impresind

ColdAIR

ADIABATIC EVAPORATIVE COOLERS

USE AND MAINTENANCE INSTRUCTIONS

azienda con sistema di gestione per la qualità certificato
ISO 9001:2015

CE

INDEX

GENERAL INFORMATION

PREAMBLE

Dear Customer,

We thank you for choosing an Impresind product and we would like to inform you that:

- The contents of this document are for information purposes only and are subject to modifica tions without notice;
- This manual cannot be partially or fully reproduced, transmitted, copied or stored in an archive system in any mechanical, magnetic, optical, chemical or other form or means without written authorization by Impresind S.r.l.

The workers using and maintaining the machine must be fully aware of its contents before the machine is placed in service.

If the manual is misplaced or damaged, immediately request a copy by contacting Technical Assistance Service at Impresind Srl, indicating the identification data of the plant shown on the machine identification plate and on the cover of this manual.

The machine is conforming to the following European Community Directives:

2006/42/CE	⇒	Machinery Directive
2014/35/UE	⇒	Low Voltage Directive
2014/30/UE	⇒	Electromagnetic Compatibility Directive
2009/125/CE	⇒	Ecodesign Directive

INFORMATION FOR REMOVAL OLD MACHINES

Attention:

This product falls within the scope of the Directive 2012/19/EU concerning the management of waste electrical and electronic equipment.
This device is for professional use only; so it must not be disposed of with domestic waste, as it is made of different materials that cane be recycled at the appropriate structures.
This product is not dangerous for human health, but if abandoned in the environment negatively impacts on the ecosystem.
Read the instruction before using the device, and don't use this product for any use other than that indicated in the instruction.

This symbol mean that this product is part of the legislation on the waste electrical and electronic equipment.
Abandonment in the environment of the device , or illegal disposals, is punishable by law.

SECTION 1 – CHARACTERISTICS

1.1 Presentation of the ColdAir Evaporative Cooler

To improve the summer microclimate inside a production unit, sales or other area, it is necessary to ventilate the environment with frequent changes of fresh, filtered and possibly cool air. For large areas such as industrial buildings, an air conditioning plant is frequently not adaptable due to the great volume of air to be cooled and the thermal loads of processes to be neutralized, the necessary amount of energy is very high and the cooling effect is reduced by the exhaust air extraction plant and by frequent opening of the doors during normal activity.
Evaporative cooling plants that cool the air using a natural principle represent an optimal solution: the air passes through special wet water filters, loosing part of its heat during the evaporation process of the water and hence lowering the air temperature. The absence of refrigeration plants reduces energy consumption to a minimum and enables great volumes of air to be treated for the many air changes necessary.

1.2 Foreseen use

The ***ColdAir*** evaporative cooler can be installed in all environments where it is necessary to improve the microclimate, where the environment must be ventilated with frequent changes of fresh, filtered and possibly cool air, such as:

- production buildings and units
- sales areas and warehouses
- sport areas such as gymnasiums;

It is absolutely forbidden to make modifications to the machine and its destination of use.

Impresind Srl declines all responsibility for any damages which may be, directly or indirectly, caused to exposed persons or property, due to improper use or use of the machine for different purposes other than the design purposes, incorrect installation, inappropriate power supply, different or changes to the installation environment from the one declared during order confirmation, grave deficiency of maintenance, unauthorized alterations and modifications, use of non-original spare parts, removal of the protection guards, inobservance of the instructions for use, negligence, etc.

The machine must NOT be used for a different use than its designed use for any reason whatsoever or used in a different way than stated in this manual.
DO NOT install the machine in closed areas; the machine must be installed outside the area to be treated, except by specific approval of the manufacturer.
DO NOT lay weights on the machine

Do NOT start-up the machine if it is not connected to the relative plant (duct) of air distribution.

When the plant is operating, do not touch the fan – Mechanical danger.
It is forbidden to work on moving parts.

It is absolutely forbidden to install Cold AIR evaporative cooling plants in potentially explosive environments.

1.3 Machine identification data

Machine identification data is shown on the warranty sheet supplied to the customer and is enclosed in the documentation and on the machine identification plate.

If Technical Assistance or spare parts are required, always supply the machine model and serial number.

1.4 Electrical boards

Any electrical boards supplied by Impresind s.r.l. are manufactured according to CEI EN 60204-1:2018 regulations.

It is absolutely forbidden to make modifications to the electrical board.

SECTION 2 – USING THE EVAPORATIVE COOLING UNIT

2.1 First start up

2.1.1 All models

For optimally using and functioning of the plant/machine it is necessary that, during the first start-up (in cooling mode), the fan runs at minimum speed and keeps it for at least one complete day.
If this procedure is not observed, during the first day of functioning only, malfunctioning of the evaporative pads may occur resulting in water drops coming out of the ducts.
During the first start-up of your cooling system, an unusual odour may be detected.
When the evaporative panels start to get wet, they may emit a particular odour, which may be present for several hours. This odour is a characteristic of the treated cellulose material but it is not harmful.
Even the fan motor may present a “characteristic” odour for a short period, which is caused by initial heating and by any paint on the surface of the motor itself.

