

Wall Mounted 0121...0661

**MONOBLOC EXTERNAL UNITS  
FOR INSTALLATION IN SHELTERS  
AND PREFABRICATED BUILDINGS**

**WMA/WMF**

0121- 0181 - 0251 - 0281 - 0331

0551 - 0661

**INSTALLATION MANUAL**



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**WALL MOUNTED**

**Before installing or carrying out any operation on the unit, carefully read the instructions and safety regulations in this manual and on the notices on the unit.**

**Some characteristics of special-order units may be different from those described in this manual.**

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## Wall Mounted 0121...0661

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## SYMBOLS

SYMBOL	MEANING	SYMBOL	MEANING
	DANGER		MOVING COMPONENTS
	IMPORTANT WARNING		HOT SURFACE – RISK OF BURNING
	LIVE COMPONENTS – RISK OF ELECTRIC SHOCK		SHARP SURFACES
	COMPONENTS SENSITIVE TO ELECTROSTATIC DISCHARGE		

This unit has been subjected to risk analysis under EC Directive 98/37/CEE (89/392/CEE): it is built to perform the functions for which it was designed without risk **as long as the installation, operation and maintenance of the unit are all carried out according to the instructions in this manual and on the labels on the unit.**

The risks which are particularly important for the safety of the user are marked with the danger symbol.

## IMPORTANT WARNINGS



This unit contains refrigerant circuits under pressure, live electrical components, hot surfaces, sharp edges (e.g. the coil) and rotating devices (e.g. fans). **Before opening the unit, disconnect it from the electrical power supply.**



**All service and maintenance operations must be performed when the unit is off and must be done by qualified and experienced personnel who are aware of the necessary precautions.**

In any case, all safety legislation of the installation location must be followed.

**In the event of fire**, water and other conductive substances must not be used to put out the fire near live electrical components. This warning must be displayed on notices in the unit installation location.

If the refrigerants used come into contact with fire they decompose, forming acids and other irritants. The smell of these substances, **even at concentrations below danger levels**, gives enough warning to allow evacuation of the area at risk.



Electronic components are sensitive to electrostatic discharges from the human body. Touch an earth contact before handling any electronic component.



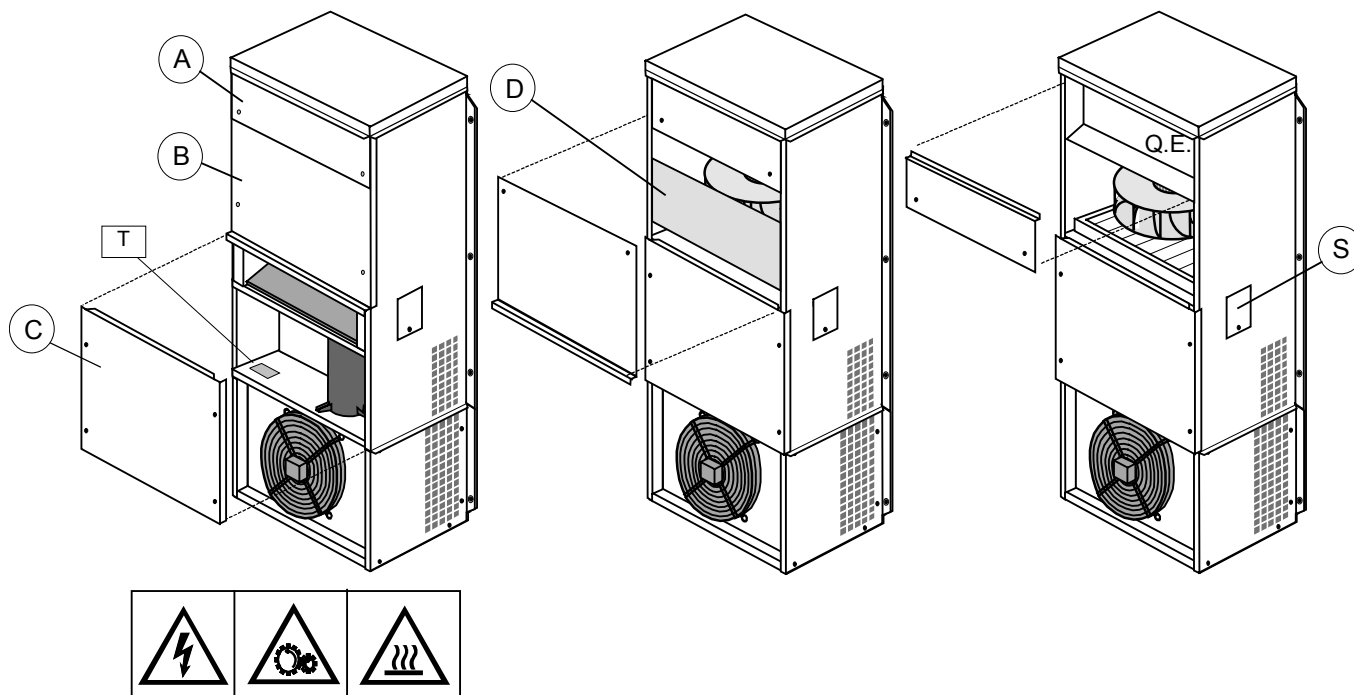
**Make sure that the power supply voltage corresponds to the value shown on the data plate.**

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## ACCESS TO MAIN COMPONENTS

The unit is accessible on all sides by removing the relevant panels.

**Important:** before opening the unit disconnect the power supply and wait for the fans to stop and wait for the electric heating element to cool.



WM\* 0121-0181-0251-0281-0331

Fig. 1

**TOP FRONT PANEL (A)**

The Top Front Panel is fixed with two screws; removing it gives access to the electrical panel.

**CENTRE FRONTAL PANEL (B)**

The Centre Frontal Panel is fixed with two screws; removing it gives access to the evaporator. Access to the radial fan is possible only after the internal sheet is removed (D).

