



Instruction manual for the **SIRIO** automatic humidifier



Introduction to the BOROTTO® Product Instruction Manual

Dear Customer,

We express our sincere appreciation for your choice of a BOROTTO® brand product, a symbol of our ongoing commitment to innovation and excellence. Your trust recognises our ongoing commitment to superior performance and reliable results. We are proud to inform you that our advanced technology has been patented and that we have obtained the prestigious UNI EN ISO 9001 TÜV certification. In addition, we are the only company in the world to have achieved the rigorous UL-CSA certification on our products, further proof of our company policy, which is always oriented towards maximum hatching results and the long-term reliability of our products.

To ensure that you get the full potential out of your new SIRIO, we encourage you to take the time to carefully read the instructions for use and the safety information included. This will not only enable you to use the product in the most effective way, but will also ensure that your experience with SIRIO is safe, satisfying and productive.

1 - Warnings for safe use

Some basic safety precautions should always be followed when using electrical appliances, including the following:

- 1. READ THE INSTRUCTIONS IN FULL.**
2. Use the appliance only with electrical system characteristics in accordance with the label on the appliance and in this manual.
3. Do not place the unit near heat sources and do not cover it with other objects.
4. Do not leave the appliance unattended for long periods when connected to the mains. Do not use the appliance with damaged cables or plugs, or appliances that have fallen to the ground or been damaged in any way. Return the appliance to the nearest authorised service centre for inspection or repair.
5. The use of accessories not recommended or sold by the manufacturer is prohibited.
6. Do not use outdoors.
7. The appliance may be used by children under the age of 12 and/or persons with reduced physical, sensory or mental capabilities, or lack of experience or knowledge, provided that they are supervised by an adult or have been instructed in the safe use of the appliance and understand the dangers involved. The same applies to cleaning and maintenance.
8. Always begin use by checking the condition of the power supply unit, then plug it in. To disconnect it, unplug it from the electrical outlet.
9. Disconnect the power supply unit from the power socket when the appliance is not in use.
10. The power supply unit must be placed so that it is easily accessible in case it needs to be disconnected from the mains.
11. To disconnect the power supply, grip it directly (not by the cable) and unplug it from the wall socket.
12. Any changes to this product, not expressly authorised by the manufacturer, will not only pose a safety risk, but will also invalidate the warranty.
- 13. KEEP THESE INSTRUCTIONS CAREFULLY.**

Summary

1 - Warnings for safe use.....	2
2 - Declaration of Conformity	3
3 - Nameplate.....	4
4 - Presentation of the manual	5
5 - Features and Technical Data	5
6 - Preparing and Commissioning SIRIO.....	6
6.1 Positioning SIRIO.....	6
6.2 Valve positioning.....	7
6.3 Sensor positioning	7
7- Use of SIRIO during the incubation phase	8
8 - Using SIRIO during the hatching phase	9
9- Humidity parameters for incubation.....	10
10- Using SIRIO with incubators of other makes.....	10
11 - Maintenance and cleaning of SIRIO.....	10
12 - Disposal.....	11
13 - Warranty/after-sales service.....	11
14 - CALIBRATION DECLARATION.	12

An electronic copy of this instruction manual can be downloaded from www.borotto.com or can be requested from info@borotto.com specifying the product and the revision of the manual.

2 - Declaration of Conformity

EU Declaration of Conformity

The undersigned Andrea Borotto, in his capacity as legal representative of the company BOROTTO® with head office in Via Papa Giovanni Paolo II, 7 37060 Buttapietra (VR) Italy P.IVA 03787910235

DECLARE

That the product as labelled on page 12 in paragraph 14

It is intended for use as an accessory for maintaining the moisture content of incubators for eggs from animals, in particular: hen, pheasant, turkey, guinea fowl, quail, partridge, goose, Muscovy/common/selvite duck, peacock, partridge, pigeon, colander, exotic birds and birds of prey.