2.6.2 TC model series

During first start-up, be sure of the right rotation of the fan (indicated with an arrow (adhesive plate) placed on fan body):

1. Take the machine top off by unscrewing the 4 corners screws.
2. Turn the machine on in ventilation mode
3. Look ……. rotation must have the same direction of the arrows as shown.

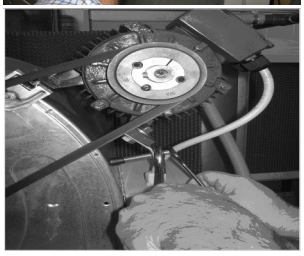
4. If the fan should rotate in the wrong direction, it’s necessary change the main switch power supply connections by exchanging L1 and L2 connections
5. Look again……..rotation has the same direction of the arrow .
6. Replace and fix the machine top.

If at point 3), the fan should rotate in the right direction, go to point 6) avoiding point 4) and 5).

Check the tightness of the belt

As the latter, after the first few hours of operation, tend to loosen due to the elasticity of the rubber, correct tension must be restored, thus avoiding annoying noises and ensuring long life. To check the belt, proceed as follows:

Place a perfectly straight extruded bar on the two pulleys, by using a finger apply a light force on the middle of the belt and measure the distance between the flexed belt point and the bar. The distance should be between 1cm and 1,5cm.



If the measured distance is higher or lower, it's necessary to tight or to release the belt by using the apposite screw.

Excessive tightness of the belt as well as reducing the life of the belt, may also cause deformations to the fan shaft and overload the bearings

Check, when checking the tightness of the belt, that the fan bearings do not leak liquefied grease: this, together with the excessive temperature of the bearings (>60°C), detectable by touch, is a symptom of defects.
Check that the power input value of the electric motor fall within the operating limits shown on the rating plate. If the value is higher, this is normally the result of overestimating the pressure drop in the system, and must be corrected by adjusting the equalizing dampers and/or the transmission ratio by changing one of the two pulleys.

2.2 Description use/program and operation

2.2.1 Remote Control Unit (display)

The cooling units are equipped with a remote control panel, which enables the user to manage all the functions.
This panel contains a logical unit which enables several functions necessary for good operation of the cooling unit.

2.2.1.1 Controller Description

Control Keyboard

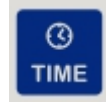
Turns the machine on and off, and allows you to exit the various menus. If pressed for more than 3 seconds, it allow temporary unlocking of the keyboard (if loked)

If displays the fan speed (F1,F2,F3, ecc ecc) and allows its modification

Allows access to the programs menu (PTIM) and their selection. It also acts as a confirmation/ENTER key function

With the machine active, and in the programming menu, it allows you to select the oprating phase of interest (Manual Ventilation, Manual Cooling, etc)

Allows the selection/modification of the day of the week



Allows access to the “TIME” menu to view/modify the time

This button assumes various functions depending on the selected menu:

- Change the hours in the TIME and SET POINT menu
- Modify (increase) the value concerned in the PAR menu (parameters)
- Change (increas) the fan speed in the FAN menu
- Pressed together with the “M” key (minutes) allows to the PAS menu (parameters)

