Operation Manual

Incubator

50033

Similar to image, may vary depending on model

Read and follow the operating instructions and safety information before use.

Technical changes reserved!
Due to further developments, illustrations, functioning steps, and technical data can differ slightly.

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WilTec Wildanger Technik GmbH
Königsbenden 12
52249 Eschweiler
Germany

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Königsbenden 28
52249 Eschweiler
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E-mail: service@wiltec.info
Tel: +49 2403 55592–0
Fax: +49 2403 55592–15

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52249 Eschweiler

E-mail: **service@wiltec.info**
Tel: +49 2403 55592–0
Fax: +49 2403 55592–15

Introduction

Thank you very much for buying this quality product. To reduce the risk of injury, we ask you to always regard a few basic safety requirements, when using this product. Please thoroughly read the operating manual and make sure that you have understood it.
Keep the operating manual for future reference.

Safety notes

Careful!
This device is not meant to be used by people (including children) with limited physical, sensory, or mental abilities and/or lack of knowledge, unless they are supervised by a person responsible for their health and safety or have been instructed by this person on how to use the device. Children need to be supervised to ensure that they do not play with the device.

Attention!
Visually examine the device before every use. Do not use the device if the safety measures are damaged or worn. Never override safety measures.

- Only use the device according to the purposes described in this manual.
- You are responsible for the safety in the working area. Always keep the working area clean and tidy to reduce the risk of accidents.
- If the electricity cable or the electricity plug are damaged due to external influences, the cable must not be repaired, but needs to be exchanged. This work must only be carried out by a qualified technician.
- The rated voltage on the type label of 230 V AC needs to correspond to the existing mains voltage.
- The device must never be lifted, transported, or attached from its electricity cable.
- Ensure the electrical plug connection being in an area protected from flooding and humidity.
- Always pull the electricity plug before carrying out any work on the device.
- Avoid exposing the device to a direct stream of water or rain.
- The operator is responsible for the compliance with local safety and installation requirements. If necessary, ask a qualified technician in case of questions remaining.
- In case of a failure of the device, maintenance work may only be carried out by a qualified technician.
- Read all safety notes and instructions. Non-compliance with the safety notes and instructions can lead to electric shock, fire, and/or serious injury.
- Keep all safety notes and instructions in a safe place, which is always accessible.

Technical data

Temperature range of the display (°C)	0–99
Accuracy of the temperature measurement (°C)	±0.1
Functions	– adjustable temperature control – changing between °F and °C possible

Overview maximal amount of eggs

An 8 cm wide ring with a total surface of approx. 250 ㎠ offers space for various types of eggs, such as:

- approx. 10 chicken eggs or
- approx. 8 duck eggs or

- an according number of eggs of reptiles. The amount depends on the type of reptile (differences in size of the individual eggs).

General notes

This incubator does not have a turning mechanism and thus is suitable for bird eggs as well as reptile eggs. When using the incubator for poultry eggs, it is important to note that the eggs need to be turned by hand.

Important notice regarding the breeding of reptile eggs: The temperature inside the incubator, the humidity and other parameters vary depending on the type. Thus, we recommend to contact a specialised breeder who knows about the individual conditions for breeding.

Surrounding Conditions

Voltage (V) / **frequency** (Hz)	230 V / 50 Hz
Relative air humidity (%)	Between 55 and 75
Surrounding temperature (°C)	Between 17 and 25

Correct place

For a good result, place the incubator into a heated room. There should not be any major fluctuations of room temperature inside it. Ideally, the room temperature should be between 17 °C and 25 °C.

Additionally, this area should be well ventilated, especially if there are multiple incubators located in this room. There must be an efficient ventilation, as a natural air supply ensures that the developing embryos always have fresh oxygen.

Make sure that the incubator is placed on a flat, even, and solid surface, not exposed to direct sunlight, approx. 80 cm above the floor.

It is recommended to place the incubator far away from heating sources, drafts, and windows, to avoid harmful changes of temperatures. Additionally, the incubator should be kept with the included styrofoam packaging, which provides protection.

General information on breeding

1. How do the poultry eggs have to be stored before placing them into the incubator?

Hatching eggs should not be kept longer than ten to twelve days. After that, the success rate of hatching is very low. Store the eggs at a cool temperature (8–15 °C) and at a relative air humidity of 75 %. In case the hatching eggs were sent via post, they should rest for at least 24 hours before being placed into the incubator.
Important: The eggs should be stored lying and need to be rotated halfway around their longitudinal axis at least once a day.

