

**INSTALLATION, OPERATION
AND MAINTENANCE MANUAL**

WATER CASSETTES

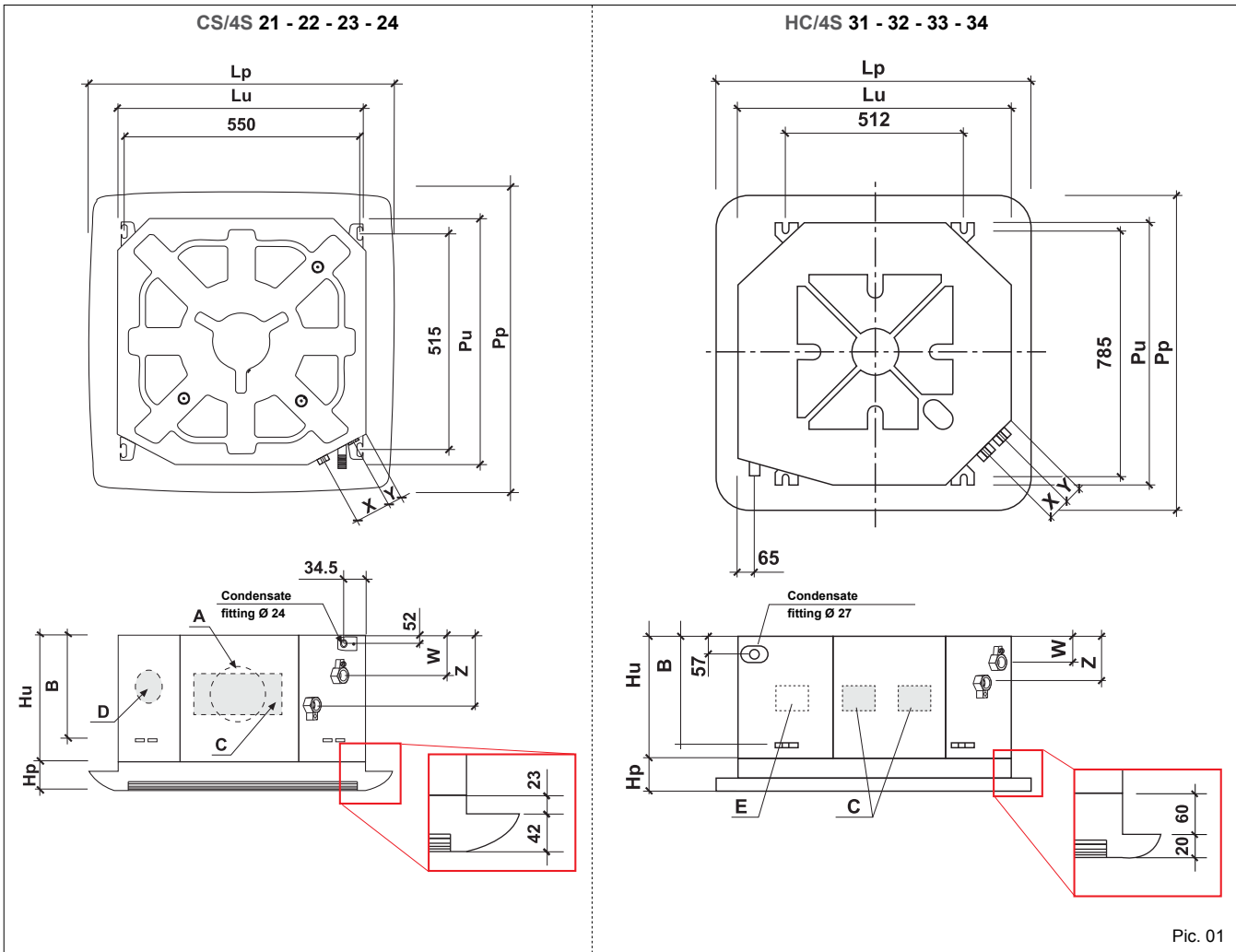
2009-3



INDEX

FIRST PART: FOR THE INSTALLER		SECOND PART: FOR THE USER	
GENERAL DIMENSIONS FOR 2 PIPE WATER CASSETTES	4	RECOMMENDATION	17
GENERAL DIMENSIONS FOR 4 PIPE WATER CASSETTES	5	WATER CASSETTE OPERATION	17
WORKING LIMITS	6	THE INFRARED REMOTE CONTROLLER	17
GENERAL FEATURES AND MAIN COMPONENTS	6	I.R. REMOTE CONTROL OPERATIONS	18
Structure	6	WALL MOUNTED CONTROL SAME FUNCTIONS AS THE REMOTE CONTROL	20
Heat exchanger	6	WALL MOUNTED CONTROL OPERATIONS	20
Air filter	6	TROUBLESHOOTING	20
Motor fan group	6	CONDENSATE DRAIN PUMP OPERATION SPECIFICATION	20
Décor panel	6	PRE-HEATING FUNCTIONS	20
Elimination of condensation	6	OPERATING DETAIL	21
Wall mounted control for panels with a control board that is managed onboard (accessory)	6	TIPS FOR THE BEST USE	21
RECOMMENDATIONS FOR THE INSTALLER	6	ENERGY SAVING	22
Unit installation	6	ROUTINE MAINTENANCE	22
RECEIVING, STORE AND MOVING THE UNITS	7	END OF SEASON MAINTENANCE	22
INSTALLATION ACCESSORIES	7	WHAT TO DO IF...	22
SELECTION OF CASSETTE INSTALLATION LOCATION	7	DISMANTLING THE APPLIANCE	22
INSTALLATION	7		
Fixing the cassette	7		
Fixing the panel	7		
CHANGE OF AIR AND RECIRCULATION SYSTEM	8		
Fresh air renewal	8		
Air supply to an adjacent room	8		
EXTERNAL AIR INLET WIRING DIAGRAM for cassettes with a control board that is managed onboard	8		
WATER CONNECTIONS	8		
Standard water connection to heating/cooling system	8		
Cassettes with a control board that is managed onboard	8		
Cassettes with and without a control board that is managed onboard	8		
INSTALLATION OF AUXILIARY DRAIN PAN	9		
CONDENSATE DRAINAGE	9		
ELECTRIC POWER CABLES AND VALVE PASSAGE	10		
ELECTRICAL CONNECTIONS	10		
Access to the control panel	10		
WIRING DIAGRAM FOR CASSETTE:			
2 PIPE SYSTEM WITH I.R. REMOTE CONTROL (CS/4S + HC/4S)	11		
4 PIPE SYSTEM WITH I.R. REMOTE CONTROL (CS/4S + HC/4S)	11		
2 PIPE SYSTEM WITH WALL MOUNTED CONTROL (CS/4S + HC/4S)	12		
4 PIPE SYSTEM WITH WALL MOUNTED CONTROL (CS/4S + HC/4S)	12		
2/4 PIPE SYSTEM WITH WALL MOUNTED CONTROL (CS/4S + HC/4S)	13		
2 PIPE SYSTEM WITH I.R. REMOTE CONTROL (CS/4S + HC/4S - 2nd SERIES)	14		
4 PIPE SYSTEM WITH I.R. REMOTE CONTROL (CS/4S + HC/4S - 2nd SERIES)	14		
2 PIPE SYSTEM WITH WALL MOUNTED CONTROL (CS/4S + HC/4S - 2nd SERIES)	15		
4 PIPE SYSTEM WITH WALL MOUNTED CONTROL (CS/4S + HC/4S - 2nd SERIES)	15		

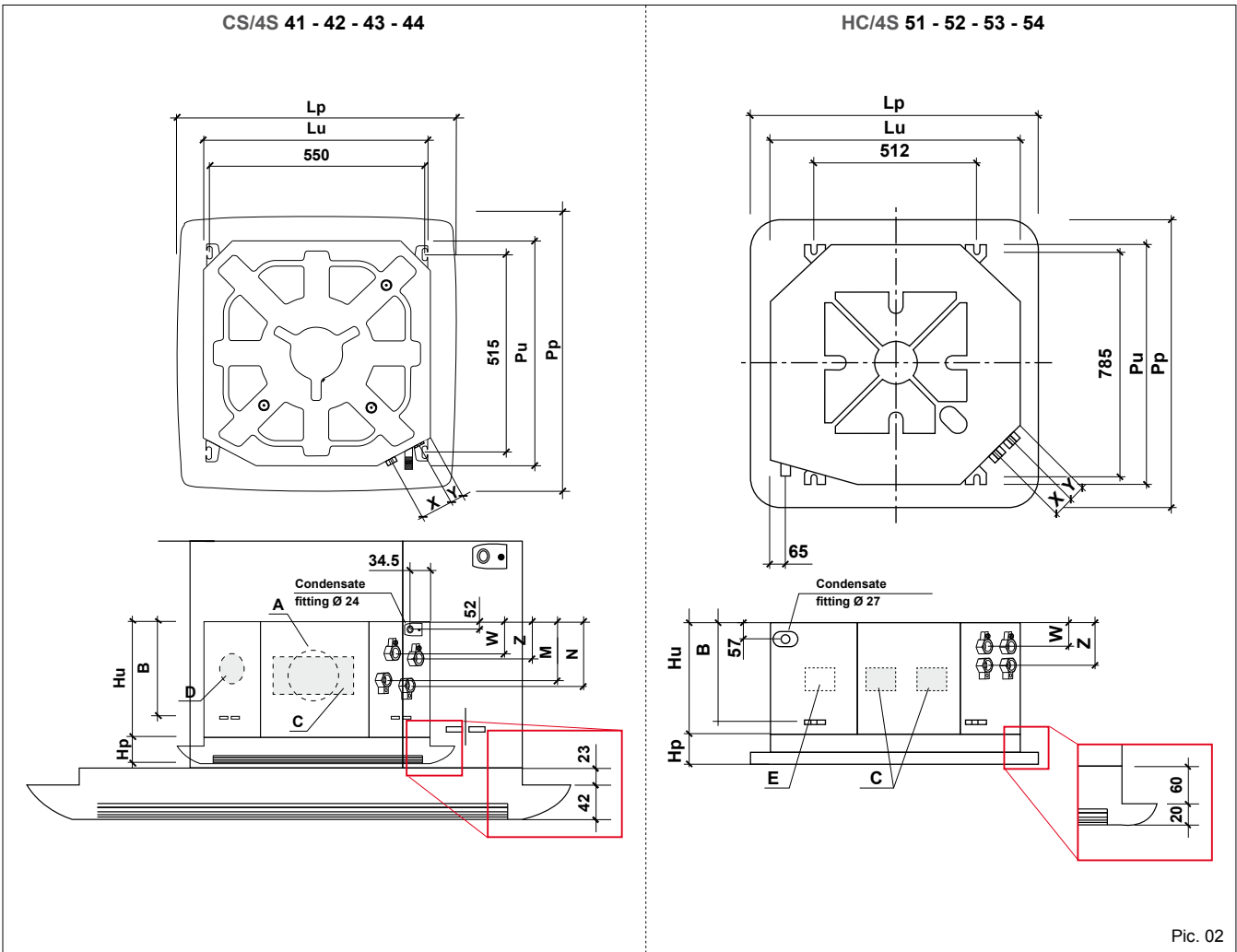
GENERAL DIMENSIONS FOR 2 PIPE WATER CASSETTES



Pic. 01

MOD.			21	22	23	24	31	32	33	34
General features	Fans number	n°	1	1	1	1	1	1	1	1
	Coil numbers	n°	1	1	1	1	1	1	1	1
	Rows number	n°	1	2	2	2	1	2	2	2
	Hydraulic fitting (Ø female gas)	Ø	3/4"	3/4"	3/4"	3/4"	3/4"	1"	1"	1"
	Depth of the unit	(Lu) mm	580	580	580	580	835	835	835	835
	Length of the unit	(Pu) mm	580	580	580	580	835	835	835	835
	Height of the unit	(Hu) mm	280	280	280	280	240	305	305	305
	Depth of the panel	(Lp) mm	720	720	720	720	953	953	953	953
	Length of the panel	(Pp) mm	720	720	720	720	953	953	953	953
	Height of the panel	(Hp) mm	65	65	65	65	80	80	80	80
	Air supply in adjacent room (Ø)	A mm	150	150	150	150	-	-	-	-
	Air supply in adjacent room (BxH)	C mm	350x100	350x100	350x100	350x100	120x80	120x80	120x80	120x80
	Fresh air intake (Ø)	D mm	65	65	65	65	-	-	-	-
	Fresh air intake (BxH)	E mm	-	-	-	-	120x80	120x80	120x80	120x80
		B mm	225	225	225	225	180	325	325	325
		X mm	65,5	65,5	65,5	65,5	70	73	73	73
		Y mm	55,5	55,5	55,5	55,5	75	68	68	68
	W mm	100	100	100	100	58	88	88	88	
	Z mm	146	146	146	146	117	160	160	160	
Net weight	kg	19,0	19,0							

GENERAL DIMENSIONS FOR 4 PIPE WATER CASSETTES



Pic. 02

MOD.			41	42	43	44	51	52	53	54
General features	Fans number	n°	1	1	1	1	1	1	1	1
	Coil numbers	n°	2	2	2	2	2	2	2	2
	Rows number (standard coil)	n°	1	2	2	2	2	2	2	2
	Hydraulic fitting (Ø female gas)	Ø	3/4"	3/4"	3/4"	3/4"	3/4"	1"	1"	1"
	Rows number (auxiliary coil)	n°	1	1	1	1	1	1	1	1
	Hydraulic fitting (Ø female gas)	Ø	1/2"	1/2"	1/2"	1/2"	1/2"	3/4"	3/4"	3/4"
	Depth of the unit (Lu)	mm	580	580	580	580	835	835	835	835
	Lenght of the unit (Pu)	mm	580	580	580	580	835	835	835	835
	Height of the unit (Hu)	mm	280	280	280	280	240	305	305	305
	Depth of the panel (Lp)	mm	720	720	720	720	953	953	953	953
	Lenght of the panel (Pp)	mm	720	720	720	720	953	953	953	953
	Height of the panel (Hp)	mm	65	65	65	65	80	80	80	80
	Air supply in adjacent room (Ø)	A mm	150	150	150	150	-	-	-	-
	Air supply in adjacent room (BxH)	C mm	350x100	350x100	350x100	350x100	120x80	120x80	120x80	120x80
	Fresh air intake (Ø)	D mm	65	65	65	65	-	-	-	-
	Fresh air intake (BxH)	E mm	-	-	-	-	120x80	120x80	120x80	120x80
		B mm	225	225	225	225	180	325	325	325
		X mm	65,5	65,0	65,5	65,5	86	73	73	73
		Y mm	55,5	55,5	55,5	55,5	75	68	68	68
		W mm	82	82	82	82	58	88	88	88
	Z mm	100	100	100	100	117	160	160	160	
	M mm	146	146	146	146	-	-	-	-	
	N mm	159	159	159	159	-	-	-	-	
Net weight	kg									

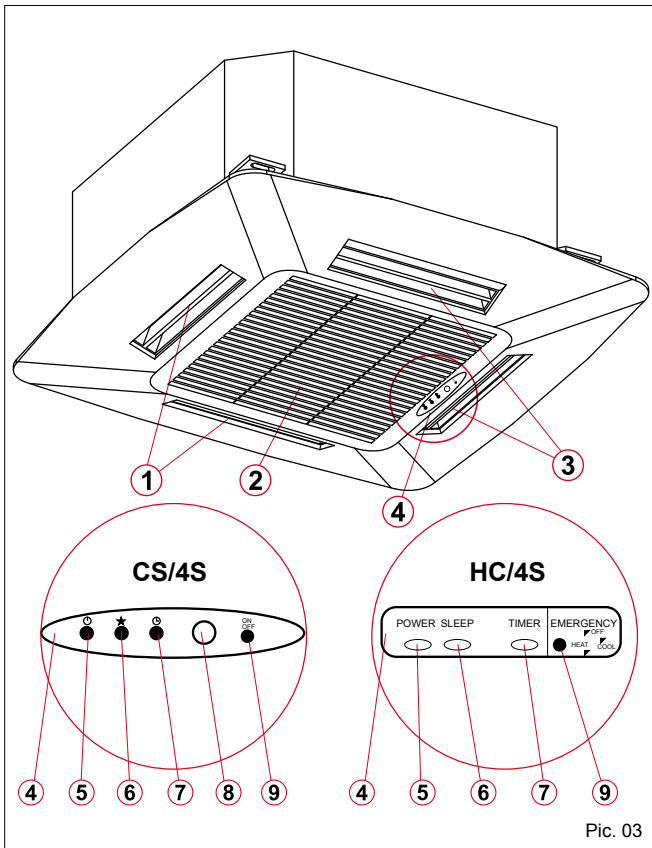
WORKING LIMITS

Maximum inlet water temperature	70°C
Minimum inlet water temperature	+4°C
Maximal working pressure	8 bar
Maximal inlet air temperature	32°C
Minimal inlet air temperature	+4°C

ATTENTION!