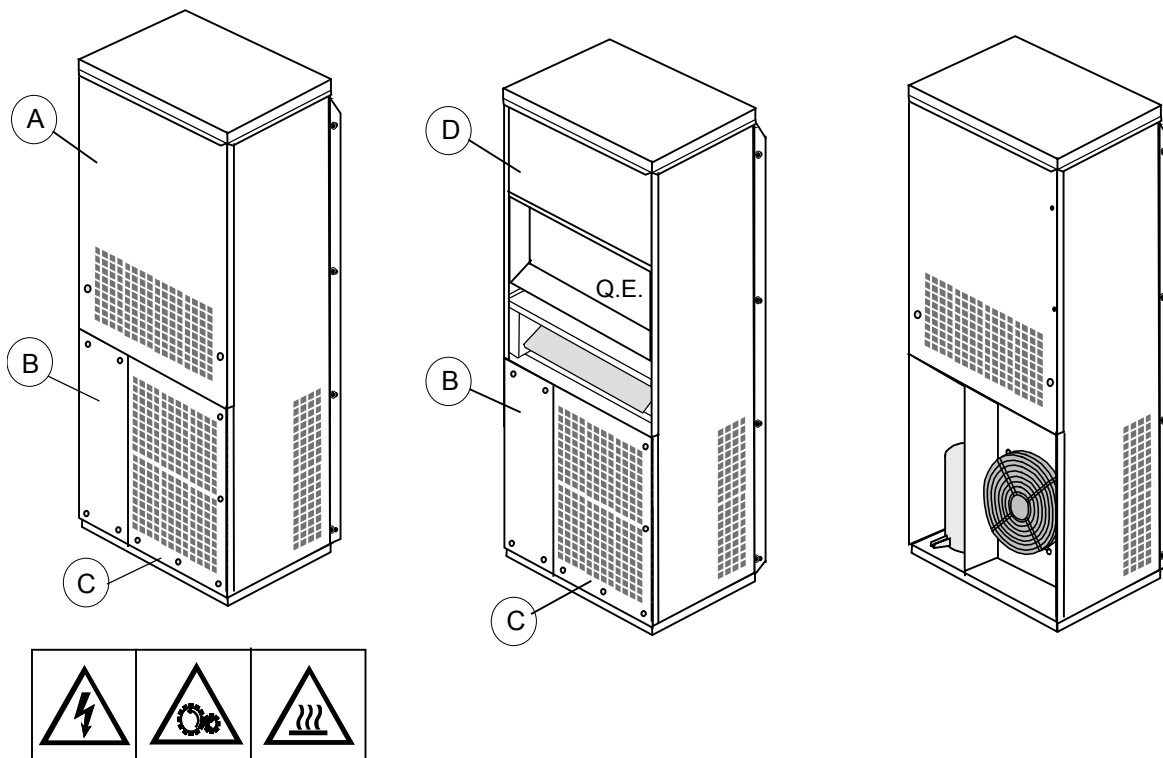
**LOWER FRONT PANEL (C)**

The lower front panel (C) is fixed with four screws. Removing it gives access to the free cooling damper and:

- Left Side: terminal block for unit power supply;
- Right Side: compressor, dryer filter, sight glass, thermostat valve and pressostats AP AND BP.

**SIDE PANEL (S)**

Access to the damper motor is via the side panel shown in the diagram (WMF units).



WMF 0551-0661

Fig. 2

**TOP FRONT PANEL (A)**

The Top Front Panel is fixed with two screws; to remove:

- release the bolts;
- hold edges of upper panel and pull;
- raise the panel to remove.

This operation gives access to the airfilter; free-cooling damper, damper motor and electrical panel.

Access to the radial fan and the pre-heat electrical resistors is only possible once the internal sheet is removed (D).

**LOWER LEFT FRONT PANEL (B)**

Removal of the front panel (B), fixed with four screws gives access to the compressor, dehydrator filter, sight glass, thermostat valve and pressostats AP and BP.

**LOWER RIGHT FRONT GRILLE (C)**

The grille is fixed with five screws. Removing it gives access to the axial fan motor protected by a metal grille.

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**TRANSPORT AND MOVEMENT**

The unit **should not be turned on its back or upside-down, or exposed to the weather** and should be taken as near as possible to the installation location before removing the cardboard packing and the pallet.

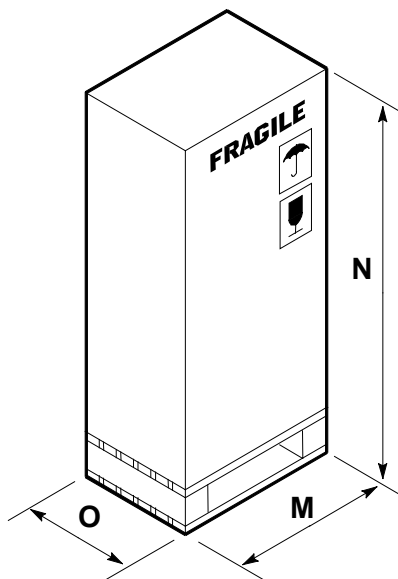
The unit can be lifted:

- with a fork-lift, placing the forks in the appropriate slots of the pallet;
- with straps passed under the unit, making sure that they do not put pressure on the upper rim of the unit.

The unit must be stored, preferably in its packing, under cover and protected from excessive humidity (< 90% R.H.) and temperature (< 50°C).

**WARNING:** Units with alluminium panneling, once positioned must be removed of packaging. Extended exposure to the sun can cause problems in package removal.

The dimensions and weight of the unit **with packaging** are given below:



mm	WMF 0121	WMF 0181	WMF 0251	WMF 0281	WMF 0331
<b>M</b>	740	740	1020	1020	1020
<b>O</b>	495	495	570	570	570
<b>N (*)</b>	2020	2020	1970	1970	1970
<b>kg</b>	150	167	210	210	230

mm	WMF 0551	WMF 0661
<b>M</b>	1140	1140
<b>O</b>	665	665
<b>N (*)</b>	2284	2284
<b>kg</b>	320	340

(\*) without pallet

Fig. 3

The symbols applied to the unit's packaging conform to ISO7000; they are explained in the table below.

SYMBOL	MEANING	SYMBOL	MEANING
	FRAGILE: handle with care.		THIS SIDE UP shows the orientation of the unit.
	PROTECT AGAINST MOISTURE: the packaged unit must be stored in a dry place.		TEMPERATURE LIMITS: the unit must not be stored outside these limits.
	CENTRE OF GRAVITY: shows the centre of gravity of the packaged unit.		NO HOOKS: do not use hooks to lift the packed unit.
	KEEP AWAY FROM HEAT: the unit must be kept away from heat sources.		DO NOT STACK

**RECEIVING THE UNIT**

When the unit arrives, check that it is complete and in perfect condition; **notify the carrier immediately in writing of any damage** that might have been caused in transit.

