



HydroMist™

a division of Flame Technologies, Inc.

P.O. Box 1776 Cedar Park, TX 78630

Call: 512-225-0923
Email: orders@hydromistusa.com
http://www.HydroMistUSA.com
©2018 HydroMist. All rights reserved.

Updated 05/04/18.

The purpose of this document is to be informative, and as such is not guaranteed to be error-free. HydroMist takes steps to ensure that our information is correct and as error-free as is reasonable. Please let us know if you believe you found a typo or error.

hydromistusa.com

HydroMist

Contents

General Information
Warning
Read the Manual!
General Information: HydroMist
Machine Description
Package Content
Machine Description—Control Panel
Machine Description—Electrical Connections
Machine Description—Water Connections
Machine Description—Radio Remote Control
Weight and Dimensions
Transfer, Packaging and Transportation
Installation Position and Start-Up13
Warning
Switching Off and Storing
Repairing the Unit
Routine Maintenance—Misting Nozzles
Routine Maintenance—Oil Change
Warning
Troubleshooting—Causes and Solutions
Lucky2—General Information
Lucky2—Meaning of Buttons
Warning
Lucky2—Available Programs
Lucky2—Shift and Program Selection22
Lucky2—Shift and Options Page Selection
Warning
Lucky2—Dashboard Program
Detailed Description

Warning	24
Lucky2—Program "1" and Program "C"	25
Detailed Description	25
Lucky2—Programs "2", "3" and "4"	25
Detailed Description	25
Warning	25
Lucky2—Settings	26
Detailed Description	26
Warning	26
Lucky2—Additional Information	27
Detailed Description	27
Warning	27
Expected Operating Conditions	28
Warning	28
The Following Must Be Observed	29
Warning	29
Warranty Terms and Conditions	30
Validity	30
Warranty Conditions	30
Declaration of Conformity	32

Original instructions

General Information

This manual provides you with all the information for proper use and maintenance of the machine. Please, carefully follow the instructions aiven. The manufacturer is not liable for any damage to people or goods, or to the machine itself, if the machine is used differently from that described in this manual. This manual shall be available to the user/technician for correct use of the machine. Information provided in this manual does not replace enforced regulations on safety at work. Therefore, the user should comply with the regulations in force in the country where the machine is installed, besides following common sense rules. Do not use the product if you notice any defect or wear that may compromise the original safety standards. The user or the maintenance technician must report any fault to the supplier. The machine is meant for specific applications. Do not modify it and/or use it for applications other than the specified ones. Instructions, drawings, tables and all the contents of this document are confidential technical documentation and exclusive property of the manufacturer: no information may be released to third parties without written permission by the manufacturer. Descriptions and images in this document are only meant as indications and practical examples. They may be modified at any time and without prior notice. If further technical and functional details are needed, please contact the supplier.

Warning



Do not operate the pump with less than 10 nozzles of size No. 2 (0.2032mm [0.008"] aperture). Failure to allow sufficient water flow will result in permanent damage to the pump.

Read the Manual!

Please, read the information contained in this booklet since it will provide you with useful instructions for safe installation, use and maintenance. Carefully read the sections "General information", "Expected Operation Conditions" & "The Following Must Be Observed". This booklet is an integral part of the product. As specified by Directive 98/37EC, it shall be given to the users of the misting unit, in order to meet the obligations on training/information of the personnel using the machine. The manufacturer is not liable for any damage to people or goods, or to the machine itself, if the latter is used differently from what described in this manual. Keep this booklet in a safe place and make it available for future reference. Make sure it corresponds to the unit you have purchased, by checking the data on the machine identification plate. At delivery, check for any possible damages due to transportation. Complaints can be accepted only if reported by registered letter with return receipt within 8 days from product delivery date.

General Information: HydroMist

The misting unit cools the air through a physics process called the "Adiabatic process" within the engineering subject of thermodynamics.