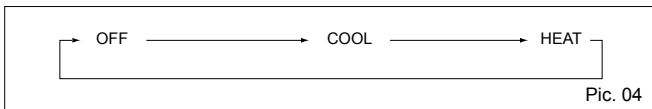
Air stratification increases with the raise of inlet water temperature!

GENERAL FEATURES AND MAIN COMPONENTS



Pic. 03

- 1 Airflow direction louvers
- 2 Air intake grille with filter
- 3 Airflow direction louvers
- 4 Indicator lights (the only model with a control board that is managed on board)
- 5 Power
- 6 Sleep mode
- 7 Timer mode
- 8 Infrared remote control receiver
- 9 **EMERGENCY** switch (used to switch on the air conditioner manually, without using the remote control, following the order given below).



Pic. 04

STRUCTURE

Made in heavy-gauge galvanised sheet, the structure comes complete with external brackets on the 4 corners for easy fixing to the ceiling. Thermal-acoustic insulation: lining (polystyrene), external cladding (closed cell). Set-up for distribution of air to adjacent rooms through knock-out holes, either circular Ø 150 mm or rectangular 350x100 mm (CS/4S), and rectangular 120 x 80 mm (HC/4S), located on two sides of the appliance. Set-up for external air intake through Ø 65 mm circular knock-out hole (CS/4S). Rectangular 120x80 mm knock-out (HC/4S). Located on a squared off corner of the appliance.

HEAT EXCHANGER

Coil in copper piping expanded into aluminium fins in continuous block. The headers have easily accessible female gas fittings and air vent/drainage valve located on the squared off corner of the appliance.

AIR FILTER

The filter comprises a plastic frame holding the filtering membrane. Inserted in the inner part of the front panel, it may be easily removed and cleaned using a vacuum cleaner followed by washing with water.

MOTOR FAN GROUP

Single-inlet centrifugal fan with statically and dynamically balanced plastic impeller. The 4-speed electric motor, made to international standards, has an overload cut-out and the run capacitor always connected. The motor is directly coupled to the fan and cushioned with flexible mountings. It is particularly efficient and low noise.

DÉCOR PANEL

The décor panel has an innovative design so that the appliance may be used in both dwellings and business premises. The white (RAL 9003) panel is made in lightweight but strong plastic. Fixing to the load-bearing structure is quick and easy. 4 adjustable louvers ensure best air distribution throughout the room. Central intake grille with filter for cleaning the air. The grille may be removed to access internal parts without having to remove the panel from the ceiling.

ELIMINATION OF CONDENSATION

Condensate collecting system comprising:

- internal plastic tray for collecting condensation coming from the heat exchanger;
- external auxiliary plastic tray for collecting condensation coming from the valves and connecting pipes.

Electric pump, which is an integral part of the appliance and connected to the external fitting.

WALL MOUNTED CONTROL FOR PANELS WITH A CONTROL BOARD THAT IS MANAGED ONBOARD (accessory)

Wall mounted control for the water cassette with a 10 m headed cable with a connector (it maintains the same functions as the remote control).

RECOMMENDATIONS FOR THE INSTALLER

Upon receiving the unit check for any damage, which should be reported immediately. For the water cassette to operate correctly, it should be installed according to the instructions given in this manual. Removal of a water cassette after it has been installed is an operation that requires special training: if this is necessary, please consult your dealer. After installation, explain the correct operating procedure to the customer using the booklet as a reference. Leave this manual with the customer since it is part of the kit supplied with the appliance. Take care not to scratch the units when handling them.

UNIT INSTALLATION

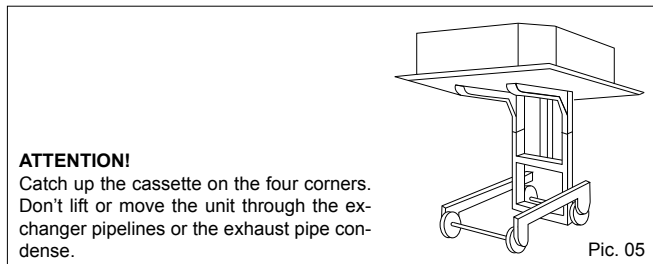
- Read this instruction manual thoroughly before starting installation.
- This unit complies with the low-voltage (EEC/73/23) and electromagnetic compatibility (EEC/89/336) directives.
- The installation should be carried out by a qualified installer.
- Follow all current national safety code requirements. In particular ensure that a properly sized and connected ground wire is in place.
- Check that the voltage and frequency of the mains power supply are as required for the unit to be installed; the available power source must be adequate to operate all other appliances connected to the same line.
- Ensure that national safety code requirements have been followed the main supply circuit.
- Where necessary, use field-supplied 25 mm I.D. PVC pipe of appropriate length and with the correct thermal insulation for the condensate drain extension.
- After installation thoroughly test system operation and explain all system functions to the owner.
- Use this only for factory approved applications: the unit cannot be used in laundry or steam pressing premises.

WARNING!

- Disconnect the mains power supply switch before servicing the system or handling any internal parts of the unit.
- The manufacturer declines any liability for damage resulting from modifications or errors in the electrical or water connections.
- Failure to observe the installation instructions, or use the unit under conditions other than those indicated in table "Operating limits" of this manual, will immediately invalidate the unit warranty.
- Failure to observe electric safety codes may cause a fire hazard in the event of short circuits.
- Do not install or use damaged units.
- In case of malfunction turn the unit off, disconnect the mains power supply and contact a qualified service engineer.
- Maintenance must only be carried out by qualified personnel.
- All of the manufacturing and packaging materials used for this appliance are biodegradable and recyclable.
- Dispose of the packaging material in accordance with local requirements.

RECEIVING, STORE AND MOVING THE UNITS

At the moment of the delivery of the unit, make sure that it corresponds to the one indicated on the transport document. Check the integrity of the packing and the unit. Should there be any differences with the original order or any damages, anomalies, or incomplete supply, please point it out on the delivery note and inform the firm straight away. Never install or use damaged apparatuses. The unit can be stored in room protected from bad weather with temperature between the -20°C and the $+55^{\circ}\text{C}$. Transport the packed unit near as possible to the installation place. To avoid any damage to the unit, the plastic part (frontal panel and grille) are furnished separately. The handling and the installation could be facilitated by use of an elevator (Pic. 05).

**INSTALLATION ACCESSORIES**

Vengono inclusi nella fornitura i seguenti materiali per l'installazione:

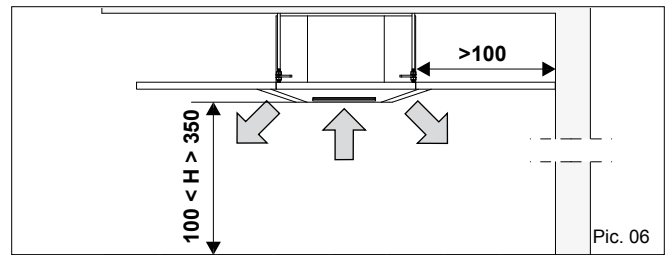
- n. 1 Cardboard mounting template;
- n. 1 Secondary basin for the condensation to be collected in correspondence with the valves.

SELECTION OF CASSETTE INSTALLATION LOCATION**RECCOMENDATION!**

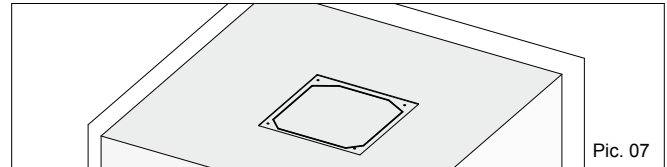
- The unit must be installed in a solid and vibration-free ceiling.
- There should be no obstruction of the air flow into and out of the unit and the air should be evenly distributed throughout the whole room.
- Do not install the unit near sources of heat, steam or inflammable gases.
- Install the unit near an electric socket or connect it directly to the power supply.
- Do not install the unit in a place, which is exposed to direct sunlight.
- The selected place should allow easy drainage of the condensed water.
- Periodically check appliance operation and leave sufficient space for maintenance around the appliance, as shown in the picture 06.
- Install the unit so that the filter is easily accessible.

INSTALLATION**FIXING THE CASSETTE**

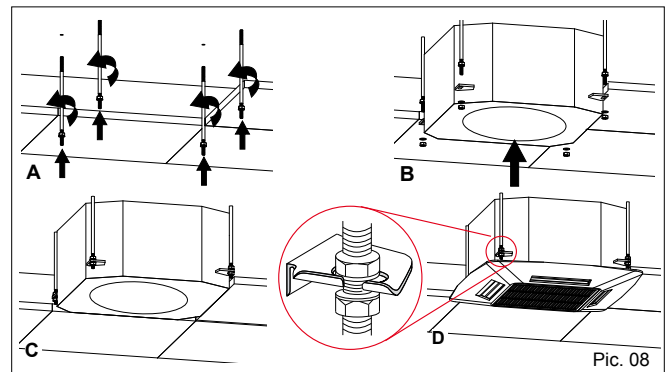
Select a place of installation where there can be a clearance of at least 100 cm (see pic. 06) around the appliance. Make sure that the installation does not interfere with existing electric wiring or plumbing.



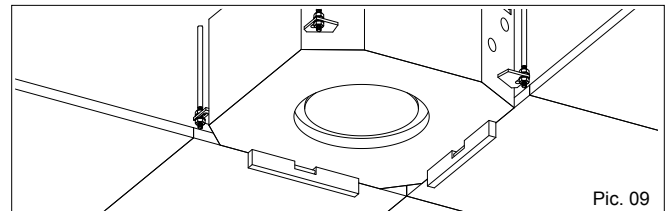
Establish the position and size of the hole in the ceiling using the external diameter of the cardboard mounting template (pic. 07).



To fix the unit to the ceiling, use the threaded bar and suitable screw anchors as shown in pic. 08 (material not included in the supply).

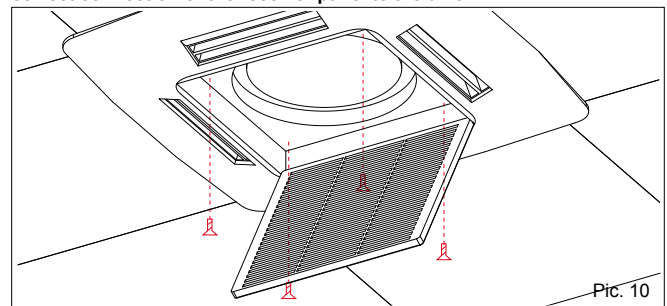


Use a spirit level (pic. 9) to make sure that the unit is level and check that it is securely fixed to the ceiling. In high humidity environments, metal supports must be insulated using adhesive insulating material.

**FIXING THE PANEL**

After installation of the unit, mount the grille using the 4 screws provided (pic. 10).

ATTENTION: It is very important to fix the grille in the right position for correct connection of the receiver panel to the unit.



- to fix the panel only use the four supplied screws.

Do not use other kinds of screws or you could damage the condensate drain pan.

- Do not bend or narrow the unit piping.
- Do not remove the cap from the unit piping until immediately before connecting the pipes.
- To prevent deformation of the air intake grille, do not overtighten the screws.

CHANGE OF AIR AND RECIRCULATION SYSTEM

- Side knockouts allow connection of a duct for fresh air intake and for conditioning an adjacent room.

- Remove the external prepunched anti-condensate insulator and remove the knockout panels using a punch.

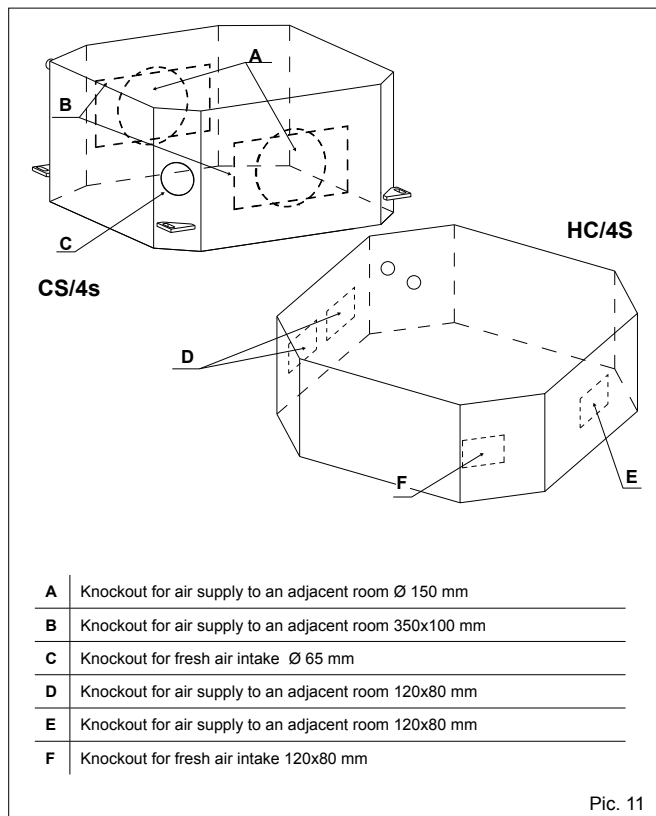
FRESH AIR RENEWAL

Remove the polystyrene partition and insert the baffle plate.

