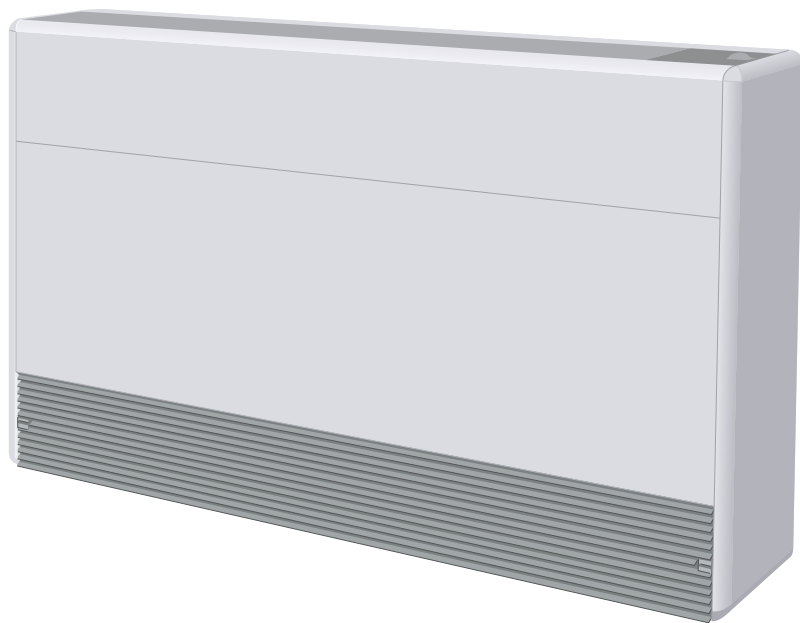


## **AO (V)**

**AOV 15 S**  
**AO 15 GTS**  
**AOV 25 S**  
**AO 25 GTS**  
**AOV 55**  
**AO 55 GT**  
**AOV 85**



**CLIMATISEUR MONOBLOC**  
**A CONDENSATION PAR EAU**


**SINGLE PACKAGED ROOM AIR CONDITIONER**  
**WITH WATER COOLED CONDENSER**

## CE MARKING

This product marked **CE** conforms to the essential requirements of the Directives :

- Low voltage no. 2006/95/EC,
- Electromagnetic Compatibility no. 2004/108/EC.



 NOTE: This symbol mark and recycle system are applied only to EU countries and not applied to the countries in the other area of the world.

Your product is designed and manufactured with high quality materials and components which can be recycled and reused. This symbol means that electrical and electronic equipment, at their end-of-life, should be disposed separately from your household waste.

Please dispose of this equipment at your local community waste collection / recycling centre.

In the European Union there are separate collection systems for used electrical and electronic products.

Please help us to conserve the environment we live in!

## SUMMARY

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## APPLIANCES FILLED WITH R 407 C

### R 407 C

- Fluid R 407 C, as opposed to R22, is not a pure fluid but a blend composed of:
  - 23% R 32 + 25% R 125 + 52% R 134 A.
- The compressors approved for operation with this fluid are filled beforehand with polyalcohol oil. Contrary to mineral oil, it is very hygroscopic: it absorbs the humidity of the ambient air very quickly. This can modify its lubricant properties and lead in time to the destruction of the compressor.

### MAINTENANCE INSTRUCTIONS

- 1 - Never add oil to the appliance; the compressor is filled with polyalcohol oil, a special oil which cannot tolerate the presence of other oils.
- 2 - The instruments used for:
  - filling,
  - pressure measurements,
  - emptying under vacuum,
  - recovering the fluid,must be compatible and only used for the R 407 C fluid.
- 3 - The weight of the refrigerant contained in the storage bottle must be checked constantly. Do not use it from the moment the remaining weight is less than 10% of the total weight.
- 4 - In the case of a new charge:
  - do not use the charging cylinder,
  - use a balance and a dip pipe type R 407 C cylinder,
  - charge the weight of R 407 C as per the value indicated on the unit's identification plate (for "split systems", refer to the installation instructions as the charge must consider the length of the connecting lines),
  - IMPORTANT: see paragraph 3.
- 5 - The charge **must** be undertaken in liquid phase.
- 6 - In case of leakage, do not complete the charge: recover the remaining refrigerant for recycling and perform a total charge.  
Recovery, recycling or the destruction of the fluid must be done in compliance with the laws in force in the country concerned.
- 7 - If the refrigerant circuit is opened, you must:
  - avoid the entry of air into the circuit as much as possible,
  - replace the filter drier.
  - perform the "vacuum operation" at a minimum level of **0.3 mbar (static)**.

## 1- INTRODUCTION

- The equipment must be installed, started-up and maintained by authorised and qualified personnel, in accordance with local rules and professional standards.

### 1.1 - GENERAL SUPPLY CONDITIONS

- Generally speaking, the material is transported at the consignee's risk.
- The consignee must immediately provide the carrier with written reserves if he finds any damage caused during transport.

### 1.2 - VOLTAGE

- Before carrying out any operation, check that the voltage indicated on the unit corresponds to the mains voltage.

### 1.3 - USE OF EQUIPMENT

- This equipment is intended for the air-conditioning of premises and to provide comfort for the personnel.

### 1.4 - CONDITIONS OF USE

- See the specifications in the 10 12 035 instructions, particularly to ensure correct selection of appliance
- Reminder: Water circuit pressure: minimum: 1.5 bar (150 kPa), maximum: 3 bar (300 kPa).

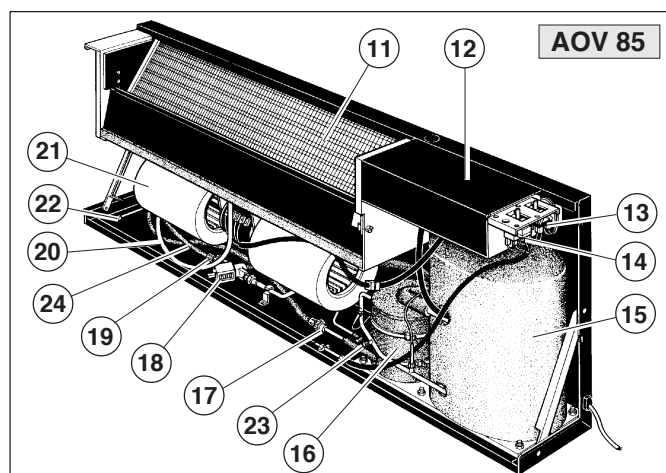
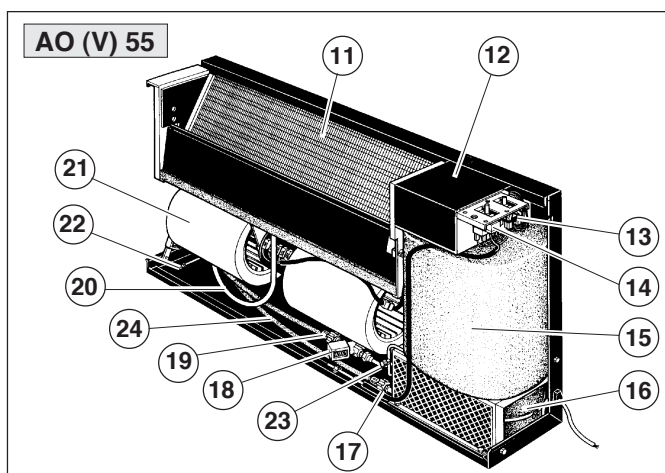
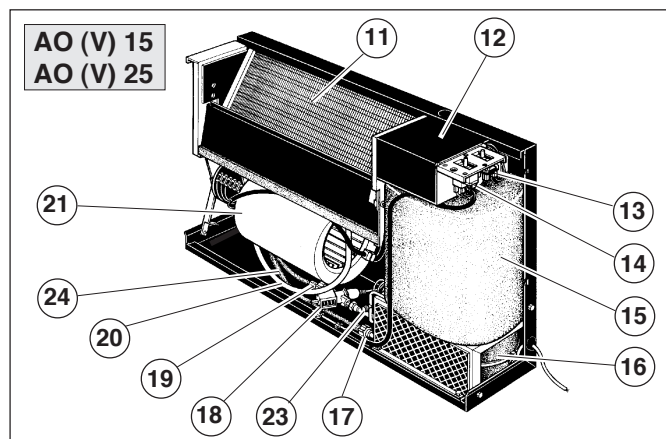
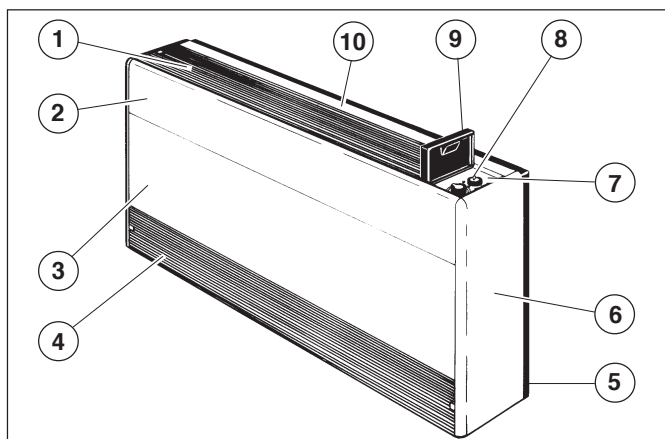
## 2 - PRESENTATION

