

ColdAIR

ADIABATIC EVAPORATIVE COOLERS



INSTALLATION INSTRUCTIONS

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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 modifications 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 can 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 means 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, losing 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 – TRANSPORTATION, HANDLING, UNPACKING, STORAGE

2.1 Delivery of the unit

When the unit is delivered, the customer **MUST** check the state of the goods.



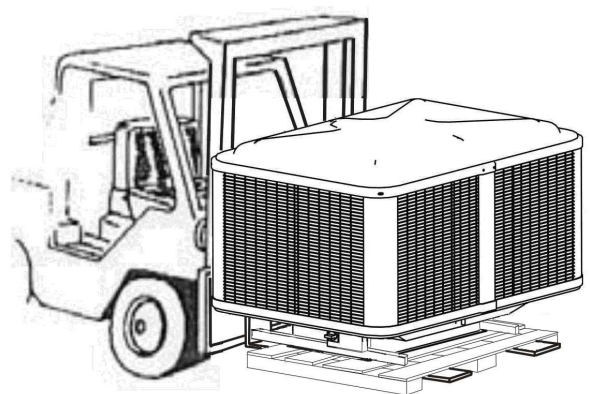
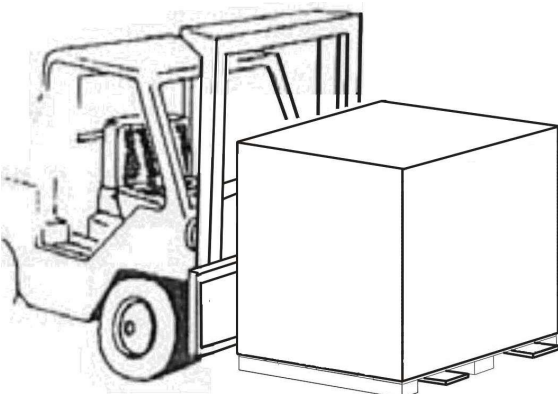
Check the packaging and its contents, if damage due to transportation is found, make a reserve for the damage on the shipping documents to be signed by the shipping agent and send a copy by fax or mail (impresind@impresind.it) to Impresind Srl.

2.2 Transportation, handling and lifting



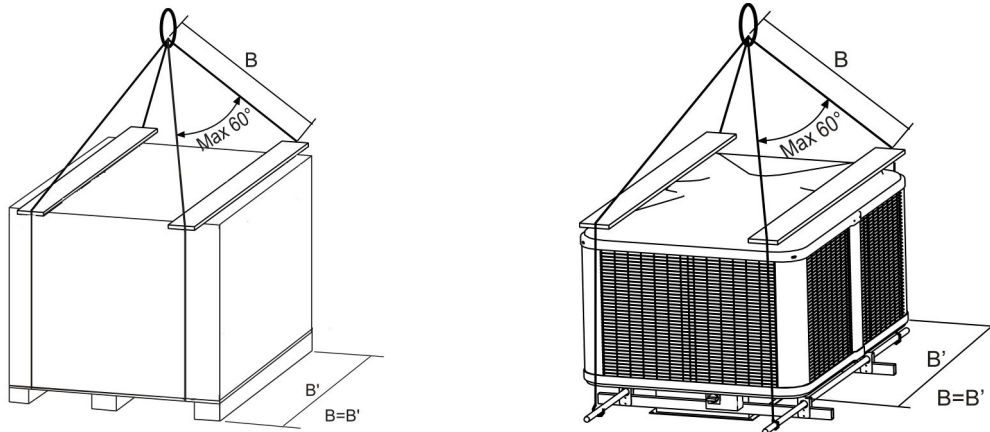
Take care when handling Evaporative Cooling units during unloading from the transportation means, handle and position to avoid damages to the equipment. Avoid contact with elements, which may damage the equipment. IMPRESIND s.r.l. declines any responsibility for damage caused during transportation, loading and unloading of the evaporative cooling units

2.2.1 Lifting with fork lift



Widen the forks as much as possible to balance the load. Dip the ends of the forks to avoid damaging the bottom of the machine.

2.2.2 Lifting with cables



We suggest to attach the cables as shown, inserting spacers of an adequate length to prevent the cables from damaging the casing when tightened.

Because of the heavy weight, TC models and “SD” version, when unpacked, are provided with punched brackets to allow to lift them by using appropriate metal tubes.



Place the goods down with care, avoiding sudden movements or, worse, dropping the goods.



IT IS ABSOLUTELY FORBIDDEN to station under suspended loads and inside the movement area of the lifting equipment



***When handling the units, use suitable means according the weights involved, as envisaged by EC Directive 89/391 and subsequent amendments.
Lifting must only be carried out by qualified personnel.***

2.3 Unpacking the equipment

Free items from the packaging material and collect the packaging to avoid potential danger of fire and suffocation of persons or animals.

Leave the machine on its packaging base until the installation to avoid damages



Disposal of packaging materials must be conform to the regulations in force in the country of destination where the evaporative cooling unit is installed.

2.4 Storage

During transportation and storage, make sure that the environmental temperature is between -10 and 50 °C.

If the **ColdAir** evaporative cooling unit must be stored, make sure that the relative humidity in the warehouse is between 5% and 90%.

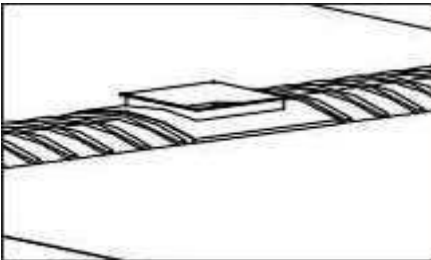
SECTION 3 – POSITIONING AND INSTALLATION

3.1 General warnings

Before proceeding to install, make sure that each evaporative cooling unit has been unpacked and checked for damage (check any components).

Positioning and installation of the evaporative cooling units must be carried out by qualified personnel and by observing the laws in force in the country of destination.

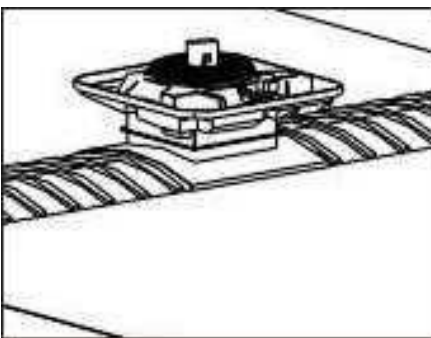
3.2 Roof installation



Prepare and fix an air inlet flanged duct . The flange has to be of the same dimension of the unit's trunk duct flange (view paragraf: technical drawing).

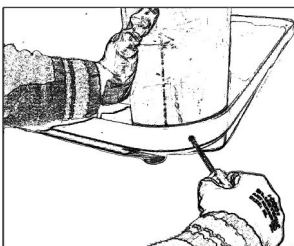
The unit is equipped with a trunk of flanged duct that will be fixed to the flange of the inlet duct prepared before.

3.2.1 TA Evaporative coolers

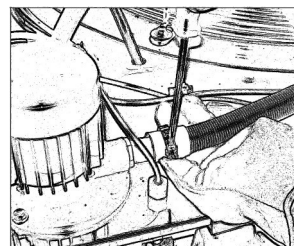


Position the evaporative cooler base to the inlet duct and fix the two flanges (base duct flange-inlet duct flange) together by using provided bolts.

