Adiabatic panels: BY 30 – 140
Instructions for installation

«SMART COOLING»
Dear Customer,
We congratulate you on choosing this Product.

The target of Company, is providing our Customers by advanced systems, to assure the best comfort, reduce the energy consumption, the installation and maintenance costs for life-cycle of the system.

With this manual, we want to give you information that are useful in all steps: from Product receiving, to the installation and use until the disposal so that a system so advanced offers the best procedure of installation and use.

Best Regards and have a Nice reading!
WARNING!

Read carefully the warnings in the proposed instruction, as they contain important details, which relate to safety, using and maintenance. Check out the application chapter, so you can immediately turn off the device and eliminate pressure. Make sure you have read “Prohibited actions – safety precautions

This manual is an integral and an important part of the product issued according to directive 2006/42/CE, it should be provided to the user to ensure the training / awareness on the use of this device.

The manufacturer is not responsible for any kind of damage, even the use, if the device has been used in an improper way, disregarding the provided instructions. Keep the instructions for future reference. Check the model of high-pressure device that you purchased. It is required to read the data on the capacity card. After delivery, make sure that the device was not damaged during transportation and has all the necessary accessories. Complaints of any kind will only be accepted in writing form within 8 days after delivery.

Any technical support, please contact: teh@blue-energy.eu
Before install and operate the unit, read these operating instructions thoroughly and keep them for future reference. Before operating the unit, make sure the installation has been carried out correctly by authorized dealer correctly and precisely following the installation instructions given. This information designed for experienced technicians only and not use by general public. It not contains warnings or cautions to advise non-technical individuals of potential dangers in attempting to install a product. Any attempt to install, Operate or service the Product or Product dealt with in this information by anyone else could result in serious injury or death.
1. Water Preparation equipment BY 70/UV Block
2. High pressure nozzles panel BY-70 HP – SS
3. Condenser protecting membrane BY - 70
4. Anti-scale & water filtration block BY 100
5. High pressure water sockets “T”. “L” and “S” type (See page 27 for details)
6. Bracket “P” holds aluminum profile
7. Drainage pipe
8. Control panel & processor & sensors (temperature & humidity, current or Freon pressure)
9. Anti-scaling systems
CONTENT

2. Order of Units installation.
3. Fixing of membranes and water drainage.
4. Condenser protecting membrane vertical cooling device.
5. Fixing of membrane on vertical cooling device.
6. Fixing nozzles ducts BY.
7. Plumbing.
8. Pumping device By 70 – 140 BY.
10. First start.
11. Unsuitable use.
CONDENSER PREPARATION

You should remember, that our task is to improve the efficacy of air conditioning and freezing devices, and also to increase energy and money savings of our clients as much as possible. For optimum performance, it is very important to make sure that the condenser coils and filters are clean, and the correct load for the device is being created.

1. It is necessary to clean the CONDENSER, using non-toxic cleaning agents.
2. The condenser must be perfectly clean, with no deposits on the tubes.

Following these guidelines and regularly maintaining the device, you prolong the life of the systems, as well as significantly reduce the energy needed for the operation. Check complication of equipment delivered on installation place. Use professional tools and materials for proper result.
ORDER FOR UNITS INSTALLATION

The “Smart Cooling” equipment should be installed following next steps:

- unpack on installation place
- check delivered amount
- find the place for brackets for ducts and drainage profile (mark them)
- fix the brackets and fasteners by screws
- install U profile and top fixator
- put membranes on their place accordingly by attached drawing
- assemble ducts with nozzles accordingly by attached drawing
- install ducts on place
- install water preparation units
- make a plumbing installation
- fix electronic controller on place
- make electrical wiring
- protect electrical sensors from fog by guards
- check all connection
- follow this Manual Ch. 11 for first start.
The Al profile 30x30 mm supplied with reserve of length. Find a place for wide L bracket, where two parts of profile to be connected to one drainage. Cut off by necessaries lengths. Install u profile on brackets. Glue the joint into wide bracket by Sika or Simson glue. Clean drainage water way by spatula from excess glue accuracy. Be sure the drainage water way are clean.
Make a thread G 1/2 nipple, fix the nipple into U profile - use Locktite for best connection, fix the drain pipe into nipple below U profile.
1. Install all of the membranes in front of the condenser sections of cooling device **INSIDE and OUTSIDE**!
2. To fix the membrane at the bottom, use the U-profile with water runoff.
CONDENSER PROTECTING MEMBRANE VERTICAL COOLING DEVICE

1. Take the membrane from the package.

2. Install the membrane on the condenser of the cooling equipment.

3. Each membrane is designed for 1 condenser section.

4. Sections of condenser cooling device are separated from each other by a metal baffle.

5. Before installing the membrane, check its dimensions. Each membrane should fit the relevant section of the condenser.
1. When the membrane is situated opposite the condenser, mount the upper anchorage membrane to the capacitor frame - see the figure.
1. Screw the fixings to the cooling device. Mount the fixings to the cooling device with bolts.
2. Start screwing fixings from 1 end of the cooling device.
3. The fixings should be bolted to the frame of the cooling device, to the metal baffles, which separate radiator sections.
4. Locations and sizes of fixing are marked on the mounting scheme.
Please find dimensions in Technical project drawings. Which is attached with each equipment.