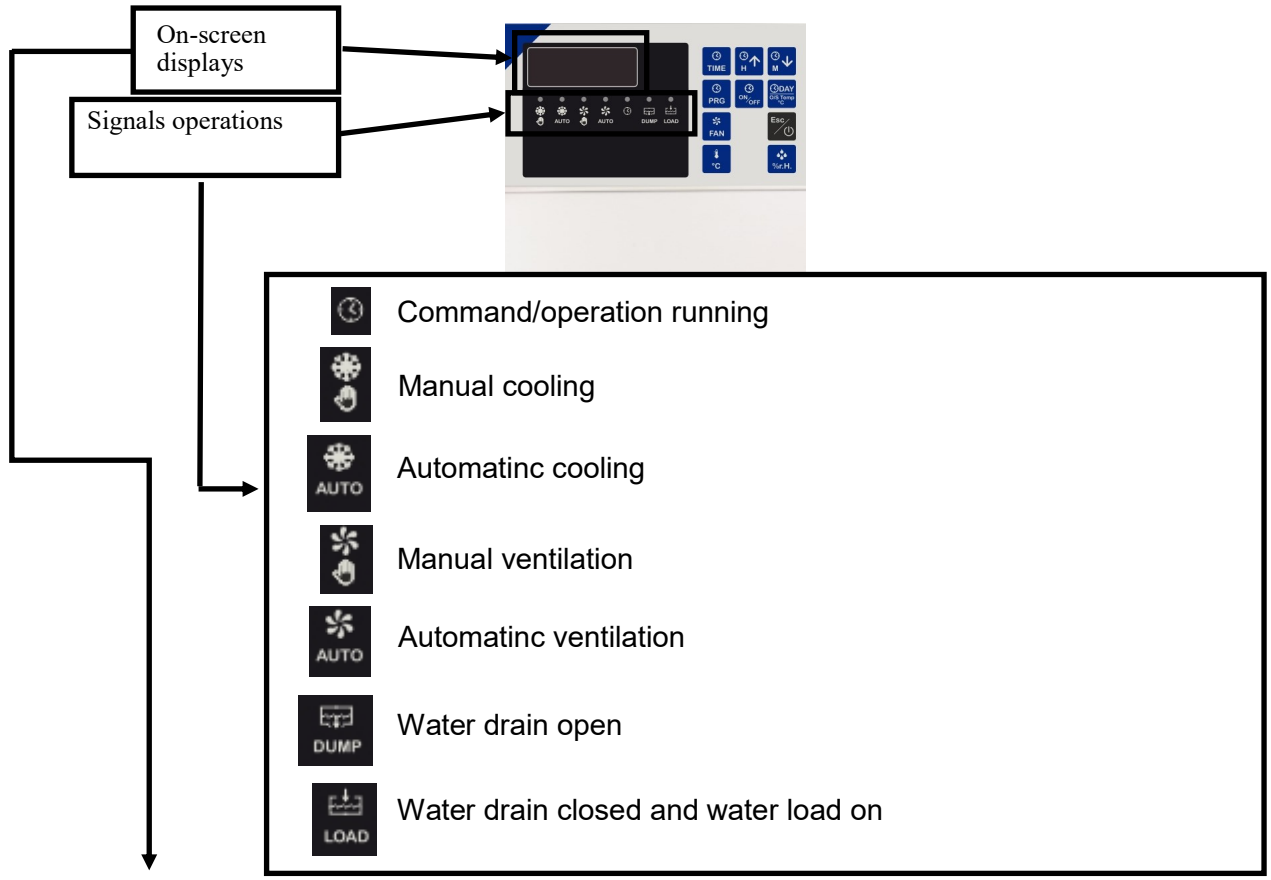
This button assumes various functions depending on the selected menu:

- Modification of the minutes in the TIME and SET POINT menu
- Modify (decrease) the value concerned in the PAR menu (parameters)
- Modifies (decrease) the fan speed in the FAN menu
- Pressed together with the “H” key (hour) it allows access to the PAR menu (parameters)

Displays the temperature detected. Pressed for more than 5 sec. , allows setting/modifying the temperature SET-POINT.

Displays the relative humidity detected. Pressed for more than 5 sec. , allows the relative humidity SET-POINY to be set/modified

2.2.1.2 Signals descriptions and on-screen diplays



oFF	Unit off. Attention: the panel is power on
FAn	Only ventilation mode
Cool	Cooling mode
CIn	Self cleaning
Dry	Self drying
StOP	End of program
Loc	Control unit locked

2.2.2 Switching ON

Keep button pressed 

until the display shows a fuction mode

2.2.3 Switching OFF

Keep button pressed 

until the display will show off

2.2.4 Starting mode

2.2.4.1 Manual start mode

With the machine switched on press the 

key untile the led of the operation require is on

2.2.4.2 Automatic start mode

With the machine switched on, press key 

until led of the corresponding automatic mode is on.

2.2.5 Setting

2.2.5.1 Setting the correct time

Keep the button 

pressed until display shows “Time”

On the display shows the setted curent time.

When you are modifying the time the symbol  blinking

Press the button 

for set the day of the week

Press the button 

to insert the correct hour

Press the button 

to insert the correct minutes

To get back wait 5 sec., or press button 

2.2.5.2 Setting automatic On/Off periods

Keep the button 

pressed until display shows “PTim”.

On the display shows the first memory position.

If the position is not free press 

until appears on the display **- - : - -.**

When you are modifying, symbol  blinking

Press the button 

for set the day of the week

Press the buttons 

for set the time

Press the buttons 

for select the correct fuction mode

Press the buttons 

for save the program

Press the buttons 

for exit of the menù

2.2.5.3 Reading a stored program

Press the button  and the display will show the first space memory.

Repeat the operation to view the next programs

Press button  to exit

2.2.5.4 Modifying a program

Press the button  and the display will show the first space memory.

Repeat the operation until view the program to be changed

Act on the button  to modify the program parameters

Press the button  form confirm

Press the button  for exit

2.2.5.5 Deleting a program

Press the button  and the display will show the first space in memory.

Repeat the operation until view the program to be delected.

To delete the program, press and keep pressed the button  until view " - - : - - " .

To delete all the program repeat the operation until will view "EALL"

Press the button  for exit

2.2.5.6 Setting the Set Point values:

Preset Set Point values:

Temperature: 26°C 

Relative Humidity: 75% 

Keep pressed the button  or  until will show "SP".

The display shows the set point value and teh symbol  blinking.

Use the buttons  to change the Set Point value

Press the button  to confirm .

