

CATALOG NO: 60RBC200

CE



RoboComb⁺

automated operation device

Instructions for use

63RBC200

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Cautions

- ⚠ Read this document attentively before using the device for the first time.
- ⚠ Biogal is not liable if the device is not used in compliance with this document.
- ⚠ For your safety, the device complies with the applicable standards and regulations.
- ⚠ The RoboComb+ is an electrical device and must be used under normal conditions of use.
- ⚠ It is intended for veterinary professional use only, refer to the Intended Use chapter for details.
- ⚠ The RoboComb+ is strictly reserved for indoor use.
- ⚠ Working temperature must be adjusted to the ImmunoComb/VacciCheck kit, optimal from 20°C up to 25°C, relative humidity from 20% to 80% non-condensing.
- ⚠ The RoboComb+ must be powered only by the power supply provided (12V 2A). If the power supply cable is damaged, do not use it.
- ⚠ The RoboComb+ must be cleaned with moistened wipes, except for the touch screen (LCD). Avoid rinsing with liquid.

Introduction

Thank you for purchasing a Biogal product. This document will assist you in using the device efficiently.

Intellectual Property

This product and/or parts of this product, may be patent pending, and may be protected by one or more granted patents.

Symbols and Legend of Labels



Caution

Caution indicates that the current situation needs operator awareness or operator action in order to avoid undesirable consequences.



Indicates that the manufacturer of the product affirms its compliance with relevant EU legislation.



Manufacturer



Date of Manufacturing



Serial Number



Temperature Limit



Keep away from moisture



Consult Instructions for Use



Fragile, handle with care



Keep out of sunlight

Product ID

Intended use

RoboComb+ is an automated device manufactured for the exclusive development of Biogal's test kits from ImmunoComb and VacciCheck lines.

It is intended for veterinary professional use only.

1. Device Overview

1.1. Unpacking the device

RoboComb+ devices are packed together with all the accessories needed to operate them. Special packaging materials made from transport security foam are used to protect the device and its accessories during transportation.

Note! When unpacking, please verify the package contents and contact your local distributor or Biogal immediately if any item is missing or has visible damage.

The packing components are:



RoboComb + unit



cable



Adapter



Instructions for use



Warranty certificate



USB-B Cable



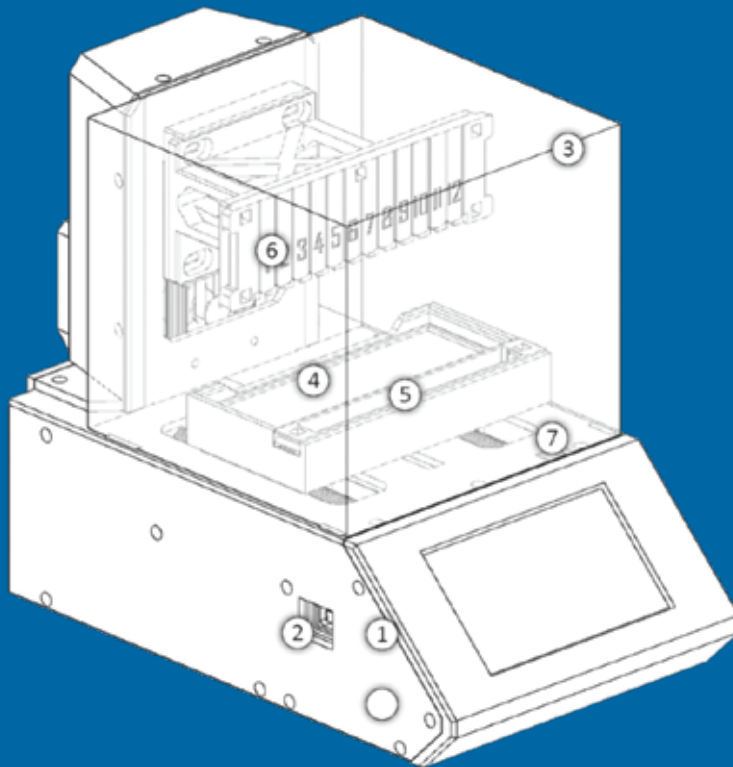
Well Opener



MicroSD card pusher Tool for Mechanical Alignment



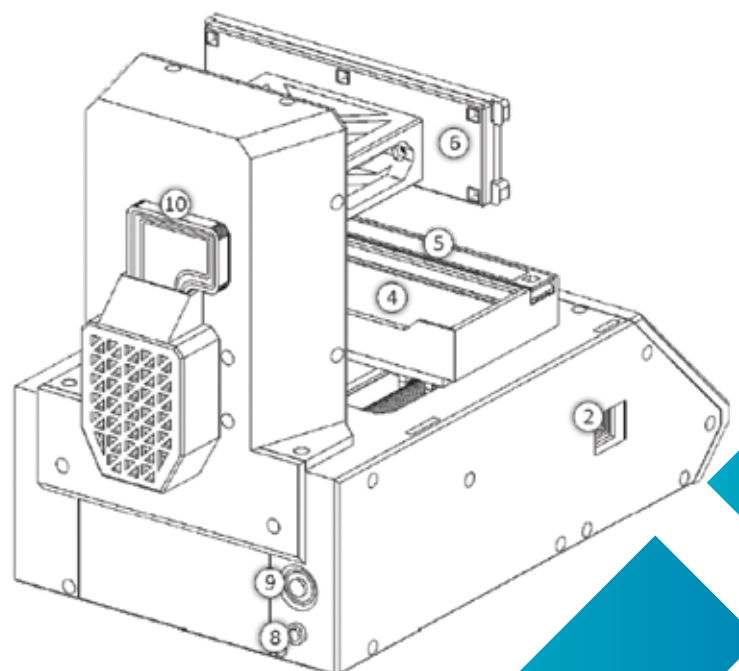
1.2. Front View



1. **Touch screen (LCD):** Controls the functions of the device.
2. **USB-B port connection:** Software update port.
3. **Protective cover:** Removable transparent cover that protects the mechanism of the device.
4. **Plate base:** The compartment where the plate of the kit sits. Plate base with its embedded warmer is also used to bring the plate to room temperature.
5. **Absorbent paper strip holder:** Holds the absorbent paper strip used to remove the excess of the liquid from the comb.
6. **Comb holder:** Design detail compartment that holds the comb in place
7. **SD Card Slot:** updating the software interface

