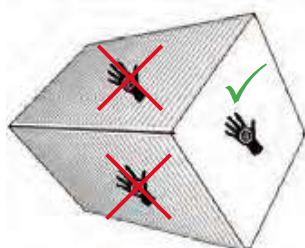
The access to the heat exchanger is performed by the bottom (models 500 to 3300), for the top part (models 4400 and 5200) and for lateral part (vertical models). Using a screwdriver, remove the access panels to the heat exchanger.

To release the heat exchanger, loosen the screw that fix the heat exchanger to the internal structure.



#### FALLING OBJECTS

**By loosening the screws that hold the panels, they will be released. In units installed in ceiling, pay special attention to this operation to prevent the fall of panel. During the maintenance signaling the area below the heat recovery unit and prevent personnel access to it.**



Not manipulate the heat exchanger for the finned area.

### 9.3. DRAINPIPE FOR CONDENSATE

Regularly inspect the drainpipe for condensates to make sure it is not blocked, if this is the case, remove the obstruction.

## 10. OPERATION ANOMALIES

ANOMALY	CAUSE	SOLUTION
Difficult to start.	Reduced power supply voltage. Insufficient static torque of motor.	Check motor specification plate. Close the air inlets to reach the maximum speed. Change the motor if necessary. Contact the <b>S&amp;P</b> Post-Sales service.
Insufficient airflow. Insufficient pressure.	Blocked pipes and/or inlet points closed. Fan obstructed. Filter overloaded. Insufficient rotation speed. Exchanger package blocked.	Clean inlet tubes. Clean fan. Clean or replace filter. Check power supply voltage. Clean the exchanger.
Reduction in performance after a period of acceptable operation.	Leaks in the circuit before and/or after the fan. Damaged roller.	Check the circuit and restore original conditions. Check the impeller and if necessary, replace with an original spare part. Contact the S&P post sales service.
New air temperature too cold.	Outside air -5° C or less.	Insertion of post-heating resistances.
Insufficient performance of the exchanger	Fins dirty.	Clean the exchanger.
Formation of frost on the exchanger.	Outside air below -5° C.	Insertion of post-heating devices (anti-ice).
Air pulsation.	Fan working in flow conditions almost 0. Flow instability, obstruction or bad connection.	Modification of the circuit and/or replacement of the fan. Clean and/or readjust the inlet channels. Operate the electronic regulator, increasing the minimum speed (insufficient voltage). Contact the S&P post sales service.
There is water inside the unit.	Drain clogged or wrongly dimensioned.	Check if exists a body/object obstructing the passage of water and remove it. Verify that the drain trap exists and is correctly sized according to the instructions of this manual.