This declaration of conformity is issued under the sole responsibility of the manufacturer and complies with the following directives and subsequent directives:

And it complies with the following directives:

- Directive 2014/35/EU known as the Low Voltage Directive.
- Directive 2014/30/EU known as the 'Electromagnetic Compatibility Directive'.
- Regulation (EU) 2015/863 supplementing Directive 2011/65/EC ROHS

The products are manufactured in accordance with the following standards:

- Standard EN 62233:2008 EN 60335-1:2012 +A11:2014 + A13:2017 + A1:2019 + A14:2019 + A2:2019 + A15:2021 Safety of household and similar electrical appliances - Safety - Part 1: General requirements.
- Standard EN 60335-2-71:2020 Safety of household and similar electrical appliances - Part 2-71: Particular requirements for electrical heating appliances for breeding and rearing animals.
- Standard EN IEC 55014-1:2021; EN IEC 55014-2:2021;
- Standard EN IEC 61000-3-2:2019; EN IEC 61000-3-2:2019/A1:2021;
- Standard EN 61000-3-3:2013; EN 61000-3-3:2013/A1:2019; EN 61000-3-3:2013/A2:2021

The technical file manager and legal representative

BOROTTO ANDREA



Buttapietra - VR - Italy 01/01/2024



Caution: read this instruction manual carefully before performing any operation.

Warning symbols used on the product and in this manual

Symbol	Description
	Obligation to read the instructions for use before using the product
	DC power supply
	Positive polarity in the centre of the power connector

3 - Nameplate

The equipment is fitted with an identification plate on which the identification details of the equipment and the main technical data are shown.

BOROTTO Via Papa Giovanni Paolo II, 7A 37060 Buttapietra (VR) Italy

SIRIO automatic humidifier

Year: XXXX Code: **SIRIO** Flow rate 0-5 l/h (approx.) Bar: 0.2
Serial Number: XXXX Weight Kg 0,435 Class II
Input voltage: 12 V DC MAX Power: 4W Made in Italy

4 - Presentation of the manual

This manual contains instructions for the installation, maintenance and use of the SIRIO hose pump, hereafter referred to simply as SIRIO.

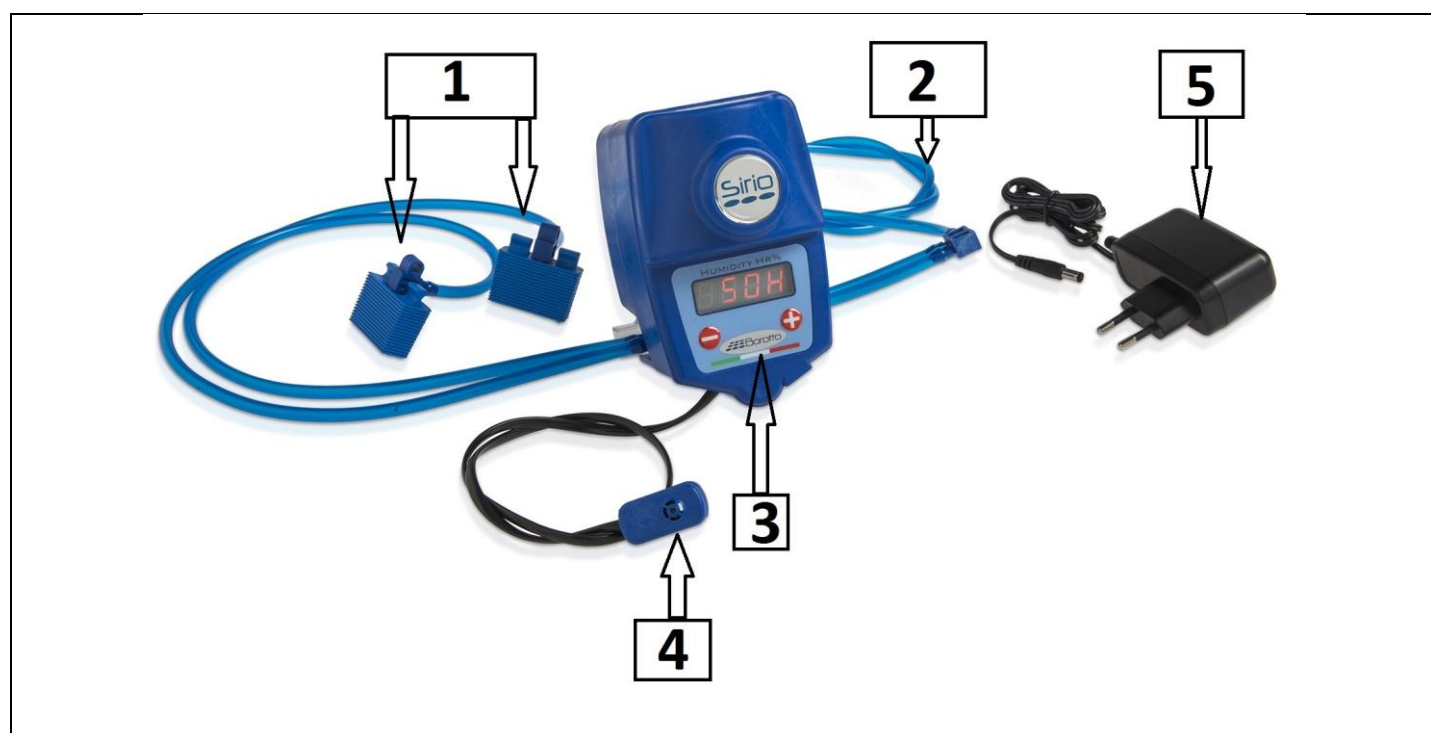
This manual is intended for users of the equipment and relates to its use after it has been manufactured and sold. In the event that the equipment is subsequently transferred to a third party for any reason (sale, loan for use, or any other reason), the equipment must be handed over complete with all its documentation.