1.3. Back View

2. **USB-B port connection:** Software update port.
4. **Plate base:** The compartment where the plate of the kit sits. Plate base with its embedded warmer is also used to bring the plate to room temperature.
5. **Absorbent paper strip holder:** Holds the absorbent paper strip used to remove the excess of the liquid from the comb.
6. **Comb holder:** Design detail compartment that holds the comb in place.
8. **Electrical port:** Adapter port for the cable (included) 12V 2A.
9. **On/Off button:** Switch button to turn on/off the device.
10. **Well opener:** Tool used to pierce the well on the plate of the kit.

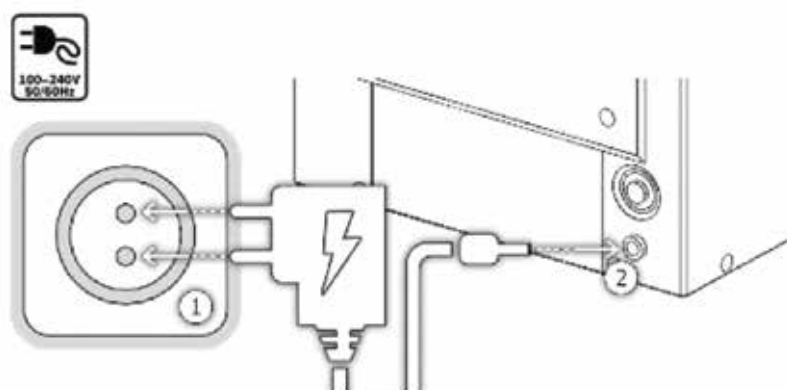


2. Installation

2.1. Connecting/Disconnecting the device

Device Back View

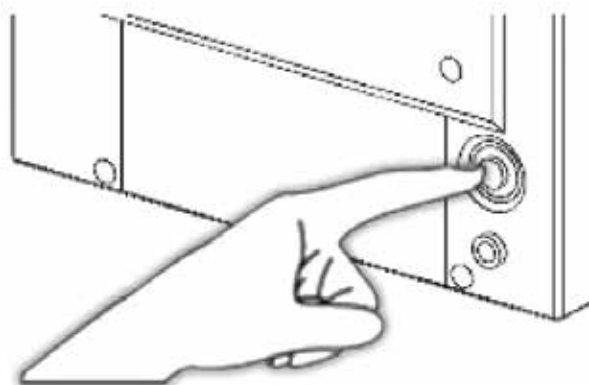
1. Connect the included adapter to the electrical adapter of the cable.
2. Connect the electrical adapter cable to the electrical outlet (socket) ①.
3. Connect the edge of the cable to the device ②.
4. To disconnect the device, do the inverse procedure.



Note! If you are not planning to use the device often, it is advisable to disconnect the device from the electricity.

2.2. Turning on/off the device

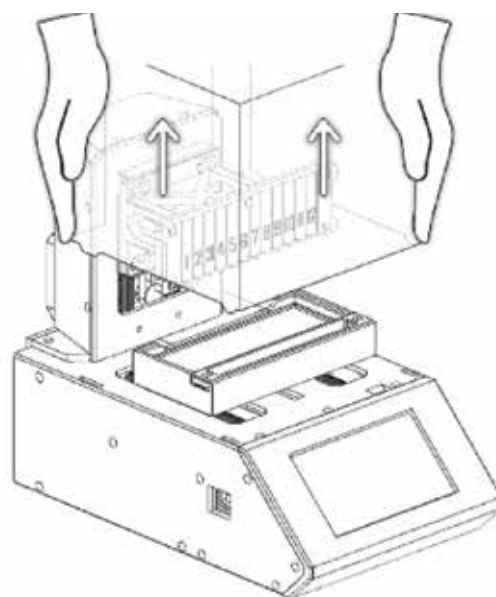
1. To turn on the device, press the button as indicated below - the red light will be turned on.
2. To turn off the device, repeat the procedure - the red light will be turned off.



3. Movable Parts

3.1. Protective cover

- You must remove the protective cover only to insert the components of the kit.
- To remove the protective cover, hold it by the sides, and pull it up (in the direction of the arrows shown on the image).
- To insert the protective cover back in place, do the opposite movement.



The protective cover must be in (its) place before the test is started.
DO NOT remove the protective cover while the test is running.