Attention!

In order to avoid damages, use only the screws with angular heads which are included in the kit especially for this purpose and a specifically. Tubes must be fitted in until you feel a click. Use a torque tool for the duct installation! Tightening of screws on fittings must comply with (MUST USE TORQUE TOOLS!):

2.2 N·m (newton meters).

During installation use installation guide and technical project for better results.
CONNECTIONS ELEMENTS TUBES NOZZLES DUCTS BY-SS

Nozzle holder pipe connection.

T-socket pipe connection.

Elbow, turning tubes connection.

S-socket pipe connection.

End nozzle holder, as the last end of each line.

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NOZZLES DUCTS BY-SS

1. Take the rods (nozzles ducts) from the package
2. Carefully spread the film on the ground, on which you will be joining the nozzles panel stays.
3. Take care that dirt does not get into the injectors, nozzles ducts.

Warning: The nozzle screw in panel only after system flushing.

Warning: Take care that dirt does not get into the tubes of the nozzles panel.
NOZZLES DUCTS BY-SS

4. Connect tubes of the nozzles panel in a line along the entire condenser length.

5. Tubes in the Nozzles ducts are connected to each other using the fixings, which are included in the kit.

6. Make sure that the mounts seats are carefully fixed.

Warning:
The nozzle screw in panel only after system flushing.

Warning:
Make sure that the tubes are carefully connected.
CONNECTIONS ELEMENTS TUBES
NOZZLES PANEL BY – SS

1. Nozzles panel is connected to the pump by tubes.
2. Tubes are connected to each other using the connector (T) and connector (L), which are included in the kit.
3. Put the plastic clips under each of these connectors by screws to fix plumbing on chiller

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Warning:
Make sure that the tubes are carefully connected. Tubes must be fitted in until you feel a click. Use a torque tool for the duct installation! Tightening of screws on fittings must comply with (MUST USE TORQUE TOOLS!):
2.2 N·m (newton meters).
During installation use installation guide and technical project for better results.
Warning:
Make sure that the tubes are carefully connected.
1. Fix rods of nozzles panel to fittings, which are fastened to the cooling device.
2. **Nozzles are directed outside**.
Xo100 BIO FILTER CASE

1. Take the BIO chemical reservoir from the package.
2. Attach the mount to the case. Use the bolts and nuts provided in the kit.
3. When combining all bolted connections, use sealing tape.
4. Fill the large BIO chemical block, with specially designed BIO chemical pills. Large BIO chemical block can be used and filled only with specially designed pills - place them inside.
5. Connect BIO chemical case for water processing with water supply pipe, use intended fixings.

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1. Take sediment filter cases out of the package.

2. Check to see if they contain the filter element. The filter element should be placed in the case of sediment filter.

3. Attach it to the case of the Bio Chemical reservoir, as indicated in the figure - next by water flow direction
1. Attention, while installing the pump, shut off the electricity at the main control panel.

2. Connect the filter cases with the pumping device using a connecting tube.

3. At this stage, the supply wire must be disconnected from the voltage supply.

4. The device is not designed to be pushed or pulled using any mechanical means.

5. Power supply with minimal IP 65 protection allows using it outside the facilities on flat surface in wet weather conditions.

6. Provide fresh water supply at 4 – 6 bar pressure with shut off valve G1” outside thread”

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PUMPING DEVICE
BY 70 – 140UV

A- main switcher
B- pressure gauge
C- output of the high pressure water
D- input of low-pressure water (water/filter supply tube)
E- bu on of pressure adjustment
F- electric cable with plug
G- metering panel

Sticker near the picture (G) is ached to the device and contains the most important data.

WORK CHARACTERISTICS OF BY 70–140 UV
- maximum ambient air temperature  +40 °C
- minimum ambient air temperature +5 °C
- maximum humidity level 95%

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1. Check oil level each before pump start up.
2. Oil level should be between the min and max marks
3. Use oil mark SAE 20-30
UV LAMP

Operating instructions:
Caution: prior to performing any work on the disinfect on system, always disconnect the power supply first.

Unscrew the screws

Unscrew the screws

UV lamp

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UV LAMP REPLACEMENT & CLEANING

Always disconnect main power source and allow the unit to power down

1. To replace the lamp, there is NO need to disconnect the system from the water supply, nor to drain the water from the reactor chamber. Lamp replacement is a quick and simple procedure requiring no special tools.