Use material purchased locally that is suitable for continuous operation with temperatures of 60°C. The ducts may be in flexible polyester (with steel spiral core) or in corrugated aluminium lagged with anti-condensate material (fibre-glass 12±25 mm thick). Upon completion of installation, surfaces that have not been insulated may be covered with anti-condensate insulating material (e.g.: 6 mm thick expanded neoprene).

Failure to comply with these instructions could cause dripping due to the condensate; the manufacturer cannot be held responsible for any damage.

Any additional fan for external air intake (installer's responsibility) must be connected to the terminal block as per the enclosed diagrams. Fan operation is in parallel to the damper (electrothermal control valve), so that it stops when the valve closes. Install an air inlet grille on the outside, with an inspectable filter holding frame to prevent the entry of dust and leaves, which could irreparably obstruct the unit heat exchanger coil.



Pic. 11

AIR SUPPLY TO AN ADJACENT ROOM

Remove the polystyrene, taking care not to damage the behind heat exchanger coil to the rear.

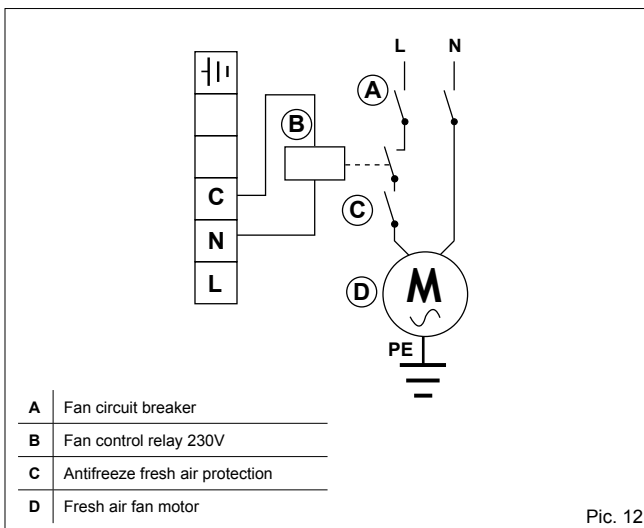
Do not use the two knockout side openings for air ducting to an adjacent room simultaneously.

ATTENTION!

- 1) Ducting air to an adjacent room requires the closure of at least the corresponding duct end.
- 2) When valves are installed, the air ducts to the "D" adjacent room are unusable (pict. 11).

EXTERNAL AIR INLET WIRING DIAGRAM

FOR CASSETTES WITH A CONTROL BOARD THAT IS MANAGED ONBOARD

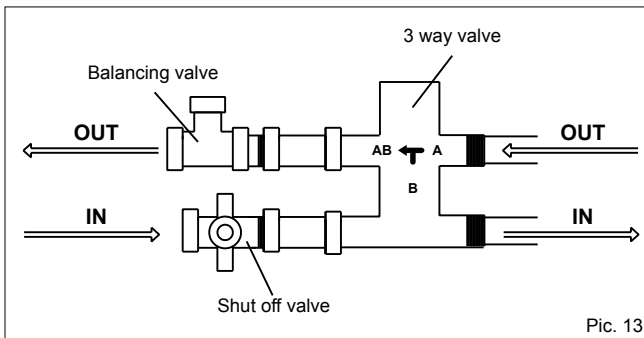


Pic. 12

WATER CONNECTIONS

STANDARD WATER CONNECTION TO HEATING/ COOLING SYSTEM

ATTENTION! IT IS COMPULSORY TO INSTALL THE VALVE!



Pic. 13

The following reasons explain why it is necessary to install the 3-way valve:

- Cassettes with a control board that is managed onboard

- 1) If the water flow is not closed via the valve when the room temperature is reached, the air sensor installed in intake mode is conditioned by the heat exchanger that cools it or heats it via natural convection. The result is that the unit will not adjust the temperature correctly or it will not go on.
- 2) The unit has a protection system that intervenes by closing the water flow via the valve in cases such as:
 - a) Where there is a condensate discharge problem (if the valve does not close the water flow, the battery will continue to condense, causing the condensation basin to overflow).
 - b) The user inserts the incorrect function on the remote control: hot as opposed to cold.
 - c) The water temperature rises to 80 °C (which damages the main condensation basin)
- 3) The unit has been designed to have continuous ventilation and warm or cool the room by closing or opening the water flow: this allows for optimal adjustment inside the room where it is installed.

- Cassettes with and without a control board that is managed onboard

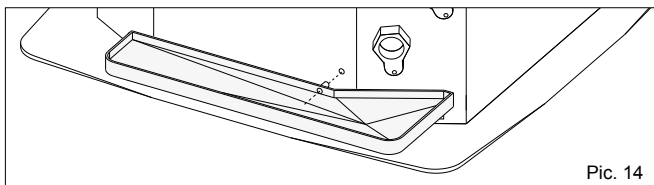
- 4) If the unit remains turned off for a long time in cooling mode and the water flow is not closed, droplets of condensation may form at the air outlets, which will subsequently lead to a dripping unit.

ATTENTION!

- Always use suitably sized wrenches to fix or slacken the water pipes.
- It is essential to insulate pipes, valves and connections correctly in order to avoid the formation of condensation, which could drip into suspended ceilings causing considerable problems.

The water connections are fixed to the unit body to avoid damage when pipes are connected. It is advisable to tighten the connection with a wrench. The upper coil connection is fitted with an air valve and the lower connection with a drain valve, suitable for a 10 mm wrench or screwdriver. (The coil is only partially drainable; it is advisable to blow air into the coil for complete drainage)

INSTALLATION OF AUXILIARY DRAIN PAN

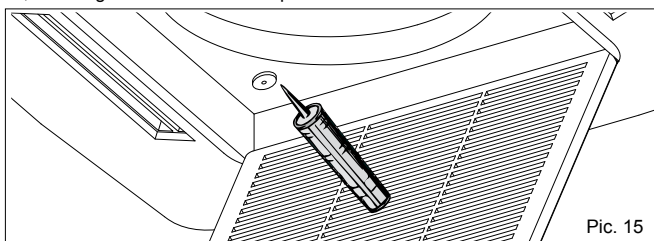


Pic. 14

a) Remove the plastic cap from the condensate drain outlet on the water cassette. **Do NOT push the cap into the cassette.**

Fit the nozzle into the hole (auxiliary condensate drain pan outlet).

b) Fix the auxiliary drain pan to the unit using the relative screws provided in the kit, ensuring that the condensate pan is level.



Pic. 15

IMPORTANT!

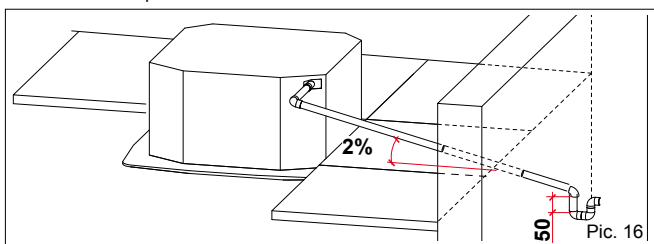
- If the drain pan plastic cap is removed, remember to seal it with silicone when replacing it!

CONDENSATE DRAINAGE

ATTENTION!

CONDENSATE DRAINAGE IS FUNDAMENTAL FOR GOOD OPERATION OF THE WATER CASSETTE. LAG THE PIPES SUITABLY AND CORRECTLY.

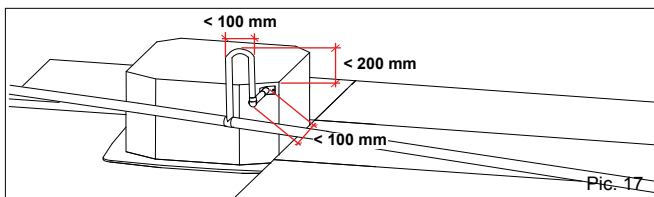
To ensure a correct flow of the condensed water, the water drainage pipe must have a slope of 2% without obstructions. Install a trap at least 50 mm deep in order to avoid unpleasant smells.



Pic. 16

There is the possibility of draining water from 200 mm above the level of the unit.

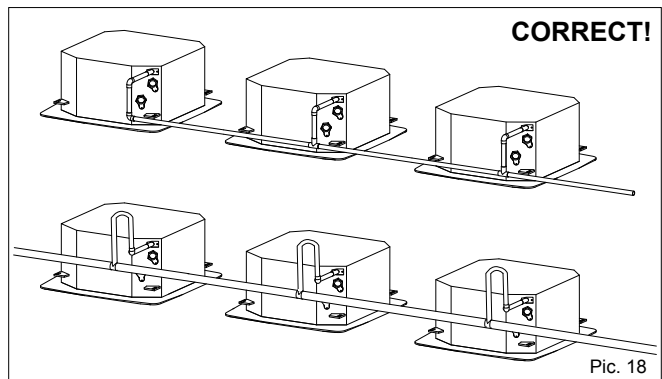
To drain the condensate at a higher level, install condensate drain pump with collecting tray and float valve (not included in the standard accessories). A float valve is recommended to stop the flow of water in the event of pump failure.



Pic. 17

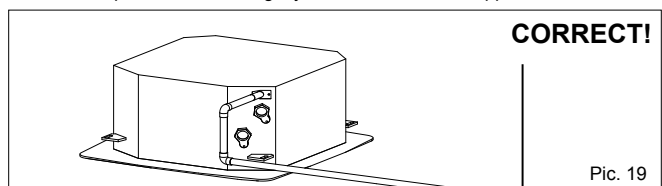
The discharge levels in pic. 15 must be strictly adhered with.

The following diagrams describe some examples of how the condensate discharge connection can be implemented correctly (Figs. 18-19) and incorrectly (Figs. 20-21).



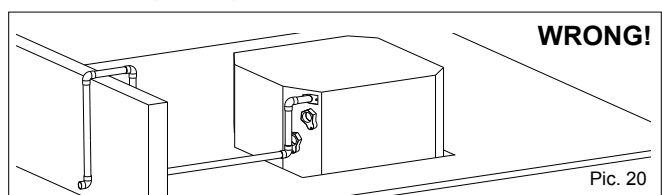
Pic. 18

Pic. 18: when several units are installed near to each other and only one condensate drain hose is used, make sure that the capacity of the hose is sufficient and that it is positioned on a slightly lower level than the appliance.



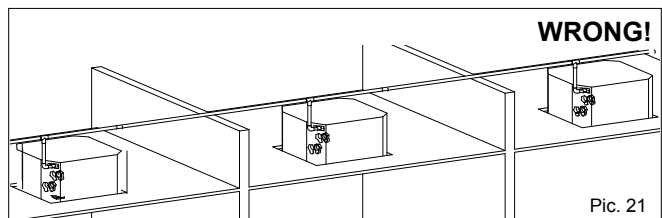
Pic. 19

Pic. 19: the condensate drain hose should be fixed using intermediate mounts to prevent deformation of the hose. The drain hose should slope slightly downwards to encourage drainage of the condensed water.



Pic. 20

Pic. 20: the drain hose is bent or points upwards.



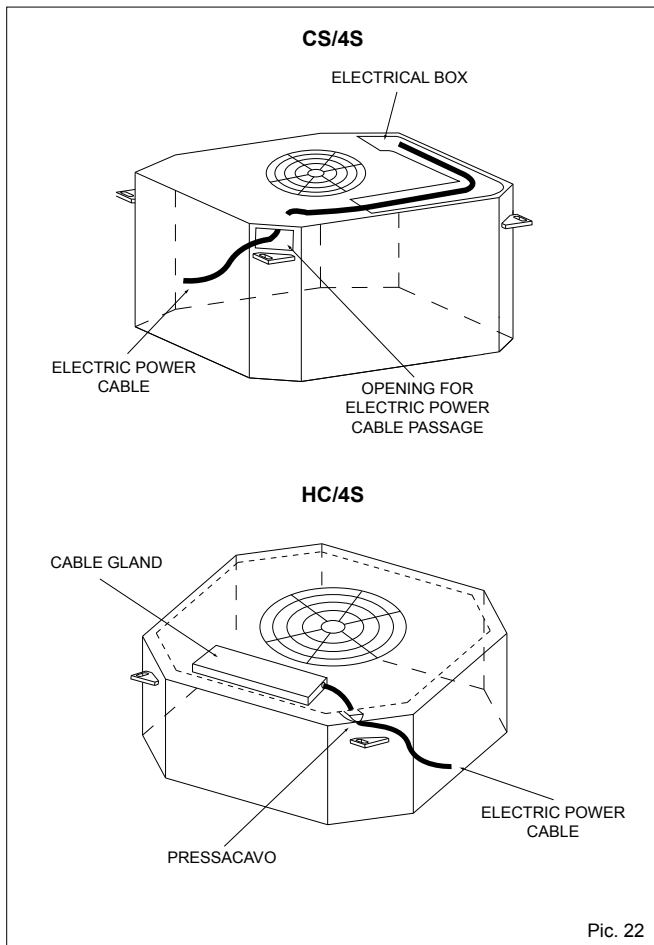
Pic. 21

Pic. 21: the drain hose is on the same level as unit.

ATTENTION!

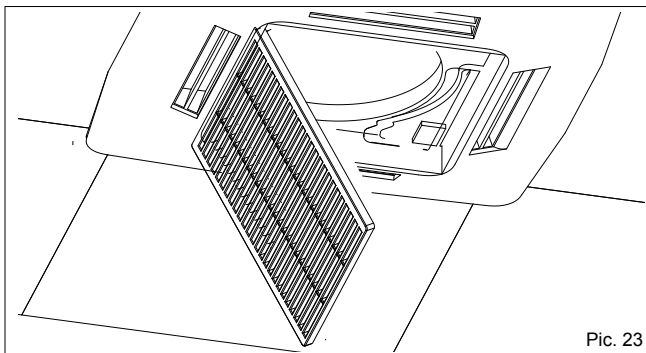
- Ultimately verify the smooth flow of condensate water from the basin to the discharge pipe (before blocking the dropped ceiling)!
- If the condensate drainage alarm is activated, the zone valve is closed and the fan turned off.

ELECTRIC POWER CABLES AND VALVES PASSAGE



ELECTRICAL CONNECTIONS

ACCESS TO THE CONTROL PANEL



ATTENTION!

Before carrying out electrical connections, ensure that the electricity supply has been cut off, checking that the on-off switch is in the OFF position.

Only qualified electricians should carry out the electrical connections. Check that the mains supply is single-phase 230 Vac/1/50 Hz ($\pm 10\%$). Operating the appliance with voltages outside the above limits could cause malfunction and renders the warranty null and void.

The fan coil power supply line should be fitted with at least a switch isolator in conformity with European standard EN60947-3. Make sure that the electrical system is suitable for providing not only the working current required by the appliance, but also the necessary current for powering household and other electrical appliances already in use. Any electrical and mechanical alterations or tampering render the warranty null and void.