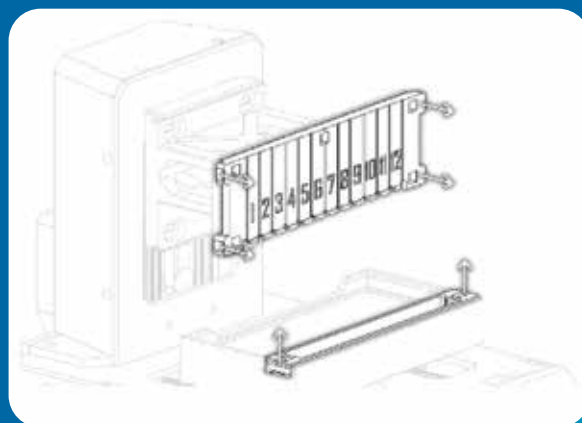
3.2. Comb holder & Absorbent paper strip holder

3.2.1. Comb holder

- The front part of the comb holder – where the numbers are printed – is magnetic and removable.
- To place the comb, the front part must be removed by holding the upper corners and pulling towards your direction (see the direction of the arrows on the image below).
- After the comb is placed, perform the opposite movement to insert the movable part back in place. This way the comb is held in place.

3.2.2. Absorbent paper strip holder

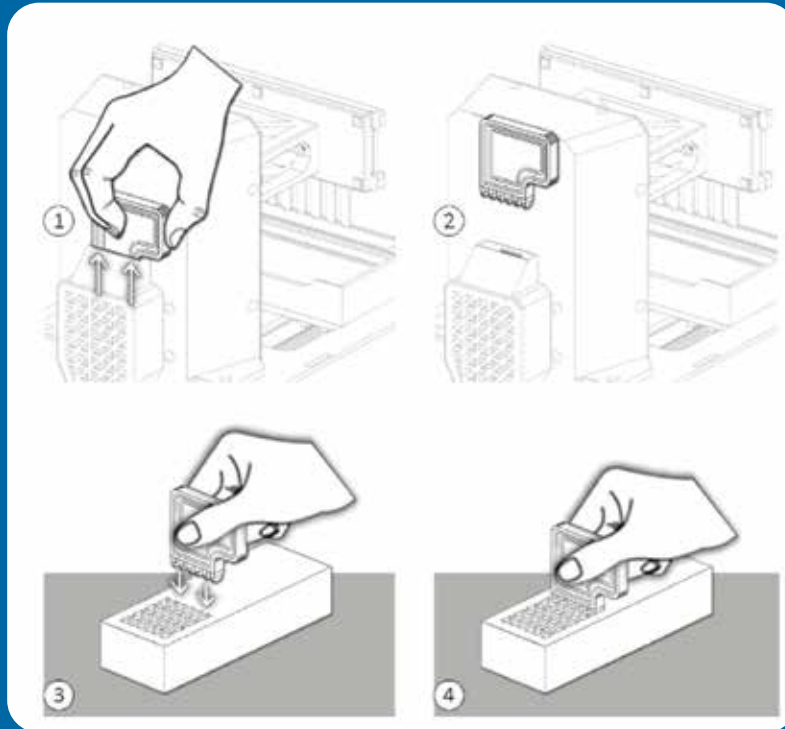
- With the use of a magnetic removable part, the absorbent paper strip holder will hold the absorbent paper strip in place during the test procedure.
- To place the absorbent paper strip, hold the absorbent paper strip holder's upper part by the lateral edges and pull it up (see the direction of the arrows on the image).
- After the absorbent paper strip is placed perform the opposite movement to insert the movable part back in place. This way the absorbent paper strip is held in place.



DO NOT move any part of the device once the test starts.

3.3. Well opener

- Remove the well opener by pulling it upwards from the back of the device.
- Perform the puncturing process by pressing in the direction of the arrow to open the wells on the plate as indicated the image below.

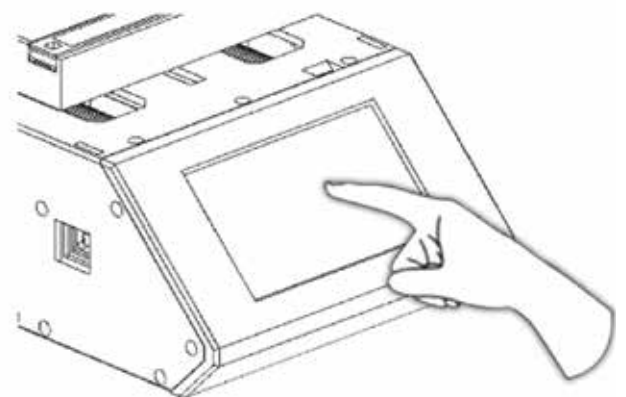


3.4. Touch Screen (LCD)

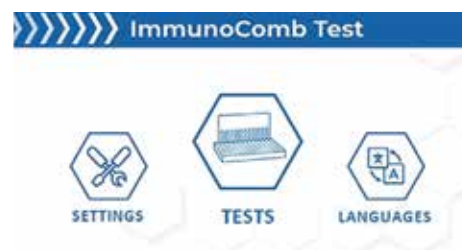
- Controlling the touch screen is only possible by using the fingers, it is also possible to control it while wearing surgical gloves.

Note! Handling the touch screen with objects may damage the device.

Note! Avoid contact with fluids/ liquids of any kind.



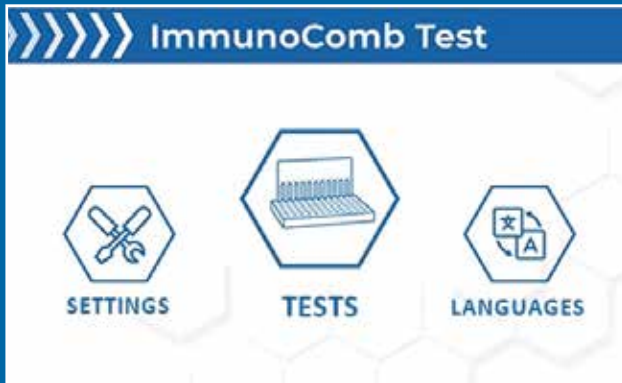
Once the device is turned on, the screen below will appear.