### DIMENSIONS AND WEIGHTS

mm	WM 0121	WM 0181	WM 0251	WM 0281	WM 0331
<b>A1</b>	650	650	930	930	930
<b>B</b>	1790	1790	1940	1940	1940
<b>C</b>	400	400	450	450	450
<b>S<sub>x</sub> (*)</b>	300	300	300	300	300
<b>D<sub>x</sub> (*)</b>	400	400	400	400	400
<b>H (*)</b>	300	300	300	300	300
<b>E (*)</b>	1500	1500	1500	1500	1500
<b>kg</b>	135	152	190	190	210

(\*) see par. 'WORKING SPACE'

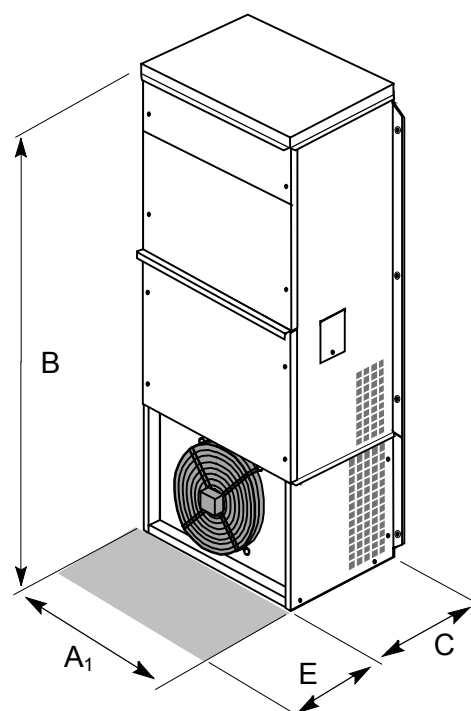


Fig. 4

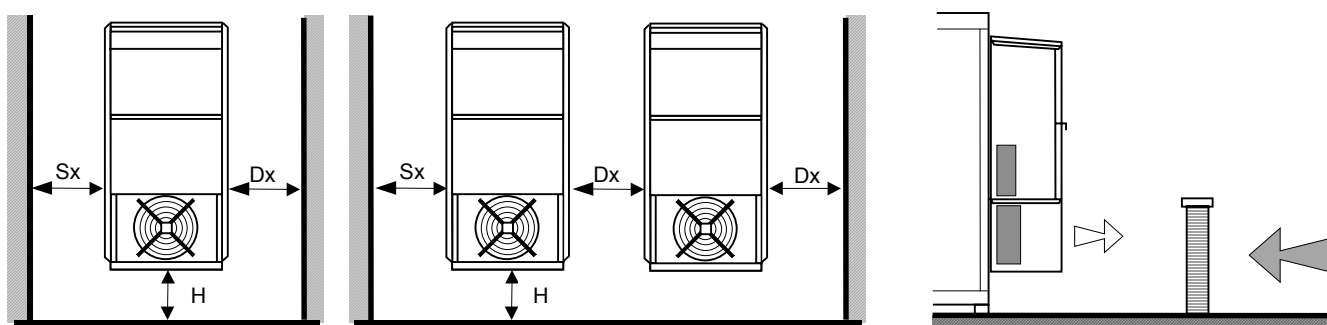


Fig. 5

WM\* 0121-0181-0251-0281-0331



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mm	WMF 0551	WMF 0661
<b>A1</b>	1050	1050
<b>B</b>	2250	2250
<b>C</b>	625	625
<b>S<sub>x</sub></b> (*)	300	300
<b>D<sub>x</sub></b> (*)	300	300
<b>H</b>	300	300
<b>E</b> (*)	1500	1500
<b>kg</b>	300	320

(\*) see par. 'WORKING SPACE'

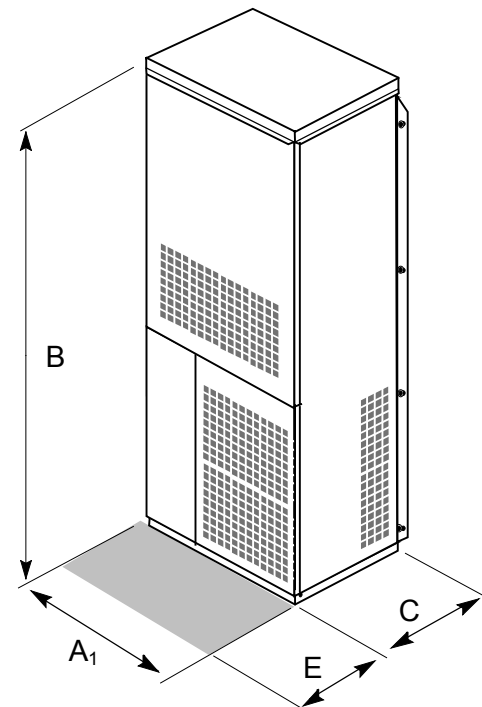


Fig. 6

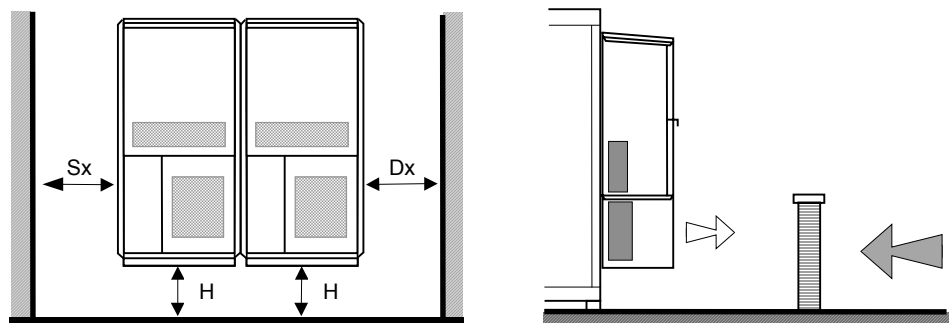


Fig. 7

WM\* 0551-0661

## POSITIONING THE UNIT

WM units are designed to be installed outdoors. However, it is recommended to protect the unit from rain, snow or water falling from drains or gutters.

- ♦ The unit must be perfectly vertical with a maximum slope of 6-7 mm: a levelling defect can cause spillage from the condensate tray.
- ♦ Do not install the unit less than 200 metres from the sea or near spas with sulphurous springs. Make sure that the unit cannot take in air which contains vapours of inflammable or greasy substances.
- ♦ The air flow taken in by the fans via the condenser coil must not be obstructed in order not to reduce the efficiency of the unit and to avoid the unit stopping because of the intervention of the compressor's safety functions;
- ♦ If the installation location is windy, it is advised to choose a protected area since the condensate axial fans have limited pressure (not greater than 10 Pa). See fig 5. and 7.