### 2.1 - DESCRIPTION

- 1 - Discharge grille
- 2 - Removable panel
- 3 - Front panel
- 4 - Inlet grille
- 5 - Rear support
- 6 - Side panel
- 7 - Control panel
- 8 - Control knobs
- 9 - Door
- 10 - Fixed panel

- 11 - Evaporator
- 12 - Electrical box
- 13 - Rotary switch
- 14 - Thermostat
- 15 - Hermetic compressor with sound proofing
- 16 - Insulated water condenser
- 17 - Water inlet
- 18 - Pressostatic valve (for models with town water)

- 19 - Water outlet
- 20 - Condensate drain pipe
- 21 - Fan
- 22 - Pressure tap Low Pressure
- 23 - Pressure tap High Pressure
- 24 - Flexible water pipes (supplied as accessories)
- 25 - Power supply cable (except models GTS and GT)



#### Materials:

- Plastic coated sheet body.
- Steel grids.

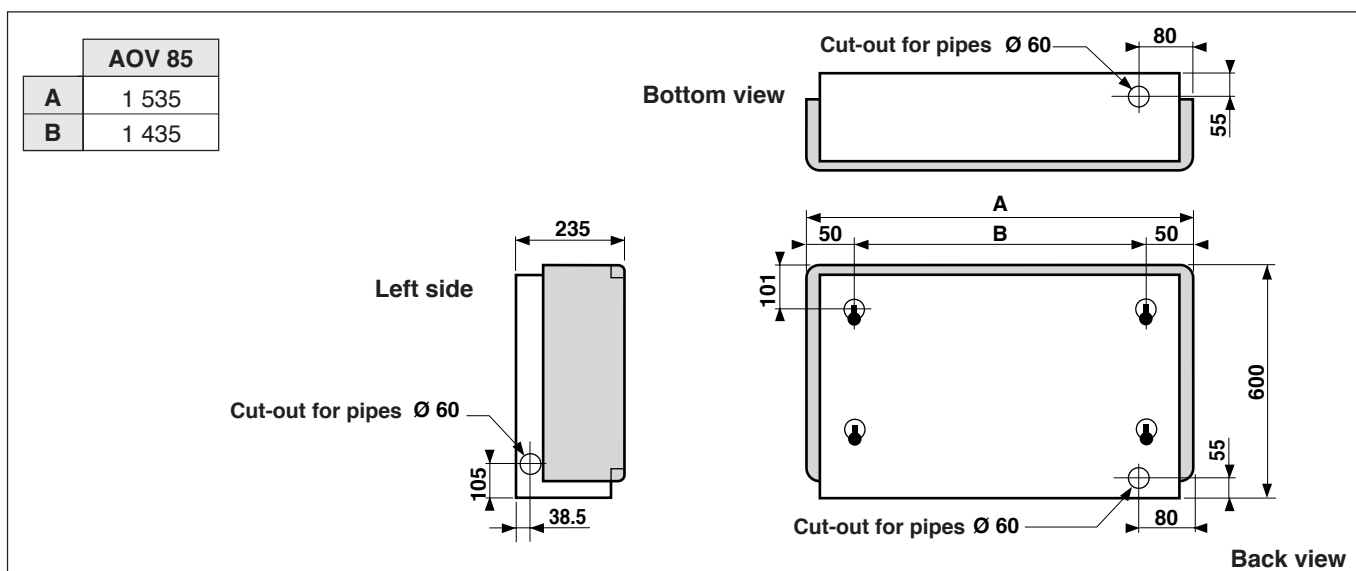
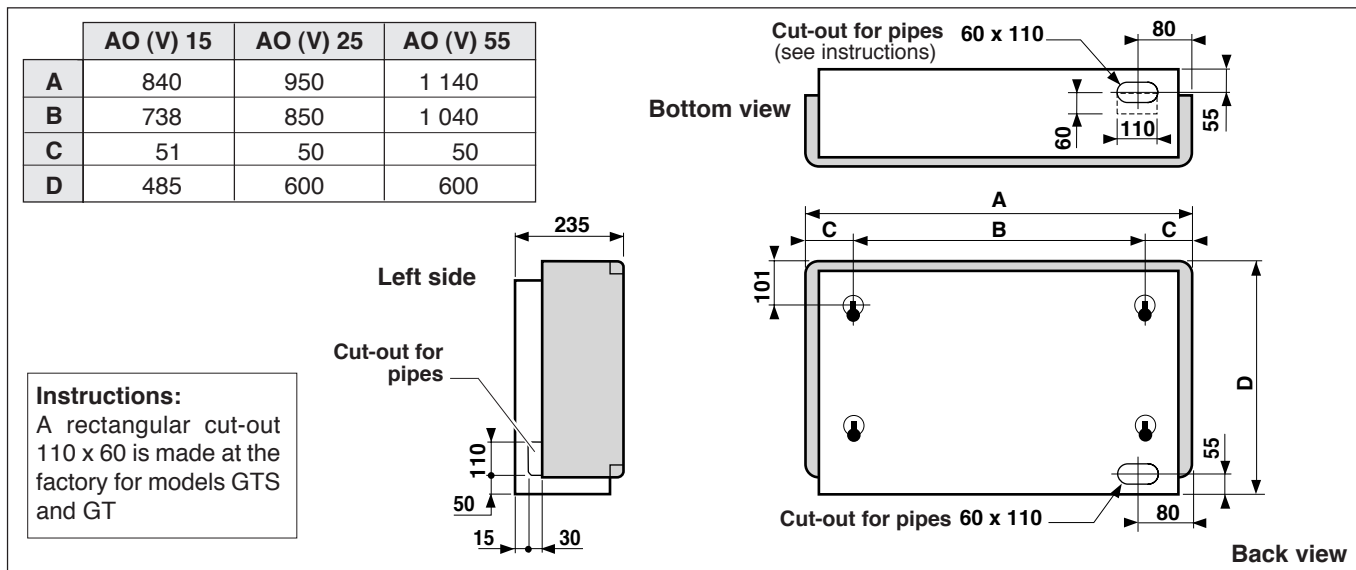
- Felt insulation.
- Copper/aluminium air evaporator.

- Copper/steel water condenser.
- Copper piping.

## 2.2 - WEIGHT

- AO (V) 15 : 39 kg
- AO (V) 25 : 60 kg
- AO (V) 55 : 75 kg
- AOV 85 : 100 kg

## GB 2.3 - DIMENSIONS



## 3 - INSTALLATION

- When mounting the appliance, it is advisable to remove its cabinet for all handling operations.
- If necessary, remove the fan assembly too.

### IMPORTANT :

During the installation of the unit, it is important to handle it with care in order not to damage the cabinet (deformation and looseness of the metal sheets) and the refrigerant pipes (displacement of copper pipes). Any damage can involve vibrations and raise the sound level of the unit.