2. When is the incubator ready?

The incubator should run for **at least 24 hours before placing any eggs into it.** If possible, let the incubator run for a week without eggs. Thus, it is easy to see if all parameters can be adjusted and work as required. Additionally, you will learn during this time how the functions and the adjustments of the incubator work. Nothing is more harmful to the eggs but the wrong adjustments of the incubator. If

everything works correctly during the testing period, the incubator can be cleaned thoroughly with a suitable disinfectant.

The intended humid and warm climate inside the incubator is a good breeding ground for bacteria and fungi. Not disinfecting the incubator enables the growth of these and threatens the entire brood. **Thus: Before the first breeding and after every new breeding, thoroughly disinfect the incubator.**

You need to make sure that the disinfectant is suitable for the incubator material. Otherwise, the material can be attacked and the hatching process endangered.

Important note on the parameters: Regarding the term 'internal temperature' ("internal"), do not confuse the term 'internal temperature' (inside the egg) with 'internal temperature incubator'. The internal temperature within the incubator constantly changes up and down. The internal egg temperature thus is the average of the temperature fluctuations inside the incubator.

3. Which temperature should my incubator have?

The required temperature depends on the individual type of animal. Every type of animal has its own requirements and amongst poultry there are difference, regarding the required temperature during the breeding process. The required temperature depends on the type of incubator, too.

Example based on a chicken egg:
With surface incubators (breeding on an even surface), the breeding temperature is measured on the height of the egg's upper edge and should be between 38.0 °C and 38.3 °C. If a motorised incubator (breeding process on multiple stories on top of/next to one another) is used, the measured temperature should be at around 37.5 °C at any point of the egg.

An overview of various **poultry** types and the required breeding temperatures:

Type of poultry	**Breeding temperature** (°C)
Chicken	37.4–37.6
Duck	37.4–37.6
Pigeon	38.5
Goose	37.6
Quail	37.6–37.8

An overview of various reptile types and the required breeding temperatures:

Reptile type	**Breeding temperature** (°C)
Bearded dragon	27–31
Leopard gecko	26–31
Corn snake	25–29
Ball python	29–32
Hermann's tortoise	28–31

Note: A short drop in temperature whilst checking the eggs is usually not a problem for the embryos. It is different with temperatures exceeding the recommended ones. These are harmful and even deadly and should be avoided at all costs.

4. Does my thermometer show an exact value?

Thermometers are not exact. Keeping the temperature constant can be difficult, even with good thermometers. If you run a big incubator over a longer period, you can optimise the temperature, regardless of what the thermometer states.
After the first breeding process, the temperature can vary (higher or lower).
With poultry: If the hatching takes places in an early stage, the temperature should be lowered. If the hatching is delayed, it needs to be increased.
How to check the thermometer: Keep notes regarding the time of the brood, as these are a reliant aid. You will soon have the required routine to select the right adjustments and settings for a successful hatch.
Alternatively, an additional thermometer can be placed inside the incubator to be able to perceive the various temperature differences and readjust the incubator temperatures correctly.

5. What is the rate of air humidity required?

The required air humidity varies again depending on the brooded type of animal and needs to be changed during the breeding process.
Please inform yourself beforehand regarding which requirements need to be met in the incubator. Two examples:

Chicken eggs:

Day 1–18:	50–55 % air humidity
From day 19 on:	70–75 % air humidity

Quail eggs:

Day 1–14:	55 % air humidity
From day 15 on:	75 % air humidity

The air humidity is increased towards the end of the breeding with poultry eggs, it softens the hard membrane inside the egg. Without the increased humidity, the chicks can neither break through the membrane nor through the egg shell. Yet, humidity should also not be increased too much, as the chicks might drown.

Note: The humidity is monitored by means of a so-called hygrometer. It is near enough impossible to keep the humidity as exact as the temperature, especially in small incubators. Just try to keep it as exact as possible.
The temperature is the significant criteria. Even a small deviation (e.g., a couple of degrees) can ruin the breeding process or lead to a bad result.

Important: The air humidity changes just like the season.
If the breeding is carried out in January and February, it is very difficult to keep humidity at the desired level, as external humidity is rather low (depending on the location).
In June and July, external humidity usually is higher, leading humidity inside the incubator to be higher than desired. To avoid these problems, change the water surface in the incubator: To increase humidity and thus to increase the water surface, place an additional container with water in the incubator/a few small moist sponges. Alternatively, the eggs can be sprayed with fine water mist. To reduce the humidity, decrease the water surface and use smaller containers.

Important: Choose the shape and execution of the water containers keeping in mind that they should not be fatally dangerous for the hatched chicks and reptiles.

