

# BIOCOOLERS

# BIOCOOL

ECO Cooling Solutions

## INSTALLATION GUIDE EVAPORATIVE COOLER



**2**  
GUARANTEE  
COMPONENTS  
YEARS

**10**  
GUARANTEE  
STRUCTURAL  
YEARS

**20**  
GUARANTEE  
ANTI-CORROSION  
YEARS

\* More languages: see last page  
\* Altre lingue: vedi ultima pagina  
\* Mais idiomas: ver última página



ASSAMBLED IN SPAIN

Version v.09/2020

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## GENERAL INFORMATION

### Evaporative cooler manual

Thank you for your support and confidence choosing our air conditioning evaporative, which will provide you with comfort and health.

The evaporative air conditioner operates with the most advanced technology of evaporation, using the most advanced electronic management. This manual is only for the series BIO evaporative air conditioners.

Please read these instructions carefully before use.

Observations for the installation instructions.

- This manual is based on the current state of approval and testing.
- The evaporative must be located in a well ventilated, dry place to ensure 100% performance.
- Before introducing fresh air in a closed environment, be sure there is adequate ventilation or extraction. Natural extraction and forced can be combined.
- We reserve the right to realize technical modifications.

## PRECAUTIONS AND SAFETY

 **DANGER:** Not follow these instructions, may cause serious injuries.

Before operating with the machine make sure that the main switch of the equipment is OFF.

Keep the voltage stable with variations not exceeding 10v, so that the evaporative cooler does not repeatedly switch on and off if the voltage is very low. This could easily be damaged if too low or too high a voltage is used continuously.

## PRECAUTIONS AND SAFETY

### Responsibility of the worker

The installation and maintenance of the evaporative has a high probability of causing serious injuries if its installation is not correct.

All the work with this product, both as to its installation in the evaporative and internal connections must be carried out through a qualified person in accordance with local and state regulations.

The rules and regulations for safe working at heights must be always consulted.

This product is single-use for adiabatic evaporative systems.

The use of this product is not applied to the use of persons (including children) with physical and mental limitations or people with lack of experience and knowledge, unless there is a direct supervision or instructions for use by a person who will be responsible for their safety.

Children must be supervised to make sure they do not use the product with recreational use.

For technical information consult this instruction manual.

### Installation and operation

- The installation of the evaporative must be performed in a place with power supply, water supply network and places according to the applicable standards legislation.
- Safe clothing. Wear slip-resistant shoes all the time. Sandals, open shoes and barefoot are prohibited for work with machines and tools.
- Do not wear loose clothing or accessories during installation as they can remain inside or falling from high heights, causing damage.
- Do not install the evaporative during rainy days, wind gusts or adverse weather conditions.
- Carry protective clothing with the use of power tools.
- Always make sure the use of electric cables according to regulations.
- Always raise the evaporative media insurance.
- Never drain water directly from the evaporative to the cover, use flexible rubber tubes up to a point of discharge.

## PRECAUTIONS AND SAFETY

- Any maintenance or repair installation must be performed by a person or qualified firm.
- The packaging of the evaporative may be a danger to the security of the storage. Please place them in areas according to local laws and regulations.
- Maximum load capacity allowed for loading equipment or lifts must be taken into account .
- Use in all the installations raise elements (erecting cranes, electrical arms) and loading equipment such as controlled pulleys and with the fulfillment of the regulation.

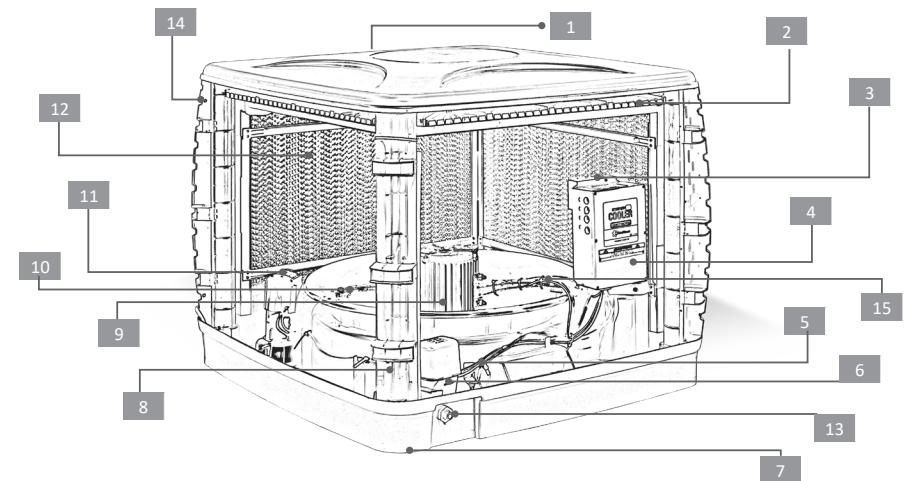
### Other important requirements

Please read this manual carefully. Failure to do so may result in an injury or damage to the evaporative, the evaporative or the property of the costumer.

- Do not force any part of the evaporative to enter because everything is designed for an easy handling and placement.
- Never pierce the bottom of the tank or the side panels unless otherwise indicated, as they directly affect the functioning of the evaporative causing its replacement.
- Check the area of placement of the evaporative, to ensure that the structure is safe and capable of supporting the weight of the evaporative.
- Always comply with the standards and local regulations.

## DIAGRAMS/CUTTING

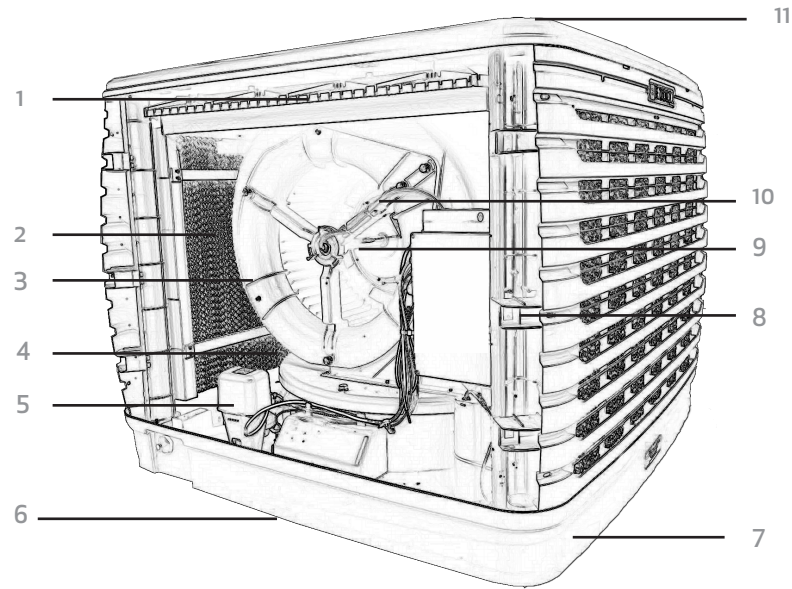
### BIO-18D



- |                      |                              |
|----------------------|------------------------------|
| 1. Cover             | 10. Fixation set             |
| 2. Water distributor | 11. Water pump               |
| 3. Ozone             | 12. Filter                   |
| 4. CPMD electronics  | 13. Water Inlet Valve        |
| 5. Water sensor      | 14. Side Panell              |
| 6. Drainage          | 15. Impulsion internal probe |
| 7. Water tank        |                              |
| 8. Corner post       |                              |
| 9. Axial Motor       |                              |