After two seconds, you will be automatically directed to the main screen.

4. Languages

To access the language options, press the **Languages** button which is located on the right side of the main screen.



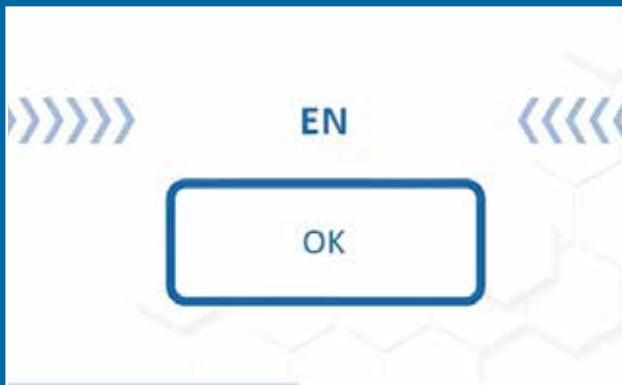
Choose the language of your preference out of 7 languages that are available:

- English, Spanish, Portuguese, Dutch, French, Korean, and Turkish



After choosing the desired language, press **OK**.

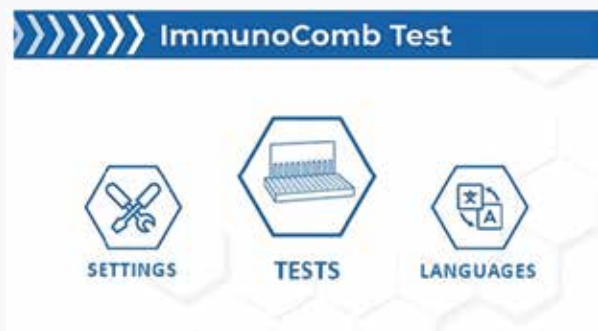
You will be redirected to the main screen.



5. Settings

5.1. General

To access the settings, press the **Settings** button which is located on the left side of the main screen.



3 Settings options are available:

1. Calibration
2. Start Position
3. Information



5.2. Calibration

The device is delivered with factory alignment settings, the operator must not modify the alignment unless it is necessary.

Calibration is responsible for aligning the plate base or the comb holder and performing the device check.

5.2.1. Plate Alignment

1. Plate Alignment:

- Press **Plate alignment** on the menu on the left.
- To start, press the **START** button on the touch screen.



- The X and Y axis alignments are done mechanically during the manufacturing process.
 - You can adjust the plate's position forwards or backwards "manually" by pressing the double arrows. This alignment is used to position the comb into the center of the well.
 - After the alignment is complete, press **NEXT**.
-
- Press the **SAVE** button to save your preset.

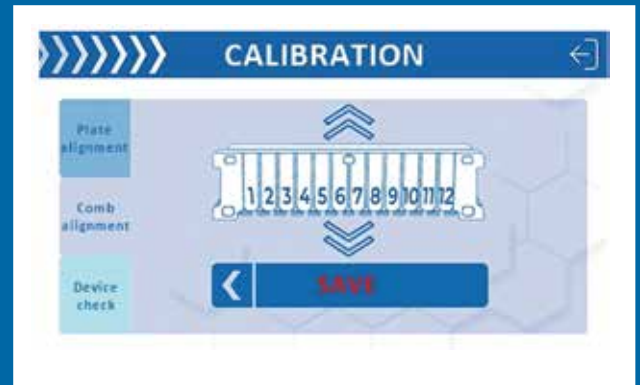


5.2.2 Comb Alignment

- Press **Comb alignment** on the menu on the left.
 - To start, press the **START** button on the touchscreen.
-
- The X and Y axis alignments are done mechanically during the manufacturing process.
 - You can adjust the comb position up or down "manually" by pressing the double arrows. This alignment is used to position the comb to the bottom of the well.
 - After the alignment is complete, press the **NEXT** button.



- Press the **SAVE** button to save your preset.



5.2.3. Device Check – Optional Step.

- The device check is going to check the features of the device.



1. Heater Plate Control

- It is a control to check if the heating of the plate base is working properly. It starts heating the warmer in the plate base and continues to warm up until the heat is approximately 38°C. Once it reaches the expected temperature, a green "Check" icon will appear on the right side.

2. Z axis limit control (manual)

- Remove the protective cover.
- Move the comb holder manually up and down to the limits. Once it is complete, a green "Check" icon will appear on the right side.



3. Y axis limit control (manual)

- Move the plate base back and forth to the limits. Once it is complete, a green "Check" icon will appear on the right side.



Insert the protective cover back in place.

4. Z axis limit control (automatic)

5. Y axis limit control (automatic)

These last two steps are automatically performed. Once complete, a green "check" icon will appear on the right side

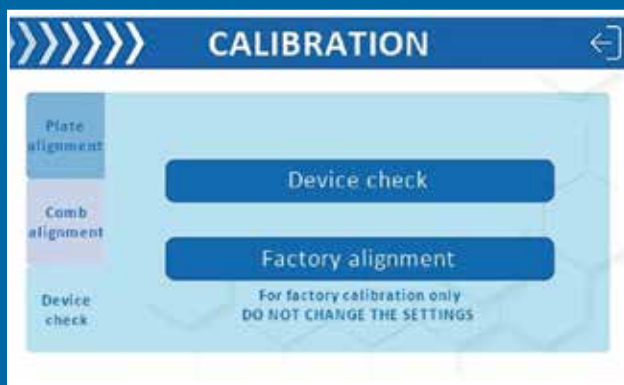


- Press the **Back** button to go back to the main screen of the calibration.