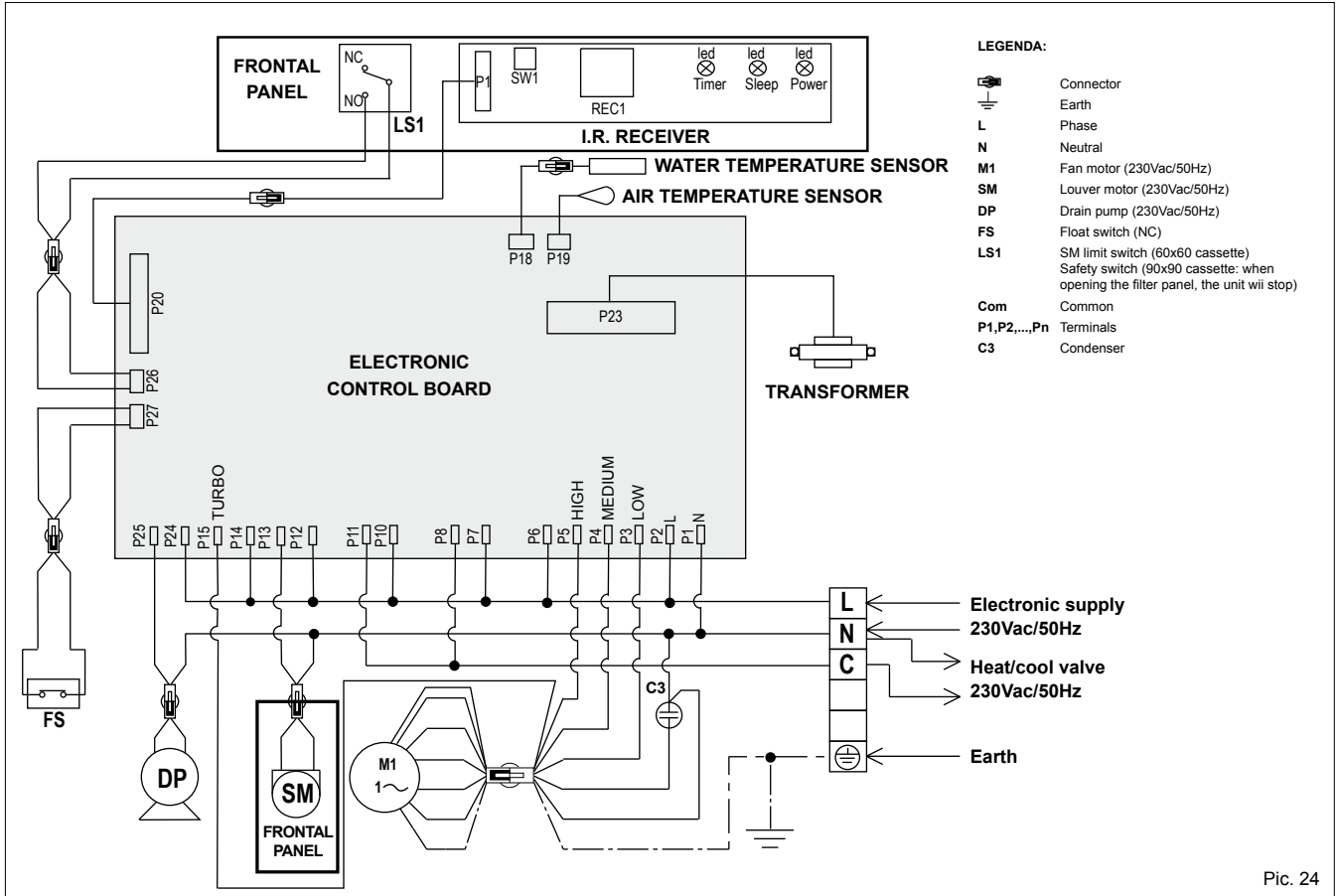
The motor and accessories power cables in channels or conduits should remain inside the same until they are inside the appliances.

To access the switchboard, proceed as follows:

- 1 Open the cassette grille;
- 2 Remove the metal covers first removing the screws;
- 3 Carry out the wiring;
- 4 Replace the metal covers and close the unit panel.

WIRING DIAGRAM OF 2 PIPE SYSTEM WATER CASSETTE WITH I.R. REMOTE CONTROL (CS/4S + HC/4S)

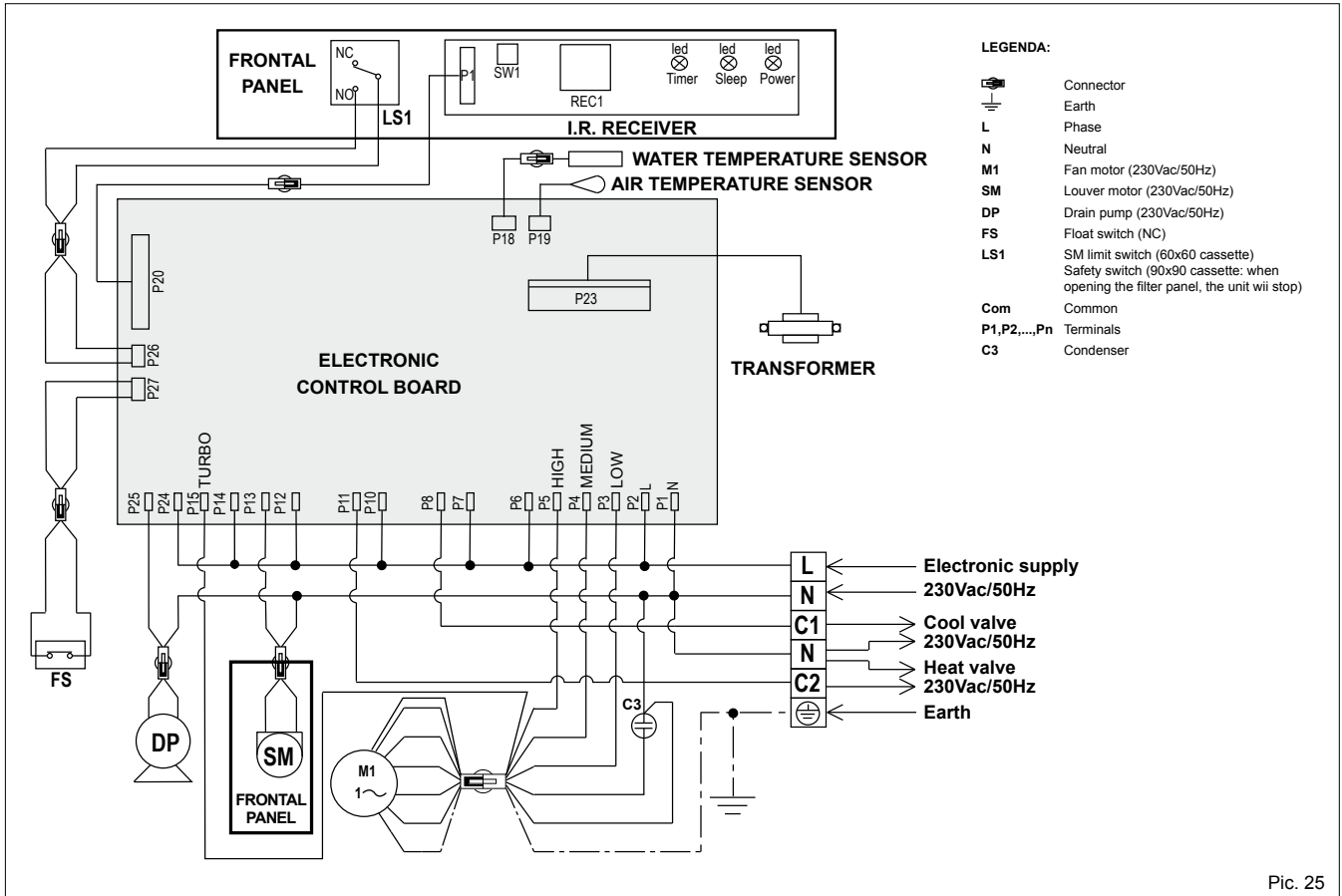
CASSETTES WITH A CONTROL BOARD THAT IS MANAGED ONBOARD



Pic. 24

WIRING DIAGRAM OF 4 PIPE SYSTEM WATER CASSETTE WITH I.R. REMOTE CONTROL (CS/4S + HC/4S)

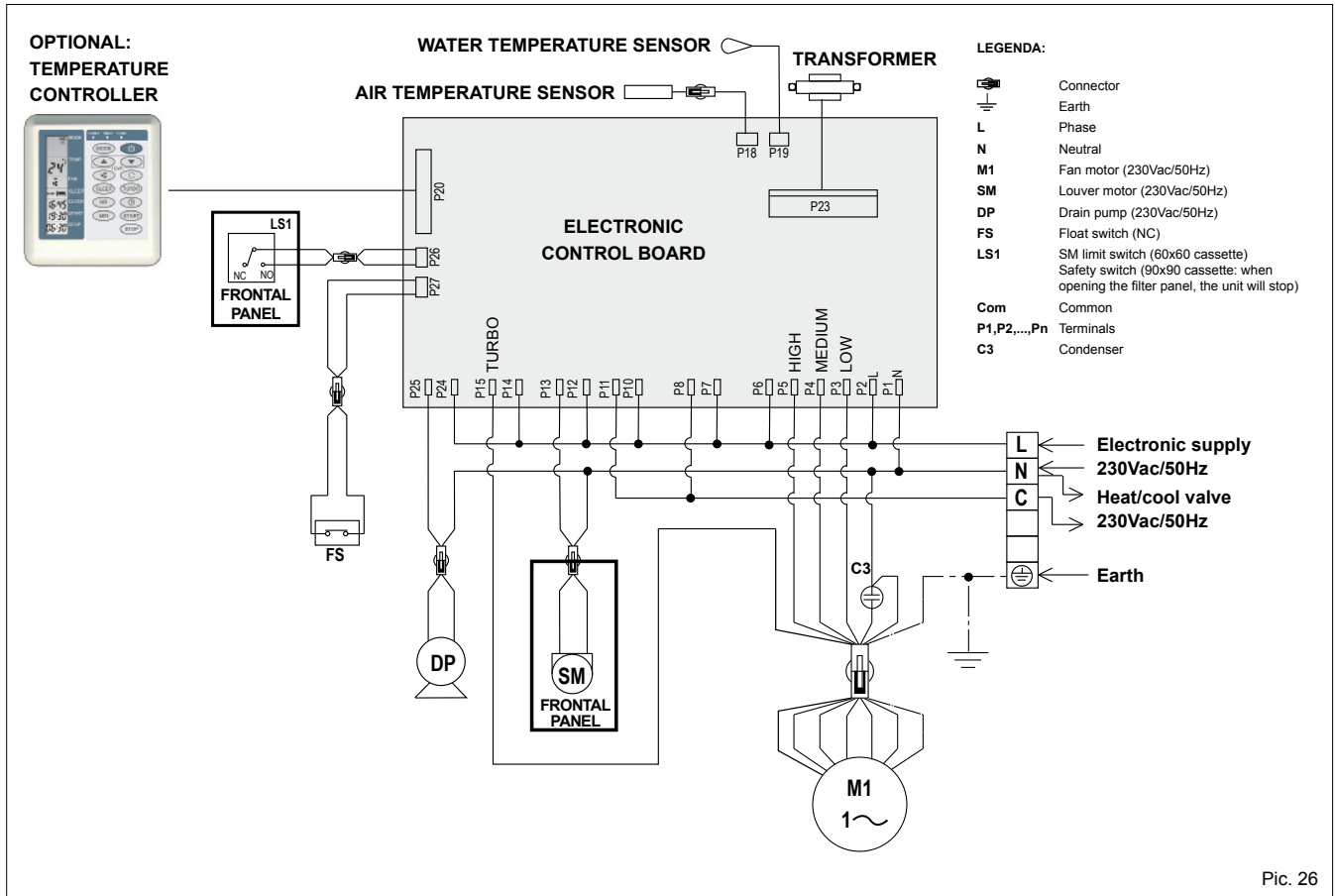
CASSETTES WITH A CONTROL BOARD THAT IS MANAGED ONBOARD



Pic. 25

WIRING DIAGRAM OF 2 PIPE SYSTEM WATER CASSETTE WITH WALL MOUNTED CONTROL (CS/4S + HC/4S)

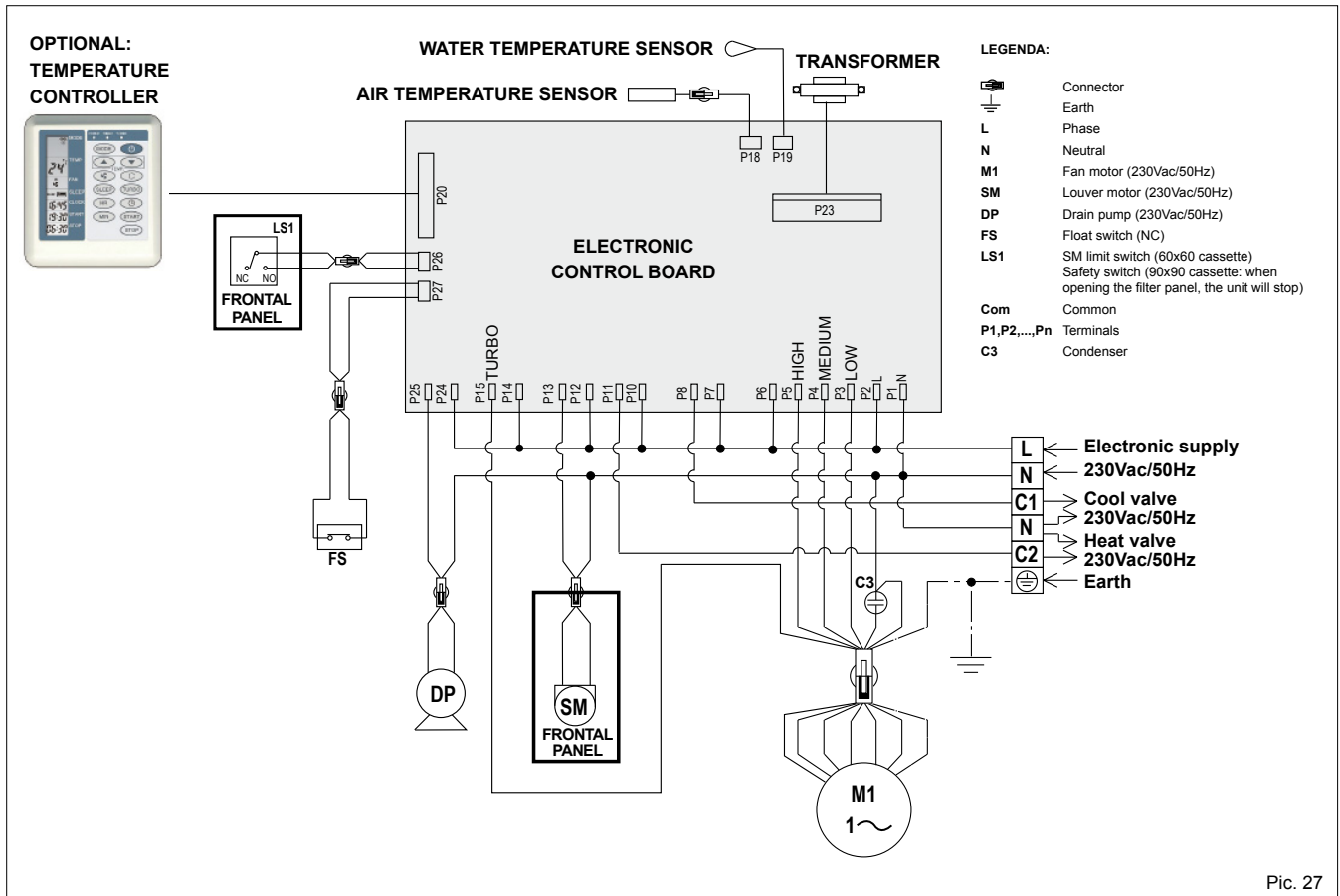
WALL MOUNTED CONTROL WITH THE SAME FUNCTIONS AS THE REMOTE CONTROL – CASSETTES WITH A CONTROL BOARD THAT IS MANAGED ONBOARD