## DIAGRAMS/CUTTING

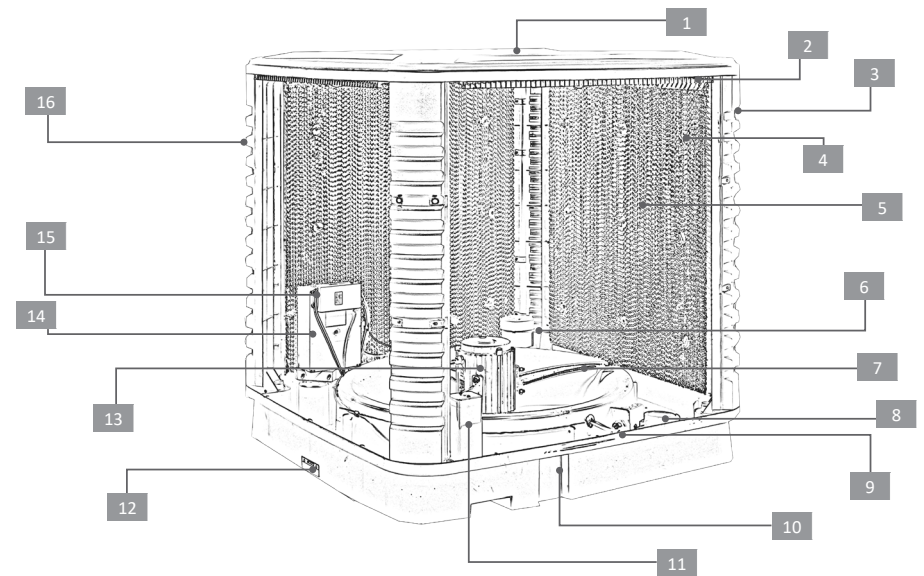
### BIO-18DC -DC



- |                      |                     |
|----------------------|---------------------|
| 1. Water distributor | 8. Corner Post      |
| 2. Cooling pads      | 9. Motor            |
| 3. Helicoid          | 10. Centrifugal Fan |
| 4. Water pump        | 11. Lid             |
| 5. Draining valve    |                     |
| 6. Vent valve        |                     |
| 7. Tank              |                     |

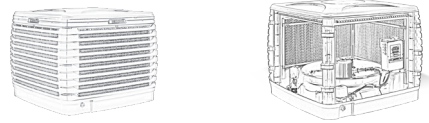
## DIAGRAMS/CUTTING

### BIO-30D



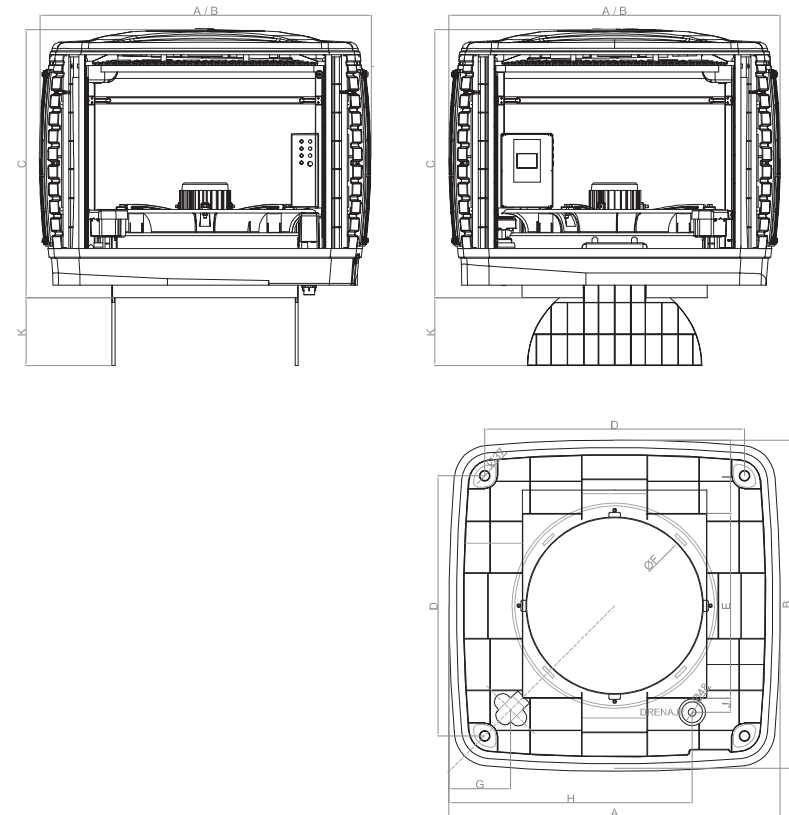
- |                       |                            |
|-----------------------|----------------------------|
| 1. Cover              | 10. Float                  |
| 2. Water distributor  | 11. Drenaje                |
| 3. Corner post        | 12. External disconnecter  |
| 4. Filter             | 13. Axial Motor            |
| 5. Panel Fixation set | 14. CPMD Motor Electronics |
| 6. Water pump         | 15. Ozone                  |
| 7. Motor Fixation set | 16. Side panel             |
| 8. Water level inlet  |                            |
| 9. Water level probe  |                            |

## TECHNICAL CHARACTERISTICS



UNITS		BIO-18D AIV	BIO-18T AIV	BIO-18DCV DC
AIR FLOW	NOMINAL (m <sup>3</sup> /h)	18.000	18.000	18.000
	EFFECTIVE (m <sup>3</sup> /h)	17.847	17.847	16.612
COOLING CAPACITY	WATTS (w)	19.652	19.652	18.290
ENERGY CONSUMPTION	MAX (w)	1.200	1.200	1.500
	MIN (w)	360	360	360
TOTAL CURRENT	MAXIMUM (amp)	8	8	9
FAN	DIAMETER (mm)	610	610	650
	MAX SPEED (rpm)	1.390	1.390	Centrifugal-Direct Action
	TOTAL PRESSURE (Pa)	160	160	180
MOTOR	POWER (kw)	1.1	1.1	1.5
	VOLTAGE / PHASE / FREQ.	220 V / 1 / 50	220 V / 1 / 50	220 V / - / 50-60 Hz
	SPEED RANGE (rpm)	Hz170-1390	Hz170-1390	10 speeds
	TYPE	Axial - Inverter	Axial - Inverter	Brushless DC motor
PUMP	POTENCIA (w)	30 W	30 W	30 W
	FLOW (L/MIN)	23	23	23
	VOLTAGE / PHASE / FREQ.	220 V / 1 / 50 Hz	220 V / 1 / 50 Hz	220 V / 1 / 50 Hz
FILTER	UNITS	4	4	4
	SIZE (mm)	825x620x100	825x620x100	825x620x100 / (625x820x75)
	MAX AIR SPEED (m/s)	1,36	1,36	1,36
	SATURATION EFFICIENCY	89,1	89,1	89,1
NOISE	MAX. LEVEL (dB)	<70	<70	<69
WATER SUPPLY	WATER CAPACITY (L)	25	25	30
DIMENSIONS	SHIPMENT [LxWxH] (mm)	1110x1110x1020	1110x1110x1142	1110x1110x1100
	SHIPPING WEIGHT (Kg)	77 kg	92 kg	87 kg
	OPERATIVE	92 kg	107 kg	102 kg
	AIR OUTPUT DUCT (mm)	660x660	660x660	660x660