Water needs energy to evaporate, that is to pass from liquid to gaseous state. 1 g (0.03 oz) of water needs 600 calories to evaporate. This energy is taken from the same room temperature where the water is nebulized, thanks to the high-pressure generated by the unit.

Because of their diameter of only 5 micron (0.1969 mil), water particles evaporate almost immediately if the air condition is suitable. A suitable condition requires high temperatures and relative humidity not exceeding 90%. General efficiency of the system depends on temperature and relative humidity.Between 30°C and 45°C (86 °F and 115 °F) with relative humidity below 40%, the HydroMist systems finds its best operating condition and achieves excellent results in heat reduction. Between 40% and 80% of relative humidity the results are still good, but above 80% of relative humidity they are marginal. The advantages offered by these products are best exploited in shaded or covered areas (verandas, gazebos, large umbrellas, marquees and the like). The misting unit, properly installed and set, allows reducing the heat by 4°C to 13°C (39.2 °F to 55.4 °F). By combining the misting unit with special diffusers, such as wall or floor fans and special nozzles, it is possible to cool many different places and environments, both indoor and outdoor. Industrial buildings and areas, warehouses, vegetable and chilled food cabinets, farm businesses: these are only a few fields of application where you can have cool at low costs. Proper installation and adjustment of the system guarantee the best results in terms of performance and costs.

Machine Description

The misting unit consists of an electric pump assembly, equipped with electrical and hydraulic safety systems. The on/off and pressure controls are located on the same unit. The machine mechanics are based on a ceramic-coated piston system, operated by an axial cam controlling the water flow at a pressure between 70 and 105 bar (100–1522 psi), allowing a water flow between 0.3 and 16.0 l/min (0.07–4.22 gal./min). Moreover, a patented bypass system allows containing water flow backs without causing the water to overheat and thus avoiding incorrect evaporation. This system allows containing any pressure rise due to negligence that may compromise machine operation, thus considerably increasing its standard service life.

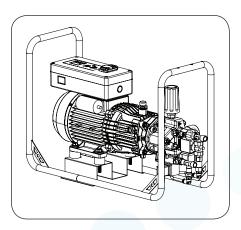
A pressure level out of the range mentioned above may seriously compromise the correct operation of the machine. The depressurization solenoid valve allows discharging excessive pressure, thus assuring the non-drip functionality and long efficiency of the seals. We suggest using High-Pressure lines, namely hoses and pipes with seal capacity 2 or 3 times higher than normal working pressure. This allows preventing water hammering that may compromise the system seal. In case of special applications or use with particularly high pressure, please contact the manufacturer who will advise you on project feasibility, to avoid useless expenses or possible damages to components.

Warning



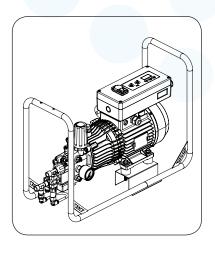
The machine requires 5-micron filters (sold separately) to prevent clogging in the pump and nozzles. It may be necessary to use an additional "Calcium Inhibitor" filter (sold separately) in areas that have high calcium content in the tap water.

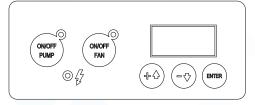
Package Content



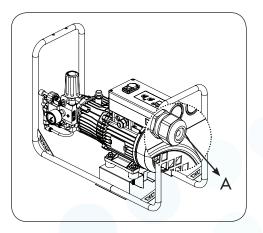
- 1) Misting Unit (PN: F10-04-005)
- 2) User Manual

Machine Description—Control Panel



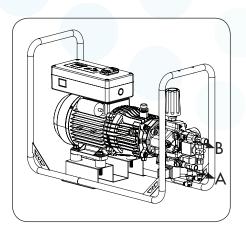


Machine Description—Electrical Connections



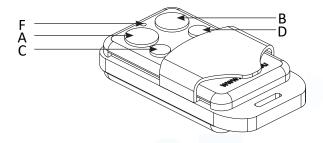
A) Power Supply Cable

Machine Description—Water Connections



- A) Water Inlet: 2–4 bar (30–60 psi) Sect. 3/4"
- B) High-Pressure Water Outlet: 105 bar (1000–1500 psi)