2. The UV lamp must be replaced after 9,000 hours of continuous operation (approximately one year) in order to ensure adequate disinfection.
UV LAMP REPLACEMENT & CLEANING

1. Disconnect main power source and allow the unit to power down.

2. Remove the lamp connector by sliding the metal retaining ring (Figure 1) away from the body of the connector.

3. Remove connector and lamp from the reactor chamber.

4. Separate the lamp from the connector (Figure 2).

5. Do not twist the lamp from the connector, simply slide the two apart. Avoid touching the lamp on the glass portion. Handling the lamp at the ceramic ends is acceptable, however if you must touch the lamp glass, please use gloves or a soft cloth.
6. Fully remove the lamp from the reactor chamber being careful not to angle the lamp as it is removed from the chamber. If the lamp is removed on an angle, pressure will be applied on the inside of the quartz sleeve, causing the sleeve to fracture.

7. To install a new lamp, first remove the lamp from its protective packaging, again being careful not to touch the lamp glass itself.

8. Carefully insert the lamp into the reactor vessel (actually inside the quartz sleeve) (Figure 3). Insert the lamp fully into the chamber leaving about two inches of the lamp protruding from the chamber. Next, attach the connector to the UV lamp (Figure 2). The connector is “keyed” and will only allow correct installation in one position. Ensure the connector is fully seated onto the UV lamp (Figure 4).
UV LAMP REPLACEMENT & CLEANING

9. Once the lamp is fully seated on the connector, slide the connector over the retaining nut. Make sure the metal retaining ring on the connector is pulled away from the body of the connector in order that the connector may slide fully over the retaining nut.

10. Once the connector is located fully over the retaining nut, slide the metal ring back in to lock the connector in place (Figure 5). As this connector is keyed to the reactor chamber, make sure the Figure 5 notch on the connector (Figure 5) is located over the ground lug located on the reactor chamber.
CURRENT SIGNAL SENSOR
BY 70 – 1, ONE PUMP

1. Take the sensor of current signal from the package.
2. Install the sensor of current signal on the phase wire of the cooling device electric cable. Fix it.
3. Using the electric wire (2*1) connect the sensor of current signal to the BY control unit
4. Use the connection scheme!

Warning, before installing the sensor, turn the electricity off at the main control cabinet.

The electricity wiring and units connection must be installed by professional electricians only. The power cables 3 x 1,5 mm2 for main supply and power cable between Pump and Control box should be installed into flexible halogen-free corrugated plastic conduits Ø 16 mm.
ELECTRICAL CONNECTIONS

Fix the corrugated PVC plastic conduits on plastic clips.
The distance operated valves, electric wires 2 x 0,75 mm² should be installed into same flexible corrugated PVC hose.
The electric cables 3 x 0,5 mm² for transmission data from Pressure (PS1) sensor to Control Box and cables 4 x 0,5 mm² for transmitting data from humidity/temperature Sensors (THS1) to Control Box should be installed into same flexible corrugated PVC hose. Note, the cables for transducers wiring should be coaxial bonded only. See the wiring principal diagrams into Project part of Documentation, which supplied from Manufacturer for each Order separately.
Be sure, water not comes into conduits - the closed rubber ends of conduits be protected from any water leaks into conduits to protect cables for water. Note the protection rate for used materials not be less IP 54. Place all corrugated hose on hard supported surface – hot Zn galvanized steel U profile, if distance between clips are bigger as 1.5 m.
Use the same profile to make a details for clamps for their line installation on. Put the plastic clips into U profile inside to fix corrugated hose here also. Protect threaded parts of installation by consistent lube before tight them.
Warning:
Wash the system first, before the Nozzles screw on ducts only

1. When all parts are connected and electrical connections are linked:

2. Make sure that water and electricity are supplied. There is a start-up button on the pump casing – it must flash up if the electricity supply is ensured.
SYSTEM START UP

1. When all parts are connected and electrical connections are linked:
2. Make sure that water and electricity are supplied.
3. Before the system start-up unscrew the last nozzle in each nozzle duct.
4. Start the system so that the nozzle duct line operates for 1 minute to cleanse the dust that could have penetrated the tubes of nozzle duct in the assembly process.
5. When cleansing is finished, screw the nozzles back and start the system once again.

There is a start-up button on the pump casing – it must flash up if the electricity supply is ensured.
UNSUITABLE USE

If the pump does not operate upon the system start-up:

1. Check the electric power supply in the control block.
2. The capacity necessary for electric power is 220 V / 1.1 kW
3. Make sure that the system control block is connected in compliance with the electricity connection scheme.
4. For pump inspection, connect the pump socket to the power extension cord and try starting it up once again without the control block. If the pump works, fault should be found in the control block.

If the electric power is supplied, but the pump twitches or does not operate:

4. Check the water supply at the pump.
5. The water supply to the pump must be 6 l/m with 5 – 6 bar.
6. If the given parameters are not ensured, ENSURE them.
7. Check the blue filter casings whether the water circulates freely

Warning: Make sure that the tubes are carefully connected.