## BIO 18 AIV



Dimensions in mm.  
\* impeller mouth dimension

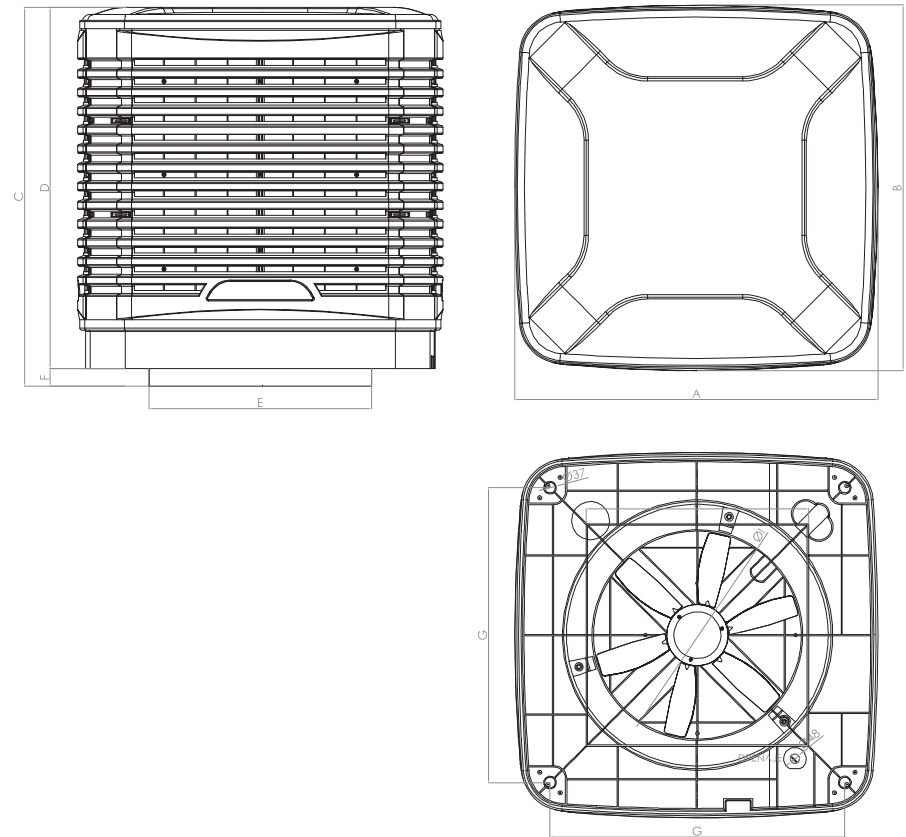
A	B	C	D	E	F	G	H	I	J	K	L*
1110	1110	950	920	730	620	220	830	210	50	240	660

## TECHNICAL CHARACTERISTICS



UNITS		BIO-30 DAV	BIO-30 TAV
AIR FLOW	NOMINAL (m3/h)	30.000	30.000
	EFFECTIVE (m3/h)	26.242	26.242
COOLING CAPACITY	WATTS (w)	28.800	28.800
ENERGY CONSUMPTION	MAX (w)	3.000	3.000
	MIN (w)	1.600	1.600
TOTAL CURRENT	MAXIMUM (amp)	7,1	7,1
FAN	DIAMETER (mm)	710	710
	MAX SPEED (rpm)	930-1490	930-1490
	TOTAL PRESSURE (Pa)	270	270
MOTOR	POWER (kw)	3,0	3,0
	VOLTAGE / PHASE / FREQ.	380 / 3 / 50-60	380 / 3 / 50-60
	SPEEDS TYPE	10 Transmission directa-Axial	10 Transmission directa-Axial
PUMP	POTENCIA (w)	30	30
	FLOW (L/MIN)	33	30
	VOLTAGE / PHASE / FREQ.	220 V / 1 / 50 Hz	220 V / 1 / 50 Hz
FILTER	UNITS	4	4
	SIZE (mm)	890 x 970 x 100	890 x 970 x 100
	MAX AIR SPEED (m/s)	2,81	2,81
	SATURATION EFFICIENCY	89,1	89,1
NOISE	MAX. LEVEL (dB)	<80	<80
WATER SUPPLY	WATER CAPACITY (L)	45	45
DIMENSIONS	SHIPMENT [LxWxH] (mm)	1.290x1.290x1.470	1.250x1.250x1.586
	SHIPPING WEIGHT (Kg)	120	115
	OPERATIVE	165	1650
	AIR OUTPUT DUCT (mm)	770 x 770	770 x 770

## BIO 30



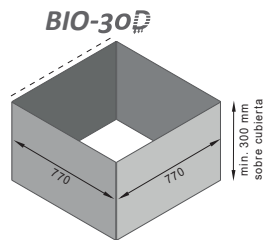
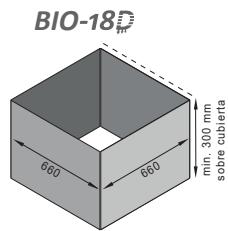
Dimensions in mm.  
\* impeller mouth dimension

A	B	C	D	E*	F	G	H	I	J
1290	1290	1310	1230	770	62	980	770	715	100

## INSTALLATION

### Ducts installation

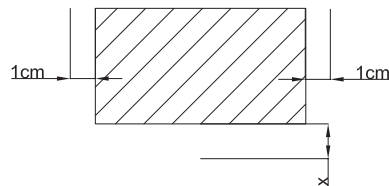
MODEL	DUCTS DIMENSIONS
BIO-18D	660x660 mm. / 0,6-0,8 mm. espesor
BIO-30D	770x770 mm. / 0,6-0,8 mm. espesor



### Gap Cover Opening

**⚠ ATTENTION!** Before making a cut in the cover make sure that the weather conditions are good and in no case with rain. On the other hand you must check for the installation time required and sealing. NEVER LEAVE A OPENING IN THE COVER, IT MAY CAUSE DAMAGE TO THE CLIENT.

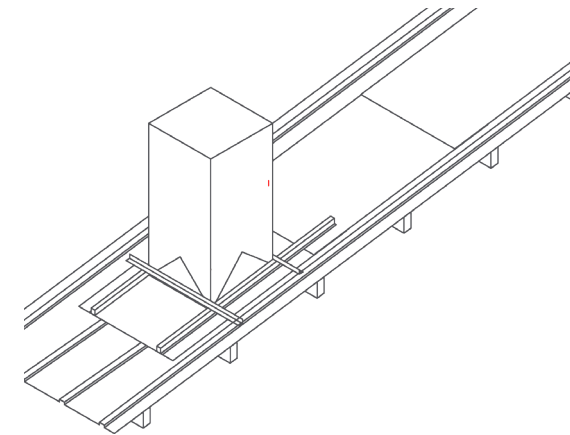
Make the drill on the cover as shown in the image. with the indicated margins. The value of x is dependent on the type of cover and its slope. The minimum value recommended for "x" is 2 cm.



## INSTALLATION

Remember:

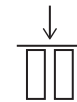
- Minimum distance of cross-metal sheet bedding of 40 cm to maintain the safety margin of 50 cm above the cover.
- **⚠** For proper installation must be level.
- Sealing: With these sealing we will prevent the possible leakage of water into the interior of the zone to climate



Once the duct sealed, you must use a lift as a creane boom or any tool the rules of evaporative lifting to the cover. The evaporative must be properly insured for their transport to the cover or in the installation area.

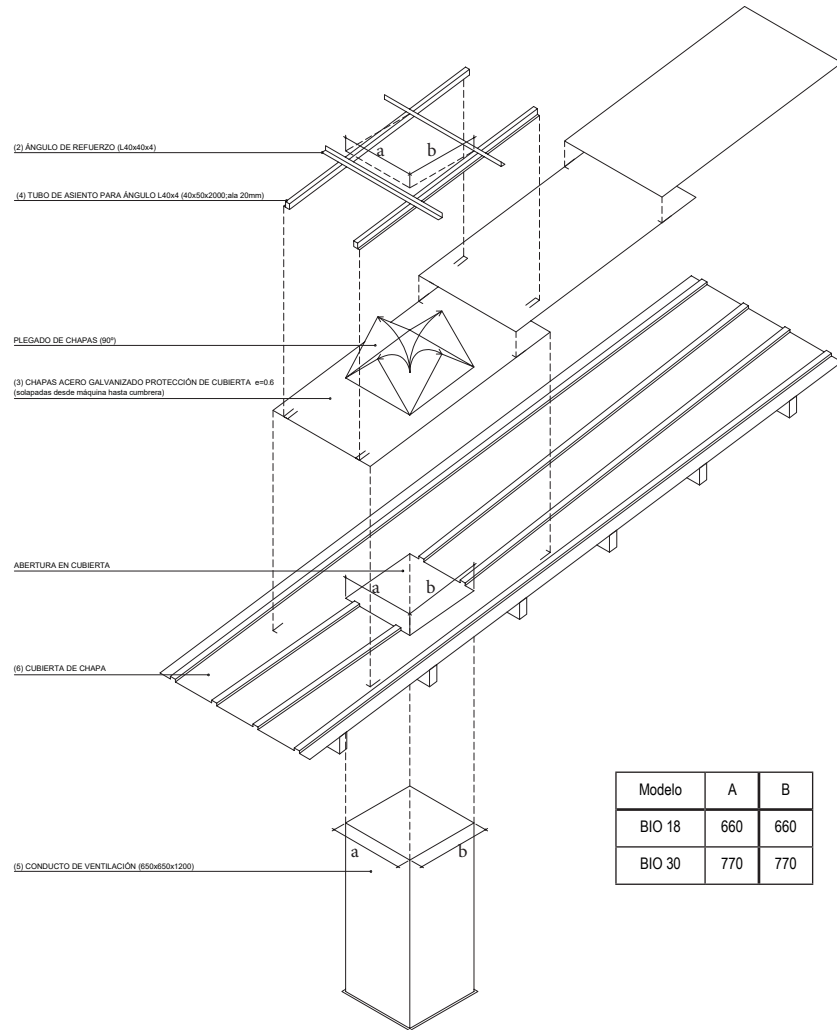
You will need an operator in the cover able to disengage and relocate the equipment.