### 3.1 - REMOVING THE CABINET

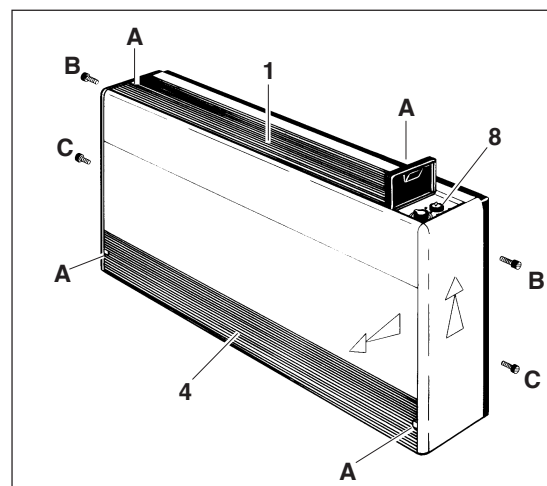
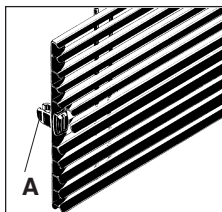
- Undo the 2 knurled screws (**B**) and the 2 tinsmith's screws (**C**).
- Remove the 2 control buttons (**8**).
- Remove the cabinet by lifting it slightly and pulling it forwards.

#### Note :

To make the cabinet easier to handle, the outlet grille (**1**) and the inlet grille (**4**) can be removed beforehand. To do this, undo the clips (**A**) by turning them a quarter of a turn using a screwdriver or a coin.

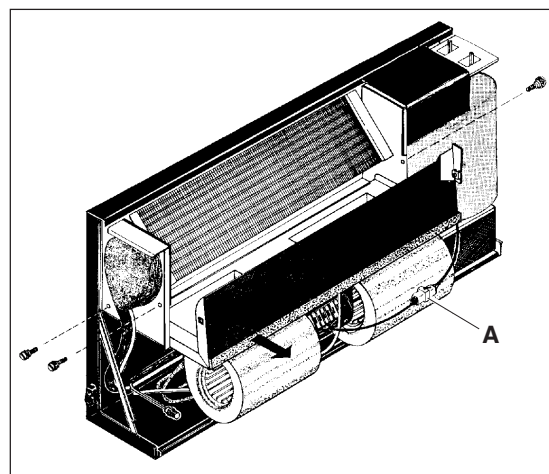
#### Important :

When refitting the grilles, take care to lock the clips (**A**) by turning them a quarter of a turn.



### 3.3 - REMOVING THE FAN ASSEMBLY

- Remove the fastening screws.
- Disconnect the loom at connector A.
- Pull the fan assembly.



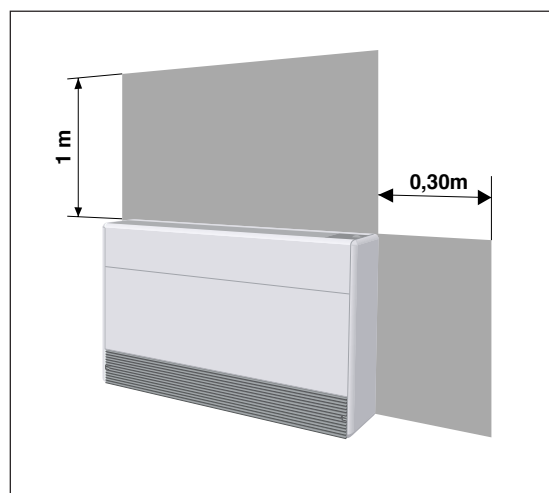
### 3.3 - CHOOSING THE LOCATION

#### AVOID:

- Putting the unit in very damp places. This unit is designed to be installed in sheltered rooms (IP 20).
- Direct exposure to sunlight or the proximity of heat sources.
- Installing the unit behind curtains or furniture which could prevent air circulation.
- Installing the device near inflammable materials (as it can be equipped with an electric heater).

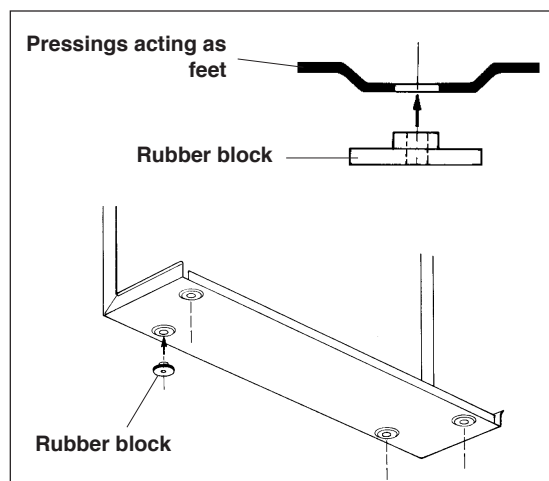
#### MAKE SURE THAT:

- The position is the best one for providing good ventilation in the room.
- The position chosen complies with the recommended minimum maintenance spaces (see drawing opposite).



### 3.4 - MOUNTING

- The device must be installed in vertical position and level. **It must always be installed fastened** (to the floor or on a wall mounting).
- For assembly on a wall mounting, refer to the accessories chapter for the mounting to be used.
- For secure fastening, it can be fastened to a wall using the screws and pins supplied with the device (2 fastening holes on the rear mounting).
- It must be fitted flush against a wall in all cases.
- To prevent the transmission of vibrations to the floor, you are recommended to put rubber blocks under the unit.
- These 4 supplied blocks are to be put by the 4 pressings acting as feet, as indicated opposite.
- The unit is raised by 5 mm.



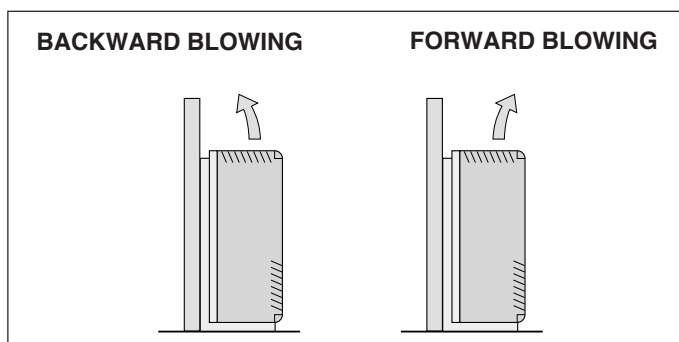
### 3.5 - CHOOSING THE BLOWING DIRECTION

#### 3.5.1 - STANDARD DELIVERY

- Vertical backward blowing.