2.2.5.7 Locking/Unlocking remote control unit

It is possibile to lock or unlock the control unit by changing the “HL” parameter.
To change this parameter, proceed as follows:

- keep pressed together the buttons  and  until the display shows “PA”
- press button 
- press button  or  to find the parameter to be changed (HL)
- press button 
- press buttons  or  to change the valure
- press button  to confirm
- press button  to exit

Parameter HL:

- YES= Locking
- NO = Unlocking

For a temporary unlocked (15 sec) press key  until display show “OFF”

2.2.6 Operating mode

2.2.6.1 Cooling

Press key  to choose the cooling mode desired (manual ora automatic)

In the cooling manual mode, the machine will immediately the cooling cycle; the display show “COOL”. In the cooling automatic mode, the cycle will start only the presect of an a correct program.

If inside the building there is a relative humidity value (+5%) more than the set point value, the machine temporaly suspends the cooling function.
The same will happen in the event of a temperature inside the buliding that is lower (-1.5°C) than the set point value.

It is possible to change the fan speed by button 

The selection of the fan speed by buttons 

For information of the automatic fan speed (AUTO) see paragraph: 2.2.6.2 Ventilation Mode

To ensure a longer life of the cooling pads, have been presect specific activities:

- water change cycle (ever 4 hours)
- post-cooling pads drying cycle (duration 5 minute)
- panel wash cycle (duration 8 minute)

2.2.6.2 Ventilation mode

Press button  to choose the desired ventilation mode (automatic or manual)

In ventilation manual mode, the machine will immediately ventilation. In ventilation automatic mode, machine will be activated only in the presence of correct program.

As in the cooling mode, also for the vantilation mode it will be possibile to act on the fan speed by the button 

Press the buttons  for change the fan speed
Press button  for exit

The automatic fan speed (AUTO) allows of the fan speed as the temperature detected inside the building varies as follows:

- T inside= SP+4°C: max. speed
- T inside= SP+2°C: med. speed
- T inside= SP : min. speed
- T inside< SP : fan will switch off

To increase the life of the cooling pads a wash cycle is also preset for the ventilation mode. This presect functions is activated automatically when the machine is turned off and/or after 16 hour of operation.

2.2.7 Operating anomalies:

If there is an evente of an anomaly and/or malfuction, the control unit shows alphanumeric code. These code identify the type of error and/or failure and facilitating the possible solution.

The main error/fault codes and possibile solutions are listed here below:

- EE : EEprom defective—turn off and on the control unit
- EE/: communication error between logic board and power board. Check cable connection.
- EA: level switch—possible accumulation of the dirt around the valve or level switch. Turn off and on the control unit
- EAP: pressure switch alarm, dirty evaporative pads. Replace cooling pads
- Etc: clock error—reset correct time
- Er8 & E2: probe error—comunication error with on or more probes

If the problem persists, proceed as follows:

- disconnect power supply
- disconnect water supply

2.2.8 Bus System

The unit is equipped with an electronic interface by bus system and/or network system.
Various optionals and alternative control unit are available on the catalog.
For more information contact Impresind Srl

2.2.9 Optional Functions

The new ColdAir coolers allow the activation of a series of interesting innovative optional functions, designed for greater energy savings and with particular attention to greater conservation of water resources.

To activate one or more functions, the relative parameters must be enabled, as follows:

- keep pressed together the buttons  and  until the display shows “PA”
- press button 
- press button  or  to find the parameter to be changed

Each function is distinguished by a dedicated parameter. The list and its description are given below:

0Cb: defines the optional pump cut-off function. This function, which can be activated only if the appliance is equipped with an external probe (optional), rationalizes the operation of the water supply pump according to the external temperature. To enable it select “YES”
0CU: Defines the optional function of Humidity-Plus. This function chokes the operation of the water feed pump near the maximum permissible humidity percentage. The parameter can assume the following values: 0 (function disabled), 1 (partialized at 10%), 2 (partialized at 20%), etc etc… Up to a maximum value corresponding to 5 (partialized at 30%)
0Cr: Defines the optional Water-Save function. This function, which can only be activated with the appliance set to AUTOMATIC, anticipates the switching off of the water supply pump with respect to the machine switch-off time. It therefore allows better management of the water present in the collection tank, reducing (or even eliminating) the waste of water discharged at the end of the automatic cooling cycle. The parameter can assume the following values:

- 0 - function deactivated
- 1 - pump switch-off 10 min earlier than the end of the automatic cooling cycle
- 2 - pump switch-off 20 minutes earlier than the end of the automatic cooling cycle (parameter recommended by Impresind)
- 3 - etc etc ……

Up to a maximum settable value of 9, which corresponds to an early switch-off of the pump of 90 minutes, with respect to the end of the automatic cooling cycle.