This manual contains proprietary information and may not, even partially, be provided to third parties for any use whatsoever and in any form whatsoever without the prior written consent of the manufacturer.

The manufacturer declares that the information contained in this manual is congruent with the technical and safety specifications of the equipment for the automatic refilling of water inside an incubator machine, allowing the automatic maintenance of the set humidity level.

5 - Features and Technical Data

Equipment model	SIRIO
Supply voltage	12V DC
Maximum power input	4 W
Average daily consumption	1 W
Power supply voltage	100-240 V 50/60 Hz
Display with hygrometer function	For digital control of humidity parameters with maximum precision
Electronic board	With microprocessor with advanced PID algorithm
Range	Humidity adjustable from a Min. of 40% to a Max. of 75%.
Dimensions and weight	Height mm106, Width mm88, Length mm128, Weight: 0.440 Kg
OPERATING TEMPERATURE	+ 20°C TO MAX. 40°C



1	Water supply valves
2	Water suction hose
3	Control Panel
4	Sensor
5	Power supply unit (may vary in colour and shape)

6 - Preparing and Commissioning SIRIO

ATTENTION: When using SIRIO for incubation please follow these instructions for moisture management, so under no circumstances pour water manually into the incubator. Sirio will take care of it!

During transport, take care not to cause shocks and/or damage to the equipment. Always place it flat, avoiding crushing and/or breakage.