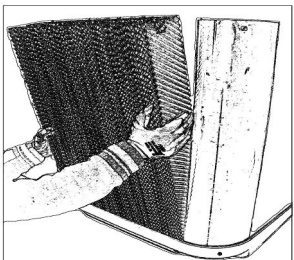
It is recommended to insert some silicon paste between the two flanges to guarantee perfect insulation from external agents.



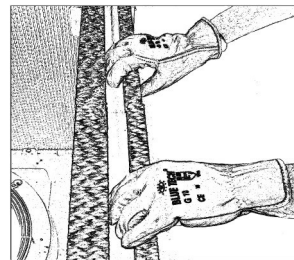
Position and fix the 4 columns at the cooling unit base by using provided screws.



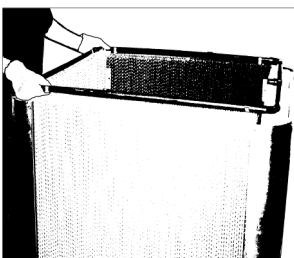
Check the tightness of the pump flexible hose clamp.



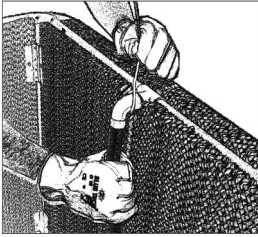
Positioning and applying cooling pads. Maintain the groove (made on one side of the pad) in the upper position and towards the external part of the machine



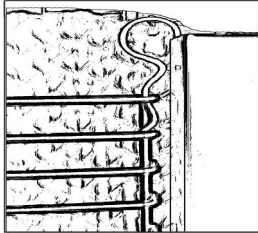
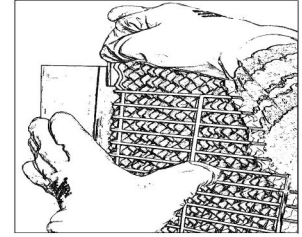
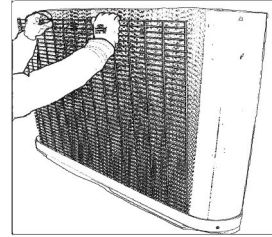
Insert the water distribution stripes into the pad grooves. Check that stripes are well pressed down to the bottom of their seat.



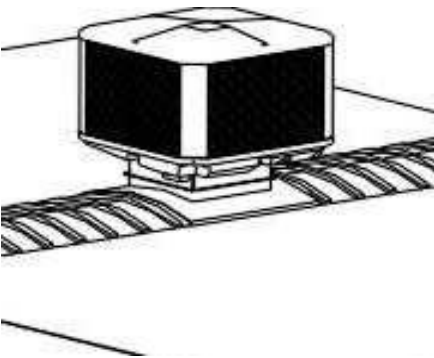
Insert the water distributor into the pad grooves and make sure that the water distributor rests in a uniform manner over the distribution stripes. Maintain the hose-end fitting on the side of the water pump. Make a hole through the pads to allow the passage of the hose-end fitting.



Connect the distributor hose-end fitting to the flexible hose coming from the pump and fix them with an hose clamp.



Insert the grates on the sides and rear of the unit and fix them by using the clips provided. Do not assemble the front unit grate (connections/components side). At first insert the clips till to their first "click" on the two upper corners of the grate. Finally force the clips until they are completely inserted so that they do not protrude from the cooling pads.



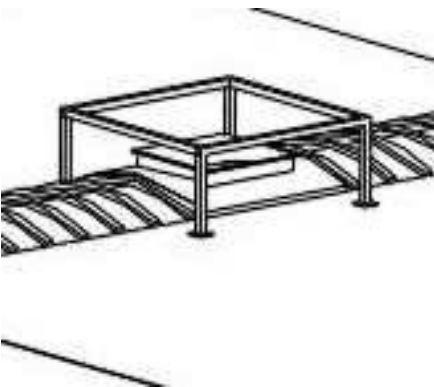
Position the cap without fixing it to allow the front unit grate insertion.

The cap must be lifted so the grate slots into its seat.

Do not use clips to fix the front unit grate to facilitate any necessary maintenance operation.

Once the protection grates have been positioned, fix the cup by using supplied screws.

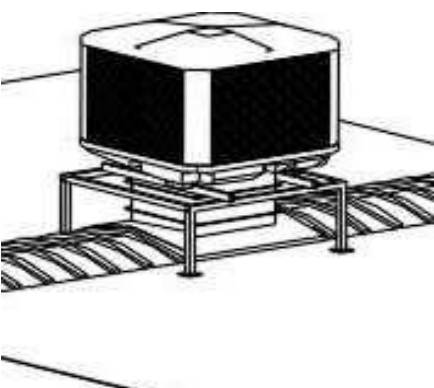
3.2.2 TC Evaporative coolers



Prepare and fix an air inlet flanged duct and a frame to hold up the unit. The flange has to be of the same dimension of the unit's trunk duct flange.

The unit is equipped with a trunk of flanged duct that will be fixed to the flange of the inlet duct prepared before and with two side girders bars that will be fixed to the prepared frame.

Verify that the frame is designed to well support the weight of the machine, doesn't cause vibrations and it must be perfectly horizontal. If necessary to insert antivibration dumpers between frame and the bars, this needs to be planned before manufacturing the frame and consider to insert flexible couplings in the hydric connections.



Position the evaporative cooler on the inlet duct.

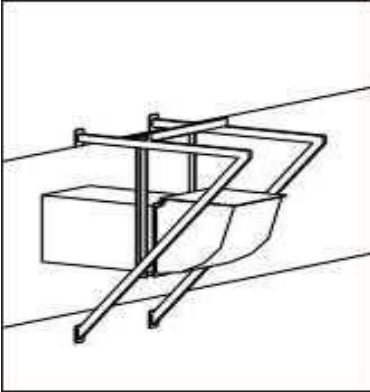
Fix the two flanges (base duct flange-inlet duct flange) together and the bars at the frame by using provided bolts.

We suggest to insert an outlet flexible connection between the two flanges to avoid vibrations transmitted through the ducts.

We suggest to insert silicone sealant between flanges to guarantee perfect insulation from external agents.

3.3 Wall/window installation

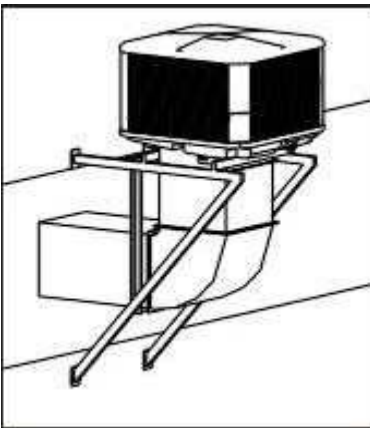
3.3.1 TA evaporative coolers



Prepare and fix an air inlet flanged duct and a frame to hold up the unit. The flange has to be of the same dimension of the unit's trunk duct flange.

The unit is equipped with a trunk of flanged duct that will be fixed to the flange of the inlet duct prepared before and with two side girders bars that will be fixed on the frame.

Verify that the frame is designed to well support the weight of the machine, doesn't cause vibrations and it must be perfectly horizontal.