2.4 Functioning notes

The functioning of the evaporative cooler is based on an important principle: It introduces big quantities of fresh air into the building and removes hot exhausted air through doors, windows and other openings. If the system is not able to expel the air volume introduced into the building, the efficiency would be compromised. INLET FRESH AIR = OUTLET HOT AIR. A very simple principle. If the system is able to expel all the air introduced into the building, the system operates at the highest efficiency. The ideal condition is when, into the building, to position the air diffusers are positioned away (better on the opposite side) from the openings (windows, doors, etc.) so the air passes through the building while is cooling it. Maximum efficiency can be reached by adjusting the dimensions of the window and door openings. Never close the openings: if they are closed, no changes of air will occur, consequently reducing the cooling effect and increasing the relative humidity level inside the building. To optimize the system efficiency, consider the following openings for air expulsion: Guarantee about 0,5 sq.mt of extraction for every 1000 cu.mt. of introduced air (refer to the project data). More dry is the external air, more cooling capacity could be reached by the system. Your evaporative cooling system will not operate at maximum efficiency during high humidity days however it will still reach an efficient cooling level. In areas with high relative humidity, the evaporative air cooling system must be oversized to guarantee more air changes, or in other words, it must have higher capacity to compensate the smaller temperature difference given. In these areas, the maximum cooling effect will be reached by making sure that there are more air evacuation points than normally used and that the units will be switched on early in the morning to avoid latent heat growing up inside the space to be cooled. Your supplier will design your system considering your climatic conditions. During days when the relative humidity level is near to or more than 70%-75%, it is advisable to switch on the system in ventilation mode only.The cooling efficiency of a system depends on: the cooling unit efficiency, air ducts design, installation quality, building conditions. Insulated ceilings significantly reduce the internal temperature in comparison with uninsulated ceilings. The same latter concept is applicable to the air duct.
During normal operating conditions in COOLING mode, the evaporation process leaves mineral salts

2.5 Emergency situations

In case of emergency immediately turn the machine off and cut off the electrical circuit through the omnipolar isolator switch, identify and solve the problem, contact a licensed technical service center.

It is absolutely forbidden to use water to put out fires.
Use exclusively powder or CO2 extinguishers

SECTION 3 – MAINTENANCE

We recommend annual service to the system to maintain it in perfect operation conditions.Before the machine start-up the equipment should be checked to make sure it will work properly, so any maintenance or repairs necessary could be carried out before the working season of the unit.

3.1 End of season maintenance

- Cut power inlet off by using the main isolator-switch.
- Close the water supply. Empty the water supply plant to avoid bursts due to icing.
- Take the machine top off.
- Check that waterways are clean and that there are no obstructions in the water supply and distributor.Clean any debris in the water pump.**Clean water filters (view information sheet)**
- Fully clean the tank of the unit. Use a mild detergent, not a solvent cause it may reacts with plastic materials.
- Replace and fix well the machine top using the bolts supplied.

- Apply the protection cover on the machine making sure that it has no holes or damages, if dam age is detected, repair the cover or substitute it.

It is very important that the protection cover is applied to the evaporative cooler at the end of the season, this avoids the machine from being damaged by climatic factors during the set-aside period; smog, acid rain, ice, etc.

3.2 Pre-season maintenance

- Cut power inlet off by using the main isolator-switch.
- Remove the protection cover and check for any damage that may have occurred. Clean the cover well with mild detergent and store it in a place where it is protected from bad weather.
- Remove the machine top.
- If necessary clean the tank.
- TC models: check the tightness of the belt (*) –(see par.2.6.2). When damaged it must be chan ged.
- Check the evaporative pads and clean them from any dirtiness using water. If they have too much incrustation, it is necessary to change them.
- Check that waterways are clean and that there are no obstructions in the water supply and dis tributor.Clean any debris in the water pump.**Clean water filters (view information sheet)**
- Turn the machine on by using the main isolator-switch.
- Open the water supply. Start the system in COOLING mode and check that the discharge valve is closed and that the water fills the tank up until the water inlet valve stops.
- Check that the water is distributed evenly on all evaporative pads.
- Check that the discharge valve is working properly; make sure that it opens within 5 minutes after having pressed the OFF key.
- Check if there are losses of water.
- Check cables conditions.
- Replace and fix well the machine top using the bolts supplied.

(*) During working season, it is advisable to check it monthly.

The manufacturer does not assume any responsibility or is liable for any guarantee due to damage caused by non-observance of prescriptions, any non-conform installations and in the case of improper use of the equipment by the final user.

3.3 Maintenance safety regulations

3.3.1 *Clothing*

The personnel charged to machine maintenance must not wear clothing with large sleeves, laces or belts, which may cause danger. The personnel must also wear individual protection devices conform-ing to the laws and regulations in force.

The maintenance personnel must be professionally qualified.
Before carrying out any maintenance operations, read carefully this section of the manual.
For any necessity, contact Impresind Srl After Sales Service.
Impresind Srl is not responsible for any damage or malfunctions due to lack of respect of the indications contained in the present section of this manual.

During maintenance operations, place clearly and easily visible a sign stating “Work in Progress” on all access areas to the department. Record all maintenance operations carried out on an appropriate register, making sure to state: date, time, type of intervention performed and the name of the person.