6.1 Positioning of SIRIO

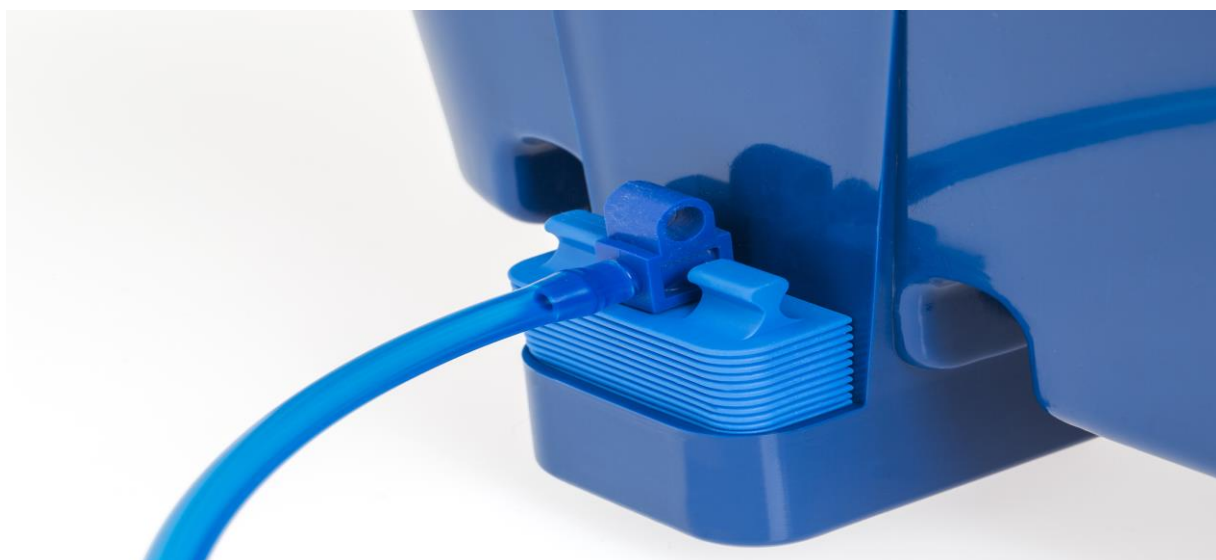
 A white and blue SIRIO incubator with a digital display and two large circular ports. It is connected to a yellow power adapter and a blue water pump unit. A clear plastic bottle is connected to the pump via a blue tube.	 A blue SIRIO incubator with a digital display and a transparent front panel showing several eggs inside. It is connected to a blue water pump unit and a clear plastic bottle via a blue tube.
Equivalent demonstration photo for all BOROTTO REAL series incubator models	Equivalent demonstration photo for all BOROTTO LUMIA series incubator models

Operating Instructions for SIRIO

1. **Positioning:** Make sure to place the SIRIO on a solid and level surface. Avoid placing objects such as tablecloths or blankets between the SIRIO and the supporting surface.
2. **Proximity to the incubator:** Place SIRIO next to the incubator and keep a bottle of drinking water at hand, i.e. the water you usually drink.
3. **Beware of Water:** It is essential to use only potable water. The use of water that is not suitable for consumption can cause bacteria to form during incubation, contaminating the embryos and leading to their death (during hatching) due to infection.
4. **Prohibition of Using Demineralised Water:** The use of demineralised water is prohibited, as it is produced by an industrial process and may contain harmful chemical residues that could intoxicate the embryos, leading to their hatching death.
5. **Installation of the Suction Hose:** Insert the suction hose (the one connected to the rubber coupling with the "IN" sign engraved on the transparent bottom of the appliance) into the drinking water bottle.

SIRIO, thanks to its peristaltic pump, is not affected by limescale problems in the water.

6.2 Valve positioning



Insert the 2 valves with the tubes already connected into the incubator's nozzles, making sure that they penetrate deep enough to ensure a tight seal. Pay attention to their insertion direction, which respects the shape of the nozzle.

CAUTION: If the filling ports are encrusted with limescale, remove it with a limescale remover before inserting the valves.

6.3 Sensor positioning



Place the humidity sensor inside the incubator, positioning it above the flap in the corner (apply a minimum of pressure to ensure it locks in place).

The sensor cable must rest on its flattened side on the incubator edge as in the photo. It is a special anti-crush cable, so it will not be damaged even when the machine is closed.

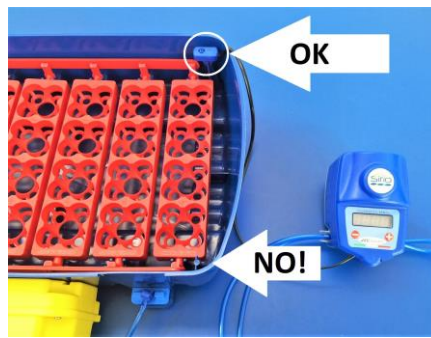
Failure to close the lid properly in no way compromises the functionality and hatching results of the incubator.