## WORKING SPACE

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To facilitate maintenance, leave at least 1,5m free space in front of the unit as shown in the diagram (*point E*). This minimum distance allows the expulsion of external air for condensation and the aspiration of air for free-cooling.  
*N.B.: Side access to the unit is only necessary on the right side of models 0121...0331 for the replacing of the damper servomotor; it is not necessary for other maintenance operations or access to electrical panels and wires. A distance of 'D' and 'S' is strongly advised to allow maximum ventilation of condensate across the lateral charge grilles.*

## AIR DISTRIBUTION

Air discharge into and intake from the environment can be either directly - with grilles - or via ducting (Check in section "TECHNICAL DATA" the available pressure of air flow).

If the air is distributed via grilles, these must correspond accurately with the holes made in the wall of the air conditioned environment, making sure that:

- the air discharge grille (the upper grille) has a double row of directable slats to control the direction of the airflow on both the vertical and horizontal plane;
- the air intake grille has a wide passage in order to minimise the loss of load; the intake grille slats do not need to be directable.

If ducting is used for the distribution and/or intake of air it must be of the correct dimensions; 'Technical Data' tables give details of the portate e pressure drop characteristic of each unit.

**WARNING:** it is essential the airflow is completely free from obstruction, insufficient outflow reduces airflow and the cooling capacity of the conditioning unit.

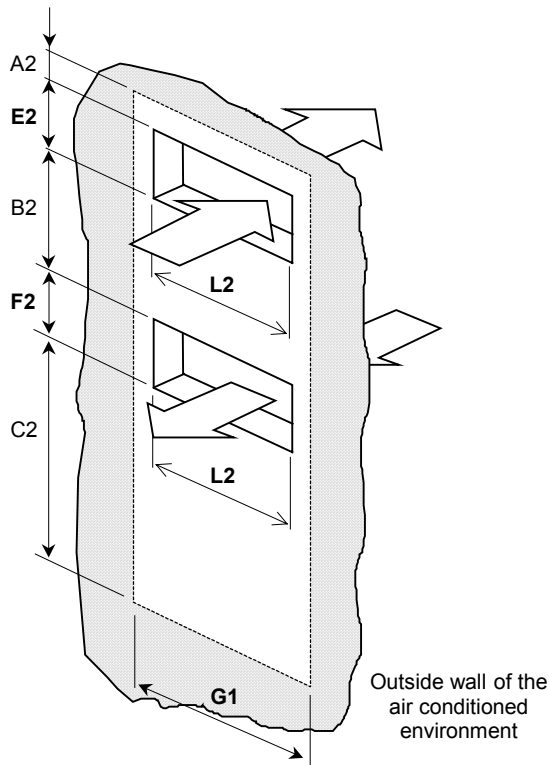
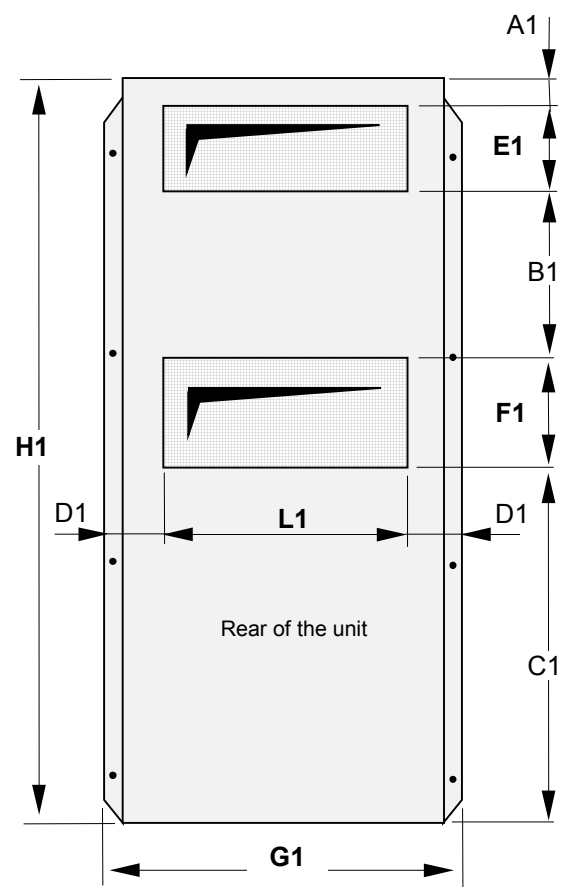
### AIR FLOW HOLES

To allow air flow into the climatized room it is necessary to make two holes in the wall in the position of the unit of dimensions indicated in Fig.8; air holes must be completely free of any obstructions.

Figura 9. Shows the rear panel of the unit with principal dimensions. Models 0551 - 0661 aspiration and air flow holes are protected with fixed metal grilles.

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mm	WM 0121	WM 0181	WM 0251	WM 0281	WM 0331	WM 0551	WM 0661
<b>A1</b>	50		30			128	
<b>B1</b>	430		470			404	
<b>C1</b>	850		880			1138	
<b>D1</b>	70		70			135	
<b>E1</b>	230		280			240	
<b>F1</b>	230		280			340	
<b>G1</b>	710		990			1110	
<b>H1</b>	1790		1940			2250	
<b>L1</b>	570		850			840	
<b>A2</b>	45		25			123	
<b>B2</b>	420		460			394	
<b>C2</b>	845		875			1133	
<b>E2</b>	240		290			250	
<b>F2</b>	240		290			350	
<b>L2</b>	580		860			850	


**Fig. 8**

**Fig. 9**

Fix rubber seals around the mouths of the air intake and discharge to ensure an airtight fit; 18-20mm thick self-adhesive closed-cell neoprene rubber tape is recommended.

Apply a layer of builder's silicone to the joint between the top cover of the unit and the wall, to prevent rain from entering the gap.