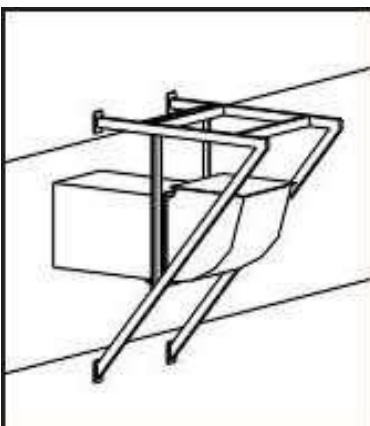


Position the evaporative cooler to the inlet duct.

Fix the two flanges (base duct flange-inlet duct flange) together by using provided bolts.

We suggest to insert silicone sealant between flanges to guarantee perfect insulation from external agents.

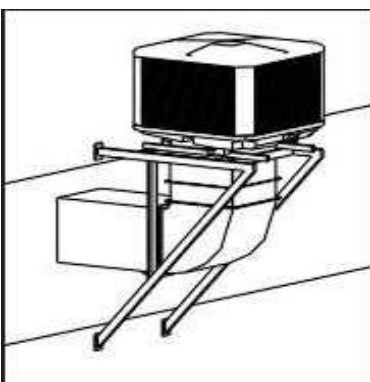
3.3.2 Raffrescatori evaporativi serie TC



Prepare and fix an air inlet flanged duct and a frame to hold up the unit. The flange has to be of the same dimension of the unit's trunk duct flange.

The unit is equipped with a trunk of flanged duct that will be fixed to the flange of the inlet duct prepared before and with two side girders bars that will be fixed on the frame.

Verify that the frame is designed to well support the weight of the machine, doesn't cause vibrations and it must be perfectly horizontal. If necessary to insert antivibration dumpers between frame and bars, this needs to be planned before manufacturing the frame and consider to insert flexible couplings in the hydric connections.



Position the evaporative cooler on the inlet duct.

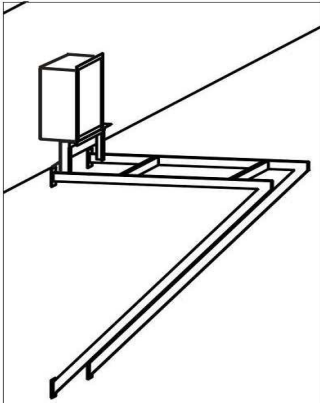
Fix the two flanges (base duct flange-inlet duct flange) together and the bars at the frame by using provided flexible bolts.

We suggest to insert an outlet flexible connection between the two flanges to avoid vibrations transmitted through the ducts.

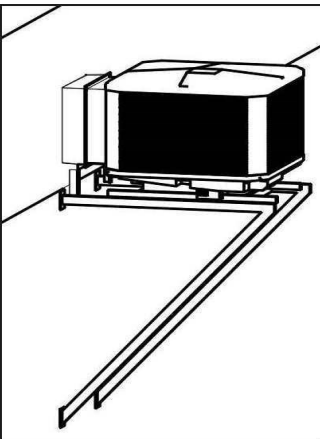
We suggest to insert silicone sealant between flanges to guarantee perfect insulation from external agents.

3.3.3 TA & TC evaporative coolers “SD” version

The “SD” version machine have a orrizontal ait duct (and not vertical duct). The duct provide at the base of machine , it is not the air duct; but it is a structural working.



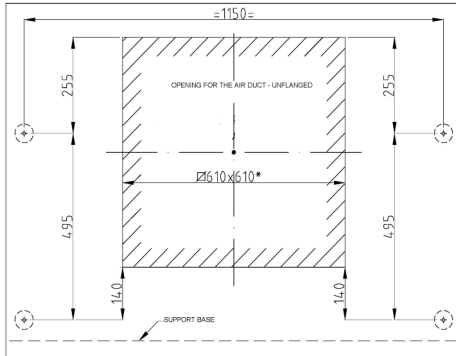
Prepare and fix an air inlet flanged duct and a frame to hold up the unit. The duct has to be of the same dimension of the unit's air outlet . The unit is equipped with two side girders bars (for TC models) or vertical duct structure (for TA models) that will be fixed on the frame. Verify that the frame is designed to well support the weight of the machine, doesn't cause vibrations and it must be perfectly horizontal. If necessary to insert antivibration dumpers between frame and bars, this needs to be planned before manufacturing the frame and consider to insert flexible couplings in the hydric connections.



Position the evaporative cooler to the inlet duct. Fix the two flanges (base duct flange-inlet duct flange) together and the bars (for TC models) or structural duct (for TA models) at the frame by using supplied bolts. We suggest to insert an outlet flexible connection between the unit air outlet and the duct to avoid vibrations. We suggest to insert silicone sealant between flanges to guarantee perfect insulation from external agents.

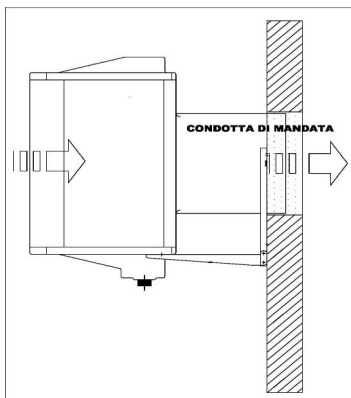
3.3.4 FPA evaporative coolers

3.3.4.1 Wall installation



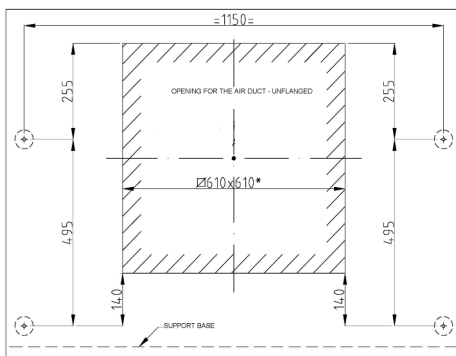
*Ø665x665 OPENING FOR THE AIR DUCT - FLANGED

When the hole in the wall for the passage of the air inlet duct is done, fix the supplied support bracket to the wall.



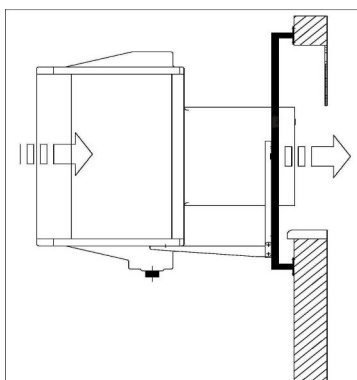
Install the first section of air duct (area 600x600) on the rear of the unit (fan side).
Position the unit on the support bracket and push it towards the wall until it gets contact with the support bracket columns.
Fix the unit at the supplied side bracket by using the supplied screws.

3.3.4.2 Window installation



*Ø665x665 OPENING FOR THE AIR DUCT - FLANGED

Prepare a hole through the window for the air inlet duct passage and a frame fixed to the wall (window bridge) with the same dimension as the supplied support bracket.



Fix the supplied support bracket at the prepared frame.
Install the first section of air duct (area 600x600) on the rear of the unit (fan side).
Position the unit on the support bracket and push it towards the wall until it gets contact with the support bracket columns.
Fix the supplied side brackets to the unit by using supplied screws.

3.4 Notes

Inside the building, prepare the anchor points for the support chains of the air inlet duct. These must be placed in a position to avoid excessive stress to the air inlet duct and make sure they are on the same axis as the machine.