Place the humidity sensor on the opposite side of the incubator from the filling ports.

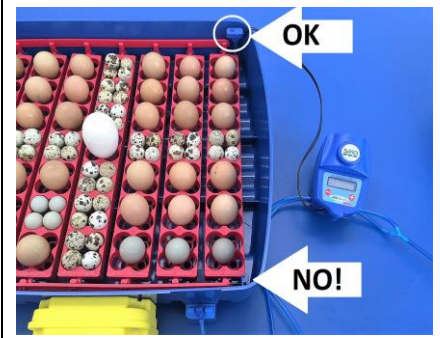
DO NOT PLACE THE SENSOR ABOVE WATER INLET TRAYS!



LUMIA 8/16/56



REAL 24



REAL 49 - REAL 49 PLUS

7- Using SIRIO during the incubation phase

INTRODUCTION: inside the humidity sensor of Sirio there is also a temperature sensor which, if it does not sense at least a temperature of 37 degrees, does not activate the pump. It may happen in the cold months (especially if we put the incubator in a room below 20 degrees) that the air in the corners of the lid cools down; therefore, if the sensor detects a temperature below 37 degrees, it will automatically stop the pump!

1) Make sure that the room is at least 20 degrees, below this temperature Sirio does not deliver water!

2) Switch on the incubator and run it dry without water or eggs for at least a couple of hours.

3) After two hours of running empty, insert the eggs and run the incubator for at least another 2-3 hours.

4) After the incubator has been running for 2-3 hours with inserted eggs, the Sirio can be switched on by plugging the power supply jack into its front socket. Then insert the power supply plug into a power socket.

5) Set 45% humidity if you are incubating poultry eggs, or 40% if you are incubating exotic eggs.

The display shows the measured humidity value, 'H' stands for 'humidity'.

To set the humidity value, act by impulse on one of the two buttons (+) and (-) located on the control panel. Press either button to enter the memory (the letter "P" appears next to the numbers), then pulse the buttons until the recommended value is reached, as per paragraph No. 9. Once the humidity has been set, wait for this value to be memorised (when the current internal humidity and the letter "H" reappears on the display).

WARNING: Under no circumstances should you hold down the (+) and (-) buttons as you will enter a technical menu, which will void the warranty.

From this moment, SIRIO starts working by pumping water into the incubator when necessary, making a rotating symbol appear on the display. At other times, the appliance remains on standby.

SIRIO, which is equipped with artificial intelligence, is programmed to inject small drops of water at a time to allow evaporation, which determines the relative humidity of the environment based on the natural evaporation of the eggs. At start-up, it will therefore take 2 to 4 hours to reach the set humidity value, this specific programming is needed as the eggs start to release moisture after about 4 hours of incubation; therefore, SIRIO will take this physiology into account.

ATTENTION: If for short periods (even a whole day) the humidity is not correct, this will NOT cause any disruption to the ongoing incubation process.

NOTE: If it is necessary to open the incubator during incubation to perform candling or to allow the eggs to cool (as in palmiped incubation), disconnect the SIRIO from the power outlet before opening the lid. This will prevent the pump from continuing to feed water into the incubator as the humidity drops due to the opening. When finished, reconnect the SIRIO to the power socket after one hour.

CAUTION: For effective incubation, it is essential to keep the room temperature above 20°C. Below this threshold, the low temperature impacts on the plastic bottom of the incubator, preventing water evaporation. As a result, SIRIO may continue to inject water into the incubator, causing unnecessary flooding.

During the hatching phase, if you notice that the water level exceeds the hatching grate, it is crucial to immediately disconnect the power supply of the SIRIO to prevent flooding of the eggs. Remember, the incubator already contains all the water needed for the entire hatching process.

8 - Using SIRIO during the hatching phase

Once the incubation phase is over, they move on to the hatching phase:

- Disconnect SIRIO from the power supply.
- then proceed to prepare the incubator for hatching, i.e., remove the eggs, remove the red egg tray and insert the white hatching grid, laying the eggs on top of it
- once preparation for hatching is complete, reconnect the SIRIO to the power supply after the incubator temperature has returned to the set value.
- Set SIRIO to the value as per the table in paragraph No. 9.