5.2.4. Device Check - Factory Alignment

- The factory alignment is for factory calibration only and it is protected by a password.
- Press the Back button until you are back on the Settings screen.



5.3. Start Position

- When pressing the **Start Position** option, the comb holder and the plate will move to the **Start Position**, where the elements of the device are supposed to be to start the test.
- **DO NOT** insert any content of the kit yet.
- After it is finished, the device will beep twice.

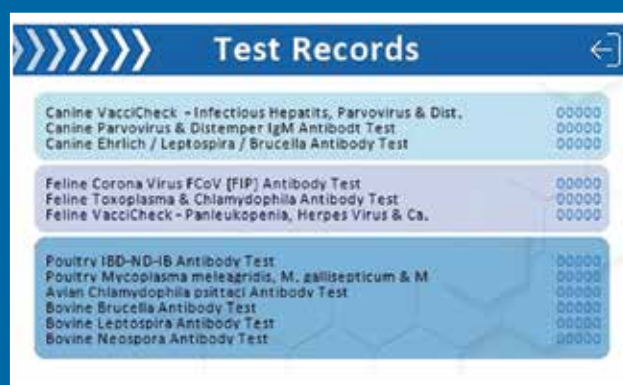


5.4. Information

- When pressing **Information**, you will be directed to the Info screen.



- **Company Information:** shows the company information with a QR code directing you to the website of the company for more details.
 - **Software Information:** shows the version of the software installed on your device.
- Attention!** This is a very important information, especially when an update is needed.
- **Test Record:** Shows all the tests performed since the device was acquired.



- **User Manual (Instructions for use):** QR code for a digital version of this document that you are reading.

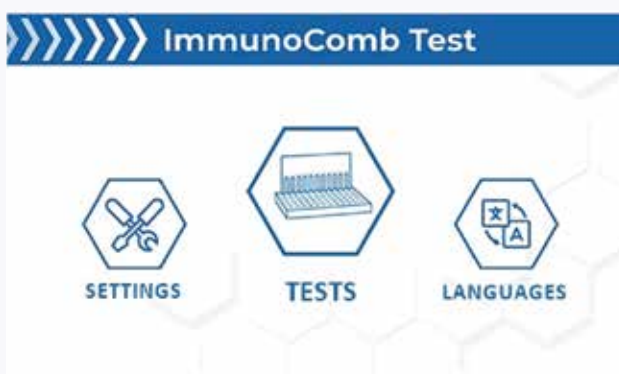


Press the **Back** button until you are back on the main screen.

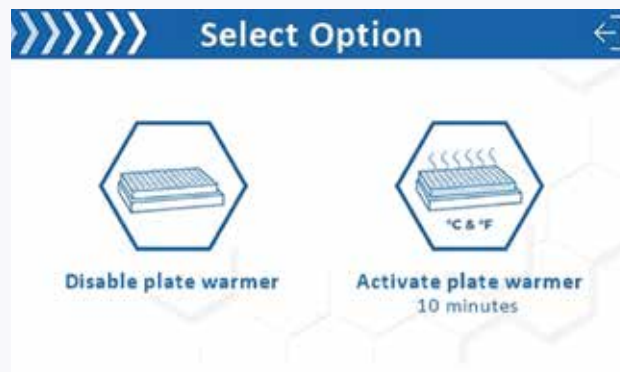
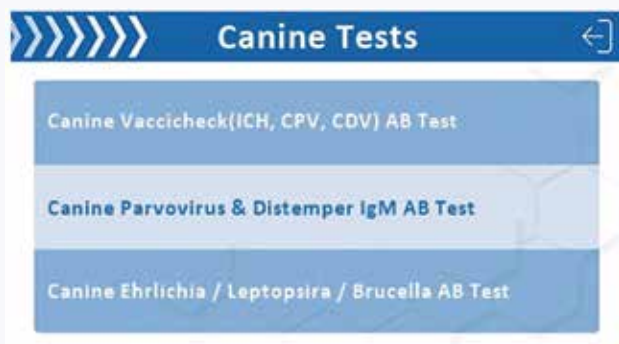
6. Performing the test

6.1. General Information

- To perform the test, press the **TESTS** button located in the middle of the main screen.
- When you press **TESTS**, a screen with the options of species to be tested will appear.
- Select the species that you want to test (according to the kit).



- Once you have selected the species, the menu of the tests will appear.
- Select the test to be performed.
- After the selection, a screen to select the required option will appear: **Disable plate warmer** or **Activate plate warmer**



Note! The plate warmer is responsible for warming up the plate of the kit to the ideal temperature to perform the test (see Instructions for use of the ImmunoComb/Vacci-Check kit). This step has a duration of **10 minutes**.

6.2. Activating plate warmer

When the plate warmer is selected, the components of the device will automatically move to the Start Position. A screen of the step-by-step will appear.

Wait for the device to reach its Start Position, when it is ready it will beep twice.

- **STEP 1** - Insert the plate of the kit on the plate base, and the absorbent paper on the absorbent paper holder.
- Press the **NEXT** button to start warmer.
- A screen with a timer will appear.
- (1) Appears at the bottom right showing the temperature. It is possible to configure the temperature in Celsius degrees (°C) or Fahrenheit degrees (°F) in real-time. To configure the temperature, press on the **Temperature** icon.



Note! To pause or cancel the plate warming see the Pausing or canceling plate warmer section.

6.3. Performing the test

After the plate warmer is complete, the device will beep twice and another screen with the following steps will appear:

- **STEP 2**- Remove the plate of the kit from the plate base by holding it from the lateral edges and putting it on a clean surface.
- Open the column of the desired wells with the well opener.
- After the column of the desired well is opened, insert the sample(s) on row A, according to the Instructions for use of the kit.
- Press the **NEXT** button.