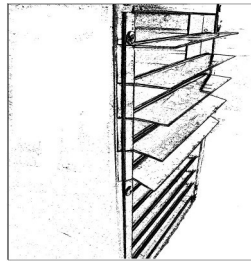
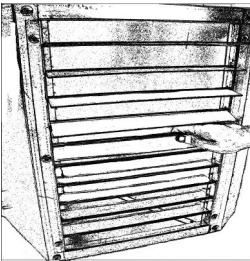
To anchor the unit to the ceiling or to the wall, use chains and accessories having the necessary test certificates, made from zinc-plated steel or stainless steel and having a wire diameter of no less than 3 mm or dimensioned for the weight to be supported, bear in mind safety margins imposed by regulations.



Do not use aluminium alloy or similar components.



The ducts must be sized according to the ratings of the system and the characteristics of the fan. Incorrect calculation of the size of the ducting may lead to a drop or an increase in output, causing the activation of any safety devices in the system



At the end of the installation, adjust the diffuser flaps to better direct the air flow.

3.5 Connection to the power supply

Each unit must be connected to the power supply using an Omnipolar switch. The isolator must have a distance between its contacts of at least 3 mm for each pole and must be placed in a position that can be easily reached by the user. The electrical plant must be constructed according to the regulations in force in the country where the machine is installed.



***Connection to the power supply MUST be carried out by qualified personnel.
All components used to connect the power supply must be certified.
Before working on the power supply cables, make sure that power has cutted-off.***



Provide an efficient earth connection.

The cooler is equipped with two electrical panels applied to the base-duct, containing respectively: a disconnecter for connection to the electric power supply line (equipped for all TA models with a pre-calibrated safety breaker), and an addressing board for connection remotely and any additional probes. For connection to the power supply, use a multipolar cable + T (earth) according to directives in force

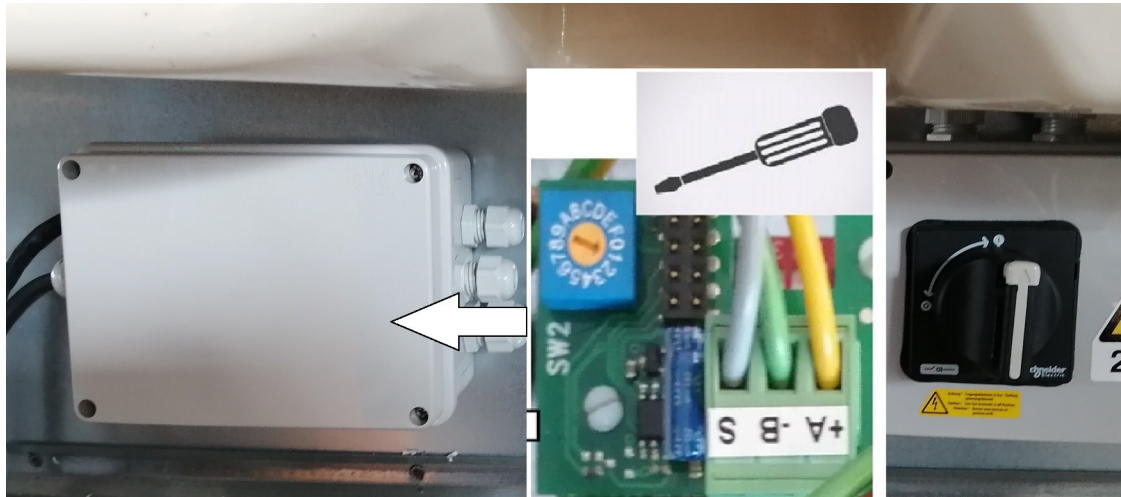
For connection to the remote control device use shielded cable type 20 AWG - 5 poles with a minimum section of 0,50 sq. mm – Maximum length of 25 meters.

It is absolutely necessary to maintain the polarity of the electrical phases and the numbers on the wires/terminals.

3.6 Configuration and addressing.

Before starting the system, it is recommended to check the correct addressing of the device in question. This operation is very important if the ColdAir is part of a more complex system composed of several ColdAir and/or thermal zone.

For verification, and possible correction of this addressing, it is necessary to access the power board installed inside the device.



Here are some example of addressing:

		0, 1, 2, ..., D, E, F	Address: 0, 1, 2, ..., 13, 14, 15.
		0, 1, 2, ..., D, E, F	Address: 16, 17, 18, ..., 29, 30, 31.

If there are multiple ColdAir in the same system, it is important that each has a unique and different network address.

Addressing and remote control is not the only option that the ColdAir allows, there are also further control possibilities which possibly involve the presence of ColdAir Slave and Router; follow the instructions applied on the back of the cover of the panel in question, and shown below.

Istruzioni Indirizzamento ColdAir
ColdAir Addressing Network Instruction

<p>Display EVO</p> <p> ColdAir Master</p> <p> ColdAir Slave n°1</p> <p> ColdAir Slave n°2</p> <p> ColdAir Slave n°3</p> <p> ColdAir Slave n°4</p>	<p>Display Qbo</p> <p> + Sonda collegata al ColdAir Probe connect to ColdAir</p> <p> + Sonda globale N°1 Global probe N°1</p> <p> + Sonda globale N°2 Global probe N°2</p> <p> 0, 1, 2, ..., D, E, F Identifica indirizzo di rete 0, 1, 2, ..., 15 Address network identification 0, 1, 2, ..., 15</p>
<p>In una rete RS - 485 l'ultimo dispositivo (quello più lontano dal master), deve avere la resistenza di fine linea abilitata</p> <p>In a RS - 485 network the last network device (the farthest from the master device), must mount an end of line resistor enabled</p>	
<p> = Resistenza abilitata Resistor enabled</p>	

3.7 Connection to the water supply

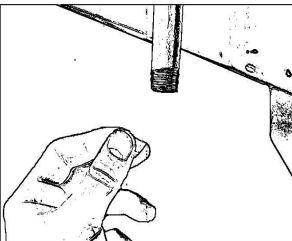
The **Cold Air** cooling unit is connected to the water supply by a 3/8" sleeve attachment found on the lower part of the equipment, it is advisable to provide a water tap at the water inlet to run dry the plant before winter.

Insert a sand filter in the water supply plant.

The water piping must guarantee a minimum capacity of 5 -10 Lt/minute at a pressure of 1.5 - 3 bars. (maximum pressure allowed: 6 bars).

It is advisable to install the water piping inside the building, to protect it from freezing during winter, otherwise, insulate it adequately.

It is advisable to use potable water, hardness not more than 27°f and not less than 7°f. If hardness is more than 30°f, insert a water softener system into the water supply plant. *Don't use demineralized water.*



Proceed to connect the 3/8" connection to the main water supply.
DO NOT use excessive force on the sleeve during its connection to the water supply.
 Impresind Srl supplies with COLD-AIR a apposite water filtration kit to be installed before the water inlet valve.
 Advise to installed a water valve before the water filtration kit.

The unit is also equipped with a Ø60 mm sleeve to discharge water



Connect the supplied flexible hose according to the situation found at the installation site as mentioned further on, fix the hose by using a hose clamp. If a discharge system is present, connect the tube to the discharge according to the regulations in force regarding hygiene in the country where the unit is installed. No discharge system is present, place the hose in the best way avoiding any bends.