**⚠** You must ensure that the equipment is level for a maxium performance and screw the evaporative.



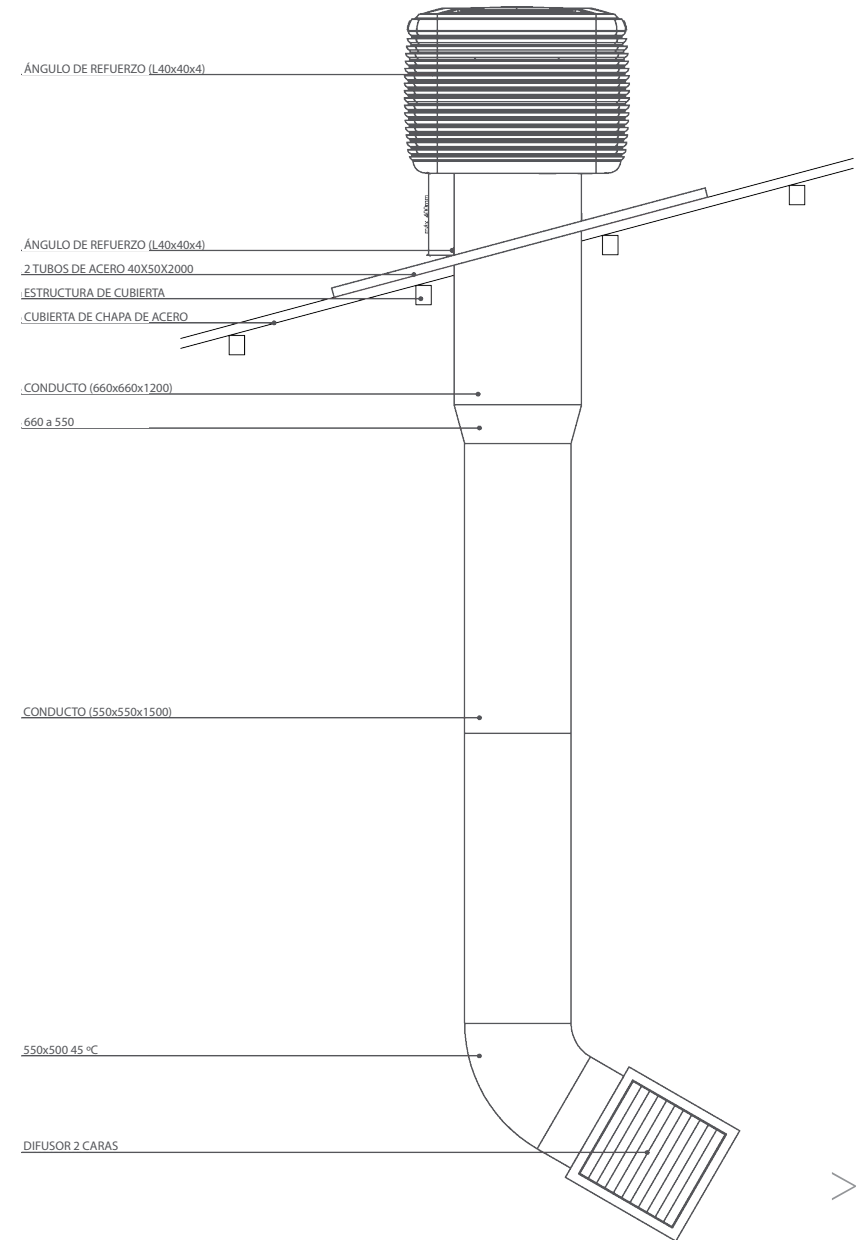


### Example Installation type roof

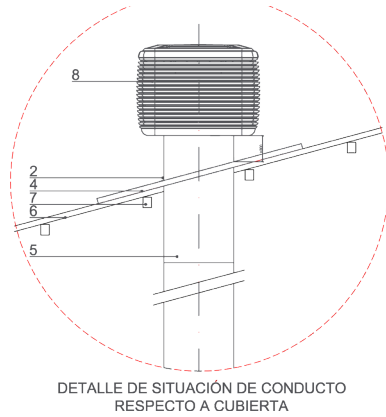


Modelo	A	B
BIO 18	660	660
BIO 30	770	770

### Example Installation type roof - Example BIO 18



### Example Installation type roof

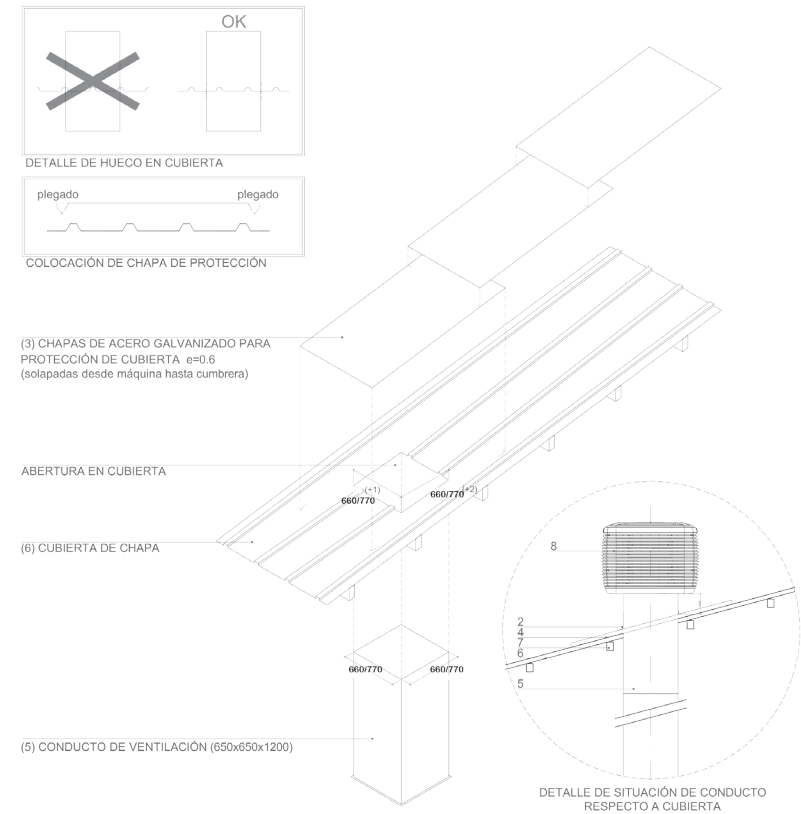


Depending on the weather and the remaining time on the day of installation, it will proceed to perform another installation of other evaporative unit or to perform interior equipment assembly.