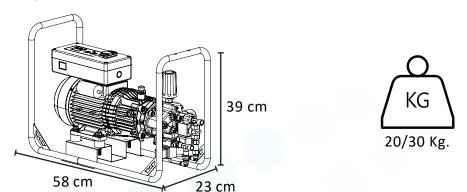
Machine Description—Radio Remote Control



A practical remote control allows a short distance activation of the unit. Its function is limited to start-up and temporary stand-by. On the remote control there are four buttons ("A", "B", "C" and "D", as shown in the figure) and a confirming light ("F" as shown in the figure). In order to switch on or put the unit into sleep mode press button "A" or button "C", whereas button "B" and button "D" can only be used for the functioning of the fan units, if connected and authorized. By pressing the buttons, the light will start flashing in order to give a confirming impulse. In the absence of flashing replace the remote control batteries.

For proper use, the unit has to be switched off by the On/Off button (on the control panel) in the case of longer breaks.

Weight and Dimensions



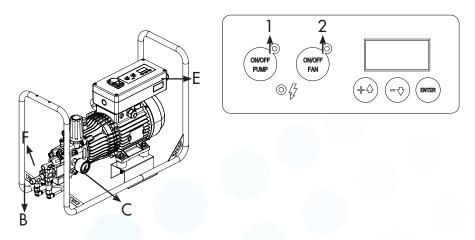
Transfer, Packaging and Transportation

In case of first installation or misting unit's transfer please wear always work gloves and any other protective gear to avoid any incidents or injuries. During transportation or transfer operations, the unit is placed on a pallet. Thus packed, the machine can be lifted by a lift truck with at least 100 Kg (221 lbs) load capacity. If you need to transfer the machine but you do not have the original package, the unit should be correctly re-packaged and fastened to the means of transportation, in order to avoid impacts that may damage its external casing and compromise its functionality. In order to correctly restore machine operation after it has been transferred, moved or stored, the unit must be placed horizontally to avoid incorrect distribution of the lubricant, as this may cause faulty operation. Following this operation, disconnect the electrical supply and disassemble the machine. When putting the machine in its package, take care that its external parts and the external connections do not get damaged.





Installation Position and Start-Up



- Place the misting unit away from the wall (50 cm [20 in]) in a safe, accessible and dry place, out of the reach of unauthorized people. The place should be ventilated and protected against weather conditions and the control unit must not be placed under the sun. Room temperature must not be above 40°C (104 °F). Also remember that dust compromises seal efficiency and increases clogging frequency of the misting nozzles.
- 2. Connect the supply hose from water network to water inlet connection (B). The use of a filter before making this connection is strongly recommended. If necessary install a softener or a reverse osmosis system. If using a filter, we advise replacing the filter cartridge every three months. Dirty or very hard water could need to be replaced more frequently.
- 3. Connect the high-pressure water outlet (F) to the high-pressure hose previously installed by a qualified technician.
- 4. Electrical supply (E): connect the unit to the electric panel equipped with a dedicated residual current device. Never operate the misting unit if the cables are damaged, incorrectly connected

or if their section is unsuitable. If using power extension cables, keep to the following instructions: if the length of the power extension cable is between 1 and 25 m (3 ft and 80 ft), wire section should be 2.5 mm2. (14 AVVG); if length is between 25 and 50 m (80 ft and 160 ft), wire section should be 4 mm2 (11 AVVG). Never use power extension cables longer than 50 m (160 ft). Warning: wire section is 4 mm2 (11 AVVG) and 6 mm2 (9 AVVG) respectively for three-phase machines.