When connecting the discharge hose, **DO NOT** use excessive force on the sleeve and make sure that the sleeve does not rotate.

SECTION 4 – PROTECTION DEVICES

4.1 Protection devices

To comply with the instructions of the European Community Directives, applicable to the unit referred to in this use and maintenance manual, Impresind Srl has designed the safety systems on the unit foreseen by the regulations in force

4.2 Caution signs applied on the unit



DANGER: Risk of electric shock



MOVING MACHINERY

4.3 Clothing

The equipment is destined for installation in positions which cannot be directly reached by users during normal operations and therefore particular prescriptions regarding clothing are not necessary.

4.4 Residual risks



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



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

4.5 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 Impresind after-sales service.



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

SECTION 5 – 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, 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.

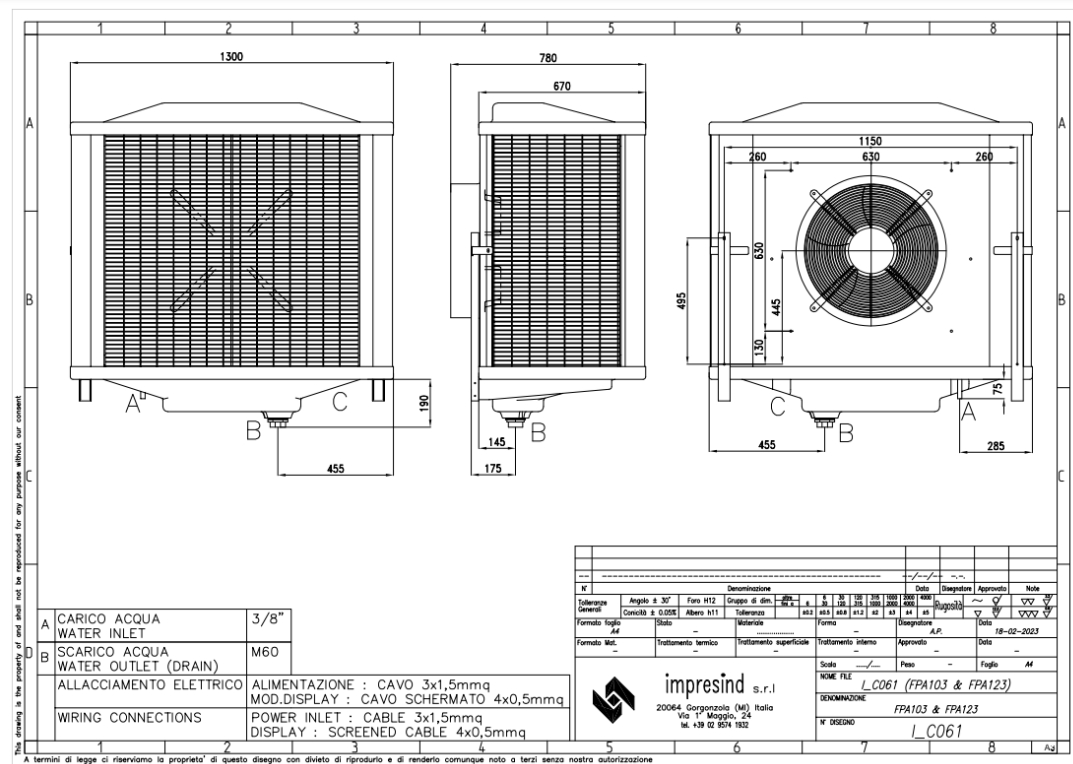
In areas with high relative humidity, the evaporative air cooling system must be oversized to guarantee more air changes, or in other words, it must have higher capacity to compensate the smaller temperature difference given. In these areas, the maximum cooling effect will be reached by making sure that 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.

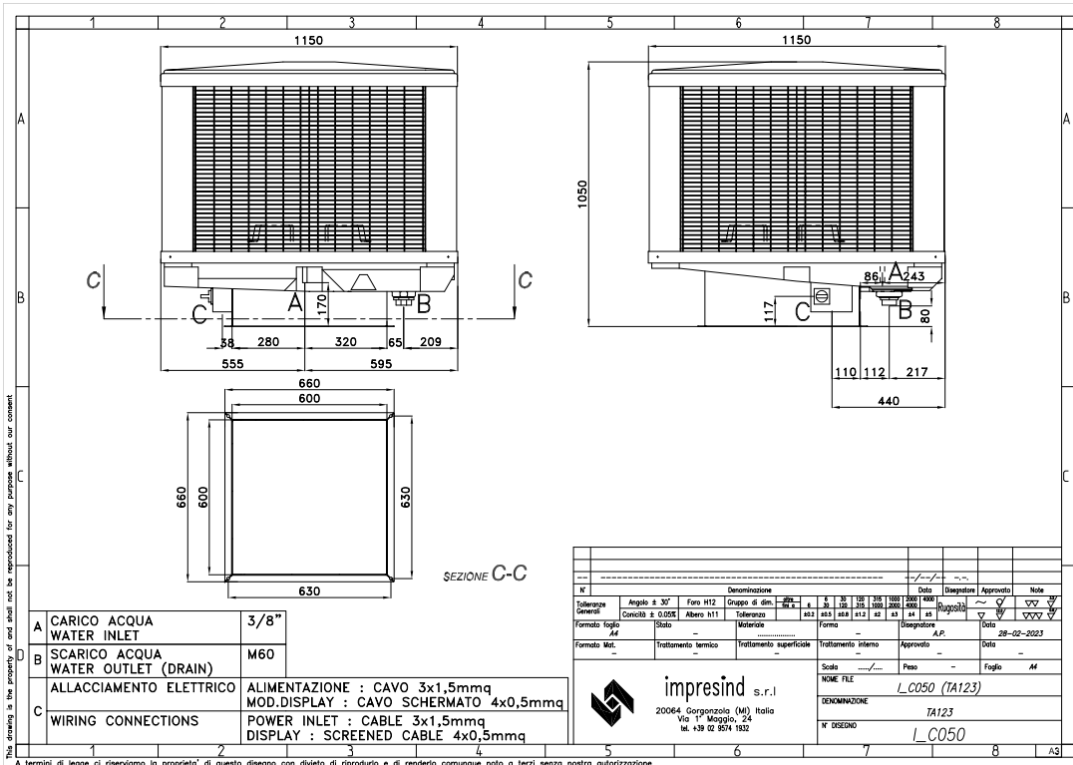
During normal operating conditions in COOLING mode, the evaporation process leaves mineral salts accumulation and solid residue in the discharge water, this water is NOT POTABLE.