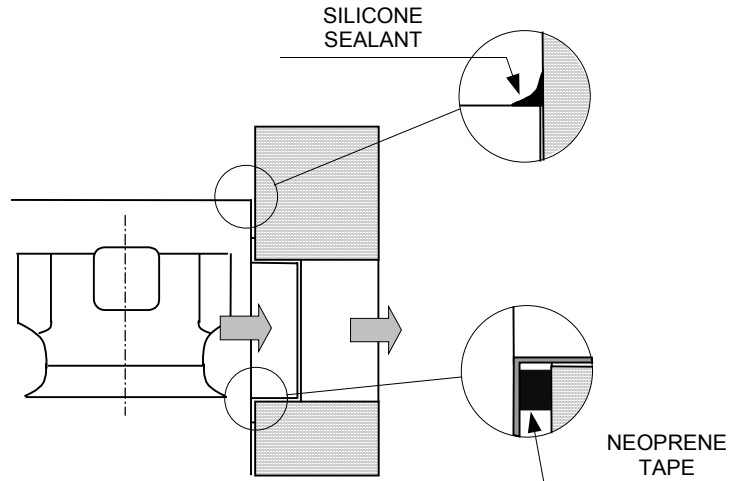


Fig. 10

**EXTERNAL AIR INTAKE (0121...0331 models)**

WM 0121...0331 units are available in the following versions with different external air intakes:

- WMA; the lower front panel is completely closed (*fig. 11. - panel C*);
- WMF, with external air intake for the free-cooling cycle and motorised control damper.

The quantity of external air is variable from a minimum value (set using the microprocessor control) to 100% of the air discharged into the air conditioned environment. It is taken in via a special opening mounted on the front panel (*fig. 11. -panel C2*) - which contains a washable metal pre-filter to protect against the entry of leaves and insects.

The expulsion of air from the air conditioned environment is via an aperture connected to the lower lateral grilles (**D**).

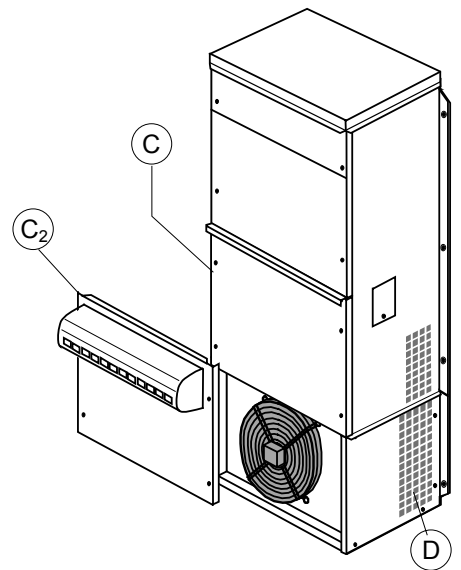


Fig. 11

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## MOUNTING THE UNIT

WM units are mounted on the outside wall of the air conditioned environment and fixed using screws through the two side flanges.

Before installing the unit observe the following instructions:

1. Check that the wall is of suitable material and strength to support the weight of the unit and to cope with the (relatively minimal) vibrations of the refrigerant compressor;
2. Make intake and discharge holes in wall (see par. 'AIR DISTRIBUTION');
3. Make 8 holes (F) in the wall (10 for 0551-0661 models) necessary for fixing the unit; recommended diameter 12mm;

mm	WM 0121	WM 0181	WM 0251	WM 0281	WM 0331	WM 0551	WM 0661
a	100			100			125
b	100			100			125
c	15			15			15
d	530			580			400

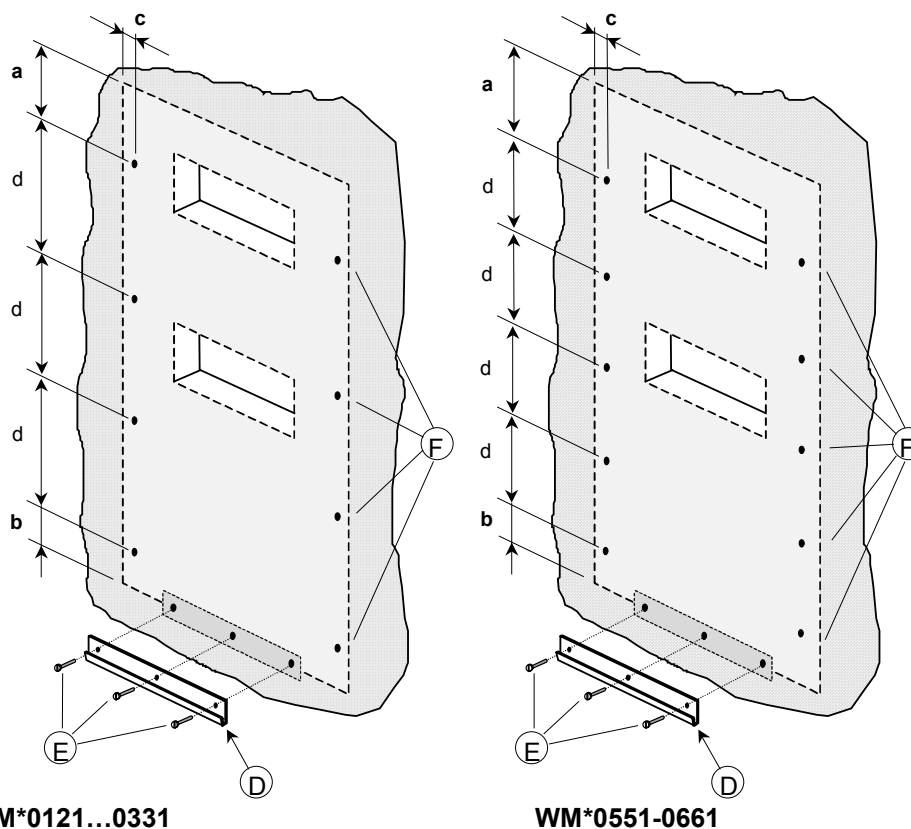


Fig. 12.

4. Fix rubber seals around the mouths of the air intake and discharge to ensure an airtight fit; 18-20mm thick self-adhesive closed-cell neoprene rubber tape is recommended (see fig. 10.);
5. Channel airflow making use of rigid or flexible ducts;

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6. If the units are connected electrically with the inside of the air conditioned environment, make holes for the passage of cables (one for the power cable, one for the user terminal connection and the control cables);