REF	DESCRIPTION	N° PARTS	MATERIAL	DIMENSIONS
1	MOORING SCREWS	*	SCREW GALVANIZED	(*) assembly
2	ANGLE FINISH	2	GALVANIZED ANGLE	L40x40x4
3	PLATE	**	GALVANIZED SHEET 2000x1000x0,6	(**) hasta cubrir desde máquina hasta cumbreira
4	SEAT TUBE	2	ACERO GALVANIZADO	40x50x1500 (ALA 20mm)
5	VENTILATION DUCT	1	GALVANIZED SHEET 0,6mm	660x660x1200
6	ROOF	1	ACCORDING TO CONSTRUCCIÓN	ACCORDING TO CONSTRUCCIÓN
7	ROOF STRUCTURE	1	ACCORDING TO CONSTRUCCIÓN	ACCORDING TO CONSTRUCCIÓN
8	EVAPORATIVE	1	ACCORDING TO MODEL	ACCORDING TO MODEL

**⚠ WARNING!**  
Never leave any area of open cover with a non complete installation.

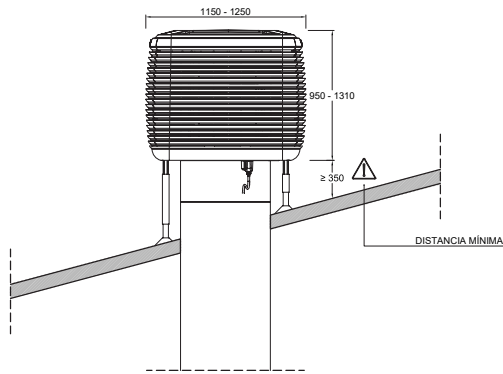
### Example Deck installation



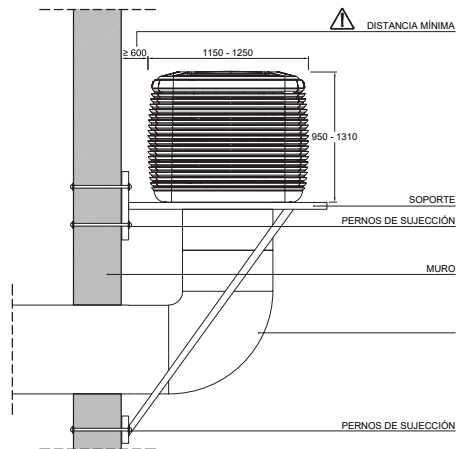
REF	DENOMINACIÓN	N° PIEZAS	MATERIAL	DIMENSIONES
1	TORNILLERÍA DE ANCLAJE DEL CONJUNTO	*	TORNILLO GALVANIZADO ROSCA CHAPA	(*) sobre montaje
2	ÁNGULO DE REFUERZO	2	ÁNGULO GALVANIZADO	L40x40x4
3	CHAPA PROTECCIÓN CUBIERTA	**	CHAPA GALVANIZADA 2000x1000x0,6	(**) hasta cubrir desde máquina hasta cumbreira
4	TUBO DE ASIENTO PARA ANGULO L40	2	ACERO GALVANIZADO	40x50x1500 (ALA 20mm)
5	CONDUCTO DE VENTILACION	1	CHAPA GALVANIZADA 0,6mm	660x660x1200
6	CUBIERTA EDIFICIO INDUSTRIAL	1	SEGUN CONSTRUCCIÓN	SEGUN CONSTRUCCIÓN
7	ESTRUCTURA DE CUBIERTA	1	SEGUN CONSTRUCCIÓN	SEGUN CONSTRUCCIÓN
8	EVAPORATIVO	1	SEGUN MODELO	SEGUN MODELO

## INSTALLATION EXAMPLE

### Example Installation type roof

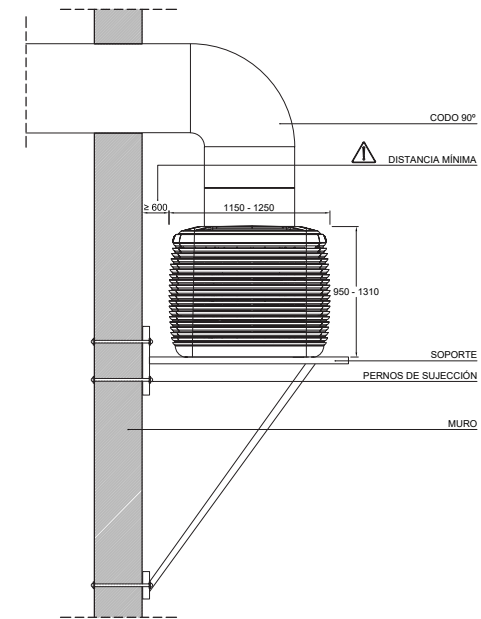


### Generic frontage Installation example

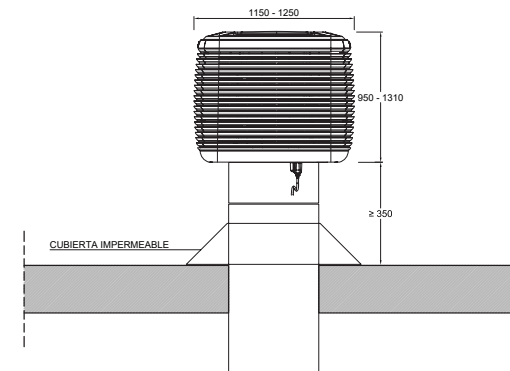


## INSTALLATION EXAMPLE

### Generic frontage Installation example *BIO-18<sup>TC</sup>* *BIO-30<sup>TC</sup>*

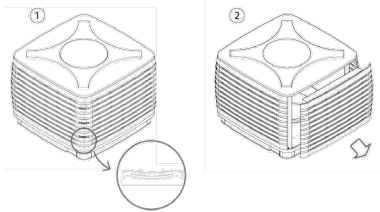


### Example Installation type roof *BIO-18<sup>TR</sup>* *BIO-30<sup>TR</sup>*



## INTERNAL CONNECTIONS

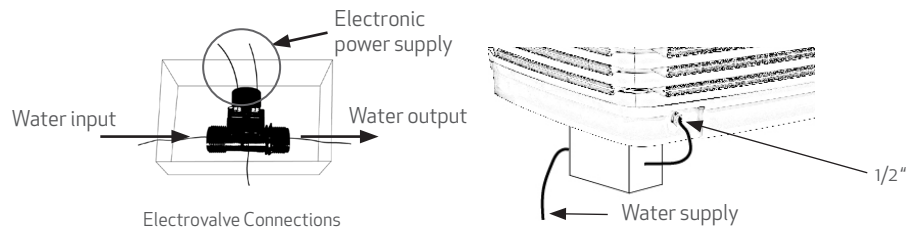
### Internals Evaporative Assembly



1. First disengage the 3 side panel clips
2. Hold the panel with both hands and pull towards you.
3. Repeat with each of the panels.

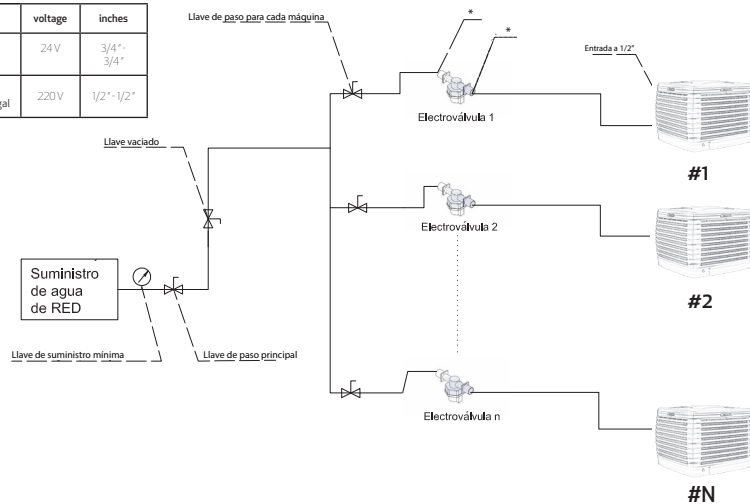
### Electrovalve

The electrovalve assembly will be on the inside of IP65 protection box, to protect from low temperatures and prevent damage from freezing.



\*Solenoid valve of

MODELS	voltage	inches
BIO18 axial	24V	3/4" - 3/4"
BIO 30 BIO18 centrifugal	220V	1/2" - 1/2"



⚠ There will be an installation of a key step for each evaporative unit and in addition to a key principal step for all the units installed. You also install an emptying key to the season closure.

ℹ SEE EXAMPLE TYPE SCHEME ANNEX

⚠ FOR BIO30 AND BIO18 DCV-DC

Install the solenoid valve cap in the correct direction according to the position of the cables, other type of installation can damage the solenoid valve.