#### 3.5.2 - FORWARD BLOWING

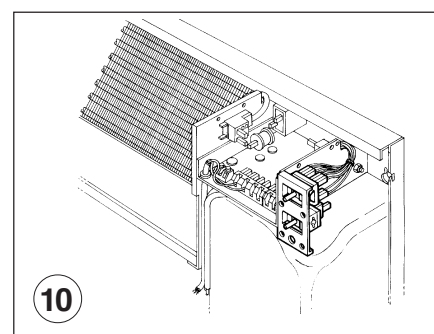
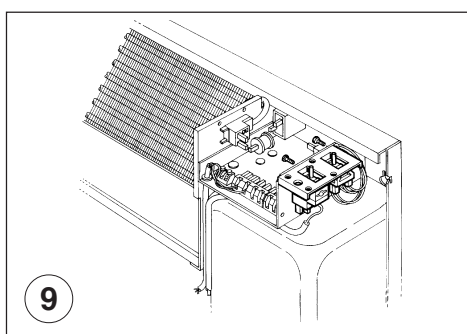
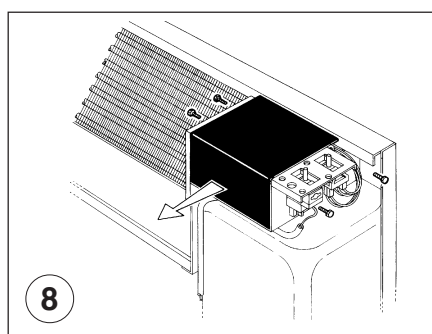
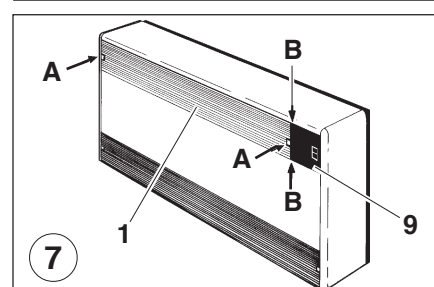
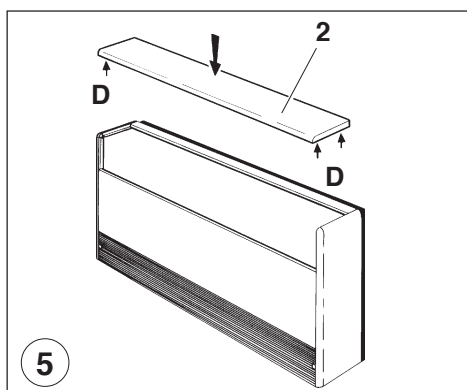
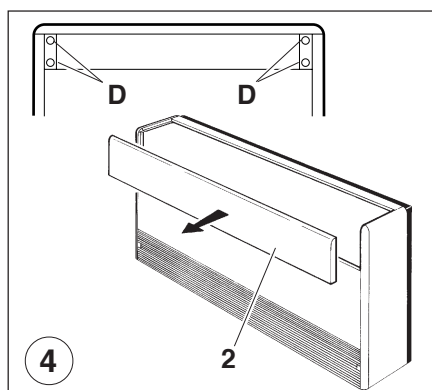
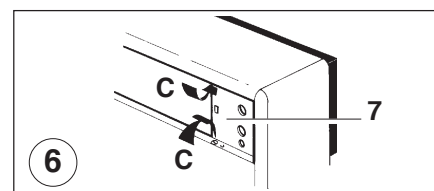
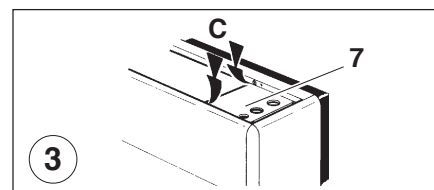
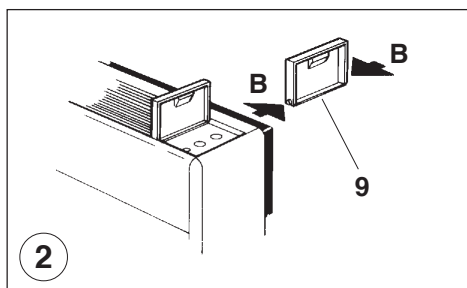
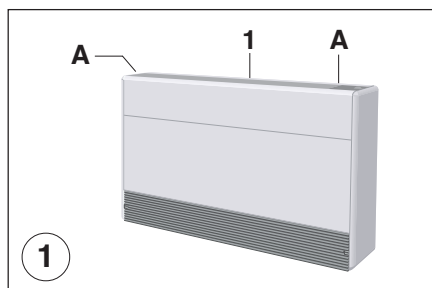
- Turn the grille 180° (see "Removal" page 6).



### 3.5.3 - HORIZONTAL BLOWING

- Remove the cabinet (see page 5).

- 1 - Remove the outlet grille (1) : undo the two clips (A) by turning them a quarter of a turn (using a screw driver or a coin).
- 2 - Remove the door (9) by pressing on the side to release the hinge pin (B).
- 3 - Remove the control panel (7) by taking out the two fastening screws (C).
- 4 - Remove the removable panel (2) by taking out the four fastening screws (D).
- 5 - Refit the removable panel (2) on the top and fix it with the four screws (D).
- 6 - Refit the control panel (7) on the front part and fix it with the two screws (C).
- 7 - Refit the door (9) by pressing on the side to engage the hinge pin (B) in the hole.  
Refit the outlet grille (1) and lock the two clips (A) by turning them a quarter of a turn.
- 8 - Remove the control box casing.
- 9 - Take out the control panel held by two screws..
- 10 - Position the control panel by turning it 90° towards the front. Fix with the 2 screws.



## 4 - CONNECTIONS

### 4.1 - REFRIGERANT CONNECTION

- No connection to the refrigerant circuit is to be carried out. The AO is ready to operate.

### 4.2 - WATER CONNECTION

- Run the water pipes through the selected knockout protected with the rubber cross panel.
- If the side knockout is chosen for AO (V) 15, AO (V) 25 and AO (V) 55, the rubber cross panel will be half cut. Connect the pipes on the male couplings Ø 20/27 (or male couplings Ø 15/21 for AO 15 GTS).
- AO may run with city water or cooling tower circuit.

**NOTE: We advise to make the water connections using flexible pipes in order to avoid transmission of vibrations.**



### 4.2.1 - TOWN WATER

• **Caution:**

- A disconnect must be installed on the water supply. Use accessory **K 60 L 110 Z**.
- Provide a shut-off valve on the supply line.
- Connect the condenser's water outlet pipe to a waste water discharge outlet.
- The pressure control valve is factory set to maintain a condensing pressure of the order of 15 bar (temperature 42° C). It is not recommended that you change this setting.

### 4.2.2 - TOWER WATER

- Provide two isolating valves and a flow control valve.
- The devices are not equipped with pressure-sensitive water valves. If they are, the valve must be removed.
- The temperature of the water must always be controlled.

**NOTE:** Models GTS and GT are equipped with an air relief cock on the water outlet pipe.

## 4.3 - CONDENSATE DRAIN CONNECTION

- Use the provided vinyl pipe Ø 12X16mm. Run it through one of the knockout, with the water pipes and connect it to a pipework Ø 12 minimum.
- It is necessary to make a trap.

## 4.4 - ELECTRICAL CONNECTION

- The electrical connection conduits must be fixed.
- The electrical installation must be carried out in compliance with the rules in force (especially NFC 15-100  $\simeq$  CEI 364).
- The power supply must come from an isolation and bipolar electric protection device (not supplied) in accordance with existing regulations.
- The acceptable voltage variation is + or - 10% during operation.

### 4.4.1 - STANDARD MODELS (*with or without water valve*)

- For AOV 15 S, AOV 25 S and AOV 55, on single phase, connect it to a 16 A power supply plug (protected).
- For AOV 85 (single and three phases), cable is provided without plug. They are to be connected to a protected power supply.

**NOTE:** A male plug may be used if correctly sized (20 A for AOV 85 single phase).

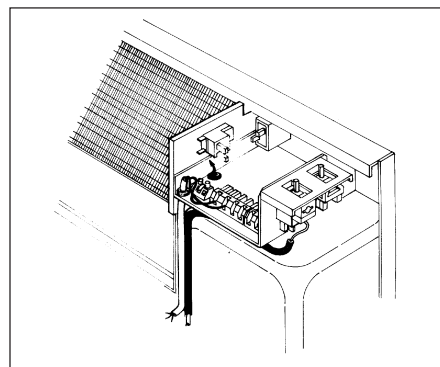
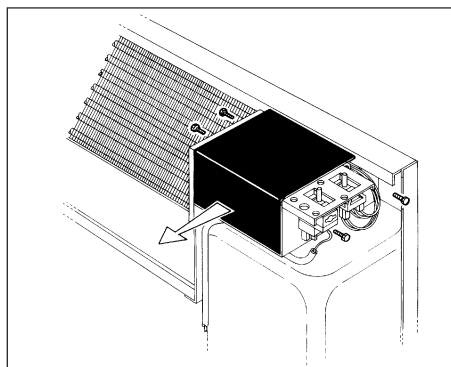
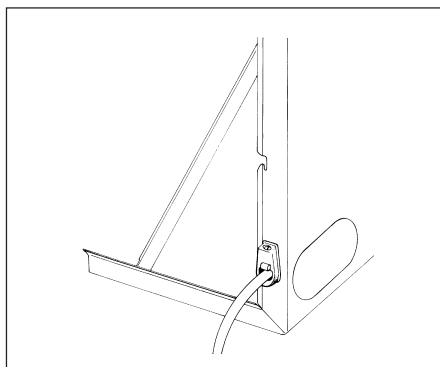
### 4.4.2 - MODELS GT / GTS

- Models AO 15 GTS, AO 25 GTS and AO 55 GT are intended for two two separate power supplies:
  - 1 for cooling mode,
  - 1 for heating mode.

These devices are equipped with two cable clamps on the right side, but they are not supplied with power supply cables.

To connect the power supply cables, use the two cable clamps, then feed the cables into the electric box via the feed-throughs, after having removed the box cover.