Pic. 26

WIRING DIAGRAM OF 4 PIPE SYSTEM WATER CASSETTE WITH WALL MOUNTED CONTROL (CS/4S + HC/4S)

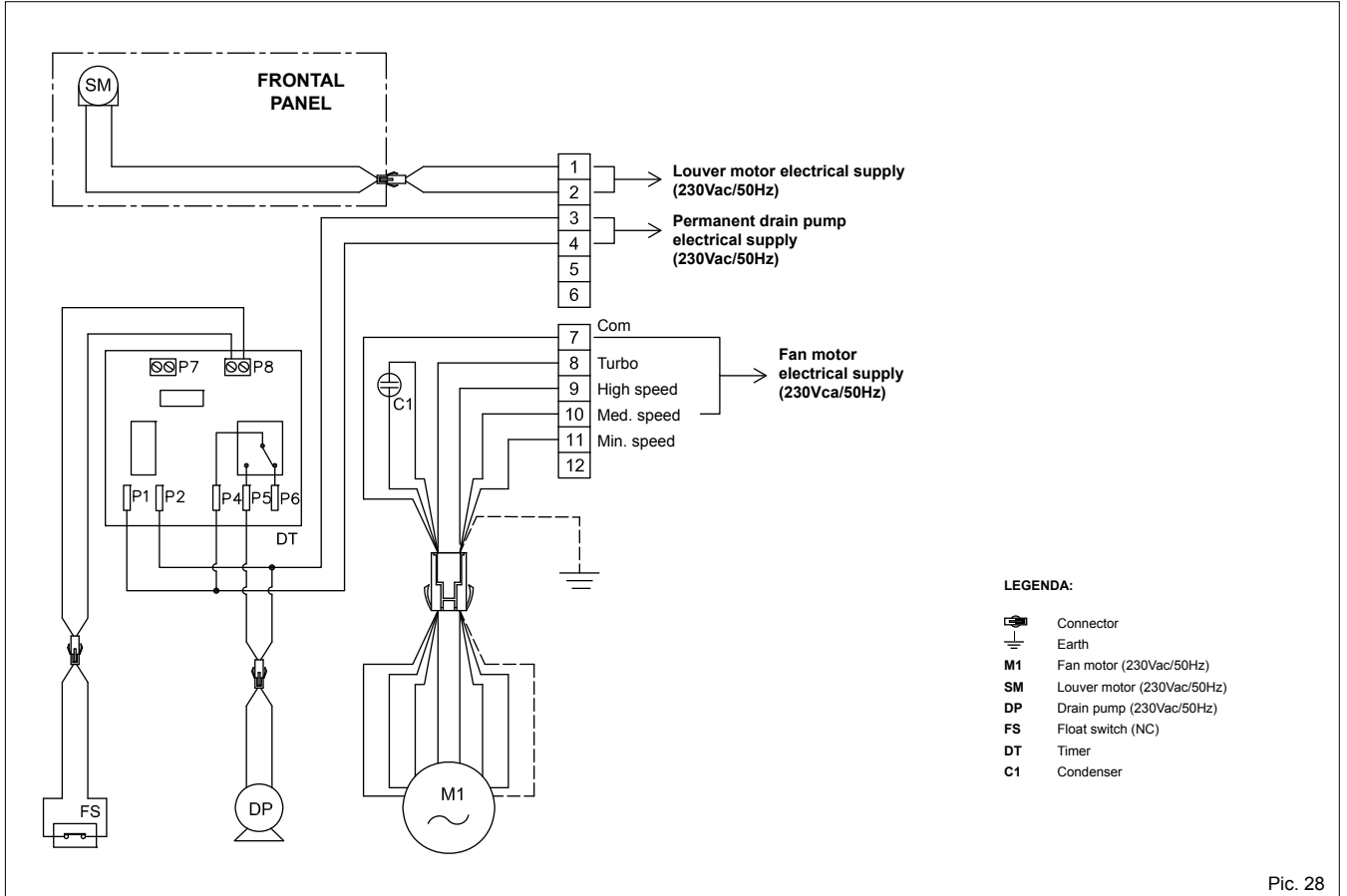
WALL MOUNTED CONTROL WITH THE SAME FUNCTIONS AS THE REMOTE CONTROL – CASSETTES WITH A CONTROL BOARD THAT IS MANAGED ONBOARD



Pic. 27

WIRING DIAGRAM OF 2/4 PIPE SYSTEM WATER CASSETTE FORESEEN FOR WALL MOUNTED CONTROL (CS/4S + HC/4S)

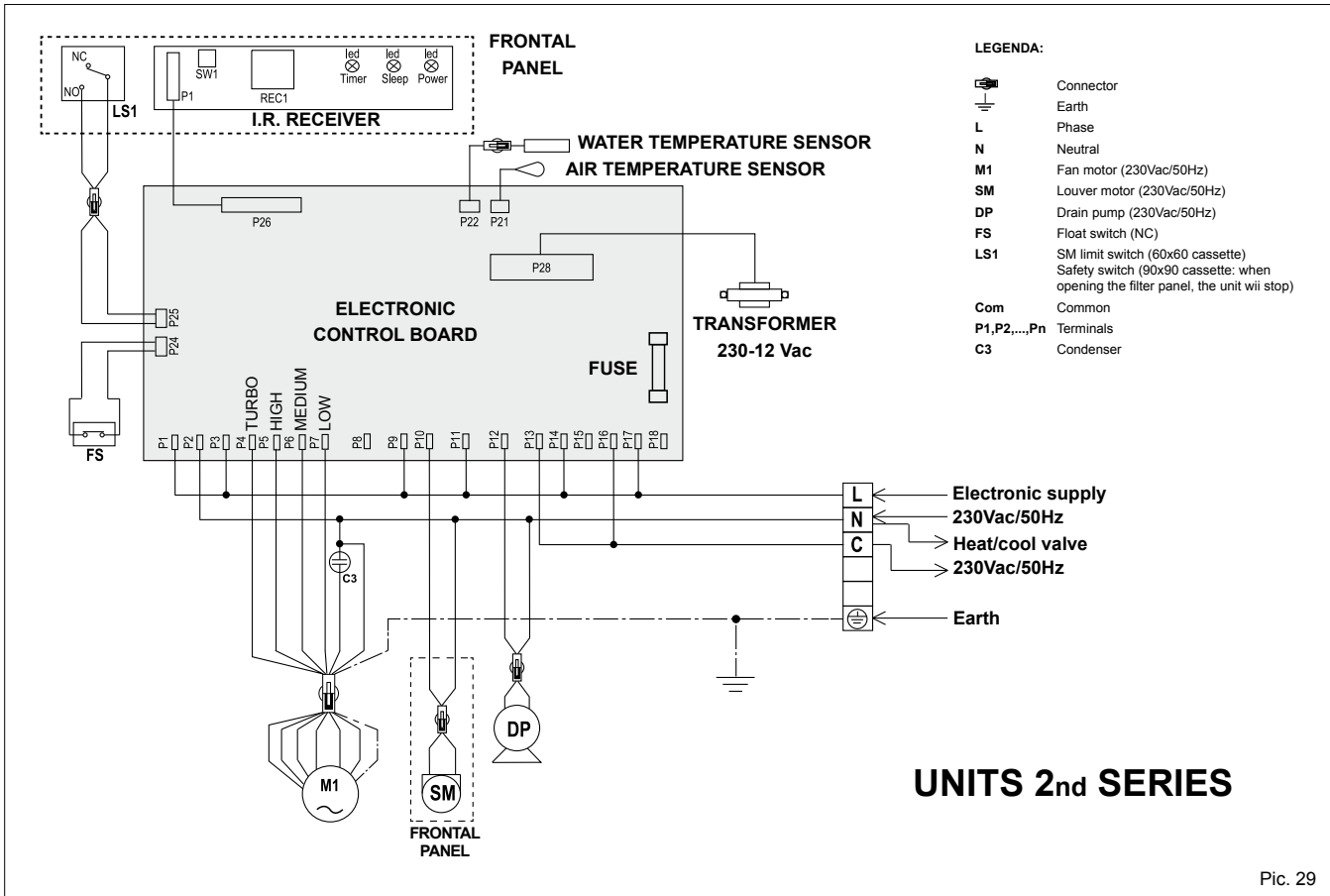
CASSETTES WITHOUT A CONTROL BOARD THAT IS MANAGED ONBOARD



Pic. 28

WIRING DIAGRAM OF 2 PIPE SYSTEM WATER CASSETTE WITH I.R. REMOTE CONTROL (CS/4S + HC/4S - 2nd SERIES)

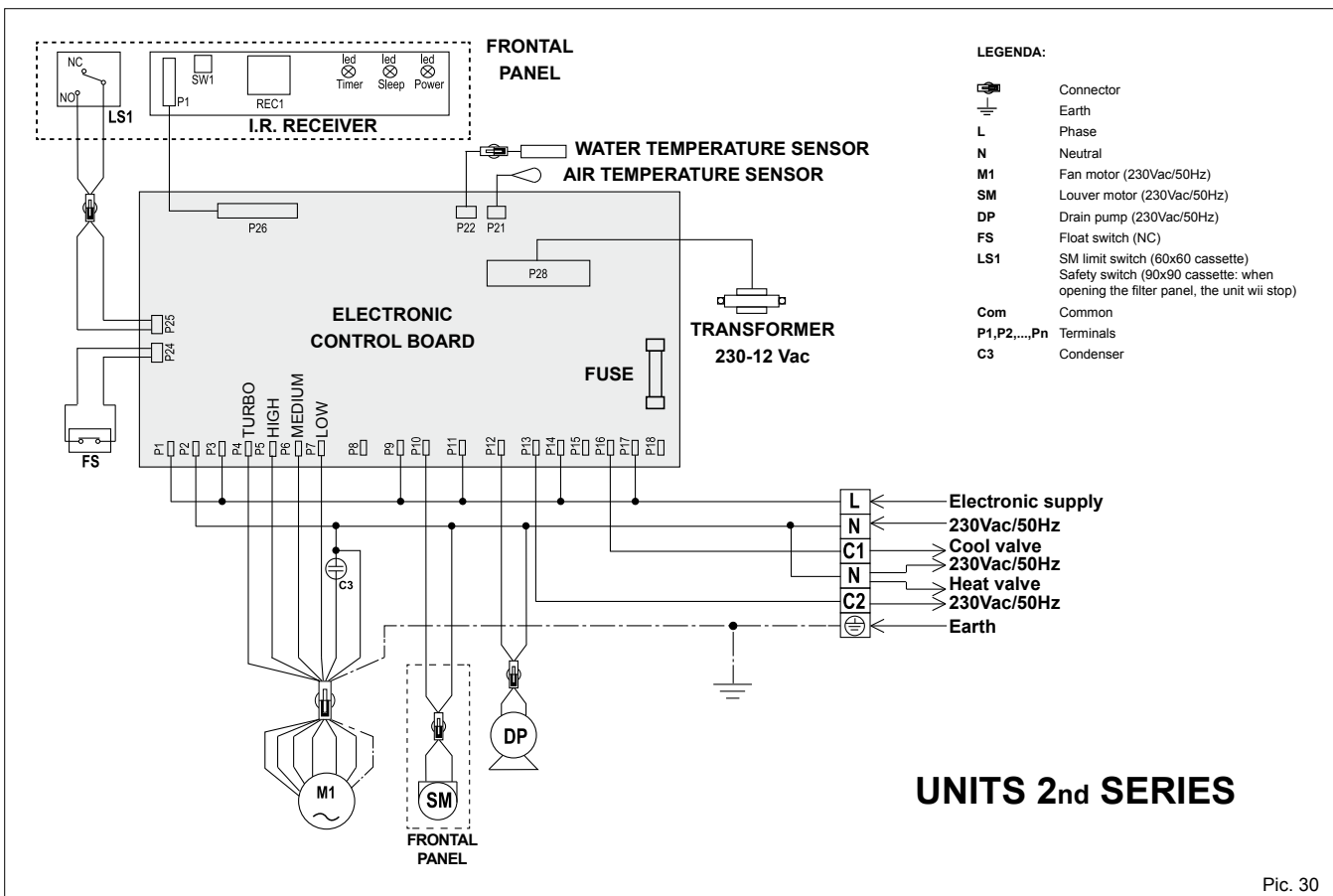
CASSETTES WITH A CONTROL BOARD THAT IS MANAGED ONBOARD



Pic. 29

WIRING DIAGRAM OF 4 PIPE SYSTEM WATER CASSETTE WITH I.R. REMOTE CONTROL (CS/4S + HC/4S - 2nd SERIES)