6. How long is the incubation time?

Poultry type	**Incubation time** (days) [normal deviation: 1–2 days]	**Reptile type**	**Incubation time** (days)
Chicken	20–21	Bearded dragon	55–86
Duck	28	Leopard gecko	45–65
Pigeon	18	Corn snake	55–86
Goose	30	Ball python	55–71
Quail	16–18	Hermann's tortoise	54–79

7. Poultry eggs: When should I start to turn and at what frequency? When do they not have to be turned any longer?

The incubator does not have an automatic turning mechanism; thus, the eggs need to be turned by hand. The embryos are very sensitive in the first days, therefore shakes should be avoided. This also means that the eggs should only be turned from the fourth day onward. The easiest method of assistance is to carefully mark the egg on two opposite areas, to see to which area the egg needs to be turned to. It is recommended to turn the eggs 5 times a day with a minimum of 90°.

Additionally, the incubator should stay closed within the first three days of breeding, if possible. This allows for a better climate.

Important: In the last two to three days of breeding process, the eggs must not be turned any longer. As the chicks are finding a hatching position, the position must not be changed any longer.
Note: Eggs of reptiles must not be turned at all!

8. What should I regard during the last days of the breeding process?

During the last two to three days before hatching, the poultry eggs must not only not be turned any more, but also the entire incubator needs to stay closed. The humid, warm atmosphere needs to stay consistent during the last breeding days, to soften the egg's membrane and enable the hatching process.
Note: Most chicks do not cope with a complete collapse of the climate.

9. Poultry eggs: What happens after hatching?

Congratulations, your chicks have hatched! Have a little patience, as the freshly hatched chicks should stay in the incubator for approx. 24 hours longer to be able to recover and dry off.

Important: Remove the water container. Otherwise, the humidity is too high for the chicks and there is the danger of the chicks drowning. Although, the breeding chicks still need the humidity to hatch. This means you need to develop a feeling to choose the best option for both.

If chicks that are still in the hatching process start pecking the egg from the inside, but have difficulties getting through the eggshell, you can provide a starting aid by carefully opening the eggshell a little bit. It is important to be cautious, not to provide this aid too soon. Often a wrong humidity can be the reason as the egg membrane can dry and get stuck to the chick before it can get out of the egg. Thus, the chick cannot turn any longer and hatch out of the egg.

Note: There must be a sufficient fresh air flow as the young animals can otherwise suffocate in the container closed. If an integrated air hole is available, it will ensure fresh air provision.

Operation

Before the eggs are placed in the incubator, regard the following:

- Open the packaging and check the content on integrity.

  Note: The incubator should stay in the styrofoam packaging; on the one hand energy is saved, on the other hand the eggs are protected from external influences. If there are no holes for the according connections and switchboards, these need to be added. Carefully use a sharp knife or small saw.

- Open the incubator lid and remove all parts included.
- Check the compliance of the operating current as stated on the device with the mains voltage used. If it matches, the device can be closed via the lid and the electricity can be switched on. The device will start heating to the temperature, which is analogously shown on the system switchboard.
- Run the incubators for at least 24 hours without any eggs inside and get accustomed to the incubator functions. Make sure that all parameters can be adjusted without a problem and familiarise how to change settings, such as temperature alarm (see paragraph **"Display, function buttons and basic settings"**).
- Check the individual values by means of an additional thermometer and hygrometer. If necessary, calibrate the values. Test how being able to keep the desired air humidity at the right level/what amount of water is required to stay in the desired range.
- If the incubator works without a problem, and you are accustomed with the functions, unplug the incubator and clean it on the inside and the outside with a suitable disinfectant.

Adding the eggs

- As soon as the incubator has been cleaned, you can place a small bowl of water into the incubator. Please note that the air humidity should be noticeably lower at the beginning of the breeding process than towards the end (at least for most bird types). Therefore, only fill a little bit of water into the bowl at the beginning.

  Note: Every animal species has individual requirements. Do not place too much water into the incubator as this can lead to bad hatching results. Ideally you have already found out how much water is required at the beginning.

  Note: If humidity level is too low, even though the bowl is filled with plenty of water, another bowl can be added to the incubator. Please be careful not to wet the eggs. Do not keep the incubator open too long when placing the bowls, as this can have a negative impact on the hatching result.

  Important: Choose the shape and design of the water bowls, making sure they are not fatally dangerous to hatched chicks and reptiles.
  After the good incubator parameters have been adjusted, the eggs can be placed into the incubator. Please use a waterproof marker, in case of marking the egg, as it could otherwise be removed by humidity.