Connect the cables to the terminal strip as shown in the wiring diagrams.



**TABLE OF CURRENT**

			AO (V) 15 230/1/50	AO (V) 25 230/1/50	AO (V) 55 230/1/50	AOV 85 230/1/50	AOV 85 400/3N/50
Cooling mode	Nominal current		2.7 A	5.3 A	10.2 A	10.5 A	4.4 A
	Max. current		3.6 A	7 A	13.8 A	16.6 A	5.5 A
	Starting current		17 A	33.5 A	50 A	50.8 A	22.2 A
Heating mode	Max. current with heating	1.5 kW	7 A	-	-	-	-
		2 kW	-	9.35 A	9.4 A	9.6 A	9.6 A
		3 kW	-	-	13.9 A	14.1 A	5.1 A

## 5 - ACCESSORIES

### GB 5.1 - FOR FOLLOWING ACCESSORIES

please refer to instructions provided with each of them.

- Wall support:
  - K 60 U 026 Z
- Electric heater:
  - K 60 C 840 Z
  - K 60 C 841 Z
  - K 60 C 842 Z
  - K 60 C 843 Z
- Feet (only for models GTS and GT):
  - K 60 U 027 Z
- Control kit (only for models GTS and GT):
  - K 60 R 027 Z

### 5.2 - DISCONNECTOR (compulsory for connection to town water)

- K 60 L 110 Z.

### 5.3 - WATER CONNECTION HOSES

- K 60 L 047 Z: 0.50 m long, female coupling  $\varnothing$  3/4".
- K 60 L 048 Z : 1 m long, female coupling  $\varnothing$  3/4".

### 5.3 - REMOTE CONTROL

#### A - Montage / Installation

- See the main characteristics in the Technical Instructions.
- Consult the "Installation instructions" supplied with the control.
- The unit is connected using 0.75mm<sup>2</sup> cable (minimum) (1.5mm<sup>2</sup> max.).
- The cables used must comply with the insulation requirements for the voltage used (230V).
- This information relates above all to the sensor input of the automatic control connected to the 230V supply.
- The temperature adjustment range can be limited by means of the mechanical limit stops located on the control knob.

#### WALL MOUNTING:

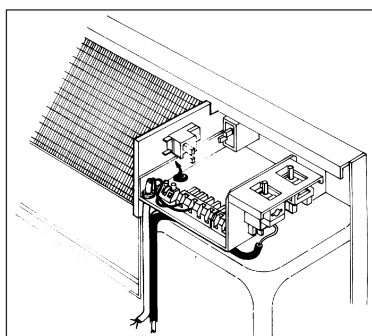
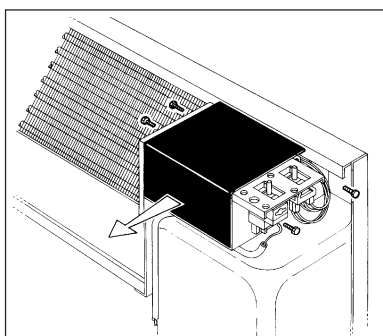
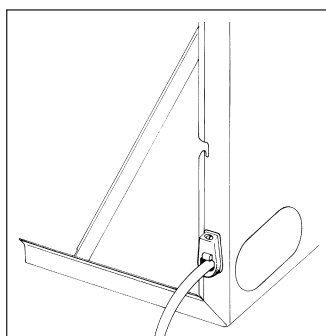
- Secure the unit at a height of approximately 1.5 m from the floor in a location representative of normal convection currents, while avoiding:
  - wall which are poorly insulated or liable to vibrate,
  - the proximity of parasitic heat sources (sunshine, heating appliances, lamps, fireplaces, televisions, etc.),
  - currents of air from doors or windows,
  - sheltered locations such as shelves or behind curtains,
  - near electrical outlets.
- For manual control K 60 D 076 Z, check and modify as required the ventilation selection jumper connection SR depending on the appliance (see below).
- For the K 60 D 025 Z automatic control, if necessary, adjust the neutral zone using the potentiometer located inside the control.

#### CAUTION

- If a remote control is used, remove the wire between terminal L1 and switch S1 on the air processor terminal board.

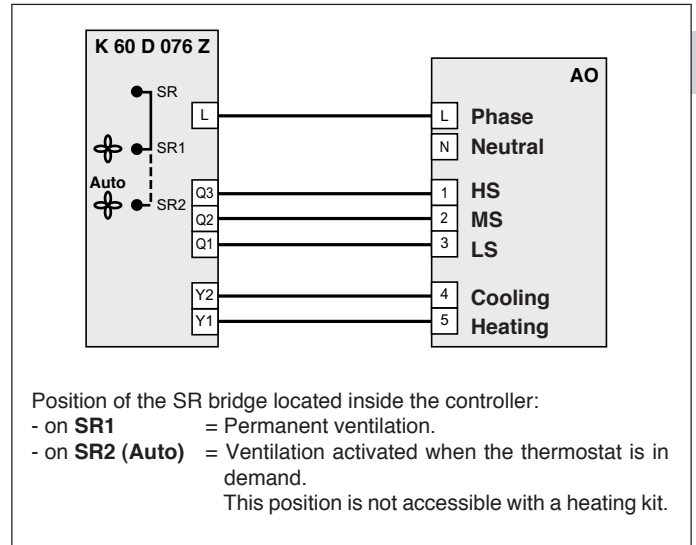
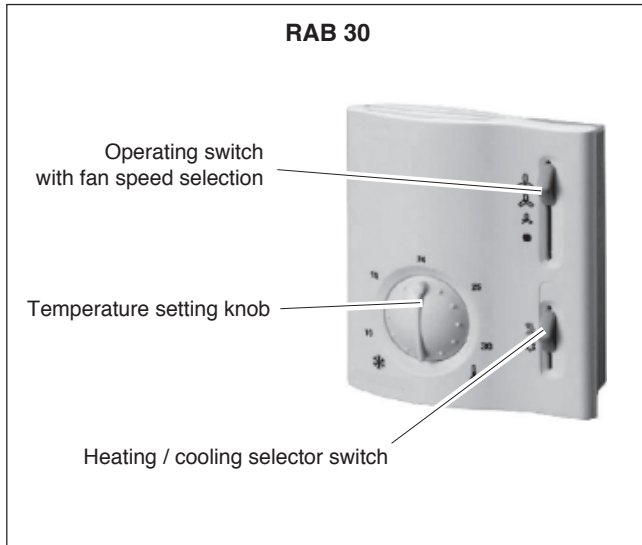
#### WIRING INSTRUCTIONS ON DEVICE:

- Run the cable along with the water pipes or through the cable cross panel provided on the left side of the cabinet.
- And run it through a rubber cross panel to the control box. To do so, first remove the control box casing.
- Connect the wires to the terminal block according to electrical diagram of each case.

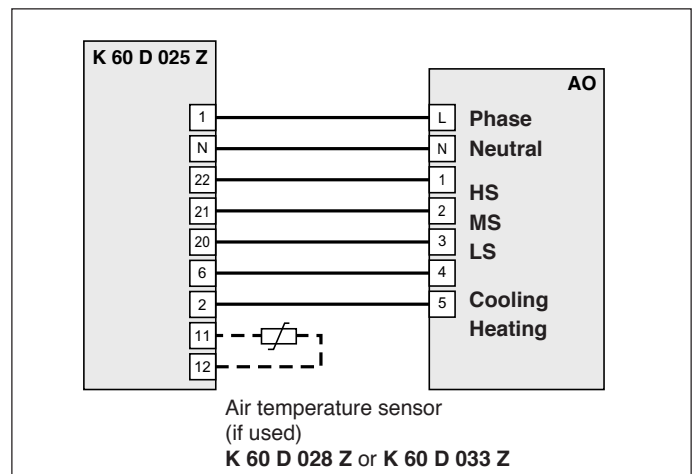
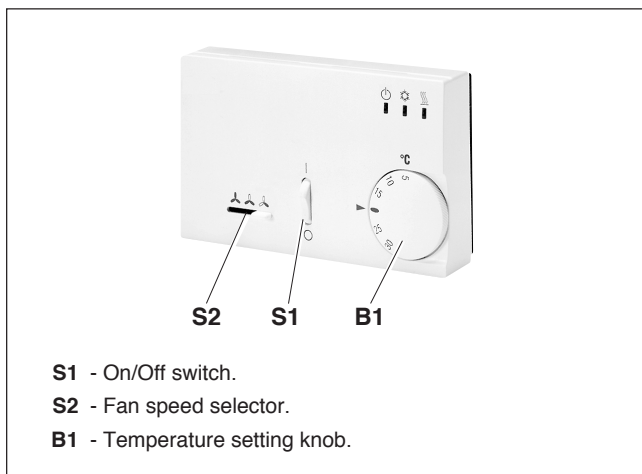




## B - Connections with "RAB 30" manual remote control - Code K 60 D 076 Z



## C - Connections with automatic remote control - Code K 60 D 025 Z



## D - Temperature sensor accessories

### For automatic remote control K 60 D 025 Z

- Temperature sensor **K 60 D 028 Z** - CTN 33 k $\Omega$  type - IP 67.
- Air temperature sensor in box **K 60 D 033 Z** - CTN 33 k $\Omega$  type - IP 30.