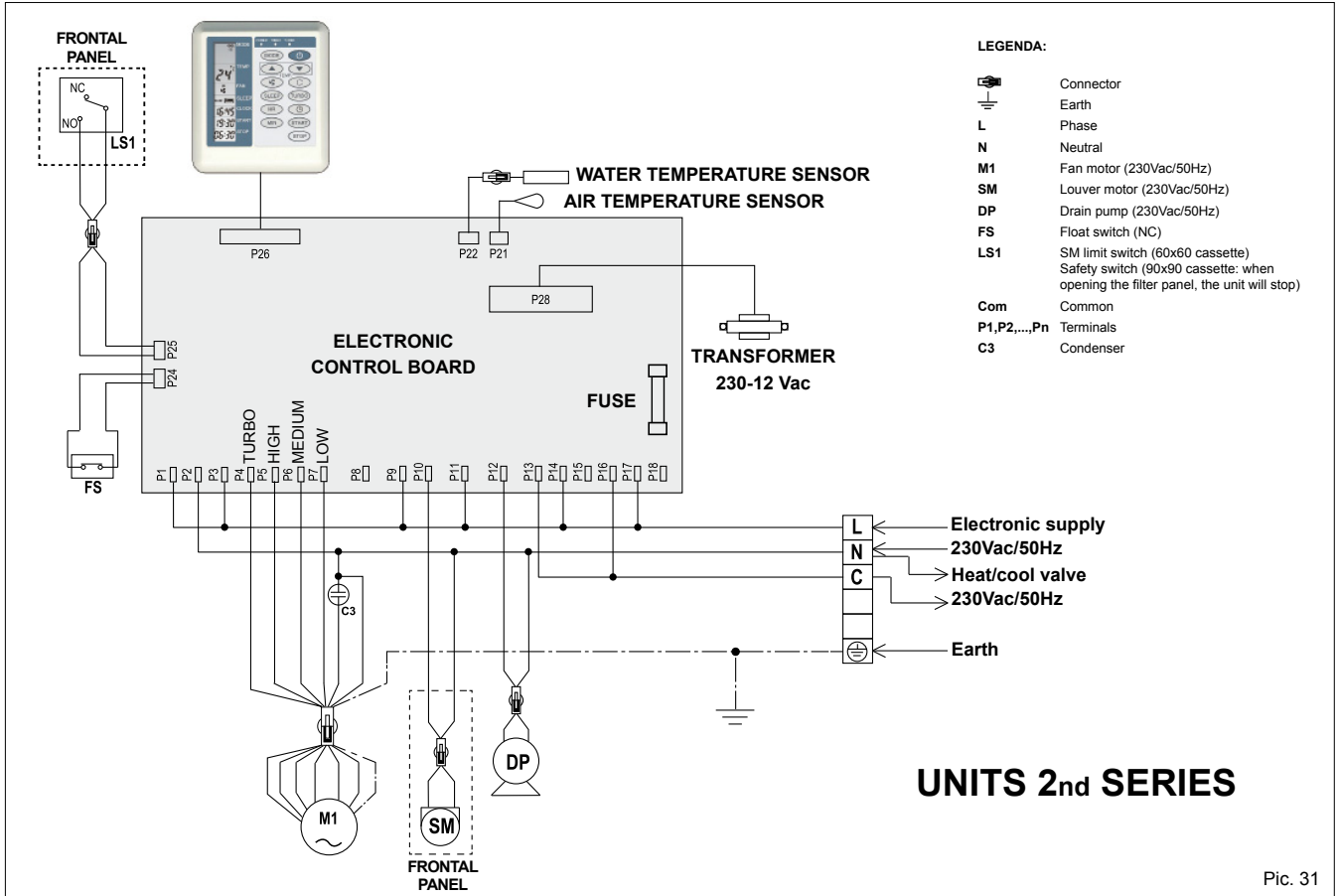
CASSETTES WITH A CONTROL BOARD THAT IS MANAGED ONBOARD



Pic. 30

WIRING DIAGRAM OF 2 PIPE SYSTEM WATER CASSETTE WITH WALL MOUNTED CONTROL (CS/4S + HC/4S - 2nd SERIES)

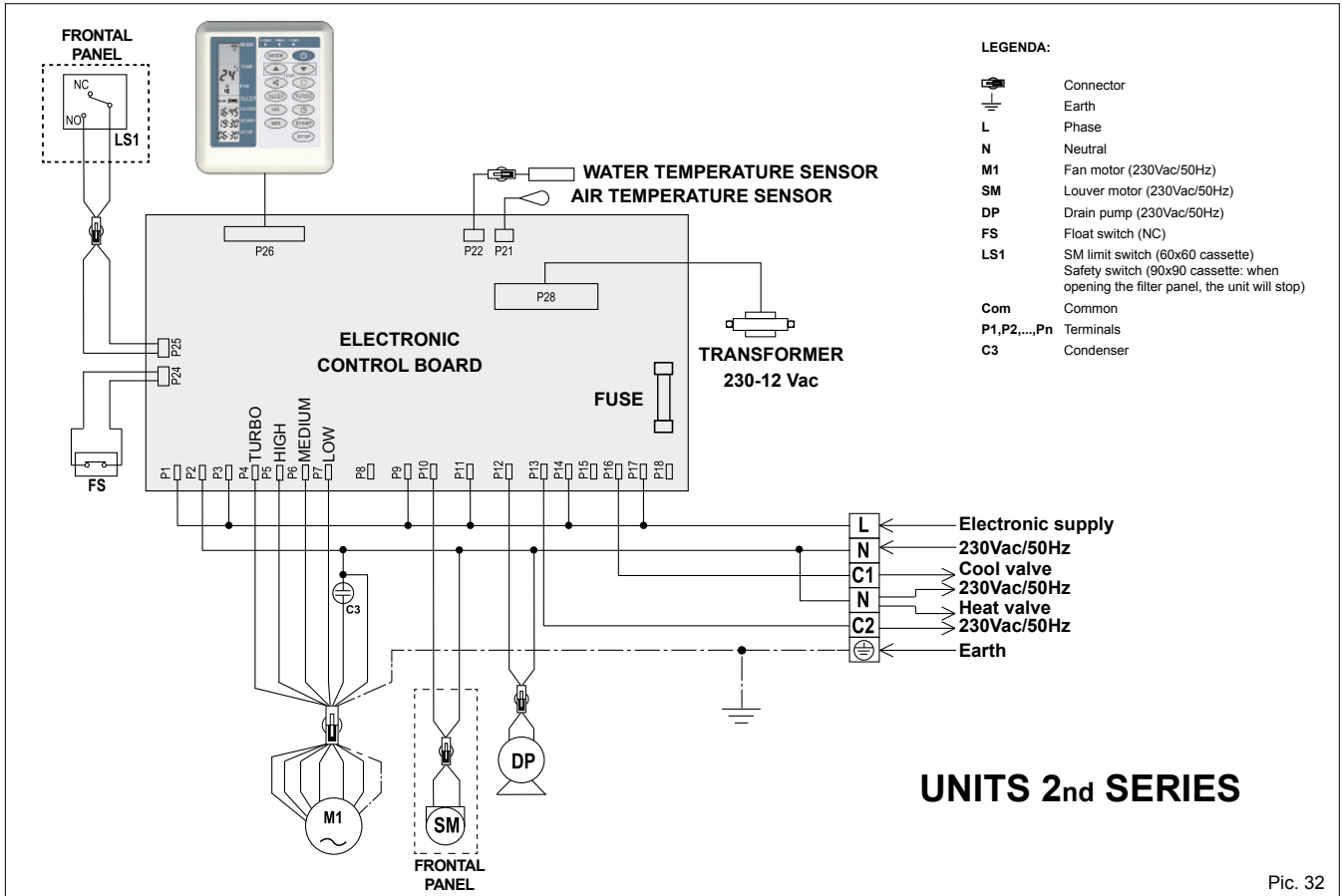
WALL MOUNTED CONTROL WITH THE SAME FUNCTIONS AS THE REMOTE CONTROL – CASSETTES WITH A CONTROL BOARD THAT IS MANAGED ONBOARD



Pic. 31

WIRING DIAGRAM OF 4 PIPE SYSTEM WATER CASSETTE WITH WALL MOUNTED CONTROL (CS/4S + HC/4S - 2nd SERIES)

WALL MOUNTED CONTROL WITH THE SAME FUNCTIONS AS THE REMOTE CONTROL – CASSETTES WITH A CONTROL BOARD THAT IS MANAGED ONBOARD



Pic. 32

**SECOND PART:
FOR THE USER**

RECCOMENDATION

Read the precautions carefully and carry out the procedures correctly:

- **In case of failure or malfunction, always apply to authorised service personnel.** Any attempt to remove parts, or to maintain the appliance can expose the user to danger of electrical shock. The cassette does not contain parts on which maintenance can be carried out by the user.

- **In case of relocation, apply to service personnel authorised to carry out this operation as well as the new installation.**

- **Do not insert fingers or objects of any kind into airflow outlets or air intake grilles.** There is a fan inside the appliance, which turns at high speed and could cause severe personal injury. Pay particular attention to children.

- **Do not allow the cold airflow to blow on you directly for long periods of time.** Direct and prolonged exposure to cold air can be dangerous for your health. Pay particular attention to rooms where there are children, elderly or sick people.

- **In case of air conditioner malfunction (e.g. smell of burning), stop appliance operation immediately, release the dedicated automatic switch and apply to authorised service personnel.** Prolonged use of the appliance in these conditions can cause fire or electrocution.

- **During installation of the appliances, avoid letting children or disabled have access to the working area.** Accidents can occur.

- **Install the appliance and the remote control at least two metres away from television or radio units and from lamps that could irradiate them directly.** Any interference of radio signals can cause operating problems.

- **Do not block or cover the airflow intake and delivery grilles.** The obstruction of these openings causes a reduction of the operating efficiency of the water cassette, with consequent possible failure or damage.

- **Do not use the water cassette for applications such as the storage of foods, plants, precision equipment or works of art.** The quality of the objects that are stored could deteriorate.

- **Do not expose animals or plants to the direct airflow from the appliance.** Prolonged direct exposure to the cold airflow from the water cassette can have a negative effect on animals and plants.

- **Do not direct the airflow of the air conditioner towards fireplaces or other heating appliances.** An airflow directed towards the fire can cause incorrect combustion and fire.

- **Air the room occasionally while using the appliance.** An insufficient change of air can cause an insufficiency of oxygen in the room.

- **Do not allow the air conditioner to come into contact with water.** The electrical insulation could be damaged with consequent possible risk of electrocution.

- **Check installation conditions in order to identify possible damage.**

After prolonged use, apply to specialised service personnel to control the installation conditions of the air conditioner.


- **Do not use flammable gas near the air conditioner.**

- **Always use the appliance with the air filter installed.**

Using the air conditioner without the air filter can cause an excessive accumulation of dust or deposits inside the unit, with consequent possible malfunctioning.

- **Release the "automatic" switch if the unit is not going to be used for long periods of time.**

- **Remove the batteries from the remote control if it is not going to be used for a long period of time.** Remove the batteries in order to prevent possible problems caused by loss of electrolyte. In case of accidental contact of the battery liquid with the skin, eyes or mouth, wash the affected part immediately with plenty of water, and see a doctor.

- **Please shut off the unit ONLY using the ON/OFF switch**  (infrared or wall-mounted remote control).

FAILURE TO COMPLY WITH THE INSTALLATION INSTRUCTIONS GIVEN IN THIS MANUAL RELIEVES THE MANUFACTURER OF ALL AND ANY LIABILITY. INCORRECT INSTALLATION COULD CAUSE MALFUNCTIONING OR FAILURE OF THE APPLIANCE.

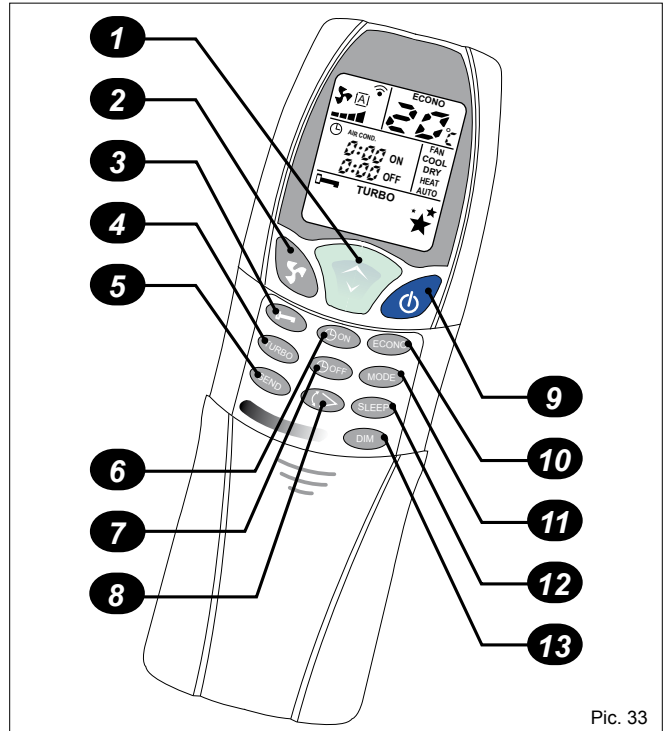
IT COULD ALSO REPRESENT A HAZARD FOR THE USER.

WATER CASSETTE OPERATION

The water cassette has been designed to create the ideal climatic conditions for the comfort of the occupants of the room. It can provide fully automatic cooling, dehumidifying and also heating. The air is drawn in by the fan through the intake grille in the front panel and then passes through the filter, which retains the dust. The air then proceeds through the fins of a "heat exchanger": this is a finned coil, which cools and dries or heats the air. Finally the fan sends the air into the room; the direction of the outgoing airflow can be adjusted by means of the motor-driven direction louver.

THE INFRARED REMOTE CONTROLLER

CASSETTE WITH A CONTROL BOARD THAT IS MANAGED ONBOARD



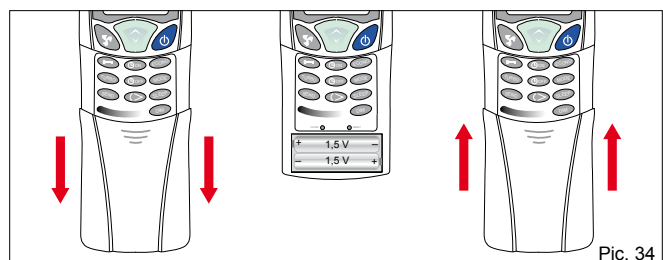
Pic. 33

- 1 Select the desired room temperature (18 °C to 30 °C) and adjust the hours/minutes
- 2 Select the fan speed (4 positions + automatic)
- 3 Lock function: when kept pressed for 5 seconds, the remote control is blocked
- 4 TURBO function: it warms or cools for 30 min at the maximum speed
- 5 Sends all the settings that are in the remote control at that moment
- 6 Daily timer On
- 7 Daily timer Off
- 8 Enables or disables the movement of the vents
- 9 Turns the unit on or off
- 10 Economy function: automatic fan heating: 20 °C - cooling: 25 °C
- 11 Function mode:
Cool = cooling; Heat = warming; Fan = only ventilation
Auto = only for units with 4 pipes (cooling and heating)
- 12 Night function:
- 13 Not used

The unit gives a beep to confirm that it has received each button command correctly.

Replacing the batteries. When no acoustic signal is emitted from the unit or the LCD display does not go on, pull the cover downwards as shown in the diagram at the side (2 batteries AAA 1.5 V). Insert the new batteries observing their polarity.

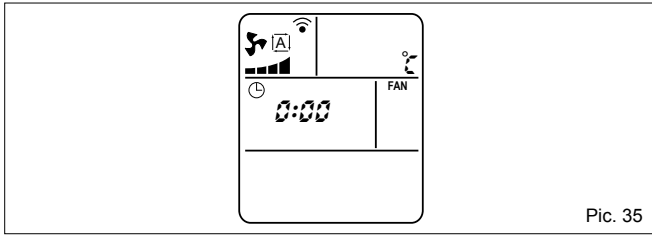
ATTENTION: only use new batteries. Remove the batteries from the remote control when the water cassette is not used.