- **STEP 3**- Insert the plate (with the sample) on the plate base, and the comb on the comb holder.
- Then press the **Start Test** button.



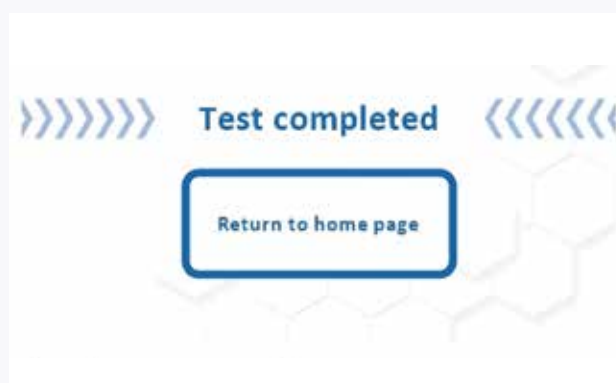
- Once the test starts, a timer will appear in the middle of the screen.
- (2) Is the timer of the test phase, each phase has a different time duration (see the Instructions for use of the kit).
- (3) Indicates the test phase by letter and by name of the procedure:
 - A - Sample
 - B - Wash
 - C - Conjugate
 - D - Wash
 - E - Wash
 - F - Color (Chromogen)



Attention!

In all the phases, once every two minutes, the comb holder will move up and down several times to mix the solutions.

There is an extra step between the phases: This step is responsible for taking out the excess solution from the comb. The plate base moves backwards, and the comb glove does the movement "up and down" on the absorbent paper strip holder. During this step, the timer pauses. When the test is complete, the device will beep twice, and the following screen will appear. Press **Return to home page** button to return to the main screen



If you are not going to perform any other tests, you can turn off the device by pressing the **On/Off** button on the back of the device.

6.4. Disabling plate warmer

- **STEP 1** - On a clean surface, open the column of the desired wells with the well opener.
- After the column of the desired well is opened, insert the sample(s) on row A, according to the Instructions for use of the kit.
- Then press the **Next** button.
- **STEP 2** - Insert the plate on the plate base, and the absorbent paper strip on the absorbent paper strip holder.
- Then press the **Next** button.



- **STEP 3** – Insert the comb on the comb holder.
- Then press the **Start Test** button.



- Once the test starts, a timer will appear in the middle of the screen.
- (2) Is the timer of the test phase, each phase has a different time duration (see the Instructions for use of the kit).
- (3) Indicates the test phase by letter and by name of the procedure:
 A – Sample
 B – Wash
 C – Conjugate
 D – Wash
 E – Wash
 F – Color (Chromogen)

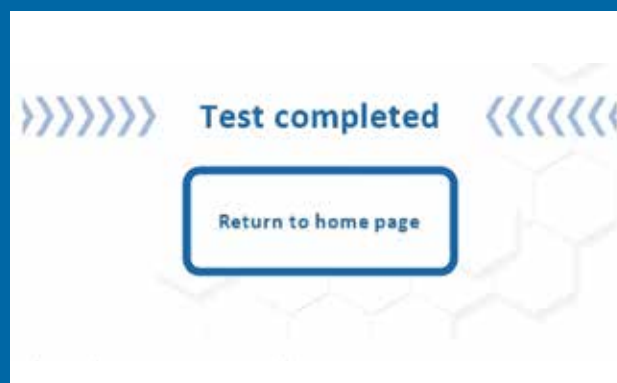


Attention!

In all the phases, once every two minutes, the comb holder will move up and down several times to mix the solutions.

There is an extra step between the phases: This step is responsible for taking out the excess solution from the comb. The plate base moves backwards, and the comb glove does the movement “up and down” on the absorbent paper strip holder. During this step, the timer pauses.

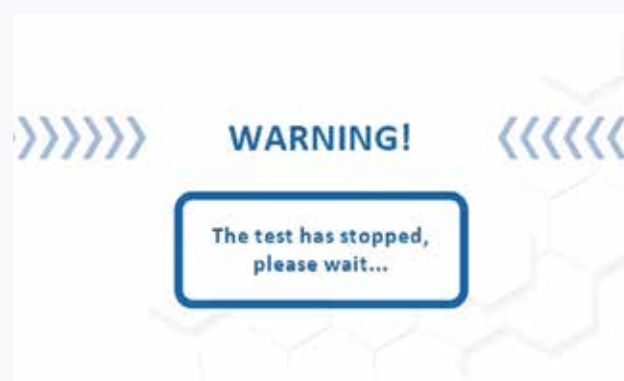
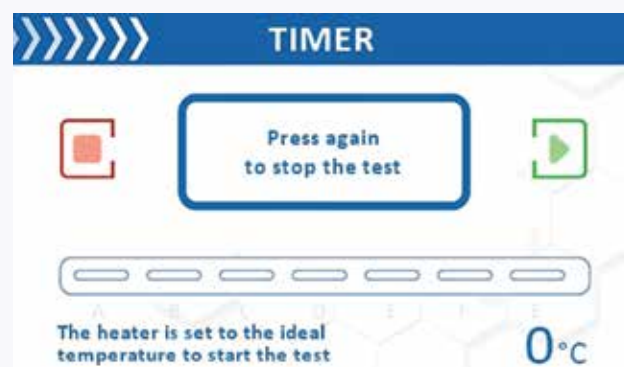
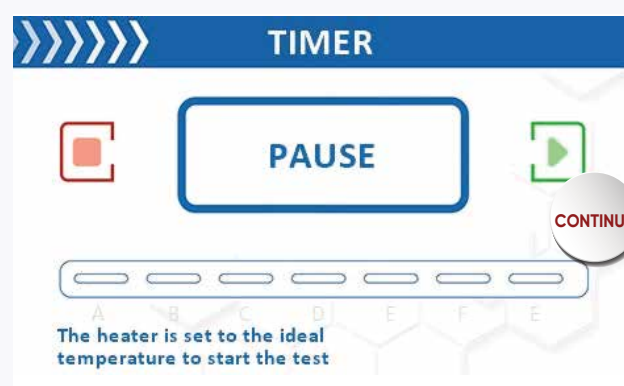
When the test is complete, the device will beep twice, and the following screen will appear. Press **Return to home page** button to return to the main screen