See the specific installation guide.

## 6 - STARTING UP

GB

### IMPORTANT

Before doing any work on the installation, check that the power supply is switched off and secured.  
All operations must be carried out by personnel that are approved and qualified for this type of equipment.

### 6.1 - PRELIMINARY CHECKS

- Make sure:
  - the stability of unit,
  - that the power cables are well fixed to their connection terminals. Loose terminals can cause heat build-up on the terminal board,
  - that the electric cables are properly insulated from any pieces of sheet or metal parts which could damage them,
  - that the unit is connected to earth,
  - that no tools or any other objects have been left in the units,
  - that the filter is correctly fitted,
  - that the condensate discharge outlet is correctly connected,
  - that the water connections are correctly tightened.
- Make sure that the water supply valve is opened (if there is no water admission, the safety stops the equipment from running). Refer to pressostat resetting.

### 6.2 - SWITCH ON THE UNIT

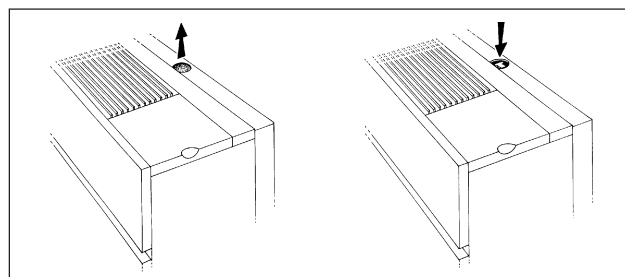
- Using the isolation and protection device.

### 6.3 - START THE UNIT

- Using the control panel.
- Turn the switch to the required position.
- Set the temperature using the thermostat.

### 6.4 - RESETTING THE PRESSURE SWITCH

- If there is too much pressure in the refrigerant circuit, a safety feature stops the compressor (at 22 bars). It is a high-pressure switch.
- To reset it, remove the plastic cap on top of the unit and press the switch by means of a screw driver or a pen.



## 7 - MAINTENANCE INSTRUCTIONS

### IMPORTANT

Before doing any work on the installation, check that the power supply is switched off and secured.  
All operations must be carried out by personnel that are approved and qualified for this type of equipment.

- **Air filter:**  
Clean every 15 days. See "Operating Manual".
- **Electric connections:**  
Once a year, check that the electric wires are well fastened to their terminals.
- **Electric box:**  
Dusting is recommended once a year.
- If the power supply cable is damaged, it must be replaced with an original part. This operation must be performed by qualified personnel.

## 8 - WIRING DIAGRAMS

### SYMBOLS OF COMPONENTS

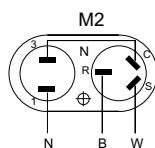
<b>B1</b>	Room thermostat	<b>F1</b>	Compressor safety
<b>B2</b>	Compressor safety	<b>F2</b>	Compressor safety
<b>B3</b>	Antifrost thermostat	<b>K2</b>	Compressor contactor
<b>B5</b>	Thermal safety	<b>K5</b>	Heating contactor
<b>C1</b>	Fan motor capacitor	<b>M1</b>	Fan motor
<b>C2</b>	Compressor capacitor	<b>M2</b>	Compressor
<b>C3</b>	Filter capacitor	<b>RO</b>	Crankcase heater
<b>CTP</b>	Compressor starting resistance	<b>R5</b>	Electrical resistor
<b>E2</b>	High pressure pressostat	<b>S</b>	Rotary switch

### COLOURS OF WIRES

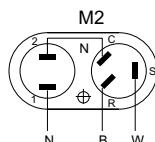
<b>B</b>	Blue	<b>NG</b>	Black/Grey
<b>BW</b>	Blue/White	<b>NL</b>	Black/Purple
<b>G</b>	Grey	<b>NR</b>	Black/Red
<b>L</b>	Purple	<b>NW</b>	Black/White
<b>LW</b>	Purple/White	<b>R</b>	Red
<b>M</b>	Brown	<b>RG</b>	Red/Grey
<b>MR</b>	Brown/Red	<b>RW</b>	Red/White
<b>N</b>	Black	<b>W</b>	White
<b>NB</b>	Black/Blue		

S	S1	S2	S3	S4	S5	S6
1	0	0	0	0	0	0
2	1	1	0	0	0	1
3	1	0	1	0	0	1
4	1	0	0	1	0	1
5	1	1	0	0	0	0
6	1	0	1	0	0	0
7	1	1	0	0	1	0
8	1	0	1	0	1	0

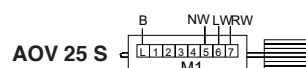
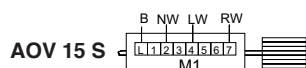
AOV 15 S



AOV 25 S

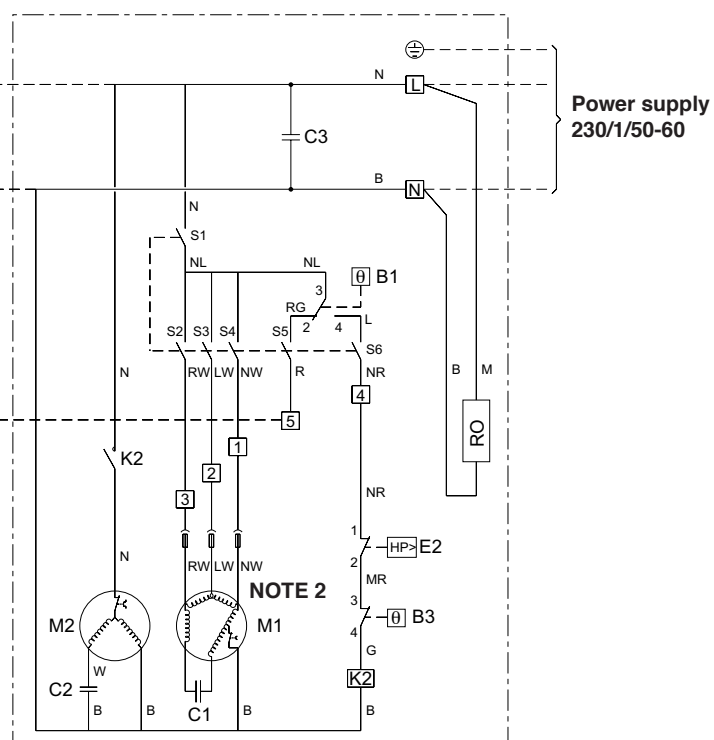


**NOTE 1 :** Electric heater (accessory).  
**NOTE 2 :** Speeds connection.



NOTE 1

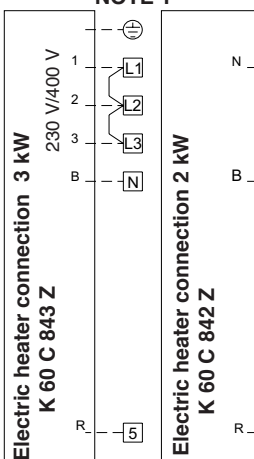
Electric heater connection  
 1.5 kW - AOV 15 S - K 60 C 841 Z  
 2 kW - AOV 25 S - K 60 C 840 Z