Pic. 34

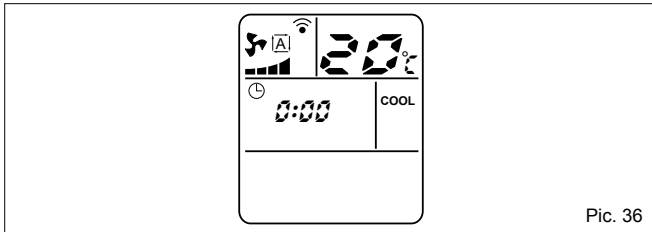
I.R. REMOTE CONTROL OPERATIONS

FAN When the **MODE** button is pressed and the **FAN** mode is selected, the cassette will operate as an electrical fan only.



Pic. 35

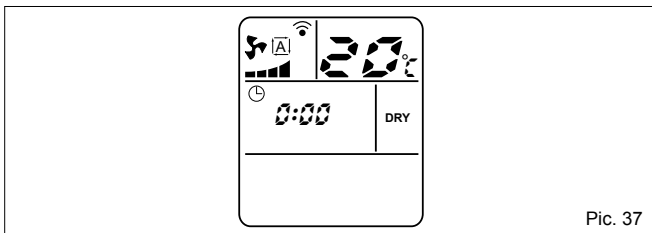
COOLING (COOL) When the **MODE** button is pressed and **COOL** is selected, the cassette cools the room and at the same time reduces the humidity in the air. To start the cooling cycle, use the button to set a temperature which is lower than the room temperature. For example: if there is a temperature of 28°C in the room, a temperature lower than 27°C should be set in order for the compressor and cooling to start. The appliance automatically adjusts operating cycles in order to keep the room at the required temperature. Upon completion of settings, press the **SEND** button and listen for the beep to make sure that the appliance has received the command.



Pic. 36

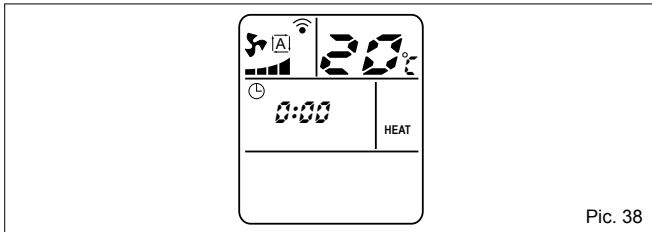
DEHUMIDIFYING (DRY) When the **MODE** button is pressed and the **DRY** mode selected, the cassette alternates cooling and fan cycles. This mode is used to dehumidify the air without excessively altering the room temperature.

Operation is fully automatic: the appliance itself controls the fan speed



Pic. 37

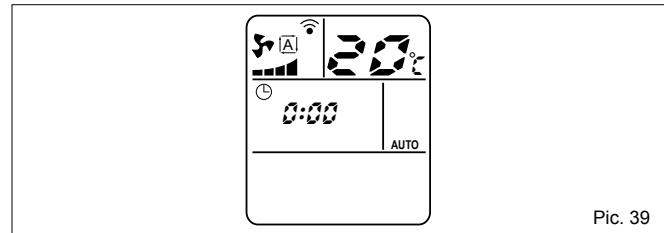
HEATING (HEAT) When the **MODE** button is pressed and the **HEAT** mode is selected, the cassette will heat the room. To start the heating cycle, use the button and to set a temperature which is higher than the room temperature. For example: if there is a temperature of 18°C in the room, a temperature higher than 19°C should be set in order for the compressor and heating to start. Upon completion of settings, press the **SEND** button and listen for the beep to make sure that the appliance has received the command.



Pic. 38

AUTOMATIC MODE (AUTO) only for units with 4 pipes. Access this mode by pressing the **MODE** button. In the **AUTO** mode the electronic control automatically selects the operating mode according to the room temperature (measured by the built-in sensor):

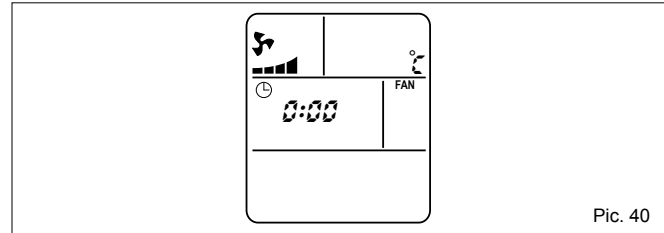
- if the room temperature drops below 18°C, the appliance will start the heating cycle. This will continue until the temperature rises to above 20°C;
- if the room temperature is above 26°C the appliance will start the cooling cycle. This will continue until the temperature drops below 24°C.



Pic. 39

FAN SPEED ADJUSTMENT (FAN) When the **FAN** button is pressed, one of the following fan speeds can be selected: **AUTO - MINIMUM - AVERAGE - MAXIMUM - TURBO**

In the **AUTO** mode, the electronic control automatically selects the fan speed according to the difference between the set temperature and the room temperature. This function automatically increases the fan speed if a greater cooling or heating effect is required.



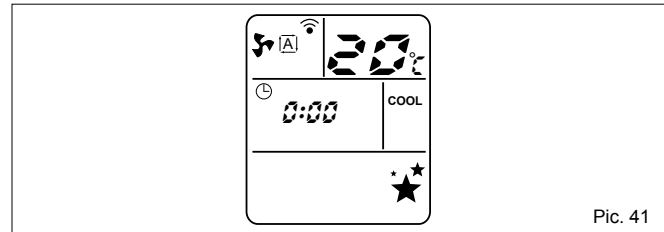
Pic. 40

SLEEP MODE (SLEEP) Access this mode by pressing the **SLEEP** button. The symbol will appear on the display, as shown in the drawing to the side.

The **SLEEP** mode automatically adjusts the temperature to make the sleeping environment more comfortable during the night. During the cooling or dehumidifying modes the set temperature is increased gradually by 2°C during the first two hours of operation. During the heating mode the set temperature is decreased gradually by 2°C during the first 2 hours of operation. Timed switching off can also be set together with the **SLEEP** mode.

Note:

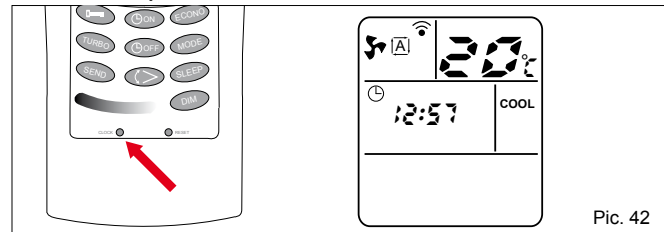
- When the system is set to **SLEEP** mode, this will be cancelled when the **SLEEP** key is pressed;
- When the system is set to **SLEEP** mode and the key is pressed, the previously set temperature will be increased by 1 °C;
- The **SLEEP** function will be cancelled if there is a power failure.



Pic. 41

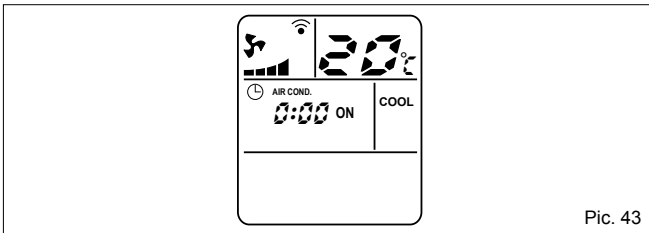
SETTING THE CLOCK Press the **CLOCK** key and the corresponding part on the display will flash: the current time is set via the key. Once this is completed, confirm the time by pressing the **SEND** key and the acoustic signal will verify that the correct signal has been received.

IMPORTANT: Before setting timed switching on, set the required operating mode and fan speed. Then switch the air conditioner off.



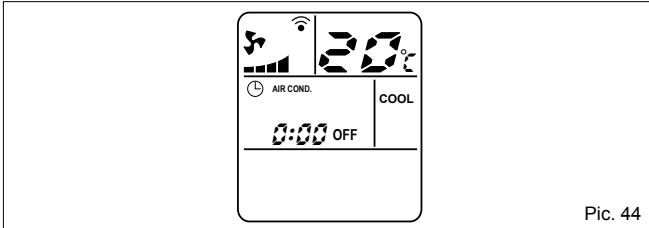
Pic. 42

TIMED SWITCHING ON To set timed switching on, the appliance must be off. Press the **MODE** button and the corresponding part of the display starts to blink. Set the time for timed switching on using the button. The subsequent switching off time may also be set by pressing the **MODE** button and setting the required time using the button. Confirm the new setting by pressing the **SEND** button and listen for the beep to make sure that the appliance has received the signal.



Pic. 43

TIMED SWITCHING OFF To set timed switching off, the appliance must be on or the timed switching on function must be set. Press the button and the corresponding part of the display starts to blink. Set the time for timed switching off using the button. The subsequent switching on time may also be set by pressing the button and setting the required time using the button. Confirm the new setting by pressing the button and listen for the beep to make sure that the appliance has received the signal.



Pic. 44

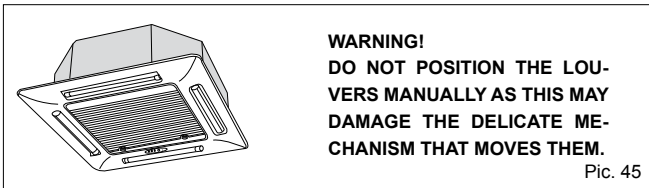
Note:

The timed shutdown function will be cancelled if there is a power failure.

WARNING!

Once the switch on and/or the switch off time is expired, it will be automatically canceled from the internal memory. Switch on and switch off time need to be setted each time the user necessitate.

ADJUSTING THE AIR FLOW By means of the key the louvers are activated and deactivated so that the air flow is directed alternatively downwards and upwards and the air is evenly emitted in the room.

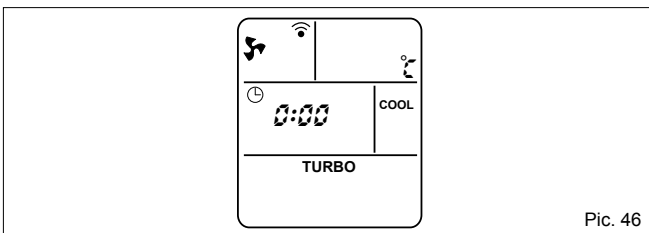


Pic. 45

TURBO FUNCTION

Press the key in cooling, heating or automatic mode. The fan temperature and speed will disappear from the remote control display. The **TURBO** function activates the fan (heating or cooling mode) at maximum speed for 30 minutes. The **TURBO** function is deactivated:

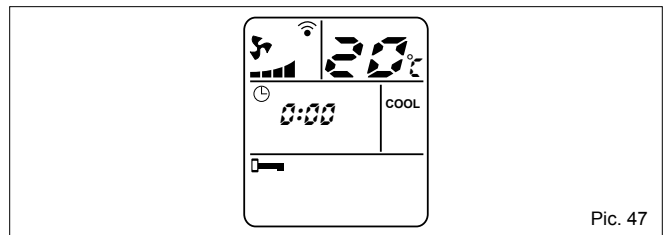
- Press the key again while the function is active.
- The room temperature will reach 18 °C in cooling mode or 30 °C in heating mode.
- Press the (on/off) or the (operating mode) key.



Pic. 46

BLOCKING THE REMOTE CONTROL

Keep the key pressed for 2 seconds to block the remote control. Keep the key pressed for 2 seconds to unblock the remote control.



Pic. 47

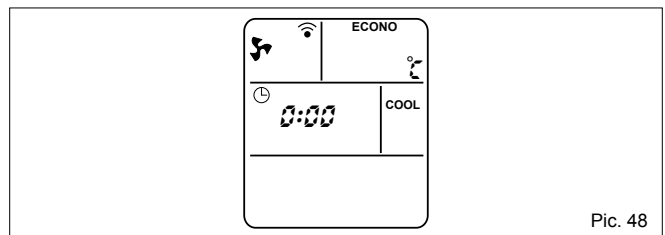
ECONO

Press the key in cooling, heating or automatic mode to activate the energy saving mode. The fan temperature and speed will disappear from the remote control display.

The temperature is set at 25 °C in cooling mode and 20 °C in heating mode.

The **ECONO** function is deactivated:

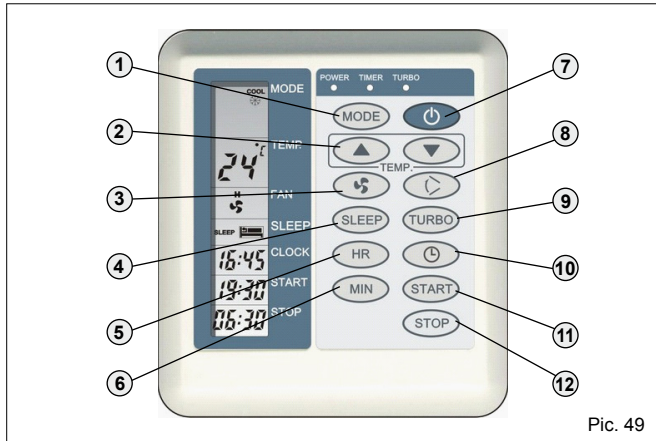
- Press the key again while the function is active.
- Press the (operating mode) key.



Pic. 48

WALL MOUNTED CONTROL – SAME FUNCTIONS AS THE REMOTE CONTROL

CASSETTE WITH A CONTROL BOARD THAT IS MANAGED ONBOARD



Pic. 49

- 1 Function mode: Cool = cooling; Heat = warming; Fan = only ventilation; Auto = only for units with 4 pipes (cooling and heating).
- 2 Select the desired room temperature (18 °C to 30 °C)
- 3 Select the fan speed (4 positions + automatic)
- 4 Night function:
- 5 Setting the hour.
- 6 Setting the minutes.
- 7 Turns the unit on or off
- 8 Enables or disables the movement of the vents
- 9 Turbo function: warms or cools for 30 min at the maximum speed
- 10 Setting the current time.
- 11 Daily timer on
- 12 Daily timer off

Refer to the I.R. remote control to learn the functions

WALL-MOUNTED CONTROL OPERATIONS

CASSETTE WITH A CONTROL BOARD THAT IS MANAGED ONBOARD

Self-diagnosis

The system comes with a self-diagnosis circuit to monitor the microprocessor functions. In the event of malfunction this circuit automatically resets the microprocessor.

System memory

The system stores the set parameters (such as the operating status, fan speed, etc.) in its non-volatile storage. After a power failure, the cassette will automatically resume operation with the same parameters that were set prior to the blackout (except the SLEEP and TIMER modes which will be erased). Any change to the parameters will be saved in the non-volatile storage after 5 seconds.

Situation of normal operation

The POWER indicator light is on if the cassette was switched on via the I.R. remote control.

The TIMER indicator light is on if the AUTO START and AUTO STOP modes are active.

The SLEEP indicator light shows the temperature compensation during the SLEEP mode.