- 5. Check that the water pressure from the water network is between 2 and 5 bar (30–70 psi), then open the tap for machine supply.
- 6. If installed, leave the end of drain vent valve open, then power on the unit through switch (1) and let the water flow, thus expelling the air bubbles trapped in the misting line and in the pump. This operation requires 6-8 minutes. For further information about the best configuration of the misting line via electronic panel, please read the relevant instructions for use later on this guide.
- 7. After release the air, close the vent valve and check if the pressure gauge (C) is showing a pressure of 70 bar (1000 psi), taking into consideration that pressure is stable after 15–20 minutes. If the indicator is visibly unstable, some air is still present in the system. Open again the end of line vent valve for a few seconds to expel the air, then close it again.
- 8. Within 5 minutes, the high-pressure line will start nebulizing water through the nozzles. If this does not happen, switch the system off following the instructions given and contact your supplier or the manufacturer.
- 9. Check proper seal/engagement of the nozzles. If pressure is considerably lower than 70 bar (1000 psi), this may be due either to poor water supply, leaking at the nozzles or end of line, or to the use of a number of nozzles greater than what foreseen in the original design. In such cases, contact your supplier.

- 10. In case of leaks from one or more nozzles, power off the system before disassembling them. After powering off, open the faulty nozzles and check for any foreign bodies, taking care not to lose the non-drip pin installed inside.
- 11. It is possible to activate only the fans by pressing the button (2) on the control panel.
- 12. The management control panel includes a number of safety settings for the misting line. We recommend reading the relevant instructions in this guide.

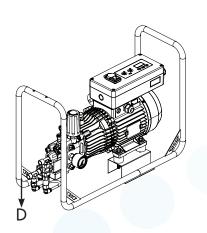
Warning

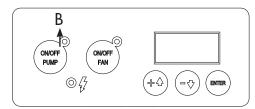


In case of insufficient water flow, the machine is powered off automatically to avoid damage to the misting unit. In case of a sudden voltage drop, use of an extension cable too small of a diameter/guage (min. 2.5mm2 [14 AWG]) or work under the sun, the

unit could automatically stops to protect the motor. In case, please contact the maintenance service or the supplier to replace the fuse inside of the electronic box. For this reason, we suggest checking that the electrical network is not affected by frequent and considerable voltage variations. If voltage is too low for a long time, the control unit could be damaged.

Switching Off and Storing





- Close the water network tap to stop water supply. Warning: if you
 are using softener or an inverse osmosis system, switch off those
 devices too. Follow the instructions provided in the relevant manuals.
 Let the unit drain the water left in the system.
- 2. The unit switches off automatically when the water is completely drained. After that, use the machine main switch (B) to power off the misting unit.
- 3. When switching off the misting pump to clean the external filter or to recover the machine, detach the water supply hose that is connected to the input connector (D).
- 4. To store the machine, put it in a safe and dry place, out of the reach of unauthorized people. The storage place should be protected against weather conditions. If necessary, cover the unit for more protection.
- 5. When starting up the unit for the first time after a storage period, contact your supplier or a qualified technician. The scheduled routine maintenance allows including the annual storing and start-up operations as optional extra services.

6. During storage, the high-pressure lines and the filters must be completely drained in order to avoid incrustations or bacteria deposits. It is also advisable to disassemble, wash and store the misting nozzles. At next start-up, the lines should be washed by letting some water flow before bringing the system to high-pressure.

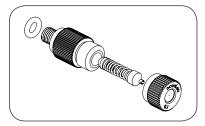


Repairing the Unit



End users are not allowed to carry out repairing operations on the unit, otherwise the warranty shall immediately become null and void. In case a repair is needed, contact your supplier only, or ask for a qualified technician authorized by the manufacturer.