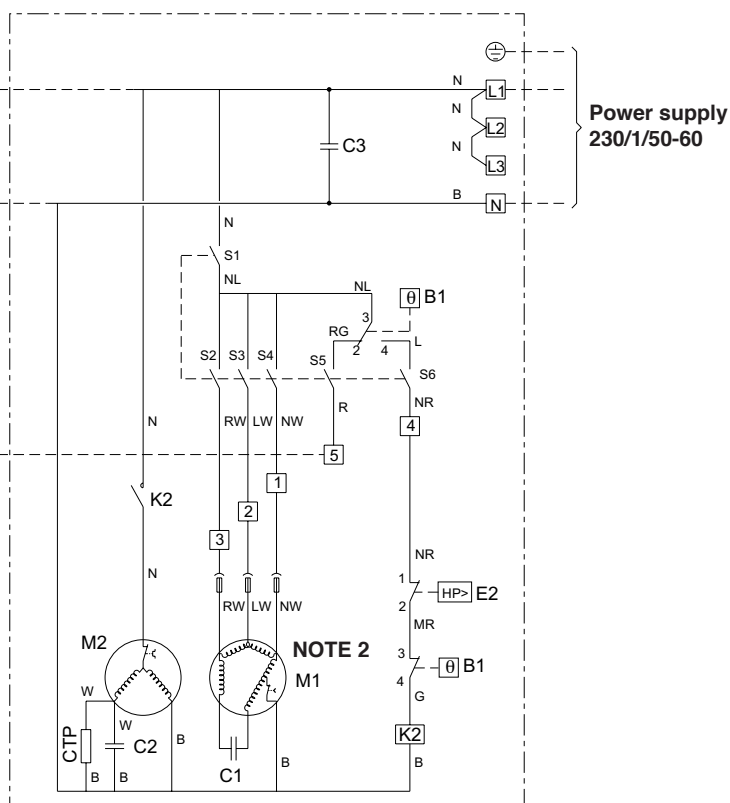
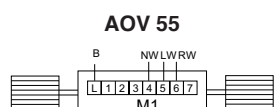
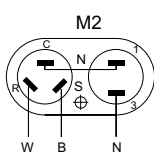
NOTE 2

S	S1	S2	S3	S4	S5	S6
1	0	0	0	0	0	0
2	1	1	0	0	0	1
3	1	0	1	0	0	1
4	1	0	0	1	0	1
5	1	1	0	0	0	0
6	1	0	1	0	0	0
7	1	1	0	0	1	0
8	1	0	1	0	1	0

NOTE 1



**NOTE 1 :** Electric heater (accessory).  
**NOTE 2 :** Speeds connection.

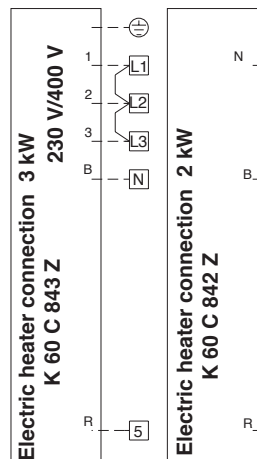


NOTE 2

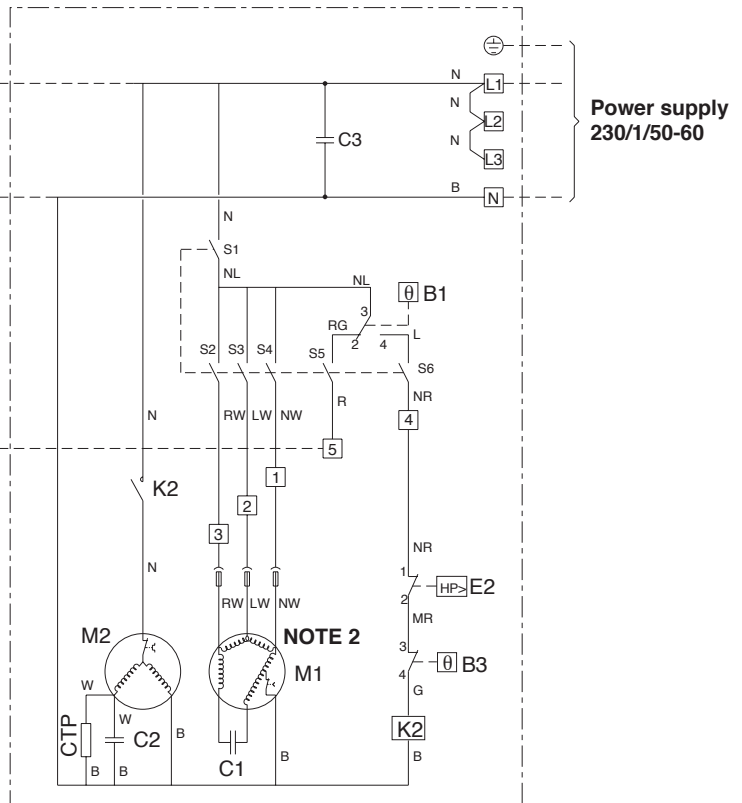
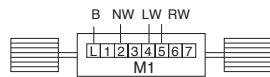
GB

S	S1	S2	S3	S4	S5	S6
1	0	0	0	0	0	0
2	1	1	0	0	0	1
3	1	0	1	0	0	1
4	1	0	0	1	0	1
5	1	1	0	0	0	0
6	1	0	1	0	0	0
7	1	1	0	0	1	0
8	1	0	1	0	1	0

NOTE 1

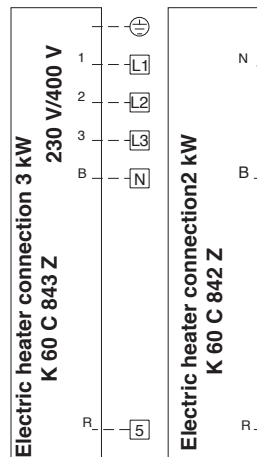


NOTE 1 : Electric heater (accessory).  
NOTE 2 : Speeds connection.

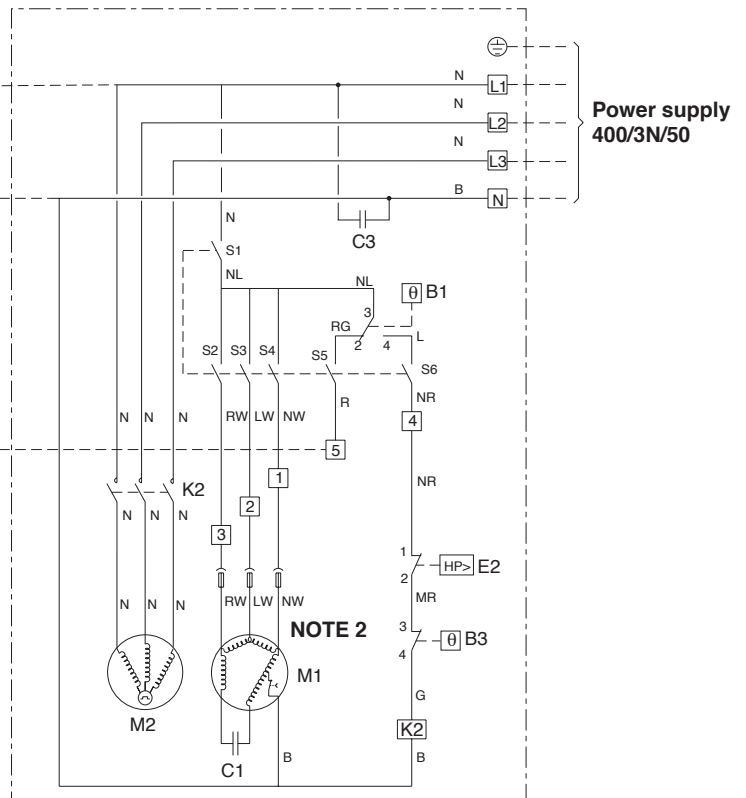
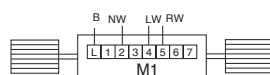


S	S1	S2	S3	S4	S5	S6
1	0	0	0	0	0	0
2	1	1	0	0	0	1
3	1	0	1	0	0	1
4	1	0	0	1	0	1
5	1	1	0	0	0	0
6	1	0	1	0	0	0
7	1	1	0	0	1	0
8	1	0	1	0	1	0