The personnel charged to maintenance that use any solvents must be equipped with individual protection devices (safety glasses, filter masks, gloves) suitable for contact with the solvent used. When using solvents it is strictly forbidden to smoke and use open flames. After use, ventilate the building to help any residual vapours to leave.

It is forbidden to:
Leave any flammable materials near to electrical panels.
Operate on the electrical equipment before cutting power supply off.
Operate on any part of the unit before the plant did stop.
Operate with safety systems deactivated or removed from the equipment.
Deactivate or evade the alarm signals.

3.3.2 *On board signs*

DANGER: Risk of electric shock

MOVING MACHINERY

3.3.3 Residual risks

Pay attention to fan movement. Do not introduce arms or limbs. – Mechanical danger

It is forbidden to use water to clean electro-mechanical components – Electrocution danger

It is absolutely forbidden to use water to put out fires.
Use exclusively powder or CO2 extinguishers

Once maintenance is terminated, before switching back the equipment on and starting-up the plant, perform a complete check for any tools and/or materials of any nature left near to or inside the unit and above all near to any moving mechanisms.

3.3.4 Technical assistance request

For any technical assistance intervention, contact the installer or a licensed technical service center.

To know the nearest licensed technical service center, please contact Impresind srl.

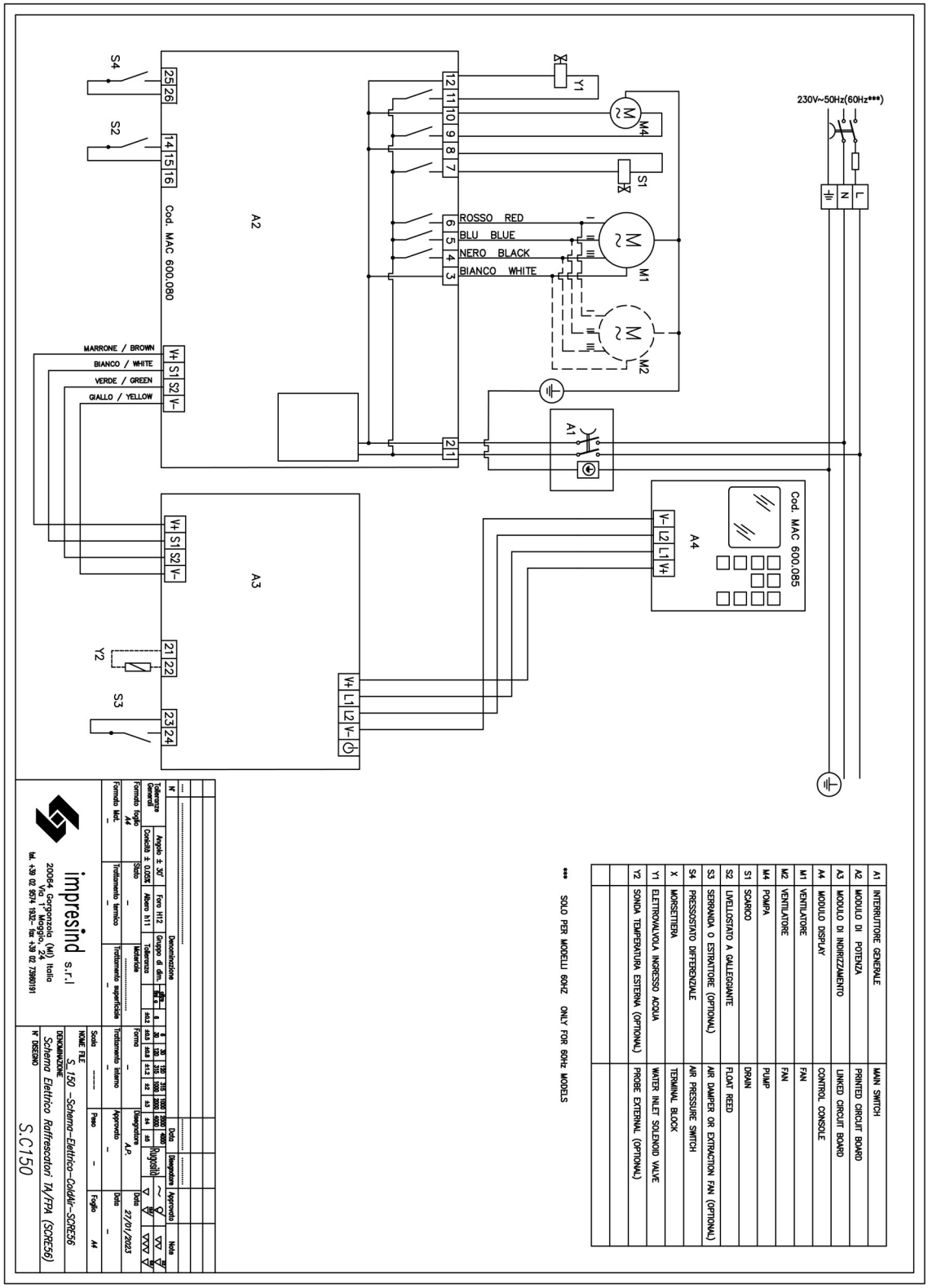
SECTION 4 – DISMANTLING

In case of dismantling and disposal of the plant, all material concerning the plant must be collected and sent to the appropriate collection and disposal centres of companies specialized in the disposal sector.