TROUBLESHOOTING

1) The POWER, SLEEP and TIMER indicator lights blink continuously: The system is protected by the cutting off of power to all the outputs.

This type of alarm is generated by one events:

- safety float with an always open contact (the main condensation basin is full of water).

Remedy: check the condensate drainage circuit (pump, float, drain hoses): inclination and height.

2) The SLEEP indicator lights blink continuously (Pic. 50A):

- Coil water temperature above 80 °C.

Remedy: check coil water temperature.

3) The POWER indicator flashes intermittently (Pic. 50 B).

This type of alarm can be caused by three events:

- a) When 3 minutes have elapsed from the start of the COOL or DRY cycles, coil temperature is above 25° C. The system is protected by the cutting off of power to the valve output.

Remedy: check the coil water temperature and correct valve operation.

- b) When 3 minutes have elapsed from the start of the HEAT cycle, coil temperature is not above 20° C. The system is protected by the cutting off of power

to the valve output.

Remedy: check the coil water temperature and correct valve operation.

- c) The incorrect mode has been set:

- there is hot water when the mode is set on cooling;
- there is cold water when the mode is set on heating;

4) TIMER indicator light blinks continuously (Pic. 50A):

Air temperature sensor and water temperature sensor are damaged or not connected.

5) TIMER indicator light blinks intermittently (Pic. 50B): the filters must be cleaned.

When the cassette has been operating for more than 500 hours, a warning is displayed as a reminder to clean the filter.

6) The POWER indicator flashes intermittently (Pic. 50 C).

Only for cassettes HC4S.

Safety switch (LS1) open.

ATTENTION: reset by cutting off the power for at least 10 seconds. Una volta ridata tensione l'unità rientra in allarme se dopo 3 minuti questo stato persiste. Once the power returns the unit will return to the alarm status if this persists after 3 minutes.

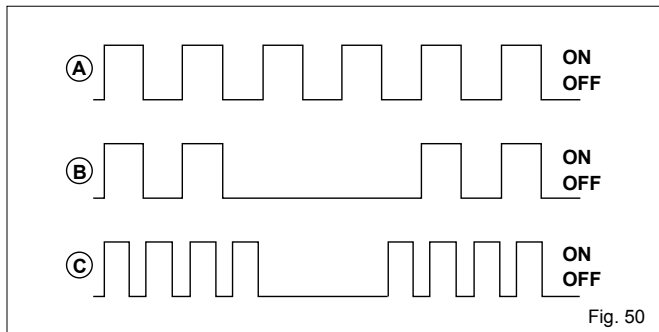


Fig. 50

CONDENSATE DRAIN PUMP OPERATION SPECIFICATIONS

CASSETTE WITH A CONTROL BOARD THAT IS MANAGED ONBOARD

Cool - The unit is running: the pump is always on until the set temperature is reached.

The unit is turned off from the remote control or the set temperature has been reached: when the water reaches the float, the contact is opened and the pump is activated for 3 minutes; after which, if the float does not close the contact once again (water discharge), the unit will enter an alarm status.

Dry - cool.

Heat - The unit is running or was turned off from the remote control: the pump is activated by the float.

Fan - heat.

Auto

If the unit is in the cool mode, the pump follows the cool operation.

If the unit is in the heat mode, the pump follows the heat operation.

CASSETTE WITHOUT A CONTROL BOARD THAT IS MANAGED ONBOARD

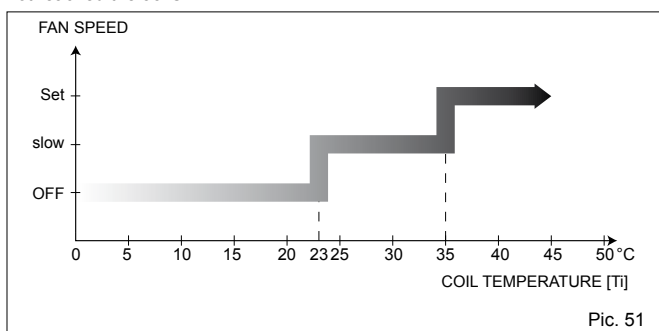
The condensate discharge pump is activated when the water level inside the main condensation basin reaches the float and opens its contact. A timer activates the condensate discharge pump for about 3 minutes (empty-basin cycle), which is repeated until the float's contact is closed.

No discharge condensate alarms are foreseen.

PRE-HEATING FUNCTION

CASSETTE WITH A CONTROL BOARD THAT IS MANAGED ONBOARD

Pre-heating function is used to avoid cold air in HEAT mode when the valve is open. The valve remains open also if within 3 minutes the coil temperature has not reached the 35°C.



Pic. 51

If $T_i < 23^\circ\text{C}$, fan is OFF.

If $23 < T_i < 35^\circ\text{C}$, fan runs at minimum speed

If $T_i > 35^\circ\text{C}$, fan runs at setted speed.

ELECTRICAL CHARACTERISTICS

- Power supply 1Ph from 185 to 255 VAC, 50/60Hz
- Power consumption Less than 8 VA in stand-by
- Valve activation time delay 3 minutes \pm 5 seconds

Temperature:

- Room temperature accuracy $\pm 1^\circ\text{C}$
- Coil temperature accuracy $\pm 2^\circ\text{C}$
- Storage temperature $0 \div 70^\circ\text{C}$
- Operating temperature $10 \div 70^\circ\text{C}$
- Setting temperature range $18 \div 30^\circ\text{C}$ ($+1^\circ\text{C}$ step)
- ON/OFF temperature differential 1°C

OPERATING DETAIL

CASSETTE WITH A CONTROL BOARD THAT IS MANAGED ONBOARD

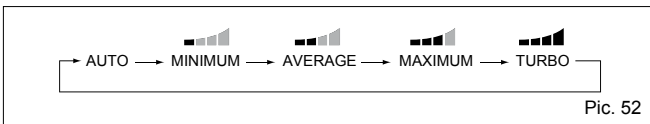
The following commands be given by the buttons on the eall-mounted control.

Switching on/off

Press the **POWER** button to switch the cassette on or off. When the system has been switched on, it will operate according to the settings shown on the display. The **POWER** indicator light on the display comes on.

Fan

Press the **FAN** button to select the fan speed (high, medium, low or auto mode). The display instantly shows the operating status.



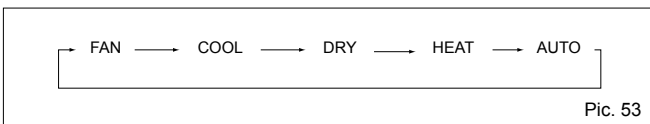
Auto mode

When the fan speed is set in the **AUTO** mode, the speed is adjusted automatically according to the difference between the room temperature and the set temperature:

- If the difference is 3°C or more, the speed is **HIGH**;
- If the difference is 2°C , the speed is **MEDIUM**;
- If the difference is 1°C or less, the speed is **LOW**.

Function mode:

- Ventilation (**FAN**)
- Air-conditioning (**COOL**)
- Dehumidifying (**DRY**)
- Heating (**HEAT**)
- Automatic (**AUTO**)



FAN

The writing **FAN** appears on the air-conditioner control display. In this mode the unit operates as a fan only. The **SLEEP** and **COOL** buttons are not used.

COOL

The writing **COOL** appears on the air-conditioner control display. The unit operates in the air-conditioning mode.

- the zone valve starts if $T_{\text{room}} \geq T_{\text{set}} + 1$
- the zone valve stops if $T_{\text{room}} \leq T_{\text{set}}$

In any case activation of the zone valve is subject to 3 minutes delay each time it stops.

DRY

The writing **DRY** appears on the air-conditioner control display. The unit operates in the dehumidifying mode to reduce the percentage of humidity in the room.

HEAT

The writing **HEAT** appears on the air-conditioner control display. The unit operates in the air-conditioning mode.

- the zone valve starts if $T_{\text{room}} \leq T_{\text{set}} - 1$
- the zone valve stops if $T_{\text{room}} \geq T_{\text{set}}$

In any case activation of the zone valve is subject to 3 minutes delay each time it stops.

AUTO

The writings **COOL** and **HEAT** appear on the display simultaneously.

Temperature setting

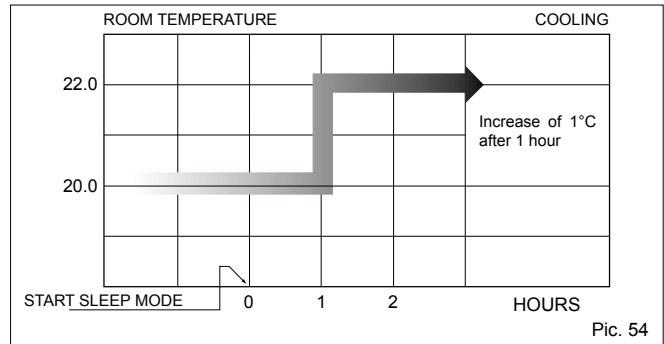
The setting temperature can be set in the range of 18°C - 30°C by pressing **TEMP** button. The LCD on the display unit will show the setting temperature.

Louver swing

Press the **SWING** button to start/stop louver swing.

SLEEP mode

Press the **SLEEP** key to activate the mode. The **SLEEP** symbol will appear on the display. In cool air-conditioning mode, the temperature is automatically increased by 1°C after an hour. Similarly, in warm air-conditioning mode the temperature is decreased by 1°C after an hour.



TIPS FOR BEST USE

- Connect the cassette to a dedicated power socket protected by a magnetothermal circuit breaker of suitable capacity for the electrical input of the appliance.
- When the water cassette starts or stops, especially in the heating mode, creaking sounds may be heard. This is caused by thermal expansion of the unit parts.
- Mist may sometimes be produced by the cassette for a few seconds in the cooling mode. This is quite normal and is caused by the difference in temperature between the air flowing out of the appliance and the air in the room.
- Do not place heat sources near to the cassette as this could deform the plastic parts.
- Do not insert objects into the air intakes or outlets when the cassette is in operation.
- Do not place objects in a position that may obstruct the passage of the air into the unit as this could affect appliance efficiency.

ENERGY SAVING

- Avoid opening and closing doors and windows: the continuous thermal transfer hinders the unit's production.
- Do not set a temperature that is too high (in heating mode) or too low (in cooling mode).
- Avoid installing the unit where it is directly exposed to sunlight.
- Use the timed shutdown to prevent it from being left on unnecessarily.
- Use the **SLEEP** function during the night.

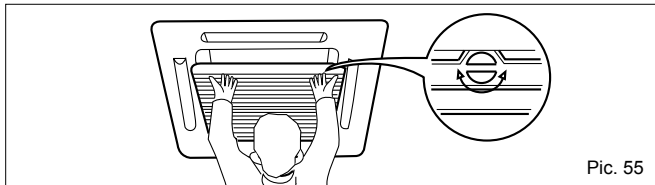
ROUTINE MAINTENANCE

ATTENTION!

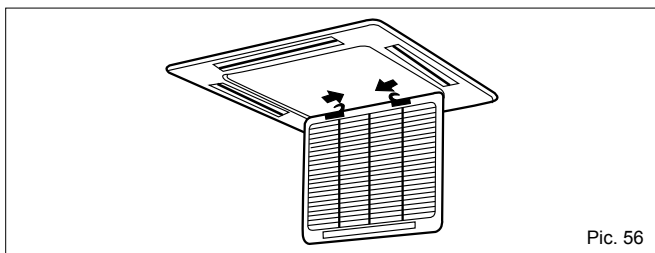
Turn off the automatic circuit breaker before carrying out any cleaning operations. Use a cloth dampened with lukewarm water (max 40°C) and mild detergent to clean the cassette. Do not use solvents or harsh detergents.

OPENING THE PANEL

To open the grille turn the plastic screws present on the grille by 90° (1/4 of a turn) (pic. 55) and gently pull the panel downwards without forcing the hinges that fasten it to the appliance. Attention: to make cleaning easier, the grille may be removed completely since the receiver panel is positioned on the fixed frame of the unit (see pic. 56).



Pic. 55

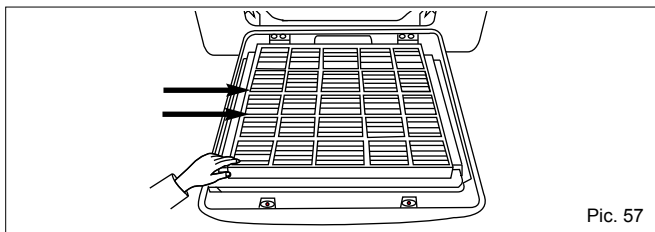


Pic. 56

FILTER CLEANING

Filter cleaning is essential for the good appliance efficiency.

1) Remove the filters by pulling them gently sideways and pressing lightly on the points shown in Pic. 57.

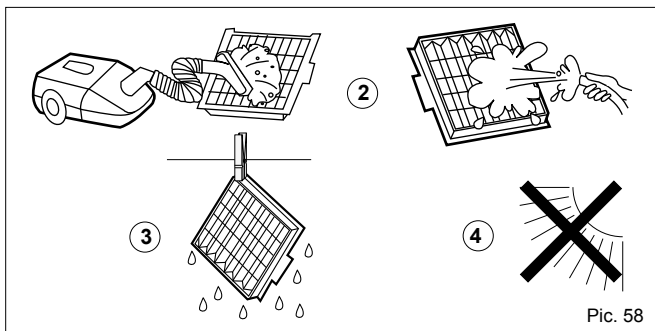


Pic. 57

2) Clean the filters with a vacuum cleaner or wash them with lukewarm water and mild detergent.

3) Make sure the filters are dry before replacing them in the appliance.

4) Do not expose the filters to sunlight.



Pic. 58

NB!

NEVER OPERATE THE CASSETTE WITHOUT THE AIR FILTERS!

END OF SEASON MAINTENANCE

- Clean and replace the filters.
- On a sunny day leave the cassette running in fan mode for a few hours to allow the inside of the unit to dry completely.
- Remove the plug or turn off the automatic circuit-breaker.

WHAT TO DO IF...

The unit does not go on? Check that...

- ... that the mains supply is reaching the unit
- ... that the plug is properly inserted
- ... if the circuit breaker has tripped
- ... if there been a failure in the mains supply

Does it seem to heat or cool less than usual? Check that...

- ... that the temperature has been set correctly
- ... if a window or door has been opened
- ... the filters for clogging
- ... for obstacles that prevent the free circulation of air
- ... if the cassette is exposed to direct sunlight

DISMANTLING THE APPLIANCE

This appliance is made to last for many years. Qualified personnel are needed to dismantle it in all safety. The first operation to be carried out before dismantling the appliance is to disconnect it totally from the electricity supply.

This appliance has been made using recyclable materials (copper, aluminium, brass, plastic) assembled by screws and push-fits to make separation of the parts easy.

Contact a firm specialised in differentiated waste disposal; it is the only way to be certain of correct recycling and thereby contribute to protection of the environment.



With the perspective of improvement, and against the continuous action of research and development, the Manufacturer might modify, even without any prior notice, the given technical data.