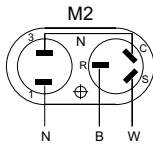
NOTE 1



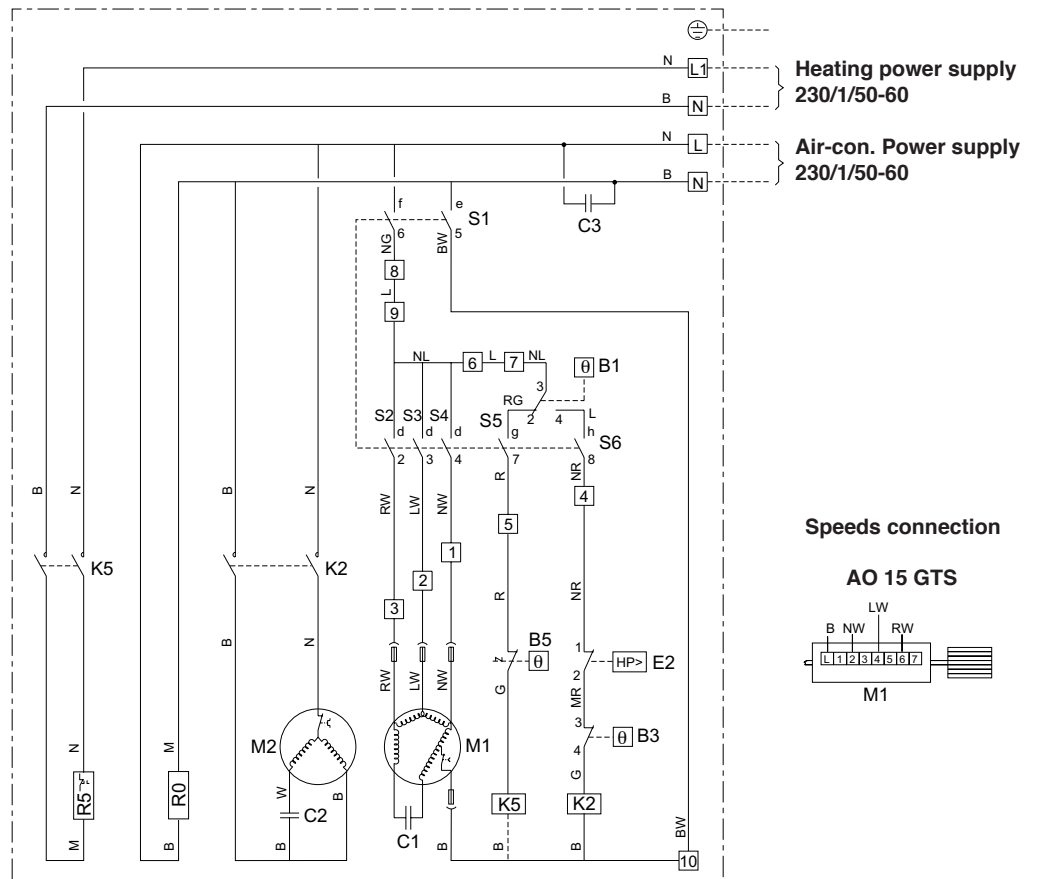
NOTE 1 : Electric heater (accessory).  
NOTE 2 : Speeds connection.



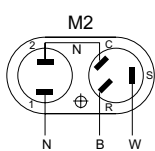
AO 15 GTS



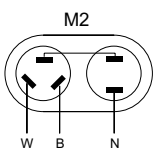
S	S1	S2	S3	S4	S5	S6
1	0	0	0	0	0	0
2	1	0	1	0	1	0
3	1	1	0	0	1	0
4	1	0	1	0	0	0
5	1	1	0	0	0	0
6	1	0	0	1	0	1
7	1	0	1	0	0	1
8	1	1	0	0	0	1



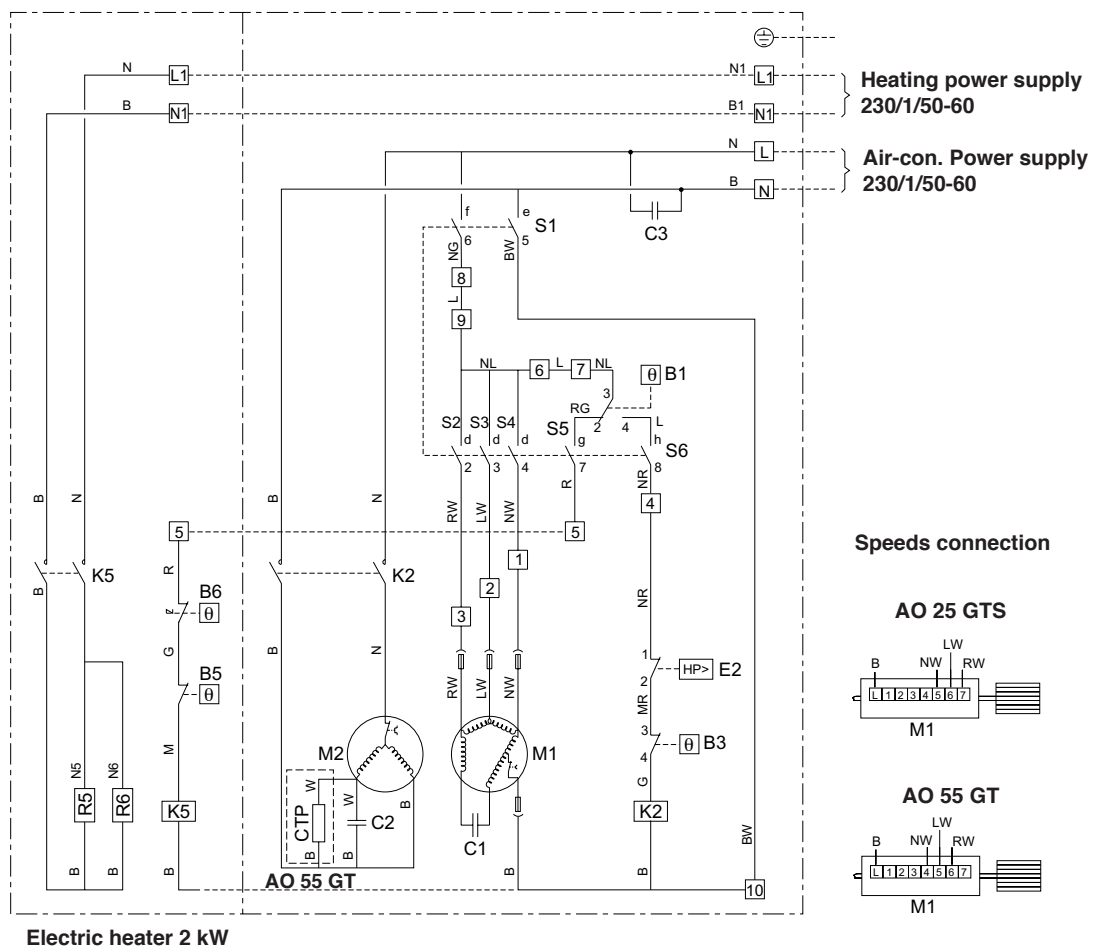
AO 25 GTS



AO 55 GT



S	S1	S2	S3	S4	S5	S6
1	0	0	0	0	0	0
2	1	0	1	0	1	0
3	1	1	0	0	1	0
4	1	0	1	0	0	0
5	1	1	0	0	0	0
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7	1	0	1	0	0	1
8	1	1	0	0	0	1



F

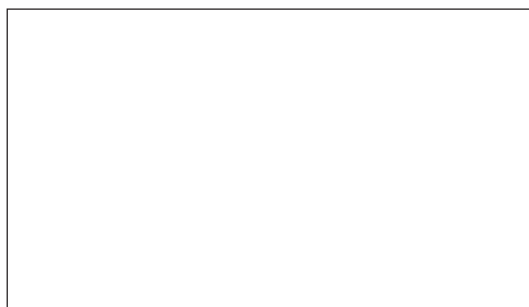
GB





F

GB



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Due to our policy of continuous development, our products are liable to modification without notice.

**Technibel**

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