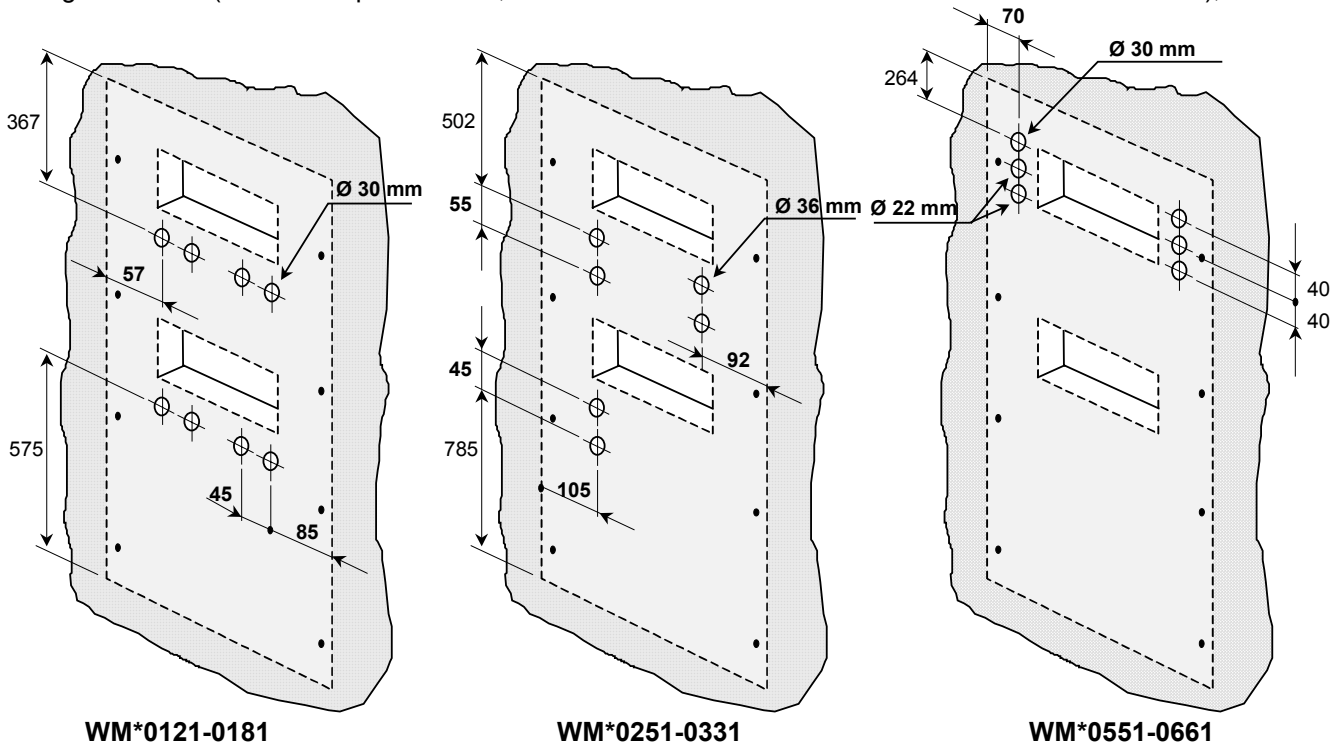


Fig. 13.

7. Fix unit support bracket **D** with three screws **E** (see fig. 12. - 14.);

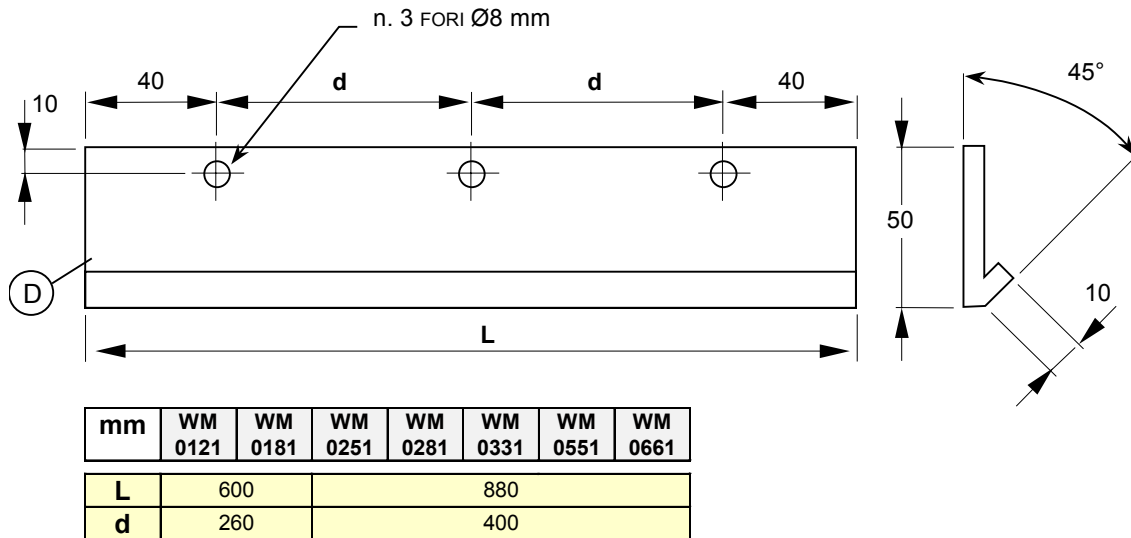


Fig. 14.

8. Lift the unit from below with a pallet truck (or with a hoist using canvas belts passed underneath the unit) and fit the lower flange over the lip of support bracket **D**; in this phase it is very important to support the unit on all sides to prevent it swinging or falling;

9. Fit screws **E** (recommended diameter 8 mm) to fix the unit to the wall; through bolts are recommended, especially on light walls. The use of screws with expansion plugs is recommended only on masonry or brickwork walls.

10. Check that the unit is level; an inclination of more than 6-7 mm (0.5°) could cause the condensate tray to overflow;

11. Apply a layer of builder's silicone to the joint between the top cover of the unit and the wall to prevent rain from entering the gap (see fig. 10.).

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**CONNECTING THE CONDENSATE DRAIN**

The condensate tray is located at the base of the evaporate coil; the condensate drains from the tray via a flexible tube (included with the unit) behind the condensate coil.

*The flexible tube has a bend which functions as a siphon and must not be removed*

The flexible tube drains the condensate across the lower unit grille: it is possible to connect it to the main water drain of the building via a plastic tube with 25mm internal diameter and a minimum slope of 1%.

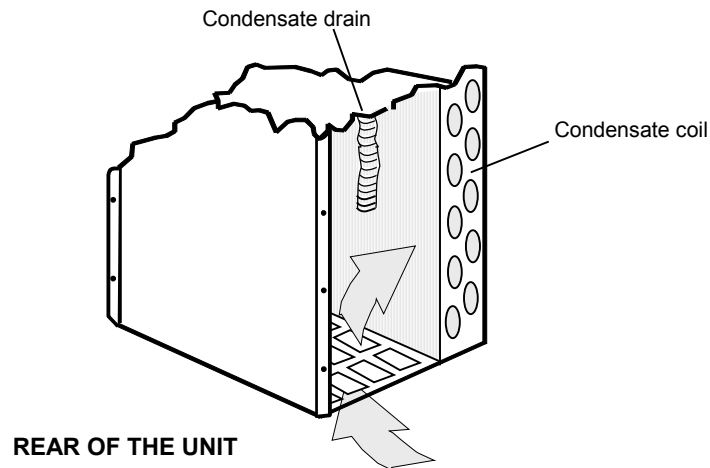


Fig. 15.