DRAWING

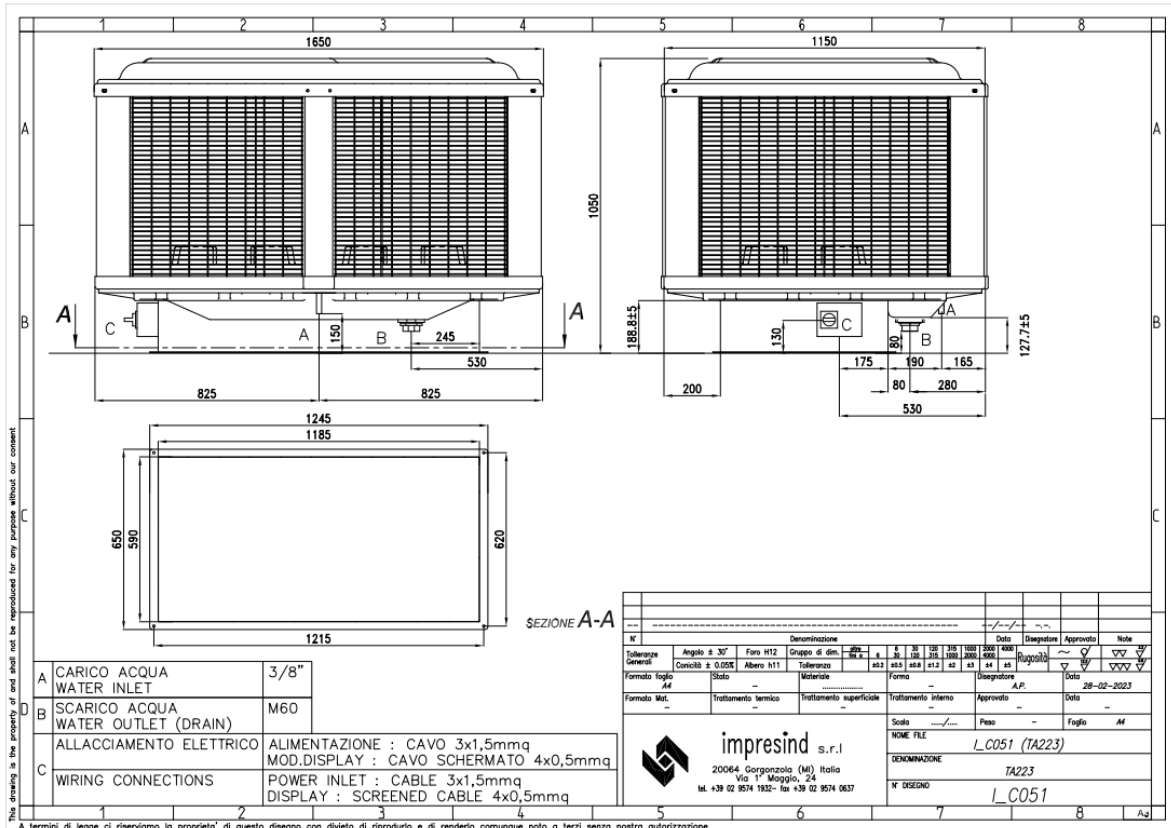
FPA103 & FPA123



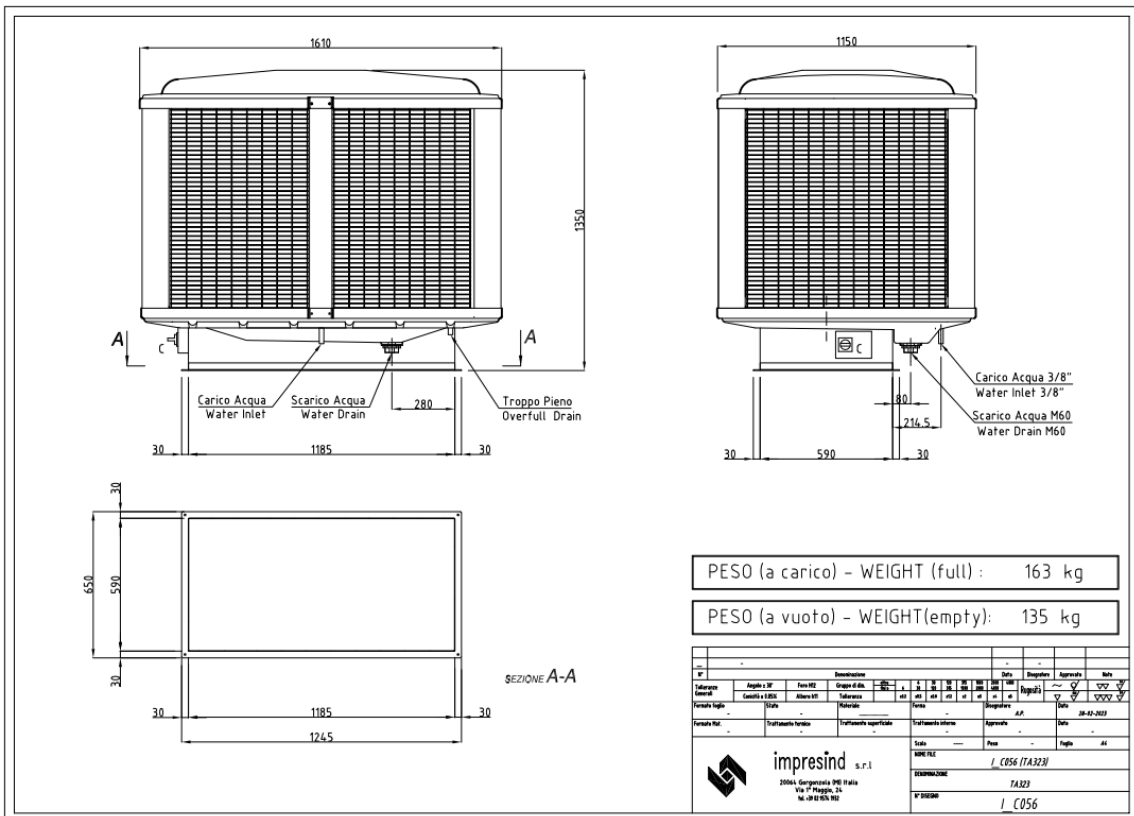
TA123



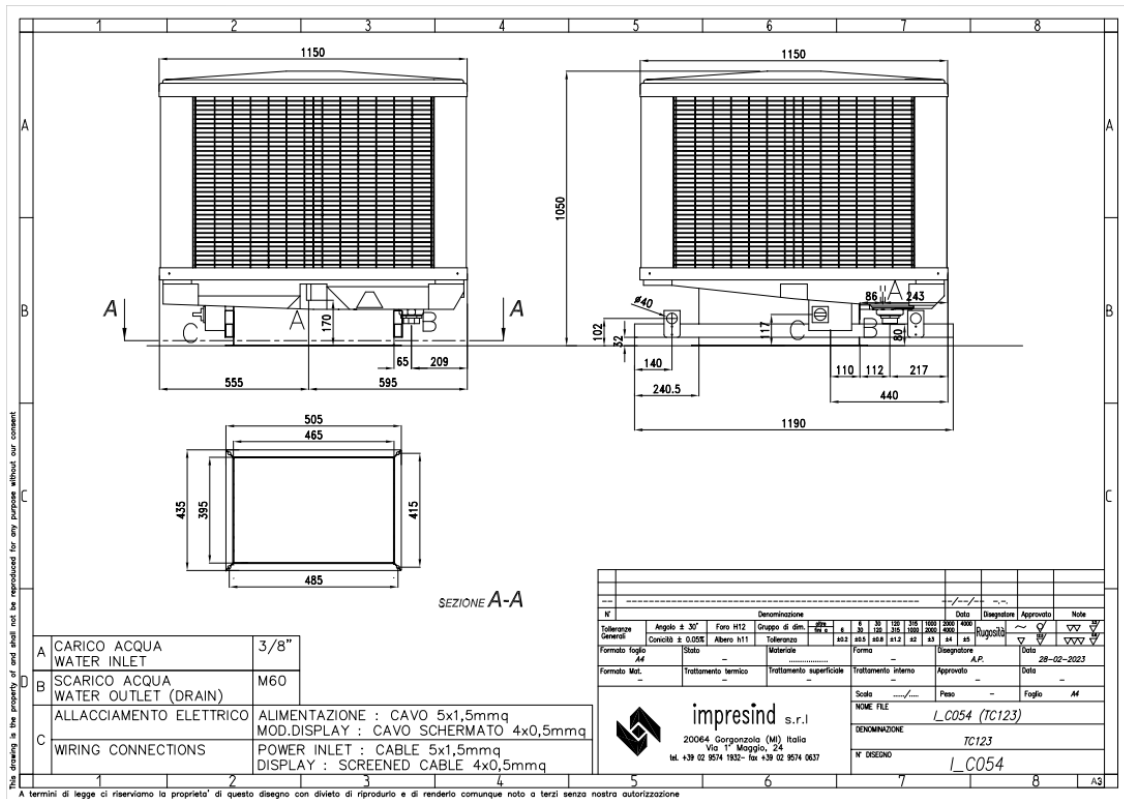
TA223



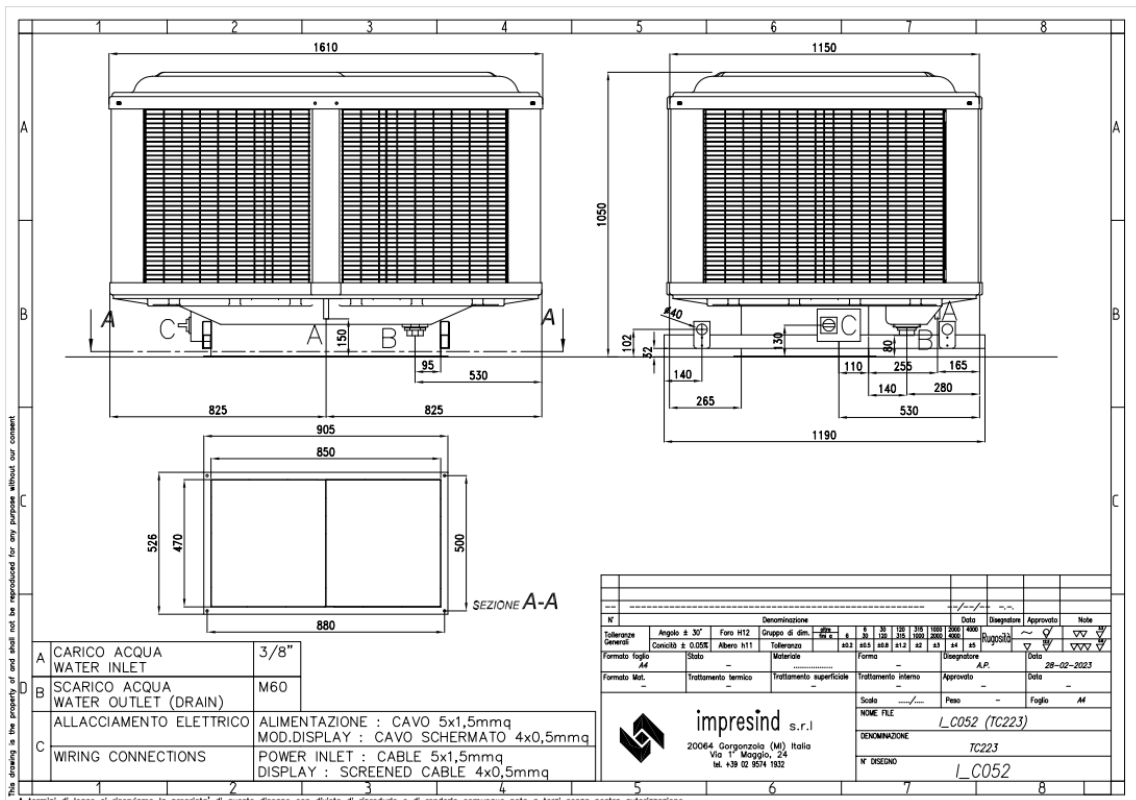
TA



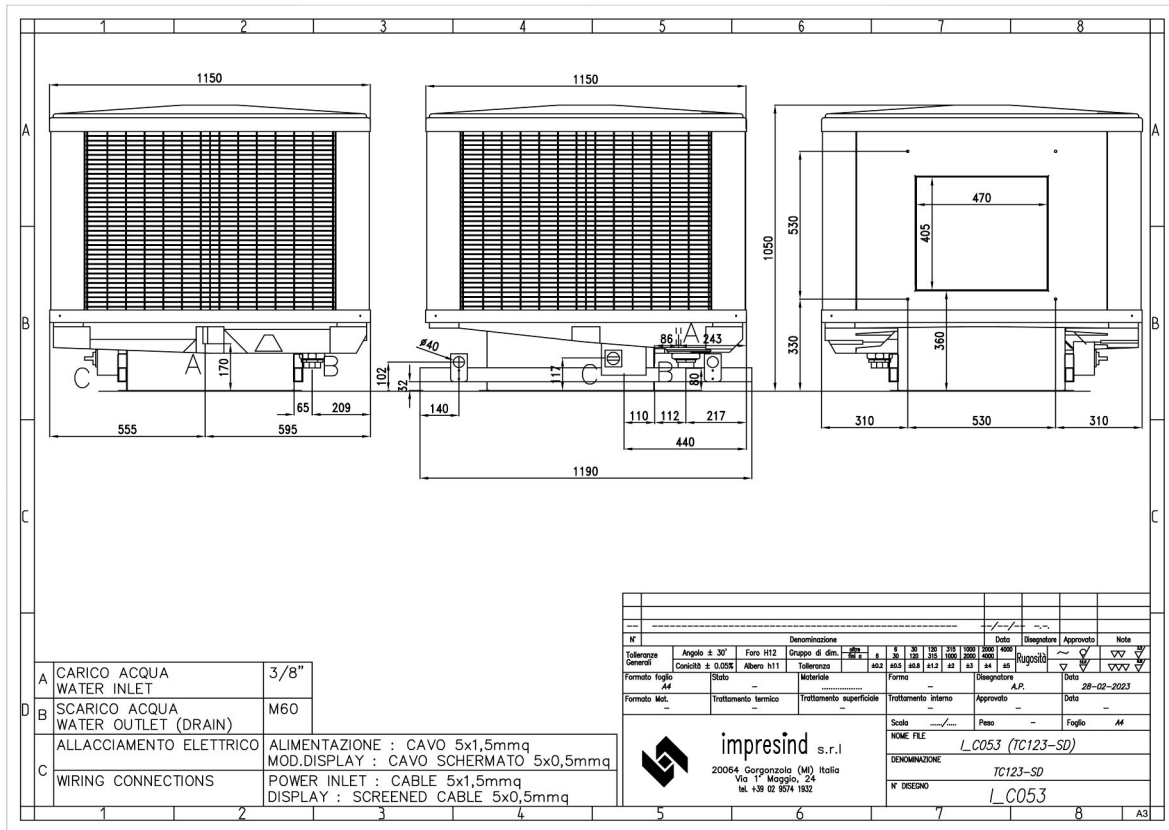
TC123