PREMISE: Thanks to its advanced PID microprocessor with artificial intelligence, Sirio is able to adapt perfectly to the embryos' natural needs. For example, the increase in humidity from 45% to 60% occurs gradually, emulating the natural process. This adaptation can take from 4 to 5 hours to an entire day, just as it would in nature.

CAUTION: It is important to bear in mind that during the hatching phase, the water fed by Sirio may overflow the inner trays and spread to the bottom of the incubator. However, this should not be a cause for concern.

NOTE: Even if the desired humidity is not immediately reached, the first hatchlings will contribute to a rapid increase in relative humidity inside the incubator, thanks to the natural moisture released by the newly hatched chicks.

9- Humidity parameters for incubation

Indicative table for any poultry:	Indicative table for exotic birds:
➤ Incubation phase: 45% RH	➤ Incubation phase: 40% RH
➤ Hatching 60% RH	➤ Hatching: 60% RH

CAUTION: it is recommended that the relative humidity during the incubation phase be kept relatively low, rather than high. In fact, the egg should lose approximately 11-13% of its initial weight, which will allow the creation of a large air chamber, which in the subsequent hatching phase will allow the chick to expand its lungs, easily stick its beak in, take its first breaths and start breaking the shell with greater vigour.

Even during the hatching phase, excessively high humidity values cause condensation to form on the egg, plugging the pores of the shell. This reduces the embryo's respiration, weakening it and reducing its strength to break the shell. At values higher than 75% relative humidity, the shell pores are completely occluded, leading to death of the chick by asphyxiation!

10- Using SIRIO with incubators of other makes

The incubation and hatching process and parameters do not differ significantly with incubators of different makes, what can change significantly is the structure of the machine, which depends on the design of the manufacturer.

To apply SIRIO to an incubator machine other than BOROTTO:

- remove the 2 rubber valves from the hoses (the ones normally to be inserted in the vents);
- pass the 2 pipes through the ventilation holes. If they are missing, drill one if necessary. The PVC tubes must reach the water tray(s) inside the incubator, leave the two tubes in the water tray(s) depending on the incubator model.
- Place the humidity sensor inside the incubator and secure it with a cable tie. If it is not possible to feed the humidity sensor through some kind of vent, feed it through the egg loading door. The anti-crush cable will still ensure its functionality.

11 - Maintenance and cleaning of SIRIO

WARNING: As mentioned above, SIRIO only works with a sensor temperature above 37°C.

So to make it work, the sensor will have to be placed inside the regularly switched-on incubator.

The operation described below is highly recommended, because if you leave the SIRIO stationary for more than a month, water may stagnate in the tubes, giving rise to bacterial flora which, when pumped into the incubator, may cause bacterial contamination of the embryo, leading to its death!

So at each end of the incubation cycle:

- blow (preferably with compressed air) the sensor, absolutely avoiding opening the sensor holder.
- Carry out the following cleaning and disinfection routine of the water circuit:
 - insert the Sirius sensor into the incubator, switch it on and run it so that the sensor senses at least a temperature of 37 degrees.
 - Set the humidity setting on the display to maximum.
 - insert the water hose into a glass with a solution of water and about 10 per cent bleach or amuchina;
 - let the pump run for at least 15 minutes, recovering and disposing of the pumped aqueous solution.
 - then leave the appliance running dry for a further 15 minutes.

We recommend using bleach as it destroys the bacterial flora and any residue will not harm the developing embryos. **ON NO ACCOUNT USE OTHER CHEMICALS FOR CLEANING AND SANITISING SIRIO!**

At varying intervals depending on the hardness of the water used and after a few hatching cycles, in addition to the described washing of the water circuit with the disinfectant solution, a descaling cycle can be carried out, using the same procedure, using a solution of water and descaling agent or vinegar.