**ELECTRICAL CONNECTIONS**



Correct and accurate electrical connections, carried out in compliance with local regulations, are extremely important for the prevention of accidents and for ensuring long, trouble-free operations.

**ACCESS TO THE ELECTRICAL PANELS AND PRELIMINARY CHECKS**



Before working on the electrical parts of the unit, make sure that there is no power supply to the unit and that the switch on the electrical panel is off (in the “O” position)

Check that the mains voltage corresponds to the nominal data of the unit(voltage, phases, frequency) shown on the electrical panel.

Power supply voltage must be within -10% e +6% the nominal value. In tri-phase units the difference between the phases must be less than 2%: unit operation with power supplies outside these limits may invalidate the guarentee. Units with a three-phase power supply of 400 V need a neutral cable.

**INSTALLING THE POWER SUPPLY CABLE**

- **0121-0331 models (fig. 16.a):**  
depending on the requirements of the installation, the power and command circuit cables can enter the unit in one of three locations:
  - a. from the rear, through the back of the unit (point A); if the unit is connected to the inside of the air conditioned environment;
  - b. from the side (point B) for external connections;
  - c. from below (point C).

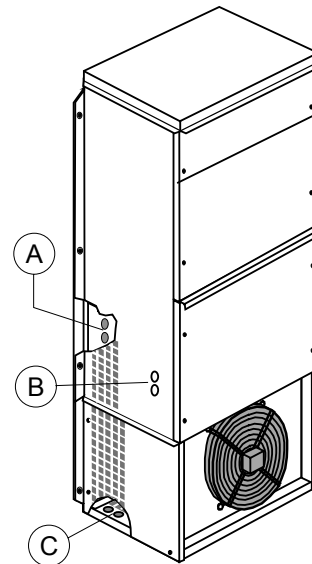


Fig. 16.a

- **0551-0661 models (fig. 16.b):**  
insert the power cables through the provided holes at the rear of the unit. The cables can be inserted directly to the power supply using the sheath.

The three holes on the right are for the installation of the power cables; the three holes on the left permit the installation of the signal cables to be connected to the circuit mP20 or the q.e. terminal block.

The table “RECOMMENDED POWER SUPPLY CABLE SECTIONS AND LINE FUSES” contains the recommended sections for the power supply and the size of fuses to mount before the mains switch.

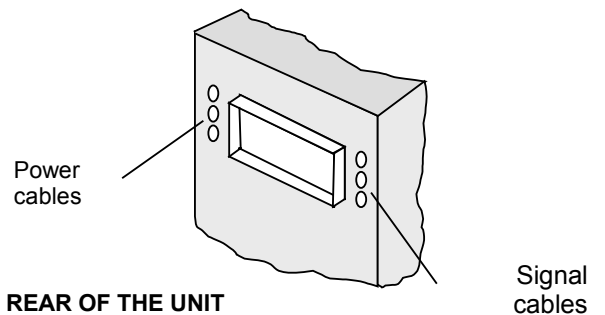


Fig. 16.b

**IMPORTANT WARNING**

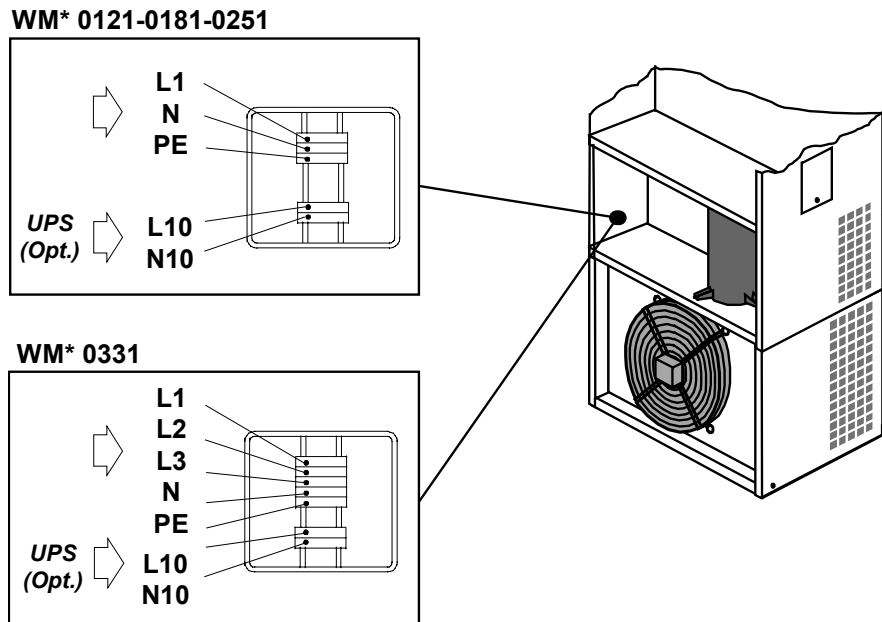
Separate the signal cables from the power cables by using different routes (where possible) or by grouping the two sets of cables separately. Make sure that the power supply and auxiliary control cables are as far as possible from electric components. After opening the pre-drilled holes on the rear of the unit, protect the cable passages with avoid contact with sharp surfaces.



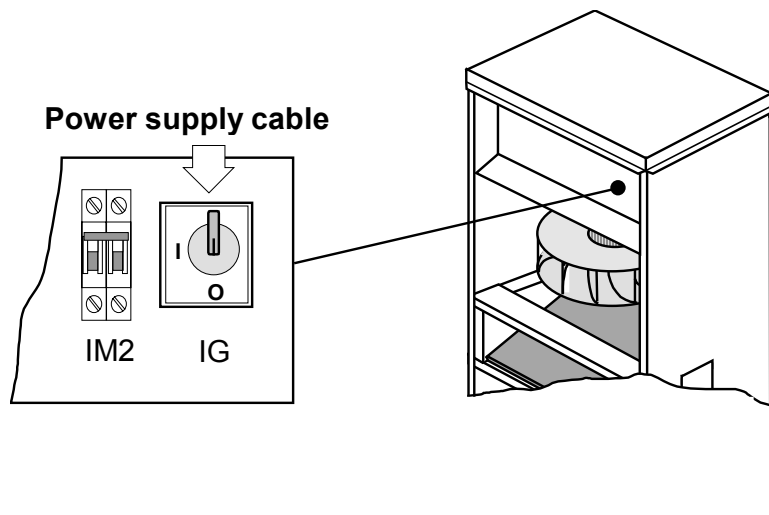
## Wall Mounted 0121...0661

## CONNECTING THE POWER SUPPLY CABLES

- **0121-0331 MODELS:** Locate the terminal blocks positioned to the left of the compressor;



- **0121-0331 MODELS:** (special versions) on a few special unit versions the terminal block beside the compressor is non supplied and the power supply cables are therefore directly connected to the terminals of the mains switch.