### Drain Valve

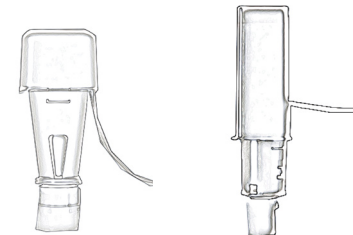
Water drained from the drain valve must be carried to the point of appropriate download in the building or building installation, according to the regulations. It is recommended that you do not drain the water never directly to the cover.

The drain valve comes from within the evaporative, you will have to put in its corresponding zone and thread with the cap thread the projecting part of the lower tank to ensure its stability.

The electrovalve prevents the entry of water when the drainage is open or the machine is idle.

Once threaded drainage, ensure you drained by gluing a diameter PVC tube 32 mm and length 1 meter.

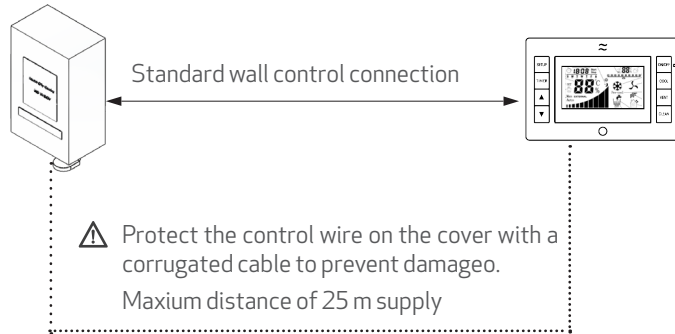
Take this tube to the water discharge area or rain cover.



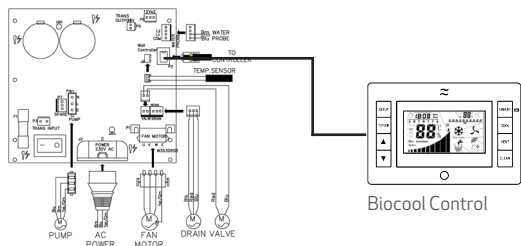
Model	mm	CAP to 32 mm
BIO 18	48 mm	YES
BIO 30	32 mm	NO

## ELECTRONIC CONNECTION

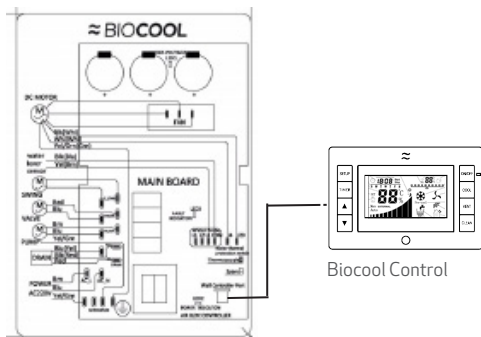
### The control connection



### BIO 18 AXIAL



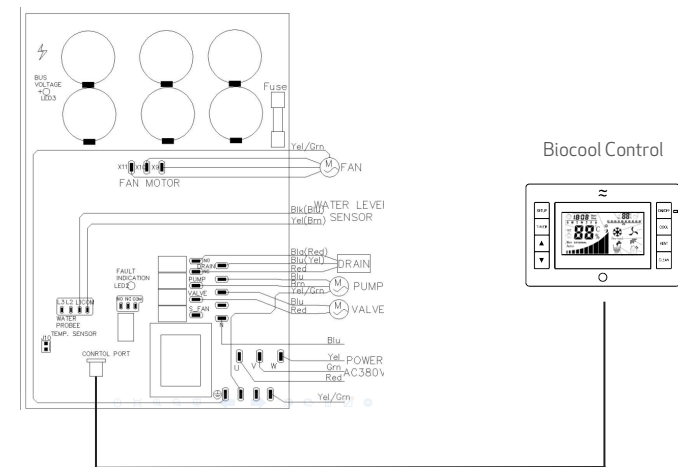
### BIO 18 CENTRIFUGAL FAN



## ELECTRONIC CONNECTION

### The control connection

### BIOCOOL MODEL BIO 30 VARIABLE SPEED



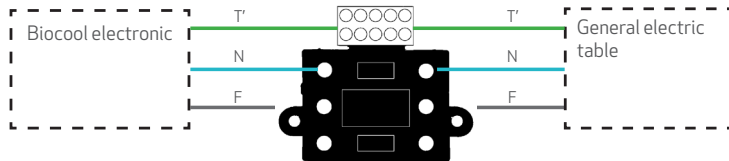
## Safety box

Inside the equipment, in the accessory box is the electrical safety box. It is a three-poles 20 A box with protection IP65.

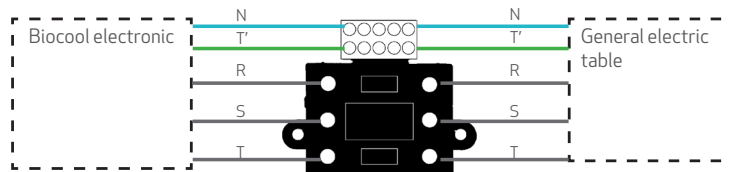
1. Connect the power supply of the equipment to the input of the safety box. (three-phase for BIO30 and single-phase for BIO18).
2. Connect output power wiring to the general low-voltage switchboard marked by the customer.
3. Place the magnetic disconnect box in the duct as shown on the back picture.



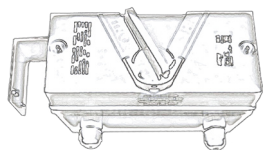
### INTERIOR VIEW BIO18



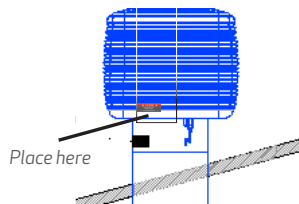
### INTERIOR VIEW BIO30



N-Neutral  
T'-Ground



Safety box



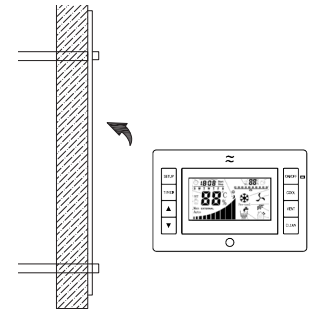
- Safety box location -

## Control placement

Place the control in the area specified by the client.

It is recommended that you place the control at a minimum distance of the evaporative connected, and ensure good communication.

If the distance is >25m, will have to be to crimp the wire by adding a shielded 4x1 mm<sup>2</sup> cross-section wire cable and its corresponding RJ9.



## Mechanical extractor connection



Consult the different options with BIOCOOL's technical department.

## START-UP

Before to starting up all equipment follow the instructions in order for safety:

1. Connect the power and water supply and turn on the evaporative from the remote control.
2. Turn on the evaporative from the remote control.
3. Check the exterior of the evaporative if there is any equipment with loss of water or malfunction.



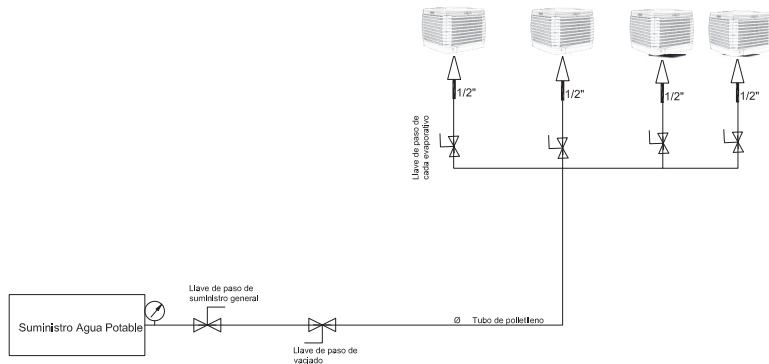
Any element not well connected to the electric panel will be reflected in the control.



The electric panel has a green LED which informs that it has power.