Routine Maintenance—Misting Nozzles



The only operation allowed on the misting line is cleaning the misting nozzles. If water nebulization is not uniform, the nozzle needs cleaning. Disassemble it, taking care not to lose the non-drip pin, then remove any foreign bodies by using compressed

air. In case of scale deposits, immerse the nozzle in a container filled with a descaling solution for at least 5 hours, then rinse it with water, dry it and store it for future use. Use cotton balls to remove any dust from the inside. In case of prolonged downtime of more than 30 days, remove the nozzles and drain the line. If room temperature is below 5°C (41°F), remove the misting nozzles from the line. If the internal non-drip pin is lost or damaged, this could result in small dripping when switching off the system, or bad nebulization. The fineness of nebulization is given by the pressure (70 bar min [1000 psi]) and the condition of the nozzle. Replace the nozzle if the nebulization is excessive or dampens, even if room temperature is above 28°C (82.4°F).

Routine Maintenance—Oil Change

Every 500 Hours please call for maintenance service in order to change the oil.

Warning



Always disconnect the electrical supply before servicing or checking the machine.



Troubleshooting—Causes and Solutions

Symptom	Cause	Solution		
The lines under pressure visibly	 Dirty water filters. One or more nozzles 	Clean or replace the filters.		
vibrate.	clogged.	Disassemble and clean the nozzles.		
	3. Air in the pipes.	Open the end of line valve to expel the air from the pipe.		
The misting unit is	1. Air in the water circuit.	1. Expel the air from the line.		
pumping but no water comes out of the high-pressure line.	2. End of line open or leakage in the circuit.	2. Find and repair the leakage.		
	3. Tampering with the flow adjustment knob or the by-pass in the machine	3. Ask for the intervention of the supplier or authorized technician.		
	head. 4. Several nozzles clogged.	4. Switch off the misting unit, clean or replace clogged nozzles.		
The misting unit does not activate when the	 No electrical supply. The residual current 	Check the electrical connection.		
start button is pressed.	device has triggered.	2. Lift the switch and start the unit.		
	 Incorrect electrical connections or cables of unsuitable size. 	3. Check cable diameter, extension cable length and electrical		
	4. No water (green indicator light on).	connections.		
		4. Open the water network tap. Check if the filter is clean and if water flows freely through it. Make sure the water flow is correct.		

Lucky2—General Information

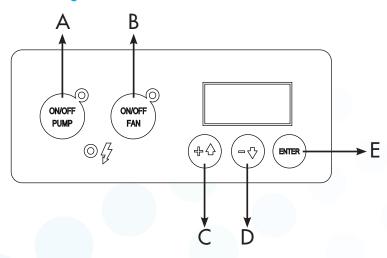
The programmable electronic device provided with Lucky2 technology is a component used for several configurations and products by the manufacturing company.

In this section of the manual we illustrate the use of the electronic device Lucky2 and explain how to fully exploit its technology through a number of operating modes: we recommend you follow the explanations and, where applicable, to carry out the tests you may find useful in the order in which they are proposed in this manual.

Any setting of the control unit through the electronic device Lucky2 becomes active by the next start-up of the unit.

Never leave the misting unit or the multifunction display Lucky2 under direct sunlight.

Lucky2—Meaning of Buttons



Α	Pump on/off /Alarms Reset			
В	Fan on/off			
С	Change Menu/shift between options and value change (+1)			
D	Change Menu/ shift between options and value change (-1)			
Е	Confirm set value			

Warning



The function keys C-D-E have different functions and modes. Their function varies according to what is displayed on the screen.

Lucky2—Available Programs

The electronic device Lucky2 consists of:

- 1. 5 programs for the management of the nebulization.
- 2. 3 settings pages.
- 3. 3 information pages.

This guide will provide, in the next pages, a description for each program, specific settings and details about information pages.

Lucky2—Shift and Program Selection

In order to display the different programs use button C (forward) and D (backward).

For each of the 5 programs a letter or a number with an inverse contrast will appear, as first symbol at the top right of the display. This character indicates unambiguously the respective program.

To select the desired program go to the main screen and press button E (enter); each time you press the button, the display will show the letter mentioned above by activating, in fact, the respective program.