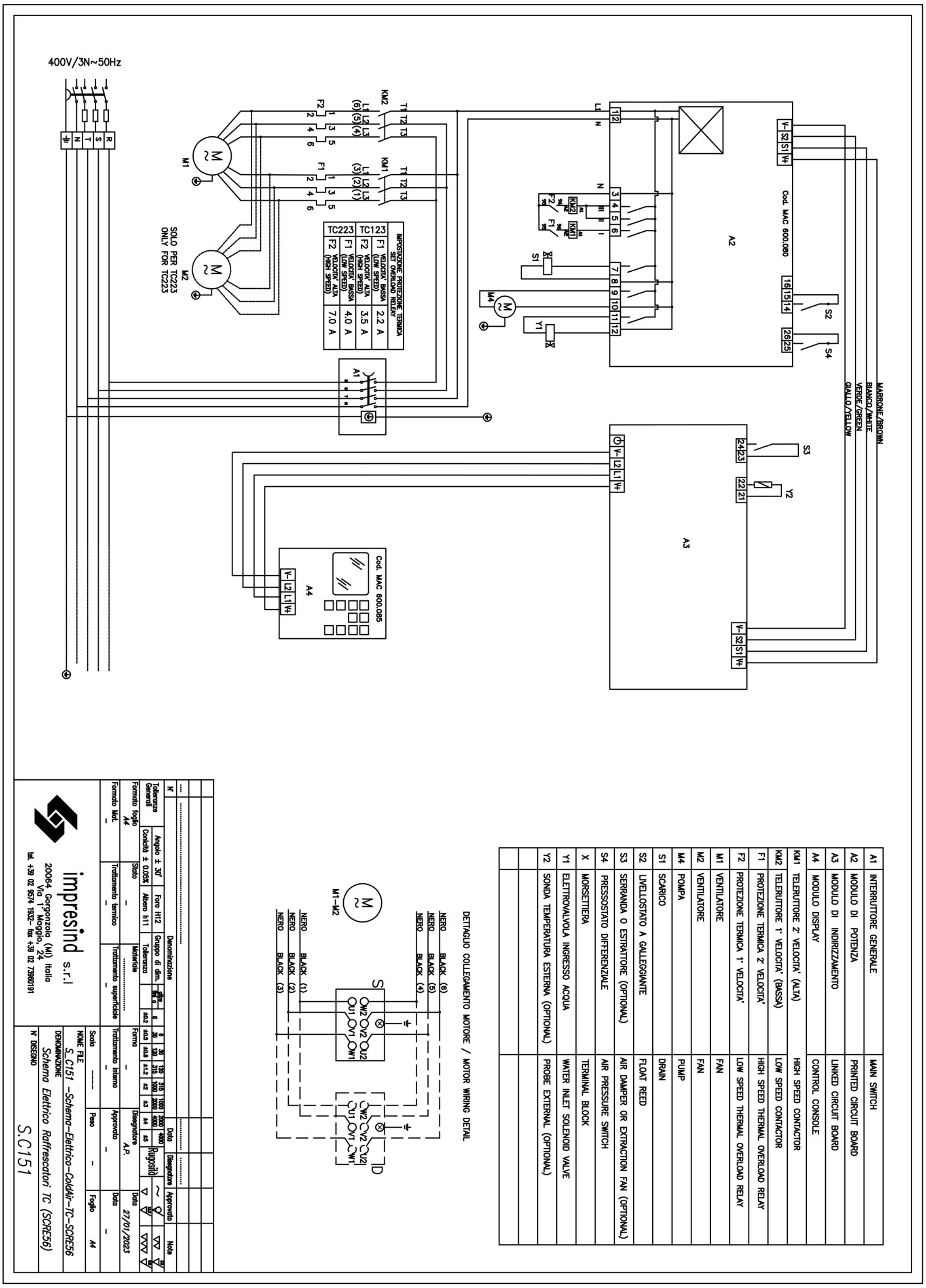
Dismantling of the plant must be carried out by specialized personnel, equipped with suitable equipment and personal individual protection devices.
Do not smoke and do not use open flames.