- **0551-0661 models:** Locate the mains switch **IG** found inside the electrical circuit;

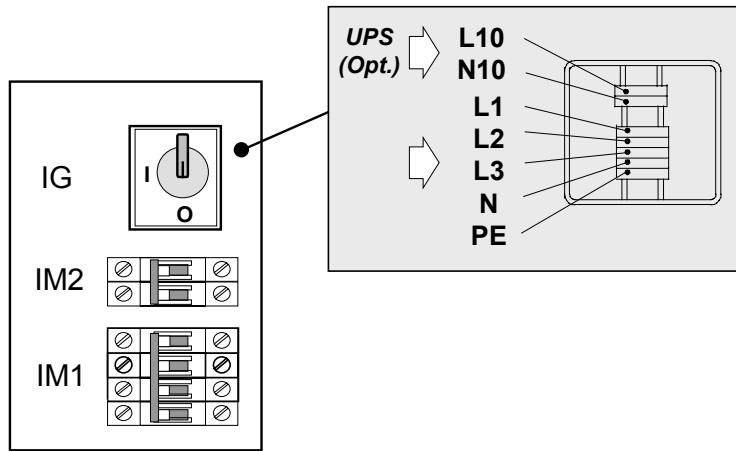


Fig. 17.c.

- **Fix** the cable terminals to the mains switch and secure the screws; connection of the yellow/green earth wire using the terminal **'PE'** is compulsory.

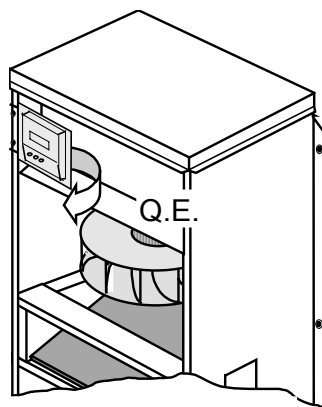
WM units can be fitted with a double power supply:

- main 400V/3N/50Hz line for:
  - compressor;
  - condensor fans;
  - electrical heating elements;
- UPS 230V/1/50Hz line for:
  - evaporator fans;
  - damper motor;
  - mP20 microprocessor circuit and terminal.

**Units can also be specified with double power supply with emergency 48 Vcc**

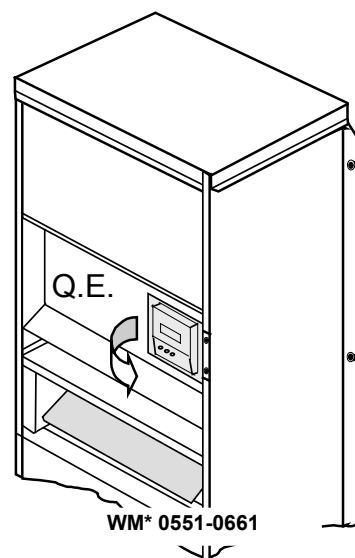
**CONNECTING THE USER TERMINAL**

- Connect the User Terminal mP20 to the Base Board found inside the electrical panel. In a few units the terminal mP20 can be positioned beside the electrical panel (see figure18); it is fixed on a hinged bracket that allows access to the mP20 board.



WM\*  
0121-0181  
0251-0281-0331

Fig. 18.a.



WM\* 0551-0661

Fig. 18.b.

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**RECOMMENDED POWER SUPPLY CABLE SECTIONS AND LINE FUSES**

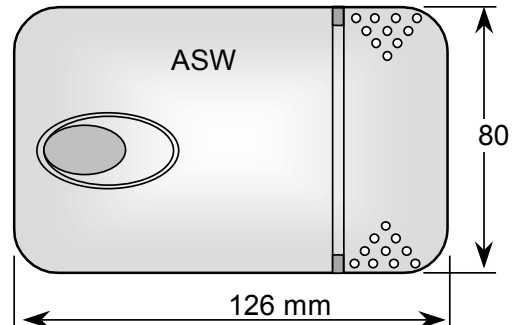
Power cable is not supplied by UNIFLAIR ITALIA Srl and must be appropriately dimensioned by the installer. For short distances (< 30 m) the recommended sections are shown in the table below:

MAIN 230V/1N/50Hz LINE			UPS 230V/1N/50Hz LINE (opt.)	
MODEL	LINE	FUSE (a)	MODEL	LINE
<b>WM* 0121</b>	2x4+4PE	40A	<b>WM* 0121</b>	2x1.5
<b>WM* 0181</b>	2x4+4PE	40A	<b>WM* 0181</b>	2x1.5
<b>WM* 0251</b>	2x4+4PE	40A	<b>WM* 0251</b>	2x1.5
<b>WM* 0281</b>	2x4+4PE	40A	<b>WM* 0281</b>	2x1.5

MAIN 400V/3N/50Hz LINE			UPS 230V/1N/50Hz LINE (opt.)	
MODEL	LINE	FUSE (a)	MODEL	LINE
<b>WM* 0331</b>	4x4+4PE	25A	<b>WM* 0331</b>	2x1.5
<b>WM* 0551</b>	4x4+4PE	40A	<b>WM* 0551</b>	2x1.5
<b>WM* 0661</b>	4x4+4PE	40A	<b>WM* 0661</b>	2x1.5

**TEMPERATURE AND HUMIDITY SENSOR (optional)**

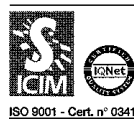
The optional temperature and humidity sensors ASXC must be installed as shown in the unit's electrical diagrams.



**Fig. 20.**

Temperature setting is done on the user terminal (see MP20 instruction manual); adjustment is at intervals of 0.1°C; maximum adjustment is between -9.9°C and +9.9 °C.

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