If you are not going to perform any other tests, you can turn off the device by pressing the **On/Off** button on the back of the device.

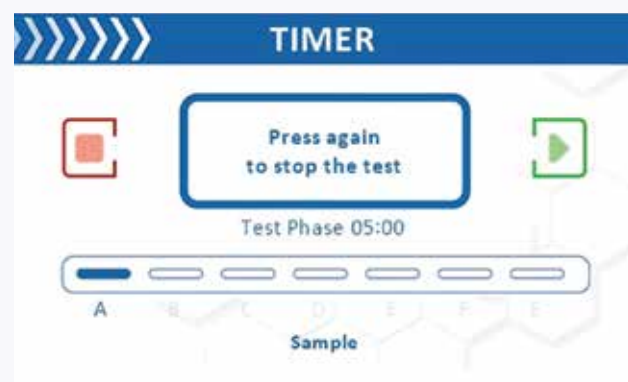
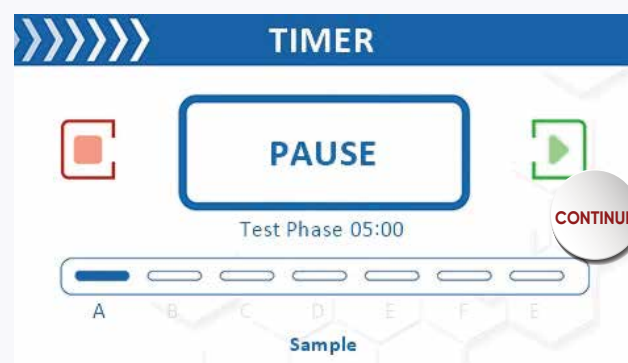
6.5. Pausing or canceling plate warmer

- The **Pause button** is responsible for pausing the procedure. When pressed, there is the option to continue or cancel the plate warmer.
- When you press the **Continue** button, the warming goes back to the point where it was paused.
- The **Stop button** is responsible for canceling the warming procedure.
- When you press the button, a sign will appear to confirm if you want to stop the test.
- You will be automatically redirected to the main screen.

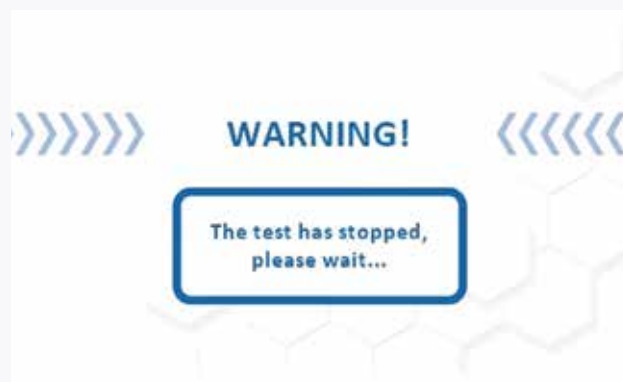


6.6. Pausing or canceling the test

- The **Pause** button is responsible for pausing the procedure. When pressed, there is the option to continue or cancel the test.
- When you press the **Continue** button, the procedure goes back to the point where it was paused.
- The **Stop** button is responsible for canceling the procedure. When you press the button, a sign will appear to confirm if you want to stop the test.
- If the test is paused and you press the **Stop** button again, the following screen will appear.
- You will be automatically redirected to the main screen.
- If you press the **Stop** button while the test is running, the following screen will appear.
- To cancel the test, press the **Stop** button again.



- You will be redirected to the main screen.
- If you are not planning to perform any other tests, you can turn off the device on the **On/Off** button on the back of the device.