Lucky2—Shift and Options Page Selection

Every page can contain different changeable options. To enter the "change setting" function press button E (enter). To move between changeable settings press button E (enter) again. The box which contains the value will start flashing, so it means you can modify the value by pressing button C (+) and D (-). To confirm the value you have chosen press button E. The box will stop flashing and will show the set value and the active value at that moment.

Warning

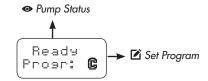


The indications mentioned above provide a detailed description about how to select the program and the single option for each of them. It is assumed that this information is clear and acquired, so it will be only indicated to which program and to which option page you have to go without explaining what operations to perform. We will use the following icons in order to identify the item which can only be consulted and the changeable one.

Reference Only Content

Changeable Content

Lucky2—Dashboard Program



Detailed Description

Here you can modify and set the instantly selected program by pressing button E (enter). The possible values are:

- C. "Custom" program, where the user can personalize the mist/pause time of the misting pump.
- 1. Program "1", where the misting pump will mist on continuous basis without any pause.
- 2. Program "2", where the unit in every cycle will mist for 15 seconds and will stop for 10 seconds pause.
- 3. Program "3", where the unit in every cycle will mist for 20 seconds and will stop for 15 seconds pause.
- 4. Program "4" ,where the unit in every cycle will mist for 30 seconds and will stop for a 20 seconds pause.

The top of the display has a short description of the pump's current status.

Warning





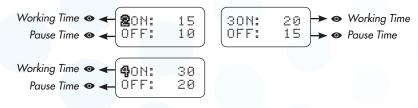
Lucky2—Program "1" and Program "C"



Detailed Description

Program "C" allows the user to customize mist and pause times. Whereas program "1 "allows the misting pump to run in continuous misting mode without pausing.

Lucky2—Programs "2", "3" and "4"



Detailed Description

Programs "2", "3" and "4" allow predefined mist/pause times that cannot be modified

Warning



Lucky2—Settings



Detailed Description

The programmable electronic card Lucky2 allows setting the activation voltage on fans hold and remote contact. The pressure switch "Prex" is used for the verification of input water pressure; if enabled, in the case of lack of water, the programmable electronic card Lucky2 signals an alarm on the unit.

Enabling the On-Board Fan Socket

To use fans through unit's board socket, it is necessary to enable its functioning. If there are no fans, please set to "NO". In order to make this connection, apart from a single setting, follow the included instructions for attaching the fan socket adaptor.

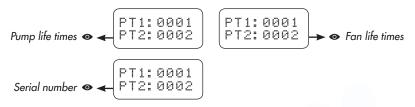
Enabling Remote Contact

Please leave the "Enable Rem" setting to "No" as default. Only a technician recognized by the manufacturer is allowed to change this setting.

Warning



Lucky2—Additional Information



Detailed Description

In these screens, which are for reference only, you can see the partial times since the last maintenance and the total times in working hours of the misting pump and the fans. Lastly, it is shown the serial number of the misting unit controlled by the programmable electronic card Lucky2.

Warning



Expected Operating Conditions

The machine has been designed and manufactured to be used both indoor and outdoor, in parks, industrial buildings, farm businesses and the like. If the machine is installed indoors, check that the area is not dusty and that is properly ventilated in order to allow correct cooling. Therefore, the ideal installation place for the machine is in ventilated areas protected against weather conditions, at a temperature above 27°C (80°F) with relative humidity below 80%. If you use the system both for Summer cooling and Winter humidification, it is advisable to adjust the water flow. For the humidifier function, use the custom ("C") program to decrease the nebulization according to a time unit, so that the pump is limited to 5, 10 or 15 seconds of misting per 60 seconds, according to the humidity level to be reached. In summer, you can simply set the program back to "1", "2", "3" or "4" to achieve sufficient cooling.