12 - Disposal

In implementation of Directives 2011/65/EU and 2012/19/EU, LEGISLATIVE DECREE No. 27 of 4 March 2014 and LEGISLATIVE DECREE No. 49 of 14 March 2014 on the reduction of the use of hazardous substances in electrical and electronic equipment and the disposal of waste, the crossed-out wheeled bin symbol shown here indicates that the product at the end of its useful life must be collected separately from other waste.

The user must therefore take the end-of-life appliance to the appropriate separate collection centres for electrical and electronic waste. Appropriate separate collection for the subsequent forwarding of the decommissioned appliance to environmentally compatible recycling, treatment and disposal helps to avoid possible negative effects on the environment and health and promotes the recycling of the materials from which the appliance is made.

Unauthorised disposal by the user will result in the application of administrative sanctions in accordance with the laws in force. Information on the correct procedure for the available collection systems should be obtained from the Local Waste Disposal Service.

AEE ITALY REGISTER NUMBER: IT140800008557

13 - Warranty/after-sales service

BOROTTO® (hereinafter the Manufacturer) grants the product a 24-month warranty from the date of purchase. During this period, the Manufacturer undertakes to repair at its own expense any defect that may appear during normal operation of the equipment, attributable to its manufacture.

When applying for a warranty claim, submit this contract complete with date, stamp and signature.

The appliance must be shipped, in its original packaging, at the customer's expense.

Equipment that is within the warranty period and has been used correctly will be repaired free of charge.

It is understood that no refund will be granted in the event of a defect or defect in the product.

On the other hand, the manufacturer reserves the right to charge the customer for the costs incurred by the warranty claim in the absence of the prerequisites.

The guarantee does not cover damage caused by:

- transport;
- wear, water, dirt;
- use under conditions other than those specified by the manufacturer in this booklet.
- repairs or modifications carried out by personnel not authorised by the manufacturer.
- force majeure (earthquakes, floods, fires, etc.).

Use the appliance only for its intended purpose; other uses than those indicated in these instructions are to be regarded as dangerous and the manufacturer rejects any and all liability for any damage to persons, animals or property resulting from failure to observe this warning.

The manufacturer will not be held liable, nor will it grant any warranty service or refund for any negative results due to failure to comply with these instructions, improper use, incorrect installation of the appliance or inconveniences caused by inadequate electrical or other systems, or resulting from environmental, climatic or other conditions, entrusting the product to minors or persons obviously unsuitable for using or handling the appliance.

Reimbursement will not be claimed from the Producer for consequential damages for loss of material occurring as a result of the defect in the product such as, for example, eggs inserted or to be inserted in the incubator, or further damage to property and/or persons and/or animals.

14 - CALIBRATION DECLARATION.

The following indications are part of the procedures specifically developed by Borotto to achieve the best results.

The reported parameters comply with and correspond to the terms of the **UNI EN ISO 9001 TUV** certification.

BOROTTO subjects each piece of equipment to stringent testing before it is packaged and sold. Each SIRIO humidifier is assigned a unique code shown on the label at the bottom (as well as on the device). The affixing of this code certifies the successful completion of all tests performed.

We therefore certify that this equipment has been tested, calibrated and calibrated with **ACCREDIA-certified** instrumentation.

METROLOGICAL TRACEABILITY, CALIBRATION AND REFERENCE CALIBRATION

Calibration equipment: Scientific instrumentation, managed by specific software.

Calibration certificate issued by **ACCREDIA No.: LAT 123 17-SU-0394** and subsequent updates.

Post-calibration identification label, declaration of conformity, and warranty.

Date, stamp and signature:

***BOROTTO*®**

Via Papa Giovanni Paolo II, 7

37060 Buttapietra (Verona) Italy

VAT number: 03787910235

REA NO.: VR-365973 CRAFTSMAN REGISTER 143429

AEE REGISTER NUMBER: IT140800008557

web site: WWW.BOROTTO.COM

UNI EN ISO 9001 TUV CERTIFIED COMPANY

First and only company in the world to produce c-UL-us certified incubators