## CONNECTION DIAGRAMS

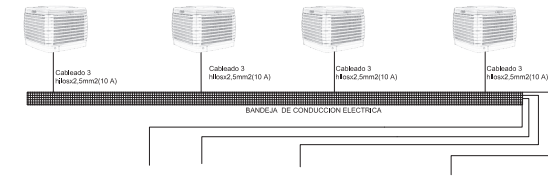
### Water scheme example



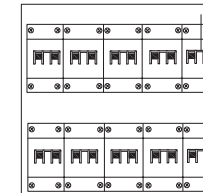
Considerations to take into account in the installation of plumbing:

- Place a shut-off valve to all machines.
- Place a draining shut-off valve to prevent accumulation of water in winter and freezing problems.
- Make use of a shut-off valve for each installed unit and be able to cut the supply in specific equipment.
- Use polyethylene pipe diameter corresponding to water supply connections.
- Entry to the evaporative will be 1/2" and the electrovalve located before the evaporative will be a 3/4" female input and output.
- Check if the supply pressure is the necessary for supplying the full installation.
- Checking the plumbing connection of the entire installation to avoid losses and leaks that can cause damage.

### Connection diagram example

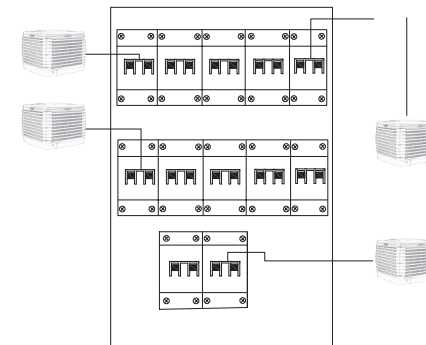


C.G.B.T



MODELO	WIRING TYPE
BIO-18D	3 wires of 2,5 mm <sup>2</sup> section (10 A)
BIO-30D	Three-phase cable(N+3F+Ground)

C.G.B.T



## Connection to the electric board

To carry out the electrical installation, the following considerations should be taken into account:

- First make sure you have made a good connection to the safety box (located at the bottom of the machine as indicated above).
- An electrical sub panel must be made in each installation for the evaporative unit system.
- Use the electrical wiring in the table above for all installations.
- It is recommended to connect each evaporative unit to each circuit breaker, complying with current regulations. Each line is sized with the  $I_{máx}(A)$  according to UNE 20460-5-523:2004

The general panel must contain thermomagnetic switches with the expected  $I_n=1,25 \times I_{max}$  referred in the UNE 20460-4-43.



Each electronic panel has a LED system that indicates the machine is supplied with power.

## Recommendations for electrical and communication wiring.

### Electrical connection

MODEL	TYPE OF ELECTRIC CABLE
BIO-18D	3 x 2,5 mm <sup>2</sup> section
BIO-30D	Three-phase cable (N+3F+Earth)

It is recommended to use this type of wiring according to the equipment installed. This wiring must be on suitable conduit according to local regulations in force and covered on a tray or cover. Otherwise, RZI-K halogen-free hose should be installed.

### MODBUS communication connection

In Smart City Cooler installations with Modbus communication, shielded and twisted communication cable of the BELDEN brand must be used. This cable has a shielded wire which must be connected to the RS485 communication GND, never connected to the electrical earth.



The electrical wiring should NEVER go on the same tray/lid as the communication one, in any type of BIOCOOL installation.

## WATER AND POWER SUPPLY

1. The water must always be clean, and the pressure must be between 0.15 to 0.3 Mpa (1.5-3 kgf/cm<sup>2</sup>)
2. There should be a valve (DN20) near the entrance of the water inlet and a cleaning duct.
3. Do not use untreated well-water, or low pH osmotic water
4. Ensure that the single phase voltage is 220/240 / / 110/120/±10 V, three-phase voltage is 380-415 ± 10 V.

### Water quality

#### Water type:

- The water supply for the equipment must be clean and from the mains, guaranteeing a minimum water pressure at the entrance of each equipment.
- Do not use well water because of the high dissolved substances it may contain (bicarbonates, carbonates, calcium ion, magnesium ion, boron, potassium ion which tends to form clays...). If this is not possible, the water must be treated according to the European Directive 98/83/CE.
- The temperature of the incoming water must be less than 45 degrees.
- The ph range should be between 6-9.

#### Hardness:

In very hard waters, a descaler will improve the performance of the equipment by avoiding lime incrustations.



The water must have a hardness of 3-15°hF, free of boron, salts, carbonates, bicarbonates and other impurities.

In case the water hardness is considered hard or very hard, the automatic self-cleaning of the equipment must be programmed at 4 h.



## DUCT DESIGN

1. Duct material must be of galvanized metal sheet, steel, plastic, aluminum, etc.
2. The grilles or diffusers should be installed where refrigeration is necessary. Grilles characteristics will be determined depending on the speed of the air. The material could be aluminum, wood etc. Doubled air deflection grilles 3-6 m/s, flow rate of the air, are recommended.
3. The duct must be designed to 6-8 m/s speed air in the main duct, 4-5 m/s in the pipes, and 3-4 m/s at the end.
4. It is advisable an economical duct design, without excessively noise. To reduce resistance, the duct curvature radius should not be less than 1.5 times of its width.
5. Ductwork should not exceed 30 metres in length.
6. It is advisable that the layout of the duct is straight, no curves or angles, to prevent resistance.
7. According to the different air flows, duct should be designed with different sections; the longer the duct is the minor the section must be.
8. If there are ramifications, these should be set to adjust the air flow.

CHECK BEFORE USE	<ol style="list-style-type: none"> <li>1. The machine is leveled</li> <li>2. Drain pipe is installed.</li> <li>3. No Water dripping in operation.</li> <li>4. Water level is normal.</li> <li>5. The evaporative is well connected to the power.</li> <li>6. Control lines are well fixed</li> <li>7. Check nothing obstructs the tank or the fan</li> <li>8. Check voltage and the current are normal.</li> <li>9. Check the machine is operating under the required power level</li> </ol>
MANTEINANCE	<ol style="list-style-type: none"> <li>10. To achieve maximum efficiency, cooling pads should be cleaned continuously. Do not use water pressure or hot water more than 40 ° C. Clean with a soft brush.</li> <li>11. To avoid freezing in winter, you should empty the tank and cut water. In case of snow or dust cover it when not using.</li> </ol>
CLEANING	This series has its own cleaning system. We recommend using the cleaning function at least once a month

## OPENING AND SEASON CLOSURE

### SERVICE SCOPE MAINTENANCE

You must ensure a technical assistance in the case as required at any time of the season, including labour for solving any kind of fault. Does not include the price of the rest of the component need to be replaced (unless they are covered by warranty).

The tasks to be performed in teams evaporative should be divided in two ways:

#### Technical maintenance.

These equipments require technical routine maintenance, if not done, can cause inefficient operation or even not working.

Tasks carried out follow the indications of the manufacturer for both opening and closure. So:

1. In spring and summer we check equipment function is acting properly after a prolonged stop proceeding to a cleaning work and in the event of failure or malfunction detection informs the client to proceed with their replacement.

2. In autumn the status of the equipment is reviewed reporting detected anomalies to solve them before the start of the following season

#### Hygienic Maintenance.

Although opening tasks perform a cleaning of the evaporative, they are subject to a national regulations for the control and the prevention of legionella (still being a classified equipment with less probability of proliferation and dispersal of the Legionella). Therefore, they should perform an annual cleaning and disinfection (to start) and subsequently a water analysis for the detection of Legionella (after between 15 and 30 days after treatment) in accordance with the R. D. 865/2003.

Companies authorized to carry out this type of services to third parties are those listed in the Register Official of Establishments and services Biocides ROESB.

## OPENING AND SEASON CLOSURE

After each of the maintenance operations, a technical report on the condition of the equipment is prepared so they may have a greater control of their installations. This report would be attached to the Record Book of the installation for the control of Legionnaire's disease along with the certificate of cleaning and disinfection and analytical results to comply with the regulations in force.

Point out that equipment have an automatic cleaning of tray and drain system. This system will allow also leave the tray without water when the appliance is unused during a season, reducing most if possible, the risk of proliferation of Legionnaire's disease to empty the tray both when the equipment is not used as when it reaches high values of suspended solids.