Warning



Do not operate the pump with less than 10 nozzles of size No. 2 (0.2032mm [0.008"] aperture). Failure to allow sufficient water flow will result in permanent damage to the pump.

The Following Must Be Observed

Failure to observe the following may result in equipment damage or bodily harm

- It is absolutely forbidden to carry out checks or maintenance operations when the machine is running or the power supply is on. ALWAYS DISCONNECT THE POWER SUPPLY BEFORE PERFORMING MAINTENANCEI
- 2. Do not expose the machine to low temperatures: ice formation may cause serious damage to the high-pressure pump.
- 3. Always wear protective gear while servicing the machine.
- 4. When using the misting unit to nebulize liquids other than water, make sure that they can be completely nebulized and that they do not contain any substance that might harm people in the area. Moreover, make sure NOT to nebulizer substances containing alcohol, oil or particles greater than 5 micron, in order to avoid deteriorating or clogging the misting nozzles and the mechanical components of the unit. The manufacturing company is no way liable and does not grant the warranty for any damage to people or goods due to incorrect use of the unit, namely when it is used to nebulizen substances that are not allowed by the law in force or by the manufacturer.

Warning



DO NOT REMOVE THE LABELS FROM THE MACHINE. IF THEY ARE DETERIORATED, ASK THE SUPPLIER FOR NEW ONES. THE MANUFACTURER AND THE SUPPLIER ARE NOT LIABLE FOR BREAKAGES OR ACCIDENTS DUE TO NON COMPLIANCE WITH THE WARNINGS ABOVE. WARRANTY WILL BE CONSIDERED NULL AND VOID IF THE ABOVE-MENTIONED WARNINGS ARE NOT FOLLOWED.

Warranty Terms and Conditions

Validity

This product is covered by a twelve (12) months warranty, starting from the purchase and/or test date. This warranty protects the user against manufacturing or material defects (ex C.L. no°422 art.1 par. B).

Warranty Conditions

- 1. The in-warranty repair is accepted only if the product is accompanied by the purchase receipt and the test report issued by the supplier.
- Manufacturing company duty is limited to the repair and, at its own discretion, the replacement of the whole product or of single faulty components.
- 3. The suppliers and the technicians allowed to carry out in-warranty repairs are only those expressly authorized by the manufacturer.
- 4. This product or its materials are not considered as faulty in case the customer needs to adapt the machine to technical or national safety regulations other than those in force in the country originally foreseen for the product. No refund shall be granted for damages arising from the above-mentioned modifications, or other changes not connected to the original design of the product, carried out by the customer/user or by unauthorized people.
- 5. The warranty does not apply to:
 - a. Periodical checks, maintenance operations, replacement of components subject to wear;
 - b. Transport, transfer or installation of the product;
 - c. Damages caused by fire, water, natural events, war and riots, incorrect power supply, insufficient ventilation of the installation place, and any other cause not connected the manufacturer;

- d. Incorrect use, operating errors and wrong or unwary installation;
- e. Damages to the product due to non original manufacturer spare parts use;
- f. Damages to the product or insufficient performance due to incorrect installation after purchase;
- g. Any damage to the product due to negligence.
- 6. This Warranty is valid for every person formally having the propriety of the product during the above-mentioned period.
- 7. This Warranty does not affect the rights of the customer as prescribed by the law in force in the country, nor the rights of the customer towards the retailer arising from the contract of sale.

Declaration of Conformity

I, the undersigned, acting legal representative of the company

Declare that the following appliances:

Digi-Pro Misting Pump

Comply with the current laws in force, which implement the following directives and also declare that all the following regulations and/or technical specifications have been applied:

2004/108/CE EMC

EN 61000-3-2/A2:2009

EN 61000-3-3:2008

EN 55014-1/A1:2009

EN 55014-2/A2:2008

2006/42/CE Machinery

EN 60335-1:2010

EN 60335-2-79:2009

EN 62233:2008

EN ISO 12100-1/A1:2009

EN ISO 13857:2008

34