WIRING DIAGRAM

FPA & TA



TC123 & TC223


400V/3N~50Hz
SOLO PER TC223
ONLY FOR TC223
IMPOSTAZIONE PROTEZIONE TERMICA
SET OVERLOAD RELAY
TC123 F1 VELOCITA' BASSA (LOW SPEED) 2.2 A
TC123 F2 VELOCITA' ALTA (HIGH SPEED) 3.5 A
TC223 F1 VELOCITA' BASSA (LOW SPEED) 4.0 A
TC223 F2 VELOCITA' ALTA (HIGH SPEED) 7.0 A
Cod. MAC 600.080
Cod. MAC 600.085
MARRONE/BROWN
BIANCO/WHITE
VERDE/GREEN
GIALLO/YELLOW
DETTAGLIO COLLEGAMENTO MOTORE / MOTOR WIRING DETAIL
A1 INTERRUTTORE GENERALE MAIN SWITCH
A2 MODULO DI POTENZA PRINTED CIRCUIT BOARD
A3 MODULO DI INDIRIZZAMENTO LINKED CIRCUIT BOARD
A4 MODULO DISPLAY CONTROL CONSOLE
KM1 TELERUTTORE 2' VELOCITA' (ALTA) HIGH SPEED CONTACTOR
KM2 TELERUTTORE 1' VELOCITA' (BASSA) LOW SPEED CONTACTOR
F1 PROTEZIONE TERMICA 2' VELOCITA' HIGH SPEED THERMAL OVERLOAD RELAY
F2 PROTEZIONE TERMICA 1' VELOCITA' LOW SPEED THERMAL OVERLOAD RELAY
M1 VENTILATORE FAN
M2 VENTILATORE FAN
M4 POMPA PUMP
S1 SCARICO DRAIN
S2 LIVELLOSTATO A GALLEGGIANTE FLOAT REED
S3 SERRANDA O ESTRATTORE (OPTIONAL) AIR DAMPER OR EXTRACTION FAN (OPTIONAL)
S4 PRESSOSTATO DIFFERENZIALE AIR PRESSURE SWITCH
X MORSETTIERA TERMINAL BLOCK
Y1 ELETTROVALVOLA INGRESSO ACQUA WATER INLET SOLENOID VALVE
Y2 SONDA TEMPERATURA ESTERNA (OPTIONAL) PROBE EXTERNAL (OPTIONAL)
impresind s.r.l
20064 Gorgonzola (MI) Italia
Via 1° Maggio, 24
S.C151 -Schema-Elettrico-ColdAir-TC-SCRE56
Schema Elettrico Raffrescatori TC (SCRE56)
27/01/2023
S.C151

TECHNICAL FEATURES

Model		**FPA103**	**FPA123**	**TA123**	**TA223**	**TA223-2SD**	**TA323**
Air flow	m^3/h						
Fan speed Max		10000	13000	13000	20000	20000	27000
Med		7500	9700	9700	15000	15000	19000
Min		5000	6500	6500	10000	10000	13500
Power supply	Volt	230V/~50Hz	230V/~50Hz	230V/~50Hz	230V/~50Hz	230V/~50Hz	230V/~50Hz
Current	Amp	3,7	4,8	4,8	7	7	9,3
Power consumption	kW	0,9	1,2	1,2	1,8	1,8	2,2
*Water consumption**	lt/h	34	39	43	64	66	75
Water inlet	Ø "	3/8	3/8	3/8	3/8	3/8	3/8
Drain	Ø mm	60	60	60	60	60	60
Air outlet duct	mm	600x600	600x600	600x600	1185x590	1185x590	1185x590
Max lenght of ducts	m	5x1mt.+1curve	5x1mt.+1curve	5x1mt.+1curve	5x1mt.+1curve	5x1mt.+1curve	5x1mt.+1curve
Evaporative pannell							
Thickness	mm	100	100	100	100	100	100
Area	m^2	2	2	2,7	3,4	3,1	4,4
Saturation	%	88	88	88	88	88	88
Dimensions WxDxH	mm	1300x670x1300	1300x670x1300	1150x1150x1050	1610x1150x1050	1610x1150x1350	1610x1150x1350
Weight (empty-full)	kg	60-75	63-78	67-88	120-146	150-180	135-163
Fan type		Axial	Axial	Axial	Axial	Axial	Axial

** Test conditions:*

Ext.temp 33°C

ExtHR 60%

TECHNICAL FEATURES

Model		**TC123**	**TC123SD**	**TC223**
Air flow	m^3/h			
Fan speed Max		10000	10000	20000
Med		6500	6500	10000
Min				
Power supply	Volt	400V/3N~50Hz	400V/3N~50Hz	400V/3N~50Hz
Current	Amp	3,5	3,5	7
Power consumption	kW	1,6	1,6	3,2
*Water consumption**	lt/h	43	43	64
Water inlet	Ø "	3/8	3/8	3/8
Drain	Ø mm	60	60	60
Air outlet duct	mm	395x465	600x600	850x470
Static pressure	Pa	80	80	80
Evaporative pad				
Thickness	mm	100	100	100
Area	m^2	2,7	2	3,4
Saturation efficiency	%	88	88	88
Dimensions WxDxH	mm	1150x1150x1050	1150x1150x1050	1610x1150x1050
Weight (empty-full)	kg	110-130	110-130	200-220
Fan type		Centrifugal	Centrifugal	Centrifugal

* *Test conditions:*

Ext.temp *33°C*

ExtHR : 60%

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