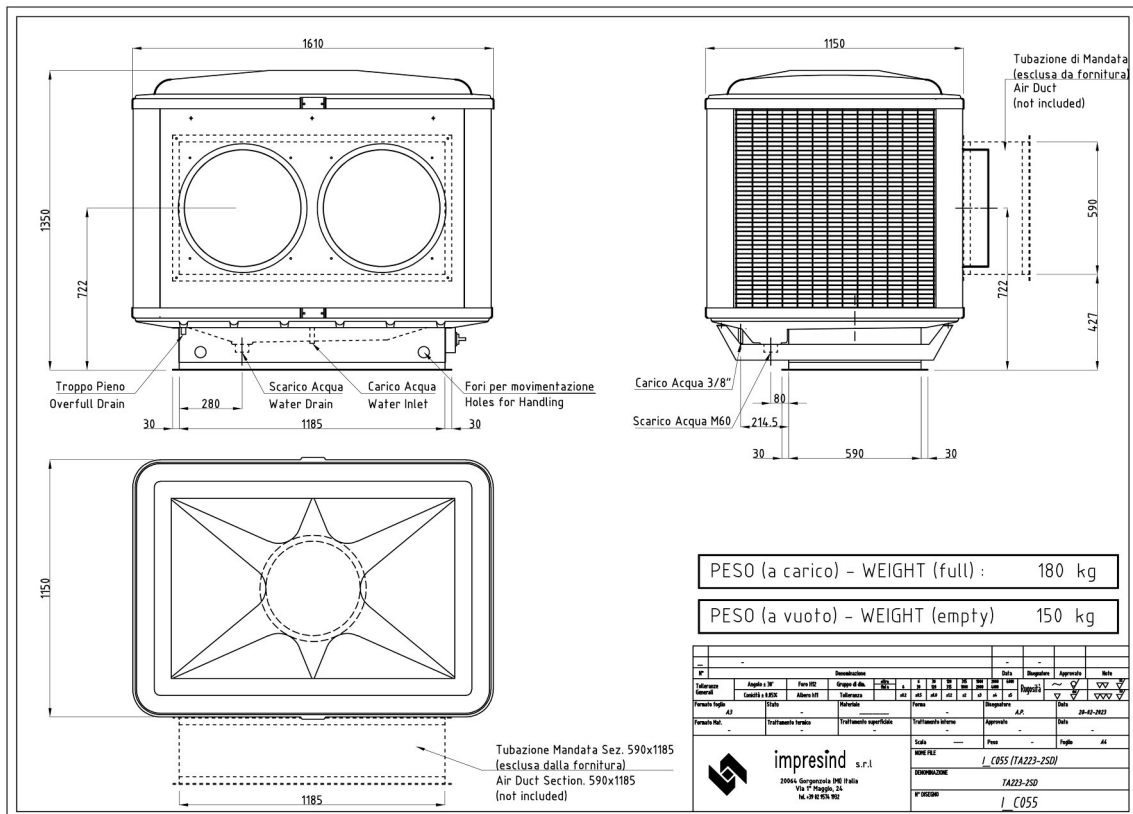
TC223



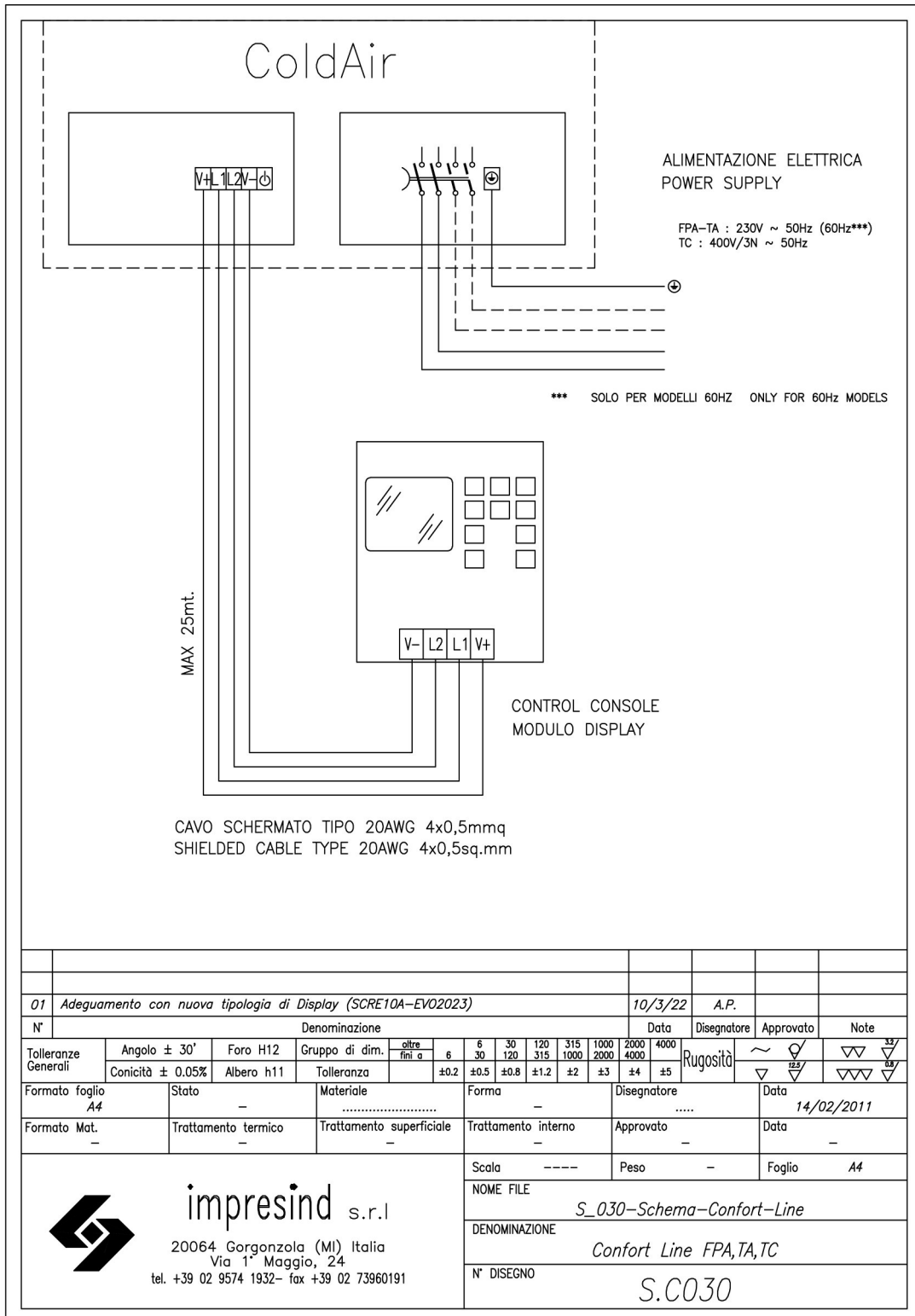
TC123-SD



TA223-2SD



ELETTICAL SKETCH (ed.2023)



TECHNICAL FEATURES

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

* Test conditions:

Ext.temp 33°C

ExtHR 60%

TECHNICAL FEATURES

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

* Test conditions:

Ext.temp 33°C

ExtHR : 60%



For dimension and technical feature TC series with inlet air filtration view the apposite use and maintenance instructions.



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