Review the following points :

### REVIEW POINTS:

- Draining and cleaning tray and equipment.
- Water pump.
- Automatic gate closure.
- External panels (housing evaporative panels)
- Evaporative cellulose filters.
- Review irrigation water (water dispenser)
- Eye examination of electrical lines, water and sanitation.
- Motor fan.
- Water detector.
- Solenoid electrovalve.
- Automatic drain 24w.
- Automatic filling.

## OPENING AND SEASON CLOSURE

### SEASON OPENING WORKS:

- Disconnect the power supply.
- Remove the filter panels to give access to the interior.
- Wash the filters to remove the dust accumulated during the winter. Change filters if they are in bad condition.
- Turn on the electricity switch inside of the air conditioner.
- Connect the water supply and electrical supply.
- Put the filters panels to close the unit.
- Start-up of the air conditioner.

### SEASON CLOSURE WORKS

- Disconnect the power supply.
- Close the water supply.
- Remove the filter panels to give access to the interior.
- Disconnect the power switch inside of the air conditioner.
- Check and clean the gutters of water from the tap.
- Allow water to drain from the tank through the drain valve that is automatic.
- After draining all the tank, clean the tank and the pump filter.
- Put the filter panels to close the unit

# PROBLEMS AND SOLUTIONS

PROBLEM	COMMON CAUSES	POSSIBLE SOLUTION
The evaporative cooler doesn't work and the buttons do not respond	External switch (machine base) or interior switch off, power failure, bad connection, blown fuse, loss of connection between the control box and the machine, faulty remote controls..	Check that the switches are on, measure the voltage, and connect properly, reset or replace it, check connections, replace the control panel. If it happens again, you should check again if there has been an overload.
No airflow	Warming up the engine, loss of electrical connections, damaged contact, pre-cooling mode on, faulty remote controls .	If overheating engine will start after 20 m. If the connection failures, check all electrical connections, if the contact is broken, replace it, if pre-cooling function is ON, turn off this function temporarily, if the remote control is defective must be replaced, if the engine is damaged must be changed. Check the parameters of voltage and current.
Pump is working but doesn't cool well.	The cooling pads are dirty, insufficient air supply, dry pads or lack of water, excessive moisture in the atmosphere..	If the problem are the pads, clean or replace, install grilles for the air in the places that need cooling, if the pads are dry, check water distribution and the tank for possible obstruction, if there is excessive humidity in the atmosphere, the evaporative doesn't work at 100% because it works better with drier climate. If desired, turn off cooling mode in such days and turn on fan only..
Pump fails	Broken water pump, loss of electrical connection, water level sensor is broken or damaged, faulty remote controls.	If the pump is broken must be replaced, failed connection, if there is no water check valves and tank, if your remote control is defective must be replaced.
Pump is working but no water flows	Water pump is blocked, water valve is locked, water supplier is locked.	If there is a pump blockage should be cleaned, if there is a valve blockage clean it, if the water supplier is locked clean it..
Cleaning mode is activated too many times or too much water flows.	Self-cleaning function is activated, faulty valve, the drain valve is leaking, faulty remote controls.	If the self-cleaning function is enabled, temporarily disable, if the valve is obstructed or faulty, cleaning or changing, if the drain valve leaks, check or replace the valve, if the remote control does not work, replace it.
Water drips on the inside	The pads are broken or blocked, excessive amount of water in the pads.	If the pads are dirty or damaged, clean or replace, if there is excess water probably the water distributor is unbalanced, balance it.
Smells	The evaporative is with dirt.	Clean the evaporative cooler completely
White residue	High levels of salt in water.	Drain water more frequently.
Red flashing on the remote control.	Erro de comunicação	Check the instructions in the BIOCOOL Control manual.
	Erro de preenchimento	
	Erro de esvaziamento	
	Erro de motor	
The communication green LED on the electronics does not light up	Short-circuit in the communication cable, damage to the electrical system and lack of power supply.	Change communication cable, check power supply or replace electronics.

## Q&A-Installation

### BIOCOOL ESTANDARD COOLERS

#### Communication errors in installation

- *Why did not detect some coolers?*
  1. Review location of connection of BioCool Standard control and connected coolers
  2. Make sure you have good contact with the RJ wiring -electronic tab HUBB
  3. By using the crimper : CAUTION! Because if we press a lot you can join wiring and lose communication .
  4. Make use of an accessory such as a flange for pressure connection RJ with electronic tab HUBB ensuring a good connection.
  5. To ensure it is resolved and there is good communication, see BioCool control in the solid line in the right corner that it is fixed. Otherwise, change the HUBB.

#### Electric installation errors

- *What is the wiring recommended in the power supply of the cooler?*

MODELO	TIPO DE CABLE ELECTRICO
BIO-18D	3 x2,5mm <sup>2</sup> de sección(I <sub>max</sub> =10 A)
BIO-30D	Cable trifasico (N+3F+Tierra)

The electrical wiring must be protected on electric tray. In other case can be installed follow the UNE 21123 UNE designation W - K 0.6 / 1 kW with flexible conductor.

NEVER! Place the communication cable and power supply in the same tray

## Q&A-Installation

- *Should I put some kind of protection??*

**In the case BIOCOOL coolers** , it is recommended to place each evaporative cooler to a circuit breaker box distribution board or general stress. One general low-tension should have the MCB's with In > =1,25 x Iprevista contemplated by the UNE 20460-4-43.

#### Water installation

- *What PH should I use?*

PH between 6-9.

- *What water main should I use to pipe water supply ?*

We recommend using pipe polietileno to hold well pressure ( 8-10 kg / cm2). NEVER use a drainage pipe as it cannot withstand sufficient pressure

- *Can I make the water supply from a tank ? And the water treatment?*

Yes, if the supply is made from a tank , it is recommended that the pressure at the end of the line installation is 1.5-3 kg / cm2 .. In addition , you must perform maintenance on the valves cleaning the grids of these for cases with water with gravel.

- *¿How many valves should be placed?*

Se recomienda una llave de paso de cada equipo y luego una general, además de una llave de paso para desagüe. See previous scheme.

## CHECKLIST

INSTALLATION	
The cooler is adequately supported	
The water pipes were flushed of any foreign materials before connection	
The owner has been instructed.	
The water is connected with no leaks at fittings	
The power supply adheres to all local and national regulations	
All cables have been correctly connected to the control enclosure.	
All the ducts are fixed correctly and there are not air leaks.	
The system has been instructed how they can electrically isolate the cooler.	
The customer has been shown how to operate the system.	
Visual inspection completed no damage.	
All the installation rubbish has been removed.	
Visual inspection completed.	
Electrical supply to cooler Ok	
Internal components check	
Niveles de agua internos chequeados	
Outlet drain directed to the open drain	

## CHECKLIST

Complete the form below in order to have a correct system and a correct identification of the system elements.

Client:.....

Contact person .....

Installation date .....

Installer: .....

Serial number of the installed equipment:

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## NOTES

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## MANUAL DE INSTALAÇÃO EM PORTUGUÊS

<http://www.termigo.com/envios/TermigoPdfs/Productos/Linea/Biocol/Portugues/Manuales/PTinstalacao.pdf>



## MANUALE DI INSTALLAZIONE IN ITALIANO

[https://termigo.com/envios/TermigoPdfs/Productos/Linea/Biocol/Italiano/MANUALES/IT\\_Manual\\_Instalacion\\_Biocol\\_v.2020.pdf](https://termigo.com/envios/TermigoPdfs/Productos/Linea/Biocol/Italiano/MANUALES/IT_Manual_Instalacion_Biocol_v.2020.pdf)



BIOCLIMATIZADORES  
BIOCOOLERS



La política de nuestra compañía es una política de mejoría continua de nuestros productos, por lo tanto, todas las especificaciones están sujetas a cambios sin previo aviso.

Our company policy is a policy of continuous development and improvement of our products; specifications are subject to change without notice.



**2**  
GUARANTEE  
COMPONENTS  
YEARS

**10**  
GUARANTEE  
STRUCTURAL  
YEARS

**20**  
GUARANTEE  
ANTI-CORROSION  
YEARS