- Regularly check the temperature on the incubator control panel and, if necessary, modify the parameters. Pay attention to the water level inside the incubator bowl; there should always be enough water. When measuring the humidity via a hygrometer, check it frequently.

  Important: There should be no water on the egg! For this can have a negative impact on the hatching results.

- Towards the end of the hatching process, the poultry eggs must not be turned any longer. It is important that the humidity is high enough for the chicks to hatch.

Important: Please note that the incubator should not be opened towards the end of the breeding process with more sensitive species. Thus, ensure that a few days prior, humidity is high enough.

- During the hatching process, the lid should be kept closed. Water can be refilled to protect the eggshells from drying out.

- When the chicks have hatched, you need to ensure that they cannot drown, while chicks still breeding need to hatch.

Display, function buttons, and basic settings

On the control panel left outer corner there is the connection for the electricity plug. It is important to push the plug in well to allow the incubator to function properly. As soon as the plug is connected, the incubator will turn on.

Besides the display **(1),** there are three more buttons, which operate the incubator (see **"Function buttons description")** and two small lamps, which glow when the heating is warming up ("work") or when adjustments are made ("set").
The display can show the temperature in degree Celsius or Fahrenheit, which can be set individually.

Function buttons description

The incubator has three buttons which are required for the incubator operation. The buttons and their possible combinations will be explained in the following paragraph. Before operating the incubator, ensure that it is properly plugged into the according area.

The buttons are positioned as follows from left to right (green and round) in the centre of the operating panel: "set," "+" and "–".

1. **Set: This button allows to set the basic temperature of the incubator.**
   - Press the button once: adjusting the basic temperature (parameter ID: PP).
   - By selecting the "+" and "–" button, you can set the desired temperature, pressing the "set" button again will save the entered value.
   - The preset temperature is 38 °C.

2. **Holding “set” longer than 3 s leads you to the menu for parameters fine adjustments (see table 1)**
    - The display will show the individual parameter, shown with a letter/number combination (parameter ID).
    - With the buttons “+” and “–,” you can choose between the individual parameters.
    - If you wish to adjust the parameters, press the button “set,” then the values stated can be altered with the “+” and “–” buttons.
    - Pressing the “set” button again saves the change.

Finer parameters	Parameter ID	Adjustment range	Standard setting	Note
Turning frequency	HU	1–200	60	This setting does not need to be altered, as this model of incubator does not have a turning mechanism.
Turning duration	Hd	1–100	50	
Days display	d7	0–200	40	Remember to set the days display back to 0 after every breeding.
Heating start	LS	20–40 °C	30 °C	
Heating stop	HS	30–60 °C	40 °C	
Calibration	CA	0–10	0.0	Measure with an additional thermometer and match it according to the deviation.
Increasing temperature fluctuation alarm	AH	0–10 °C	1 °C	This setting can be chosen to have an alarm sound if a temperature above the setting is reached. After having set the parameter “PP” to the value, e.g., 38 °C, and wishing to have the alarm set for 40 °C, you need to set the parameter “AH” to 2.
Decreasing temperature fluctuation alarm	AL	0–10 °C	1 °C	This setting can be chosen to have an alarm sound if a temperature below the setting is reached. After having set the parameter “PP” to the value, e.g., 38 °C, and wishing to have the alarm set for 33 °C, you need to set the parameter “AL” to 5.

Table 1: Set button adjustment, parameters fine adjustments

3. **“+” and “–”: Holding down both at the same time for a short moment will enable the change between °C and °F.**

4. **“+” and “–”: Holding down both at the same time for a longer moment (approx. 8 s) will reset the incubator to factory settings; a beeping sound will tune.**

Troubleshooting (problems with the chicks)

#	Problem	Possible reasons	Measures
1	Too much egg white or too many unfertilised eggs	(a) Wrong ratio of male and female animals	(a) Check the mating conditions according to the breeder recommendations.
		(b) Male animal malnourished	(b) Feed the roosters separately, so that the chickens do not take most of the food.