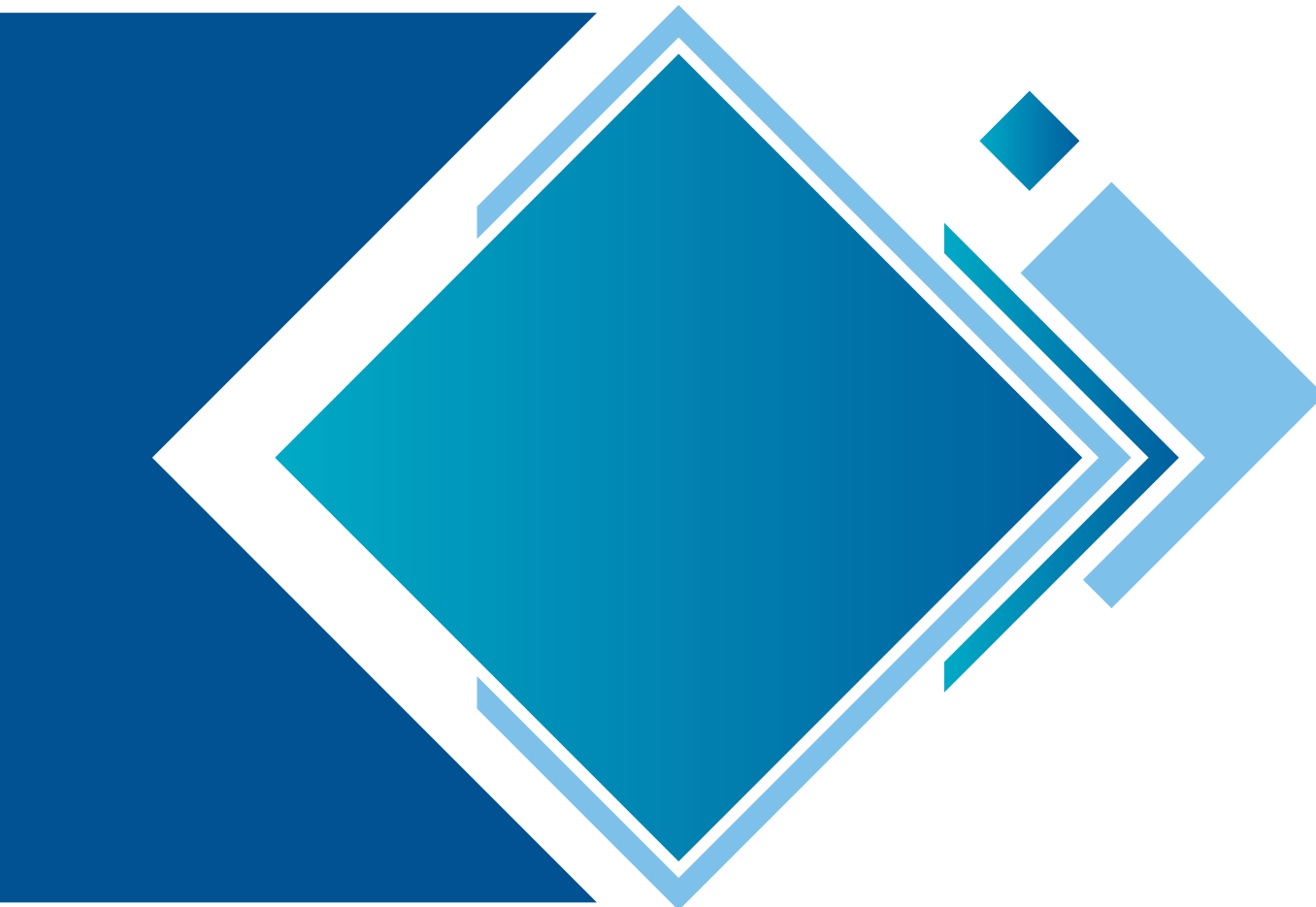


7. Troubleshooting

Problem	Possible Causes	Solution
ERROR, PLEASE CONTACT SUPPORT	-----	Contact support
The machine does not react when you press "Next" or "OK."	Equipment is not connected or Communication fault.	Turn the device Off and On.
Friction noise during the movement of the device.	Dust or foreign material may have entered the motion system.	Lubricate the shafts in the motion system to resolve the issue.
The comb hits the corners of the plate well during the up and down movement.	The device's calibration may be disrupted.	Calibrate the device from the settings menu to resolve the issue.
The comb does not fully enter the well or make contact with the absorbent paper during the up and down movement.	The device's calibration may be disrupted.	Calibrate the device from the settings menu to resolve the issue.
The comb holder or the plate axis is misaligned, causing combs to not enter the plate properly or rub against the edges.	Misalignment due to impact or loose screws may have occurred.	Loosen the screws on the device's axes and perform mechanical calibration to resolve the issue.

Problem	Possible Causes	Solution
<p>The device does not turn on when the power button is pressed.</p>	<p>There may be a problem with the power input jack or adapter. Alternatively, there could be an issue with the electronic card inside the device.</p>	<p>Try replacing the adapter with a working adapter; if the problem persists, the device may need to be opened and the control card replaced by a technical service.</p>
<p>Excessive noise from the motors during device movements, and the axes are not moving.</p>	<p>An object may be stuck in the parts of the movement mechanism on the axes. Alternatively, the motor may be damaged, there may be a problem with the motor cables, or an issue with the main control card.</p>	<p>First, manually move the axes slowly from one end to the other to check for any obstructions. If there are no obstructions, have the device inspected by a service technician, and they can replace the motor, belts, motor cables, or control card as needed based on the diagnosis.</p>
<p>The device resets itself and restarts during operation.</p>	<p>There may be a fault in the voltage regulator on the main control card or the control card itself.</p>	<p>In this case, the control card or the voltage regulator on the distributor circuit should be replaced by a service technician.</p>
<p>The device turns on but cannot start tests, and the forward or test start buttons do not activate. It is not performing any functions.</p>	<p>A communication error between the screen and the control card, a malfunction in the control card, or a software error may have occurred</p>	<p>Reinstall the device's screen and controller software, and if the problem persists, have the screen panel replaced by a service technician and thoroughly examine and replace any necessary components.</p>
<p>The device turns on, but the touchscreen is not working.</p>	<p>The capacitive panel of the screen may be damaged, or there may be a software issue with the screen</p>	<p>First, try reinstalling the screen software. If the problem continues, the screen panel may need to be replaced.</p>

Problem	Possible Causes	Solution
<p>The motors in the system are working, but the heating plate is not.</p>	<p>The heating pad may be faulty, or there may be a problem with the mosfet that controls this system.</p>	<p>The heating plate or mosfet switch should be replaced by a service technician.</p>



**YOUR
DIAGNOSTIC
COMPANION**



For further assistance please
contact your local Distributor,
or Biogal Galed Laboratories:

✉ info@biogal.com
☎ 972-4-9898605