		(c) Interruption of male animals during mating	(c) Do not use too many male animals; keep the breeding roosters together; build a non-permanent solid separation wall between the individual breeding coop or separate them within bigger breeding coops
		(d) Damaged combs and gills on the roosters	(d) Ensure that their coop is comfortable and there is enough suitable drinking water.
		(e) Rooster is too old	(e) A young rooster is required
		(f) Rooster has been sterilised	(f) An unsterilized rooster is required
		(g) The egg has been stored for too long or under the wrong conditions beforehand	(g) Do not keep the eggs for more than ten to twelve days; store them at a cool temperature (8–15 °C) with a relative humidity of 75–80 %. Turn the eggs at least once a day around their longitudinal axis
2	Blood dots, which point to an early death of the embryo	(a) Temperature of the incubator is too high or too low	(a) Check the thermometers, thermostat, and the electricity, follow the manufacturer's instructions
		(b) See 1 (g)	(b) See 1 (g)
3	Broken eggshells	(a) See 2 (a)	(a) See 2 (a)
		(b) Eggs were not turned properly	(b) Turn eggs frequently, at least 4–5 times a day; always turn them into the opposite direction
		(c) Inefficient feeding, if the death rate is high on days 10 and 14	(c) Check feeding
		(d) Ventilation of the incubator faulty	(d) Increase the air flow by normal means
		(e) Infectious diseases	(e) Only use eggs from healthy stock; check hygiene measures
4	Eggs which will not hatch	(a) Inefficient humidity in the incubator	(a) Increase evaporation surface with water or sprays
		(b) Too high humidity at a too early stage	(b) Check humidity temperature measurements
		(c) Problems with the food	(c) Check the food
5	(a) Hatching too early	(a) Temperature too high in the incubator	(a) (b) (c) Adjust the temperature regulation accordingly/ adjust it properly
	(b) Hatching too late	(b) Temperature too low inside the incubator	
	(c) Sticky chicks	(c) Temperature inside the incubator most likely too high	
6	Deformed chicks	(a) Temperature is too high inside the incubator	(a) See 2 (a)
		(b) Temperature inside the incubator is too low	(b) See 2 (a)
		(c) Eggs turned improper	(c) See 3 (b); ensure to place eggs with the wider part first

7	Chicks with straddled legs	Brooding insert too slippery/ smooth	Use wire inlay or cover the slippery/ smooth ground with e.g., sackcloth
8	Weak chicks	(a) Incubator or hatchery overheated	(a) See 5
		(b) Use of small eggs	(b) Only use eggs of average size
	Small chicks	(c) Too low humidity in the incubator	(c) See 4
	Heavily breathing chicks	(d) Too high humidity in the incubator	(d) See 4
		(e) Possibly infectious disease	(e) Bring the chicks to a vet for diagnosis
		(f) Lower the temperature during the time inside the incubator	(f) See 2 (a)
	Weak chicks	(g) Incubator ventilation is too low	(g) See 3 (d)
		(h) Omphalitis (navel infection)	(h) Clean and disinfect incubator as well as entire equipment
9	Chicks do not hatch evenly	Eggs are too different in size and age	Sit the eggs at least once a week and never keep them for longer than ten to twelve days before breeding them, only brood average sized eggs

Troubleshooting (technical problems)

#	Problem	Possible reason	Measures
1	Display has a loose contact/ does not shown anything	(a) Plug is not connected properly to the incubator	(a) Check plug and push it into the incubator again
		(b) Plug is not properly connected to the socket	(b) Reconnect plug to the socket and check socket placing socket
		(c) Too little voltage	(c) Connect incubator to another socket
		(d) Damaged cable	(d) Exchange the electricity cable
		(e) Loose contact in the display	(e) Check whether connection pieces are loose (e) Exchange display
2	Display does not show any numbers but only same letter	Temperature sensor is broken	Exchange sensor
3	When turning incubator on, fuse blows every time	Short circuit due to entered humidity	Incubator needs to be replaced

Disposal regulations

EU guidelines regarding the disposal of scrap electric appliances (WEEE, 2012/19/EU) were implemented in the law related to electrical and electronic equipment and appliances.

All WilTec electric devices that fall under the WEEE regulations are labelled with the crossed-out wheeled waste bin logo. This logo indicates that this electric equipment must not be disposed with domestic waste.

The company WilTec Technik GmbH has been registered in the German registry EAR under the WEEE-registration number DE45283704.

Disposal of used electrical and electronic appliances (intended for use in the countries of the European Union and other European countries with a separate collection system for these appliances).
The logo on the item or on its packaging points out that this item must not be treated as normal household waste but must be disposed of at a recycling collection point for electronic and electrical waste equipment. By contributing to the correct disposal of this item you help protect the environment and the health of fellow human beings. The environment and the health of living beings are threatened by inappropriate disposal.

Recycling materials helps reduce the consumption of raw materials.

Additional information on recycling this item can be provided by your local community, municipal waste disposal facilities or the shop where this item was purchased.

Address:
WilTec Wildanger Technik GmbH
Königsbenden 12/ 28
D-52249 Eschweiler

Important note: