



**Bellwether
Coffee**

**Bellwether Shop Roaster
Operator Manual**

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Bellwether Shop Roaster
SAFETY



**Bellwether
Coffee**

IMPORTANT SAFETY INFORMATION - PLEASE READ THIS FIRST



WARNING: Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read these instructions thoroughly before installing, operating, maintaining or servicing this equipment.

This product employs radiant heating elements that achieve high temperatures for coffee roasting. It contains several mechanical moving parts and mechanisms. The exterior of the roaster guards the operator from these hazards.

NEVER attempt to access the interior of the roaster while the roaster is powered or at any time during roaster operation.

| | | |
|---|--|--|
| | WARNING RISK OF FIRE OR ELECTRIC SHOCK DO NOT OPEN | |
| WARNING, TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK DO NOT REMOVE THIS COVER NO USER-SERVICEABLE PARTS INSIDE REPAIR SHOULD BE DONE BY AUTHORIZED SERVICE PERSONNEL ONLY | | |
| | AVERTISSEMENT RISQUE D'INCENDIE OU DE CHOC ÉLECTRIQUE NE PAS OUVRIR | |
| AVERTISSEMENT, POUR RÉDUIRE LE RISQUE D'INCENDIE OU DE CHOC ÉLECTRIQUE NE RETIREZ PAS CE COUVERCLE AUCUNE PIÈCE RÉPARABLE PAR L'UTILISATEUR À L'INTÉRIEUR LA RÉPARATION DOIT ÊTRE EFFECTUÉE UNIQUEMENT PAR DU PERSONNEL DE SERVICE AUTORISÉ | | |

DO NOT store or use gasoline or any other flammable vapors or liquids in the vicinity of this roaster or any other appliance.

The information contained in this manual is important for the proper installation, use and maintenance of this roaster. Adherence to these procedures and instructions will result in satisfactory roasting results and long, trouble-free service.

Errors - descriptive, typographic, or pictorial - are subject to correction. Specifications are subject to change without notice.

Important Safety Instructions



WARNING: When operating this coffee roaster, strictly adhere to the following safety precautions to reduce the risk of electric shock, burns, fire, injury, or damage to the roaster or property.

General Safety Information

- Read all instructions before using this roaster.
- This roaster should only be serviced by qualified Bellwether personnel. Contact Bellwether Coffee Customer Support via the means listed on Page 6 of this manual for inspection, repair, or adjustment.
- Use this roaster only for its intended use, roasting coffee, as described in this manual.
- Install or locate this roaster only in accordance with the Installation Instructions.
- DO NOT locate on an uneven surface.
- DO NOT store or operate this roaster outdoors.
- DO NOT use this roaster near water (e.g. near a sink, shower, in a wet food prep area or near a swimming pool).
- This roaster must be electrically grounded. Connect only to a properly grounded outlet using the cord and plug provided with the roaster.
- DO NOT immerse the cord or plug in water or other liquids.
- Keep the power cord away from hot surfaces.
- DO NOT operate this roaster if it has a damaged cord or plug, is not working properly, or has been damaged or dropped. Contact Bellwether Support if these conditions exist.



CAUTION: Risk of fire and electric shock. Replace only with Manufacturer's cord set, Part No. 920-00218 or 920-00219. (Depending on your region.)

- DO NOT allow children to operate this roaster.
- Children and pets should be supervised at all times when near the roaster.
- DO NOT block any openings on this roaster, as they exist for proper airflow.
- DO NOT use the inside of the roaster for storage purposes.
- **WARNING:** Failure to maintain this roaster in a clean condition could lead to premature deterioration of components that could adversely affect the life of the roaster and possibly result in a hazardous situation.
- DO NOT use a water jet to clean the roaster.
- DO NOT use corrosive chemicals or vapors with this roaster. Only use cleaning chemicals and methods recommended in this manual.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- This appliance is not to be operated by an external timer or separate remote-control system during operation.
- Maximum altitude for which this unit is certified is 2000 meters.

Grounding and Electrical Safety



WARNING: Improper grounding can result in risk of electric shock.

This roaster must be electrically grounded. In the event of an electrical short circuit, grounding reduces the risk of electric shock by providing an escape wire for the electric current. This roaster is equipped with a power cord that has a grounding wire with a grounding plug, which must be plugged into an outlet that is properly installed and grounded. Consult a qualified electrician or serviceperson if uncertain about the ability to follow grounding instructions or if doubt exists as to whether the roaster is properly grounded. DO NOT use an extension cord with this roaster. If the power cord is too short, have a qualified electrician or serviceperson install an outlet near the roaster. If the power cord or plug is damaged, it must be replaced by calling a Bellwether service representative and ordering a new power cord.

Introduction

The Bellwether Roaster uses the same fundamental process as traditional commercial coffee roasters. However, it brings this beloved process to the modern era with ventless, all-electric operation and with unrivaled control, consistency, and environmental friendliness. Welcome to the era of responsible, sustainable roasting! Bellwether recommends recording important information about your coffee roaster here for easy future reference in the event customer support is required. Roaster identification numbers can be found on the label behind the Maintenance Door.

Model P/N

Serial Number S/N

Installed By

Installation Date

For technical help or information within North America,
call: **510-210-1536**

web: help.bellwethercoffee.com email: support@bellwethercoffee.com

Roaster Safety Features

Power Loss

In the event of loss of main power, the roaster will shut down. When building power is restored the main roaster power will turn on again. If this occurs during a roast, the system will drop the partially roasted beans into the bean cooling tray and cool them prior to removal.

Power Surges

In the event of a main power surge, the roaster contains onboard circuit breaker protection that is tied to the rear power switch. This circuit breaker will trip in the case of overcurrent, shutting the roaster off. If this occurs, please follow the instruction above for a power outage with the additional step of resetting the switch to the on position.

There are also internal fuses that protect the system's heater circuit. In the event that these fuses have tripped, this will be evidenced by the roaster not heating when entering a pre-heating state. If this occurs, contact Bellwether Support to arrange for a qualified serviceperson to inspect the roaster.

DO NOT attempt to access the inside of the roaster to reset fuses. Other damage may have occurred due to surge and must be inspected prior to operation.

Roaster Construction

Traditional roasting methods use gas, an open flame, and allow smoke to enter the environment where roasting takes place. Since the Bellwether Roaster is all-electric, uses clean technology, and has a closed-loop roast process, fire and smoke are eliminated. The path the beans follow, internal to the roaster, is primarily constructed of food-grade stainless steel or food-grade polymeric materials rated for roasting temperatures. The roaster is designed such that outer surface temperatures do not exceed safe limits. There are two layers of glass between the user and the interior of the roasting drum. The glass is shatter resistant. Outer glass temperatures stay below limits safe to touch but may still be warm during the roasting process.



WARNING: Accessing the inner glass should only be done when the roaster is powered down and cool. The inner glass is hot during roasting.

Monitoring

This roaster contains a variety of sensors and interlocks. These include multiple temperature sensors, on a separate safety circuit, that will shut the roaster down if an abnormal condition occurs. The user cannot access or control the safety circuit. In such an event, the roaster will not operate and may report a fault condition. Contact Bellwether Support if a fault condition persists. The control panel will alert you to this fault condition.

When creating roast profiles, there are embedded parameter safety limits such that roasting temperatures are not allowed to exceed them.

Software

Bellwether routinely upgrades roaster software. These upgrades are pushed to the control system automatically over the network. Software changes are not made during roaster operation.

Bellwether Shop Roaster
OPERATIONS



**Bellwether
Coffee**

Overview of Roaster Operation

The Bellwether Coffee Roaster is designed to begin with green coffee beans and roast them via a controlled heat application process. For the first roast of a roasting session, the roaster may choose to begin with a pre-heat cycle to assure the internals are at proper temperatures for optimal roasting. A measured amount of green coffee is loaded into the hopper. A roast profile is selected. The operator initiates the roast, and the roaster software takes control of the process. The green beans drop into the pre-heated roasting drum and are gently lofted while hot air is blown on them. The roaster continually monitors bean temperatures and automatically adjusts heat, airflow, and bean lofting to assure the beans follow the desired profile. While roasting, a small fraction of exhaust air is passed through a cooling circuit and a set of filters. The cooling condenses out steam and collects it in the water reservoir. Filtered air is vented into the room. There are fresh air inlets to balance with the exhaust.

When roasting is complete, the hot roasted beans drop into the cooling bucket, which is designed to allow a consistent and even flow of cooling air across the bean mass. When sufficiently cool, the roasted beans are ready to be removed within the Bean Cooling Tray in single batch mode or will drop into the food-safe Bellwether bucket if using continuous roasting. The roasted beans are then ready for customer use.

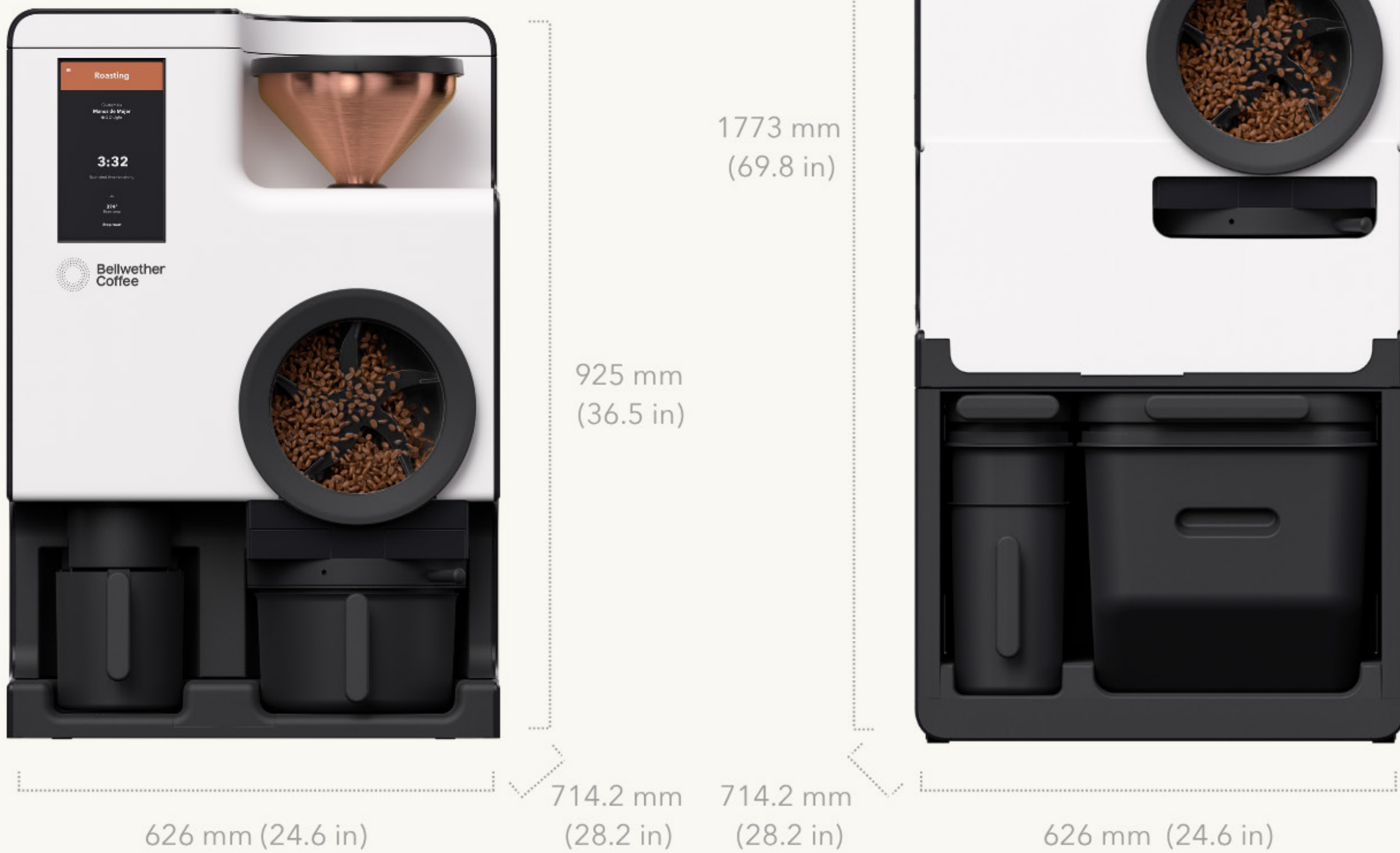
Shop Roaster Configuration

Electric. Ventless. Automatic.

Bellwether Shop Roaster.

An integrated, cloud-connected system for sourcing and roasting sustainable, high quality coffee in any location. No installation or experience required.

The Bellwether Shop Roaster is a small format, high-throughput roaster with a 1.5 kilo capacity with optional continuous roasting up to 20 kilos in a single operation.



Countertop Roaster

- ☒ 1.5 kg (3.3 lb) Capacity
- 🕒 3-4 Roasts an Hour
- 👤 2 mins of Labor per roast

Continuous Roasting Upgrade

- ☒ 20 kg (44 lbs) Autoloader and Base
- ☒ Up to 13 Continuous Roasts
- 👤 5 mins of Labor per 20 kg

The Bellwether Shop Roaster is available in following two configurations:

1. Countertop Shop Roaster - A small format, high throughput roaster with 3.3 Lbs [~1.5 Kg] capacity. 3-4 roasts an hour with 2 minutes of labor per roast.
2. Shop Roaster with continuous roasting upgrade - An auto loader attachment can hold up to 44 Lbs [~20 Kg] of green beans, roast up to 13 batches of 3.3 Lbs continually without manual intervention, less than 5 minutes of labor to roast 44 Lbs of coffee beans.

Shop Roaster Feature Highlights

- No installation required
- Plug in and roast from day one
- No gas lines, venting or construction

Ventless

- Roast in any location
- First and only commercial coffee roaster designed for ventless use
- Eliminates harmful VOCs

Automatic

- Fully automated roasting - no experience required

Integrated

- Internal afterburner eliminates smoke
- Integrated web app to order coffee and manage your account from any device
- Click-and-ship green coffee marketplace features a global library of fresh, seasonal, sustainable coffees with custom roast profiles

Sustainable

- The world's lowest carbon coffee
- Industry-leading farmer equity standards
- Reduces CO2 from the roast cycle by 87%

Clearance

- Clearance requirements for both the delivery path and installation area - minimum 2" clearance on both sides (50mm each side)

- Roaster: 626 mm (24.6 in) x 925 mm (36.5 in) x 714.2 mm (28.2 in)
- Autoloader: 626 mm (24.6 in) x 390 mm (15.4 in) x 608 mm (24 in)
- Base Cabinet: 626 mm (24.6 in) x 460 mm (18.1 in) x 640 mm (25.2 in)
- Total Configuration: 626 mm (24.6 in) x 1773 mm (69.8 in) x 714.2 mm (28.2 in)

Weight

- Roaster: 183.7 kg (405 lb)
- Autoloader: 21.4 kg (47 lb)
- Base Cabinet: 34 kg (75 lb)
- Total Configuration: 239 kg (527 lb)

Electrical Specs

- US: Provided with the roaster is NEMA L6-30P attached to a 2.4 M (8 FT) cable, standard locking plug for 240v 30 amp. service
 - Nema L6-30R required at the wall
- Rest of World: 2.4 M pigtail. Please consult a local electrician for the authorized plug and receptacle type

Circuit

- Single phase, 200-240 VAC
- 30amp (5kw)
- 50-60 Hz

Cleaning and Maintenance

- Customers will need to empty the chaff can, water reservoir, and clean the prefilter (when prompted)

Certifications

- UL 197
- UL 710
- NSF4 Food Safety
- CE

Shop Roaster Components



Bellwether Display Screen:

This is the command center for your roaster. Select from default and your created Roast Profiles, see alerts, know at a glance where the beans are in the roasting process, manage maintenance tasks, and more

The Hopper:

This is where the green beans are added to begin the roasting process. It has a food-safe silicone lid to contain bean dust to a minimum.

The Drum:

The main drum is where the coffee roasting takes place. Green beans are loaded from the hopper into the drum where they are heated and gently lofted by a rotating agitator for optimal roast quality. A glass viewing window allows for visual observation. The Pre-filter is where additional chaff is collected and is located under the drum inside the front panel. Upon completion of roasting, the roasted beans drop into the Bean Cooler where they are cooled after roasting.

The Bean Cooler:

Beans are dropped from the drum to the Bean Cooler after the roasting is completed. Beans are cooled in the bean cooler before they can be safely removed from the roaster.

The Chaff & Water Collector:

During the roasting process, bean chaff and water (condensed steam) is collected from the roasted beans here. The chaff & water requires regular cleaning to avoid overflowing and efficient roasting and cooling of the beans.

The Bean Cooler Latch:

The bean cooler latch seals the collector to avoid any leaking of hot air, steam or gasses during the bean cooling process.

Shop Roaster with Continuous Roasting Upgrade Components



Bellwether Display Screen:

This is the command center for your roaster. Select from default and your created Roast Profiles, see alerts, know at a glance where the beans are in the roasting process, manage maintenance tasks, and more.

The Auto Loader:

Auto loader can hold up to 44 Lbs of green coffee beans. Beans are filled into the auto loader from the top.

The Hopper:

This is where the green beans are automatically added to from the auto loader before the roasting process starts. It has a food-safe silicone lid to contain bean dust to a minimum.

The Drum:

The main drum is where the coffee roasting takes place. Green beans are loaded from the hopper into the drum where they are heated and gently lofted by a rotating agitator for optimal roast quality. A glass viewing window allows for visual observation. The Pre-filter is where additional chaff is collected and is located under the drum inside the front panel. Upon completion of roasting, the roasted beans drop into the Bean Cooler where they are cooled after roasting.

The Bean Cooler:

Beans are dropped from the drum to the Bean Cooler after the roasting is completed for each batch. Beans are cooled in the bean cooler before they are exited to the bean collector.

The Bean Collector:

The Bean collector is a container that can hold up to 44 Lbs of roasted coffee beans. After the beans are cooled in the bean cooler for each batch, the cooled beans are exited into the bean collector and temporarily stored till all batches are completed.

The Chaff & Water Collector:

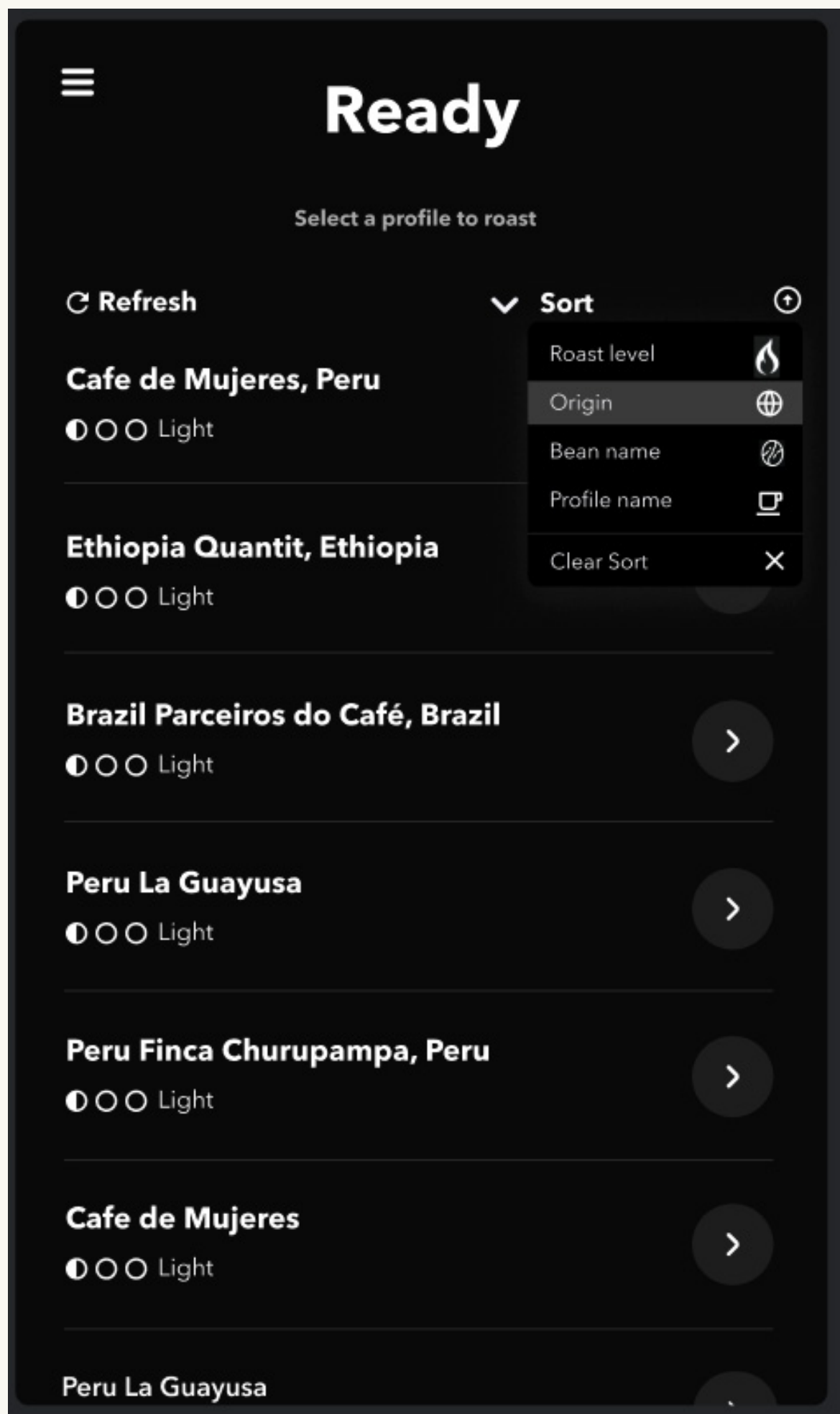
During the roasting process, bean chaff and water (condensed steam) is collected from the roasted beans here. The chaff & water requires regular cleaning to avoid overflowing and efficient roasting and cooling of the beans.

The Bean Collector Latch:

The Bean collector latch seals the collector to avoid any leaking of hot air, steam or gasses during the bean cooling process.

The Water & Chaff Collector Latch:

The Water & Chaff collector latch seals the collector to avoid any leaking of hot air, steam or gasses during the bean roasting process.



Selecting the roast profile

This screen is the main interface for selecting a coffee profile to begin the roasting process. Here the user can switch between single roast and continuous roasting modes, sort profiles, and select a profile to proceed with roasting.

Sorting profiles: The user has the option to sort the list of coffee profiles by various parameters of the profiles:

- Sort by roast level
- Sort by country origin
- Sort by bean name
- Sort by profile name

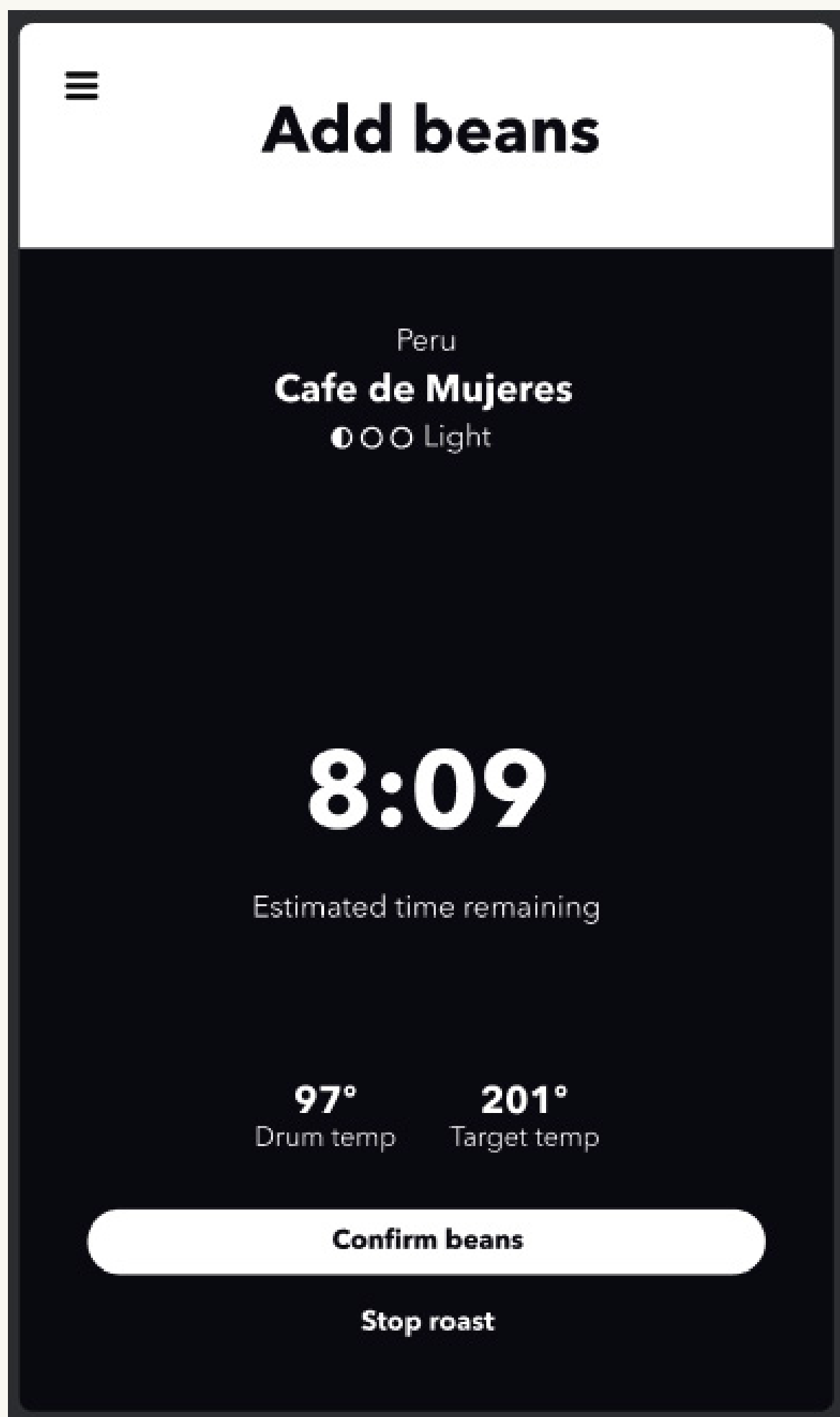
Coffee Profiles List: This is a list of coffee profiles that the user can choose from:

Each entry provides the name of the coffee, its country of origin, and its roast level (e.g., "Cafe de Mujeres, Peru" is a light roast).

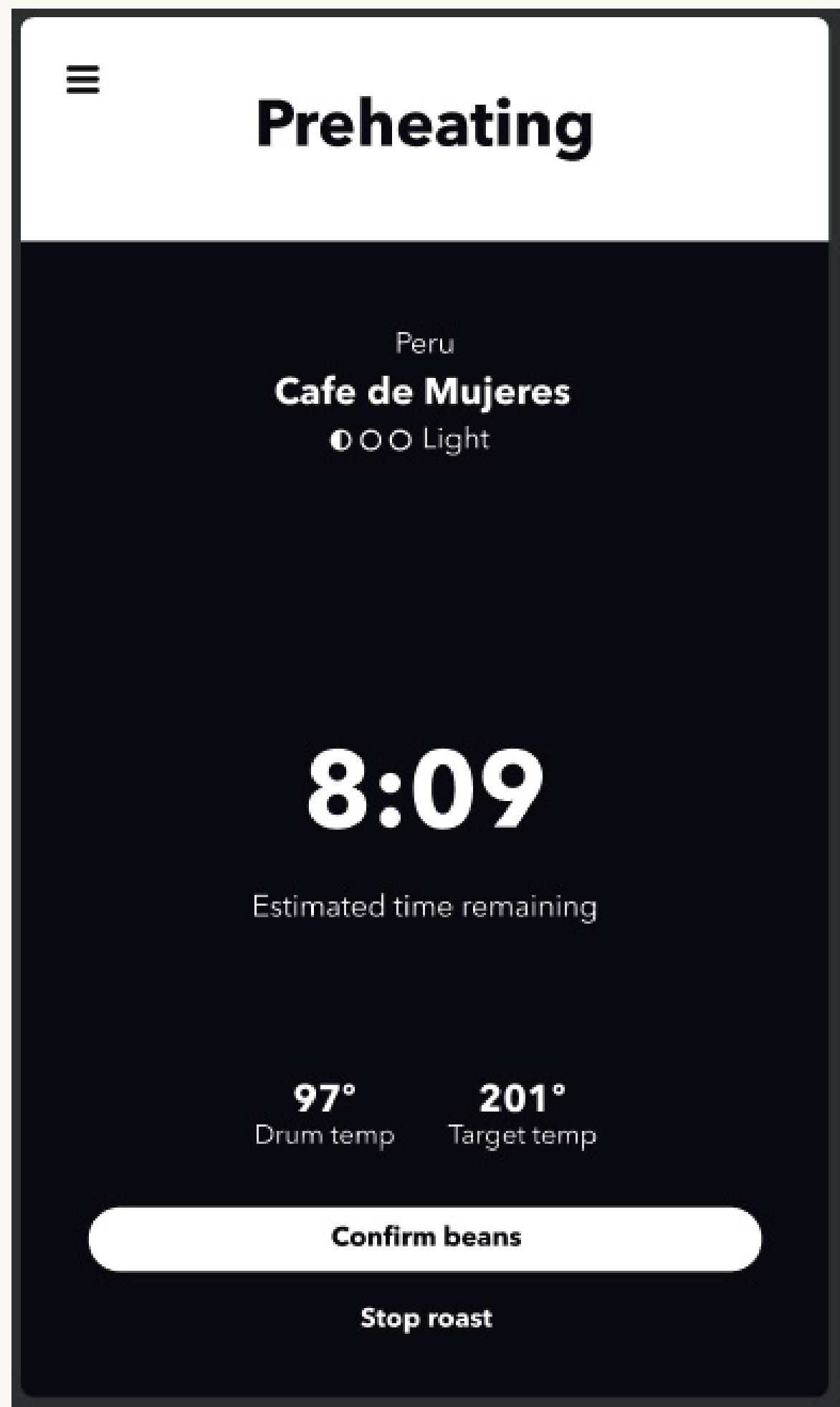
Before starting the roast, check that beans are loaded into the Auto loader, Bean collector, Chaff & Water Collector are emptied and installed properly

Tap the ">" symbol next to the profile name to start the roasting process.

Add beans to the hopper



Once the roast profile is selected, add the coffee beans to the hopper and confirm that the beans are added to the hopper by tapping on "Confirm beans" button.



The preheating process is necessary to bring the roasting drum up to the correct temperature for roasting coffee. This screen provides monitoring and real time feedback on the status of the preheating process of a coffee roasting.

Coffee Batch Details:

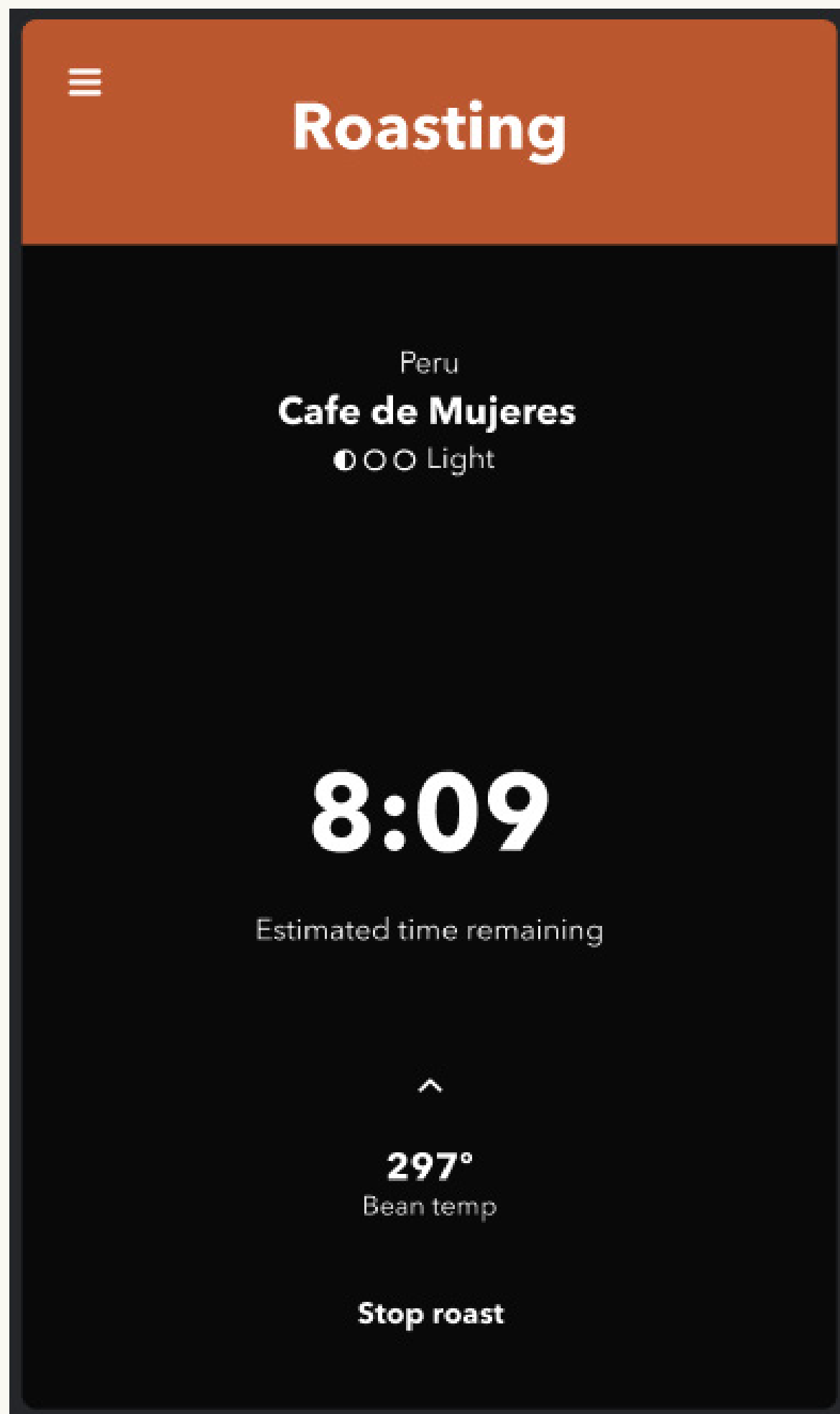
- "Peru Cafe de Mujeres Light" refers to the specific coffee being roasted. It includes the origin (Peru), the blend or lot name (Cafe de Mujeres), and the roast level (Light).

Timer: The large numbers in the center of the screen show "8:09," which is the estimated time remaining for the preheating process to complete. This timer counts down in real-time.

Temperature Display:

- "97° Drum temp" indicates the current temperature of the roasting drum.
- "201° Target temp" shows the desired temperature that the roasting drum is meant to reach for the preheating process to be complete.

Stop Roast Button: The "Stop roast" button at the bottom of the screen allows the user to halt the preheating process.



After drum preheating is completed, coffee beans are loaded in the drum and roasting process commences. This screen provides real-time information and controls during the roasting phase

Coffee Batch Details:

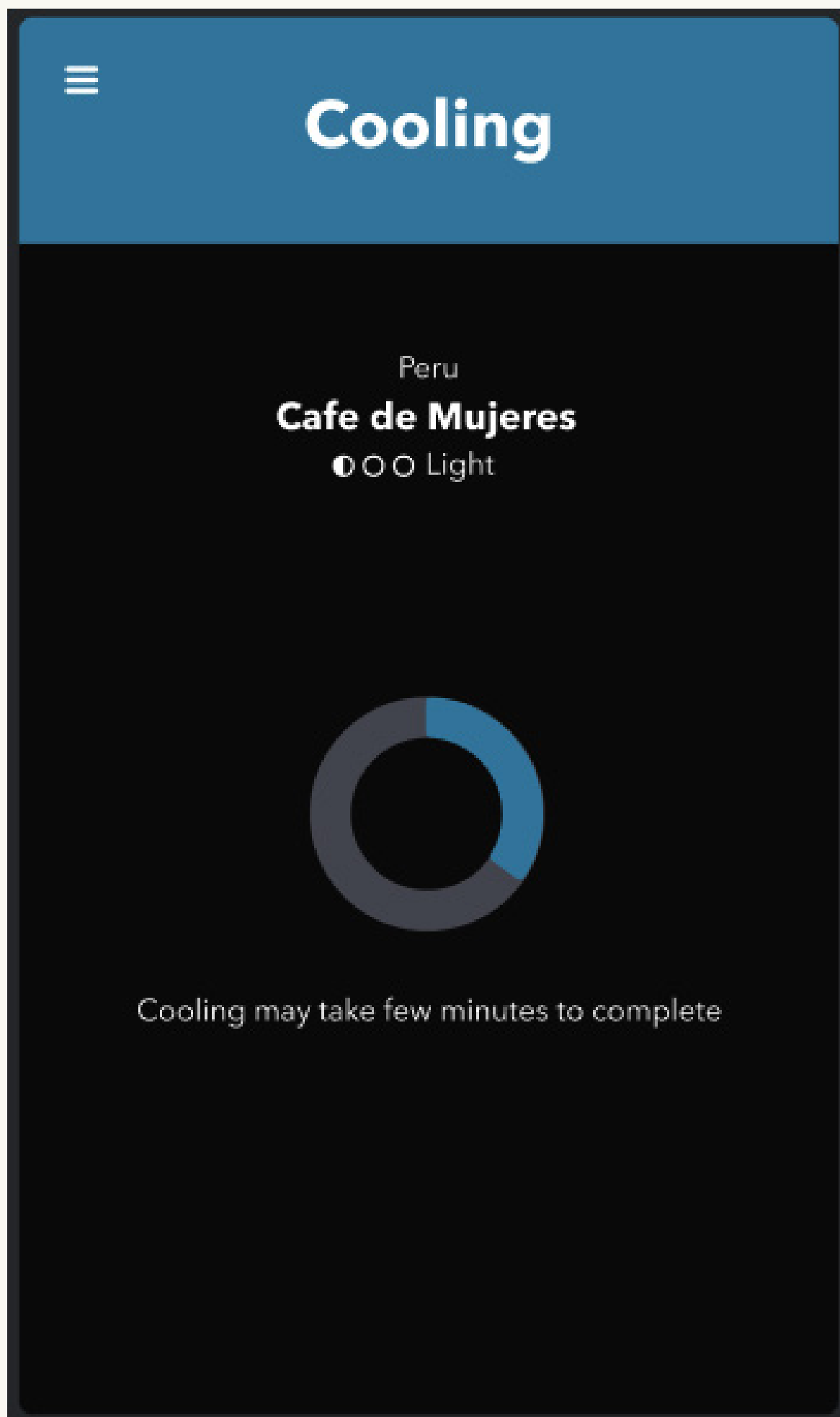
- "Peru Cafe de Mujeres Light" identifies the origin (Peru), the blend (Cafe de Mujeres), and the roast level (Light).

Timer: The large display in the center "8:09" is the estimated time remaining for the roasting process to complete. This is a dynamic countdown timer.

Temperature Display:

- "297° Bean temp" shows the current temperature of the coffee beans inside the roaster.

Action Button: "Stop roast" is a button that, when pressed, will terminate the roasting process. This could be used in case the user needs to stop the roast due to an emergency, a mistake profile selection, or wrong beans loaded.



After roasting is completed, coffee beans are dropped in the bean cooler where beans are cooled. This screen provides real-time information for the cooling phase of the coffee roasting process.

Coffee Details:

- "Peru Cafe de Mujeres Light" identifies the origin (Peru), the blend (Cafe de Mujeres), and the roast level (Light).

Progress bar: The circular blue progress bar display the progress of bean cooling. It may take few minutes to cool the beans to the temperature that is safer to touch.



This screen indicates the completion of a coffee roasting.

Coffee Details:

- "Peru Cafe de Mujeres Light" identifies the origin (Peru), the blend (Cafe de Mujeres), and the roast level (Light).

Roast and Cooling Times:

- "10:04 Roast time" indicates the duration of the roasting process for the batch.
- "3:00 Cooling time" indicates the time spent on the cooling process.

Temperature Readouts:

- "97° End temp" shows the final temperature of the beans at the end of the roast
- "201° Charge temp" indicates the initial temperature of the drum when the roasting started.

Collecting the beans



The white bar at the top with the text "Empty beans" indicates to the user that the roasting process for the current roast is finished and the user should remove the roasted beans from the bean collector.

Coffee Batch Details:

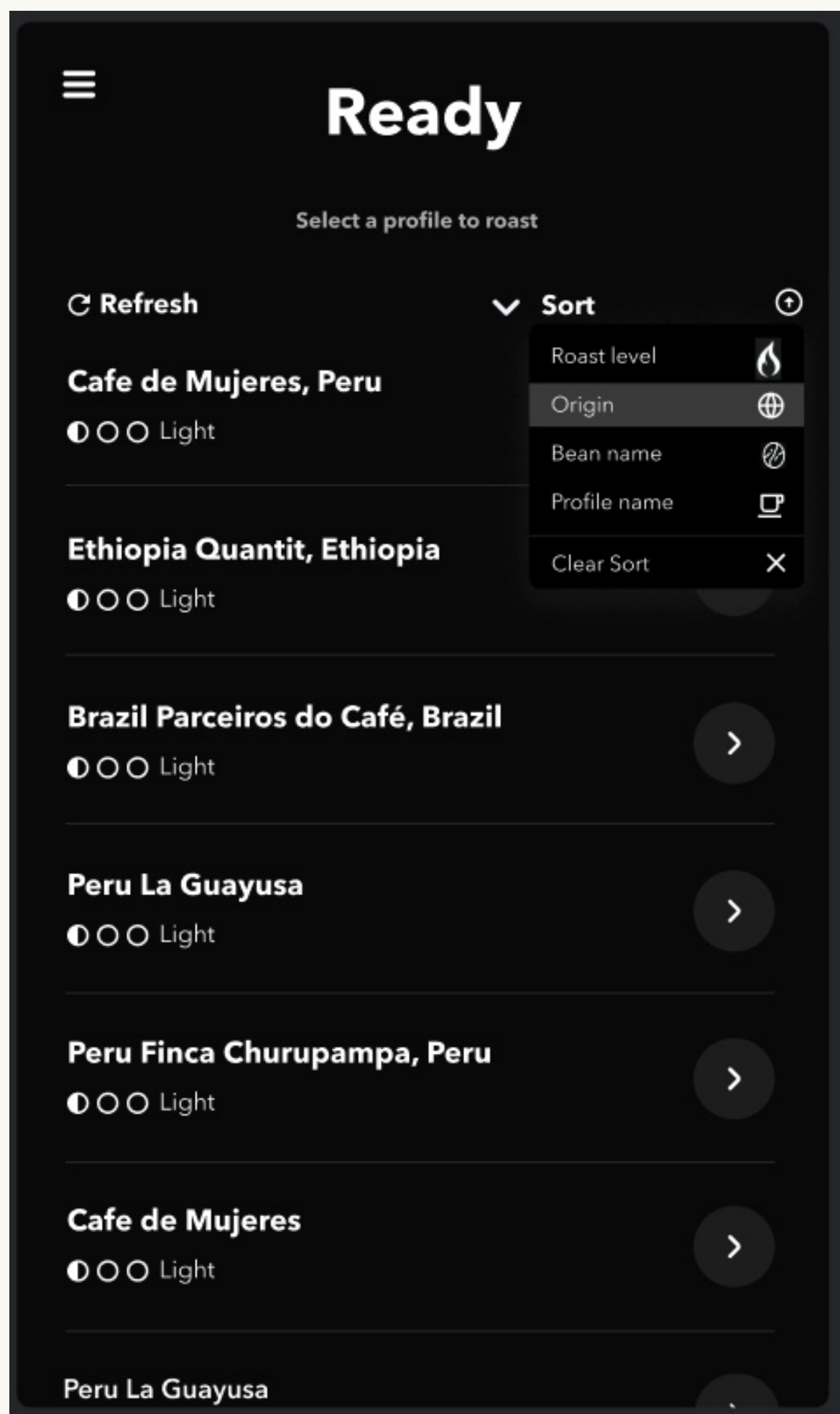
- "Peru Cafe de Mujeres Light" identifies the origin (Peru), the blend (Cafe de Mujeres), and the roast level (Light).

It is important to remove the beans from the bean collector after the roast is complete. The next roast will not start unless the bean cooler is emptied. In order to empty the bean cooler, pull the latch to the left and remove the bean collector by sliding it out and empty the bean cooler by transferring the beans to the desired container.

Return the bean cooler back in place, and latch the bean cooler by pulling the latch handle to the right

Tap on "Continue to roast" after the bean cooler is emptied and returned.





Getting Ready to Roast Continuously with Auto Loader

This screen is the main interface for selecting a coffee profile to begin the roasting process. Here the user can switch between single roast and continuous roasting modes, sort profiles, and select a profile to proceed with roasting.

Sorting profiles: The user has the option to sort the list of coffee profiles by various parameters of the profiles:

- Sort by roast level
- Sort by country origin
- Sort by bean name
- Sort by profile name

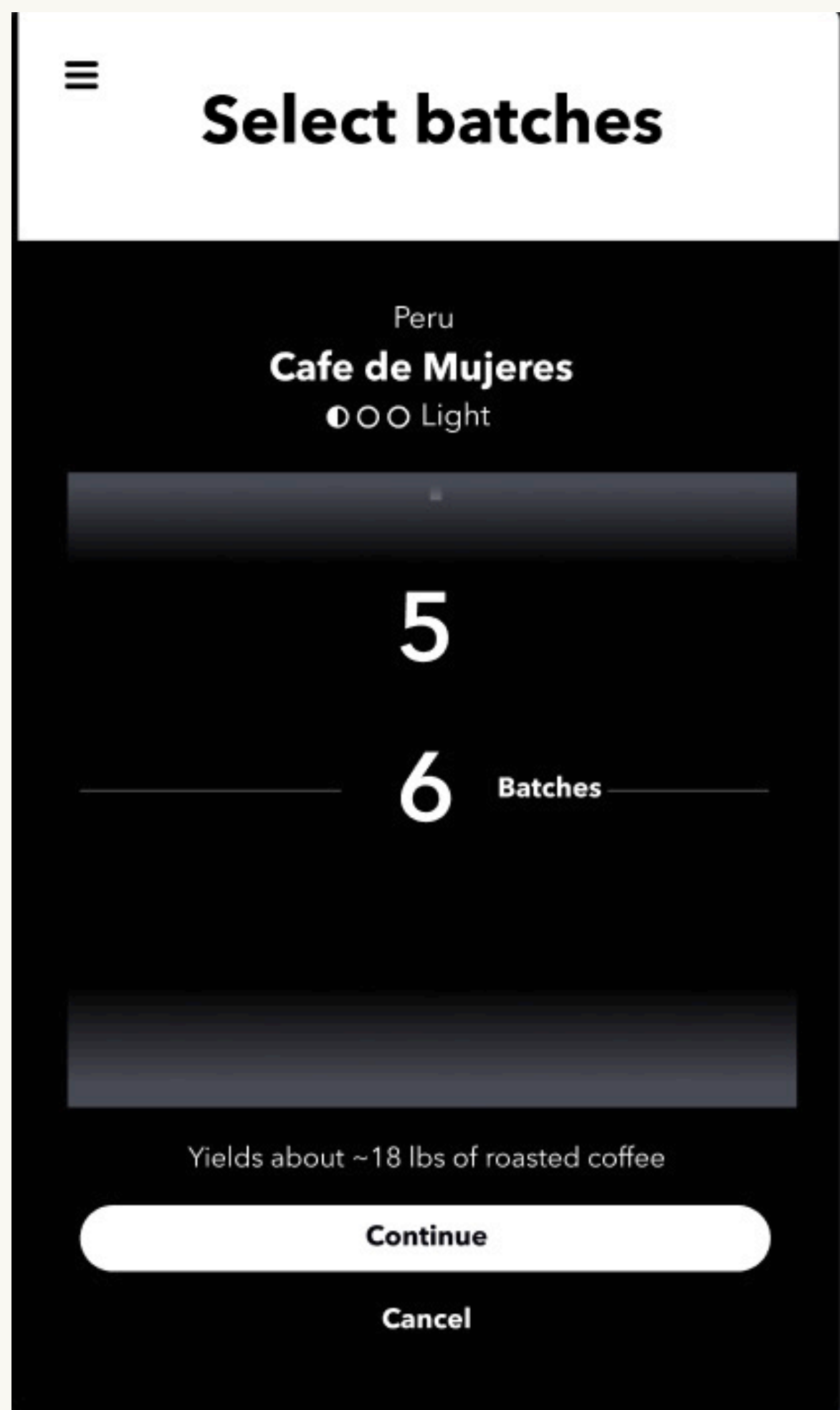
Coffee Profiles List: This is a list of coffee profiles that the user can choose from:

Each entry provides the name of the coffee, its country of origin, and its roast level (e.g., "Cafe de Mujeres, Peru" is a light roast).

Before starting the roast, check that beans are loaded into the Auto loader, Bean collector, Chaff & Water Collector are emptied and installed properly

Tap the ">" symbol next to the profile name to start the roasting process.

Selecting the number of batches



On this screen the user can select the number of batches of a selected coffee to be roasted.

Coffee Origin, Name and Roast Level: For the Roast Profile selected, this screen displays the origin of the coffee beans, name of the coffee bean, and the roast level.

The text "Peru Cafe de Mujeres Light" specifies the origin (Peru), the name of the coffee (Cafe de Mujeres), and the roast level (Light).

Selection Slider: The gray slider with a number above it (displaying "5" and "6" in this case) allows the user to select the number of batches.

The Roaster automatically detects the weight of the coffee available in the Auto Loader. Each batch in Shop Roaster is 3.3 Lbs [1.5 Kgs] by weight. Roaster splits the available weight of the coffee beans into the maximum number of complete batches of 3.3 Lbs. By default the maximum number of batches are preselected.

Selection Indicator: On the slider, "6 Batches" indicates the current selection or the number of batches the slider is set to. This should change dynamically as the user adjusts the slider.



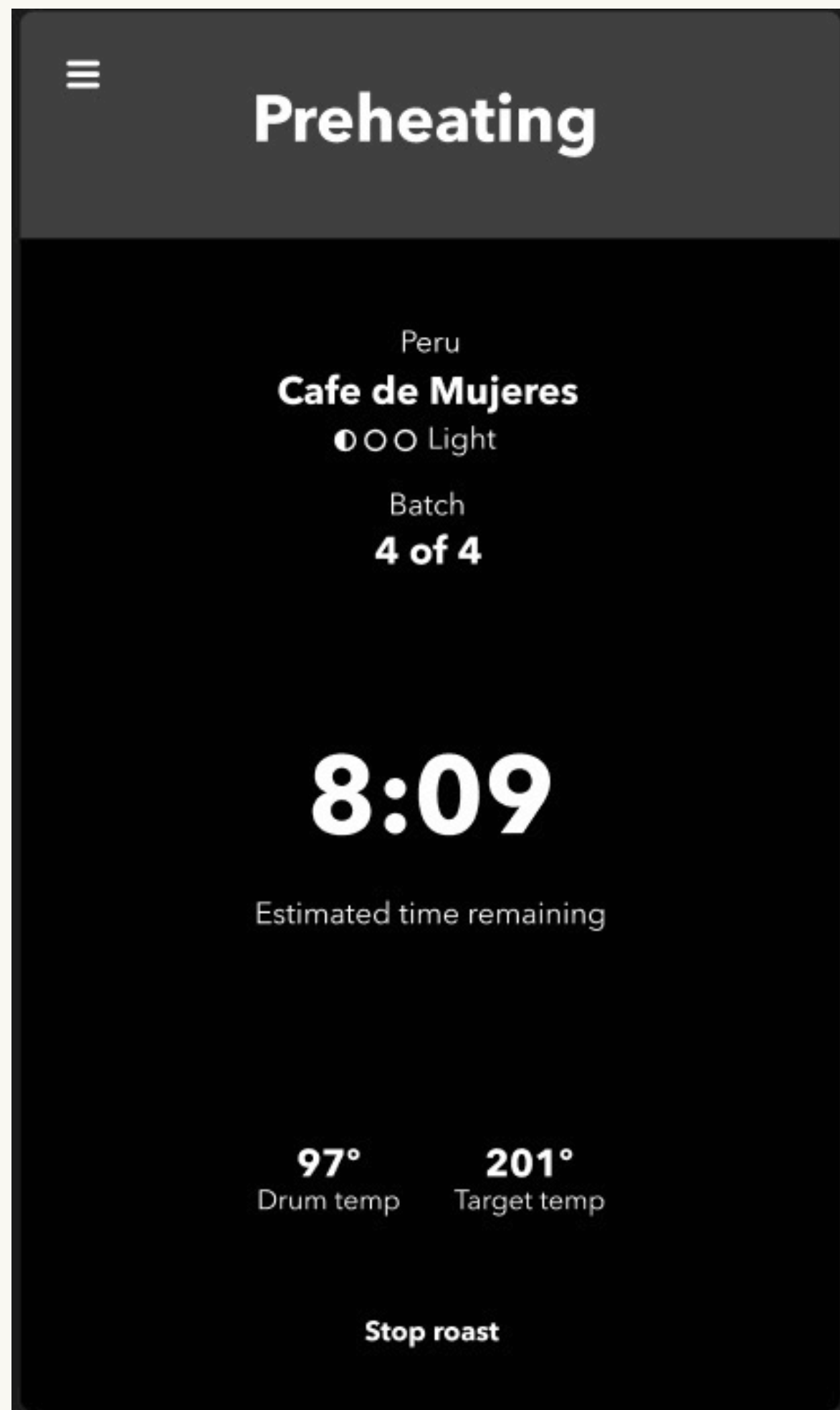
Yield Information: At the bottom of the screen, there's a note saying "Yields about ~18 lbs of roasted coffee." This gives the user an estimate of the total weight of roasted coffee they will get from the selected number of batches.

Though the roaster selects the maximum number of batches allowed by default. Users can usually swipe up or down on the slider to decrease or increase the number of batches to adjust the quantity.

Action Buttons: At the bottom, there are two buttons:

"Continue": Tapping this button would take the user to the next step.

"Cancel": This button allows the user to cancel the selection process and return to the Ready screen.



The preheating process is necessary to bring the roasting drum up to the correct temperature for roasting coffee. This screen provides monitoring and real time feedback on the status of the preheating process of a coffee roasting.

Coffee Batch Details:

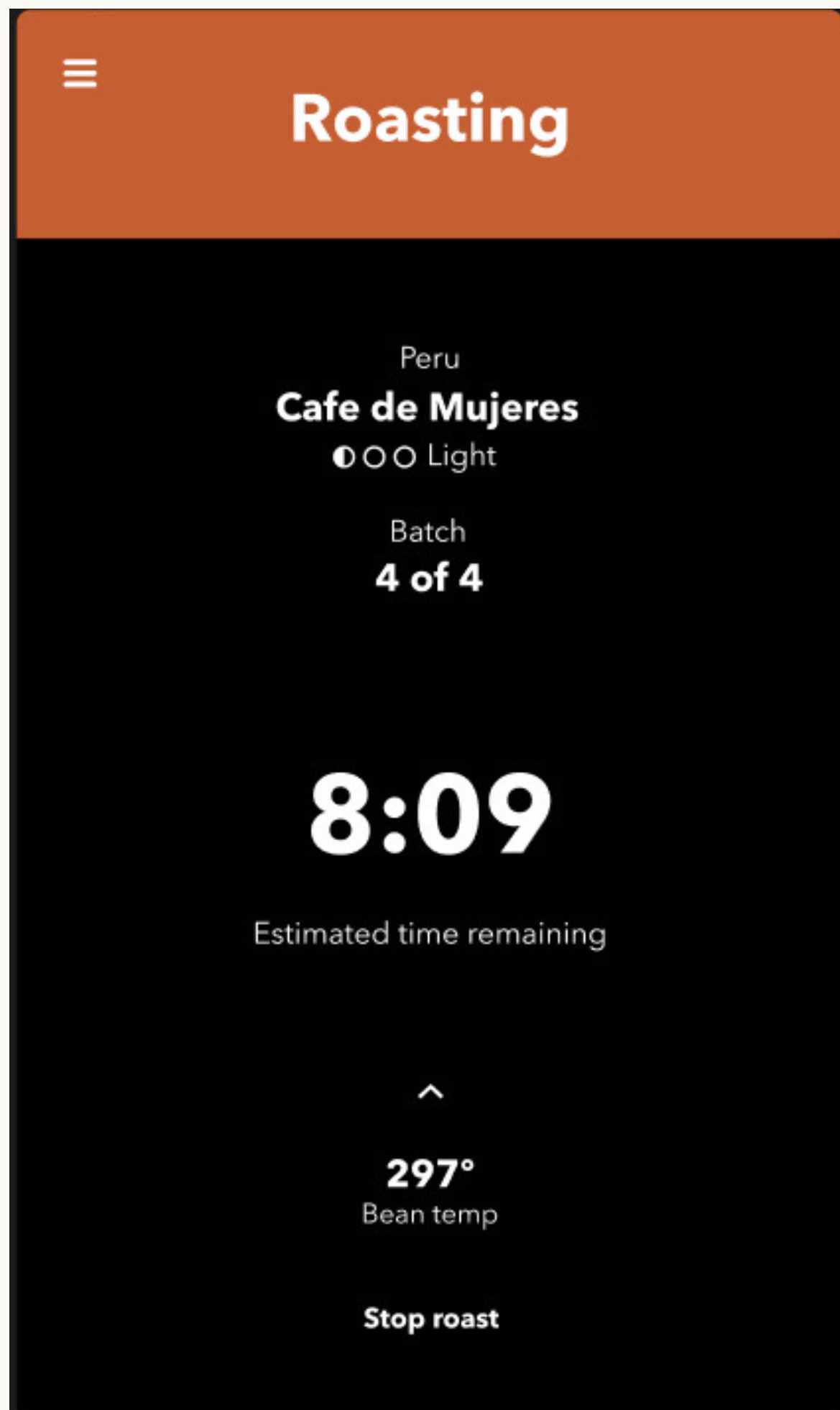
- "Peru Cafe de Mujeres Light" refers to the specific coffee being roasted. It includes the origin (Peru), the blend or lot name (Cafe de Mujeres), and the roast level (Light).
- "Batch 4 of 4" tells the user that this is the fourth batch in a sequence of four total batches being roasted.

Timer: The large numbers in the center of the screen show "8:09," which is the estimated time remaining for the preheating process to complete. This timer counts down in real-time.

Temperature Display:

- "97° Drum temp" indicates the current temperature of the roasting drum.
- "201° Target temp" shows the desired temperature that the roasting drum is meant to reach for the preheating process to be complete.

Stop Roast Button: The "Stop roast" button at the bottom of the screen allows the user to halt the preheating process.



After drum preheating is completed, coffee beans are loaded in the drum and roasting process commences. This screen provides real-time information and controls during the roasting phase

Coffee Batch Details:

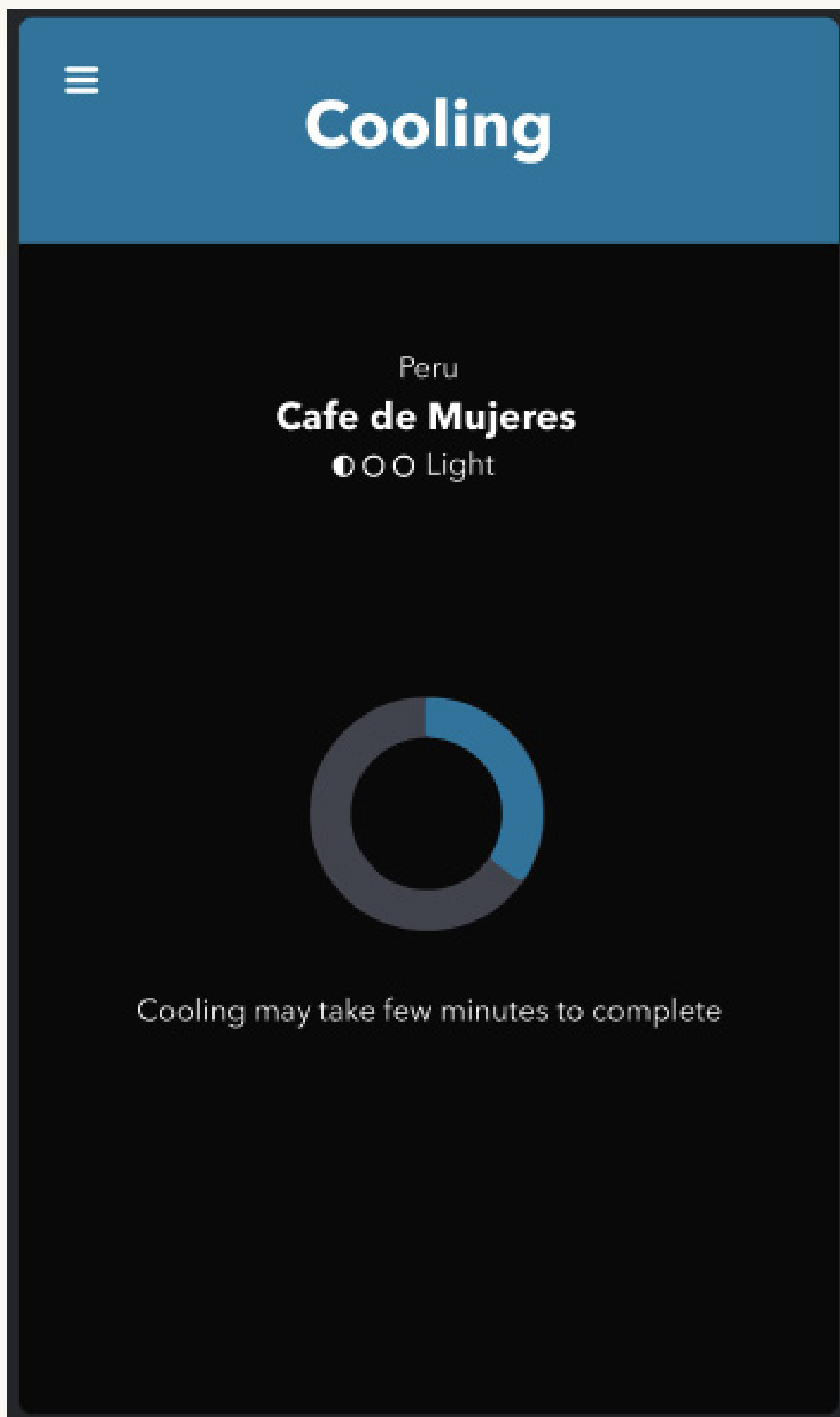
- "Peru Cafe de Mujeres Light" identifies the origin (Peru), the blend (Cafe de Mujeres), and the roast level (Light).
- "Batch 4 of 4" indicates that this is the fourth and final batch in the current roasting session.

Timer: The large display in the center "8:09" is the estimated time remaining for the roasting process to complete. This is a dynamic countdown timer.

Temperature Display:

- "297° Bean temp" shows the current temperature of the coffee beans inside the roaster.

Action Button: "Stop roast" is a button that, when pressed, will terminate the roasting process. This could be used in case the user needs to stop the roast due to an emergency, a mistake profile selection, or wrong beans loaded.



After roasting is completed, coffee beans are dropped in the bean cooler where beans are cooled. This screen provides real-time information for the cooling phase of the coffee roasting process.

Coffee Batch Details:

- "Peru Cafe de Mujeres Light" identifies the origin (Peru), the blend (Cafe de Mujeres), and the roast level (Light).
- "Batch 4 of 4" indicates that this is the fourth and final batch in the current roasting session.



This screen indicates the completion of a coffee roasting for the batch. After cooling is completed, beans will exit into the Bean Collector, and the roaster will proceed to roast any pending batches.

Coffee Batch Details:

- "Peru Cafe de Mujeres Light" identifies the origin (Peru), the blend (Cafe de Mujeres), and the roast level (Light).
- "Batch 4 of 4" indicates that this is the fourth and final batch in the current roasting session.

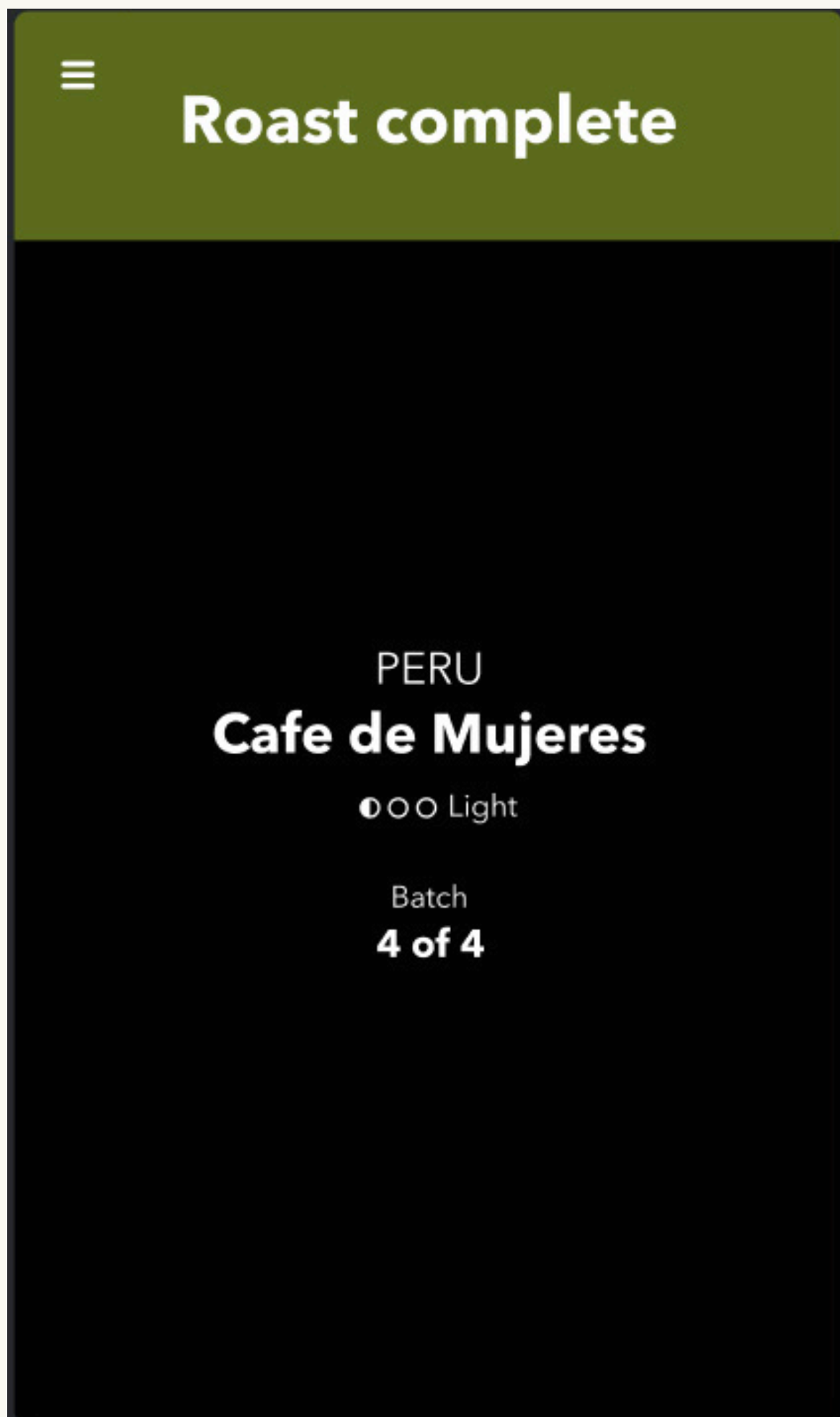
Roast and Cooling Times:

- "10:04 Roast time" indicates the duration of the roasting process for the batch.
- "3:00 Cooling time" indicates the time spent on the cooling process.

Temperature Readouts:

- "97° End temp" shows the final temperature of the beans at the end of the roast
- "201° Charge temp" indicates the initial temperature of the drum when the roasting started.

If there are pending batches then the roaster will continue to roast the next batch. If this is the last batch of the roast then the user will be navigated to the roast completion screen.



The green bar at the top with the text "Roast complete" indicates to the user that the roasting process for all of the batches for the current roast is finished. This screen provides the summary for the roast to the user.

Coffee Batch Details:

- "Peru Cafe de Mujeres Light" identifies the origin (Peru), the blend (Cafe de Mujeres), and the roast level (Light).
- "Batch 4 of 4" indicates that this is the fourth and final batch in the current roasting session.

This screen is displayed to the user for a few seconds and the roaster application will navigate the user to the next step of bean collection from the bean collector.



The white bar at the top with the text "Empty beans" indicates to the user that the roasting process for all of the batches for the current roast is finished and the user should remove the roasted beans from the bean collector.

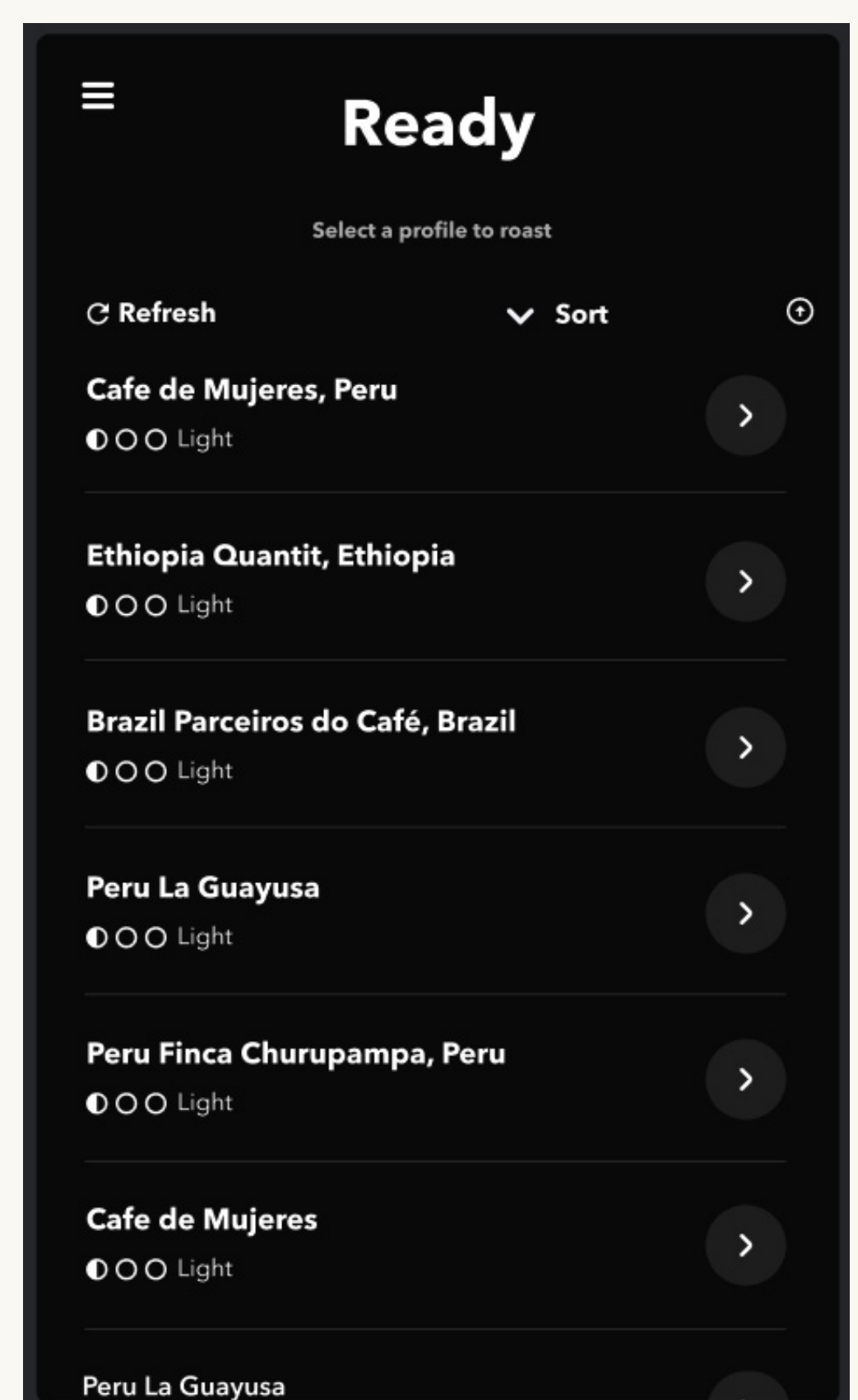
Coffee Batch Details:

- "Peru Cafe de Mujeres Light" identifies the origin (Peru), the blend (Cafe de Mujeres), and the roast level (Light).
- "Batch 4 of 4" indicates that this is the fourth and final batch in the current roasting session.

It is important to remove the beans from the bean collector after the roast is complete to avoid overflowing or mixing different kinds of beans. In order to remove the beans pull out the latch for the bean collector. Remove the bean collector by sliding it out and empty the bean collector by transferring the beans to the desired container.

Return the bean collector back in place, and latch the bean collector by pushing in the bean collector latch.

Tap on "Continue to roast" after the bean collector is emptied and returned.



Congratulations!

We hope you enjoy roasting on your new Bellwether Shop Roaster.

Bellwether Shop Roaster
MAINTENANCE



**Bellwether
Coffee**

Periodic Maintenance and Cleaning Procedures

Levels of roaster maintenance:

- After every roast
- Daily
- Weekly
- Incidental procedures when needed

Note: The frequency of maintenance largely depends on how often you use the roaster. These time segments are suggested for normal or average roaster use. A busy roaster will have to be cleaned and maintained more often than a roaster that is used only occasionally. Adjust your maintenance schedule to suit your business needs.

Caution: Be sure the roaster is not running or turned on when you clean it. Make sure all components are cool to the touch.

After every roast :

- Wipe spilled beans and chaff off of all surfaces of the roaster.
- Wipe the roaster clean of all hand prints and fingerprints.
- Sweep up spilled beans and chaff on the floor.

Daily Maintenance

- Empty the water reservoir (Frequency is specified by the operating system based on operating mode and can be referenced under your maintenance tab on the touchscreen.)
- Empty and clean the chaff container - be sure to wipe the interior of the container clean with a scraper or cloth (see directions below).
- Clean chaff debris from the quantity two (2) pre-filters.
- Clean spilled beans and chaff from hard-to-reach areas - inside the lower cubby and underneath the bean cooling buckets. A small vacuum cleaner with brush attachment could be helpful for that task, but not required.

Cleaning the Water Bottle and Chaff Cans

Clean the chaff can as directed by the operating system. A push notification in the Bellwether app will remind you to do this and prevent further roasting until this maintenance item has been confirmed.

NOTE: You can clean the water bottle and chaff can more frequently than prompted by the roaster operating system. You will still need to Zero the counter in the Cleaning and Maintenance tab when performing this activity. If you wait until prompted by the system, a UI will pop up to guide you through this process.

WARNING: Failure to empty the chaff can and clean properly as directed can lead to a buildup of chaff into the Chaff Separator. Once this occurs, damage to the heater and clogging of the roaster air path is highly likely and will require extensive, onsite technical support to repair.

Single Batch Roasting without Bulk Collection:

1. Grip the handle and rotate the combined chaff and water bottle in the clockwise direction. The bottle should rotate approximately 30 degrees and then “fall” out of the coupling.
2. Remove the bottle from the roaster and move to an area where the water bottle can be emptied, and the chaff disposed (the chaff is a compostable material).
3. It is recommended that you first empty the water bottle into a sink before attempting to remove the chaff. Gently tilt the bottle so the water drains from the spout. (If the chaff is up to the neck of the chaff section, you may need to place your hand over the top to prevent the chaff from spilling while pouring out the water.)

WARNING: The upper surface of the chaff container can get uncomfortably hot if this activity is performed during or immediately after roasting operations. Please allow adequate time for this surface to cool or use a thermally insulated glove/mitt to protect your hand during this activity.

4. Once the water has been emptied, invert the bottle over your disposal/compost bin. It may be useful to utilize a scraper to aid in removing any hard to remove chaff.
5. Vacuum away any remaining contents inside of the chaff can or wipe clean with a dry towel at the end of the day.
6. To return the chaff and water collection bottle into the Roaster, hold the handle offset to the left approximately 30 degrees and lift up until engaged within the bayonet coupling. Rotate counterclockwise approximately 30 degrees to secure.

Multi Batch Roasting with Bulk Collection:

1. On the left side of the bulk collector, grip the horizontal handle for the chaff and water bottle tray release mechanism and pull back to disengage the seal. The handle moves approximately 4 inches.
2. Remove the chaff and water bottle tray from the bulk collector using the vertical handle to pull the tray and contents from the bulk collector and move to an area where the water bottle can be emptied, and the chaff disposed (the chaff is a compostable material).
3. Remove the water bottle from the rear of the tray and empty contents into the sink. Rinse out the water bottle.
4. Remove the chaff collection bucket from the tray and empty contents into your disposal/compost bin. It may be useful to utilize a scraper to aid in removing any hard to remove chaff.

NOTE: There may be an amount of water in the chaff collection bucket due to condensation during the roasting process. Dry this out with a towel at the end of the day to keep this clean.

5. Clean any remaining contents inside of the chaff can by wiping it with a dry towel at the end of the day.
6. To return the chaff and water collection bottles into the bulk collector, insert each into its respective location in the tray. Reinstall tray into the left side of the guide and push back until the tray slides into its fully seated position.
7. Push the horizontal handle in to fully seat the latching mechanism to seat the chaff can seal over the chaff bucket.

NOTE: The system will not perform well, and chaff will get blown around the outside of the roaster if the seal is not engaged when starting the next roast.

Clean the Pre-filters

- 1.** Grip underneath the lower, front edge of the left pre-filter in the front of the roaster and pull out straight until it comes free of the cooling system.
- 2.** Invert the pre-filter so the bottom edge is exposed and wipe any loose debris clean or wash in the sink and let dry.
- 3.** If the filter is extremely dirty, the expanded AL filters can be removed from pre-filter frame and washed in the solution that removes coffee oils and then rinsed in a soapy solution before rinsing. Ensure these filters are dry prior to reinstalling in the roaster.
- 4.** Repeat the procedure for the right pre-filter. These can be cleaned at the same time.
- 5.** If the filter inserts were removed, reinstall them into the pre-filter frames.
- 6.** Insert the pre-filters back into the roaster. The orientation is not important as they are designed to fit both positions.

Vacuuming:

While a vacuum is not required when following the cleaning recommendations above, it is helpful if one is available to prevent chaff and dust build-up on the roaster.

If you choose to use one, the spots to focus on are:

- Around the hopper of the upper section of the front panel, located at the top of the roaster.
- Inside the lower bucket cubby, located at the bottom of the roaster.
- The floor around the roaster, where green and roaster beans may have spilled or dropped.

Weekly Maintenance

- Check every surface, nook and cranny to extract spilled beans and bean chaff. A vacuum or small hand broom is recommended, but not required.

- Clean and disinfect the roaster:

DO NOT USE commercial cleaners, abrasive, or harsh cleaners or scouring pads on any part of your coffee roaster.

DO NOT USE bleach or any bleach containing or bleach-based cleaner on your roaster.

1. Before cleaning the roaster, be sure to turn the unit off. Never spray or hose down the roaster and always use caution when using any liquid to clean the surface area. Using a damp cloth will help minimize the chances of any liquid entering the roaster.

2. The outside of your roaster can be easily cleaned with mild soap and water. Make sure to rinse thoroughly and dry the exterior with a soft towel.

NOTE: It is recommended using a cleaning solution that does not have any perfumes or additives to prevent affecting the coffee stored in the container after roasting.

3. Care should be taken in cleaning the touchscreen operator's panel.

- Touchscreen should be cleaned with a microfiber cloth, and PC monitor cleaning solution if required.

- Do not wipe down the touchscreen with wet towel or allow water to drip onto the touchscreen.

- **DO NOT USE** chemical or abrasive cleaner because they may damage the touchscreen and make user interaction with the roaster impossible.

4. Remove the Black Silicone Rubber Hopper Lid from the Hopper. This is done by releasing the edge of the cover from around the Hopper and then sliding forward. Wash the Hopper Lid using soapy water and rinse thoroughly. Allow to dry prior to reinstallation.

5. Remove the Autoload Hopper Cover from the top of the unit. Wipe down with mild soap and water. Rinse thoroughly and dry before reinstalling.

6. With the Autoload Hopper Cover removed, wipe down the internal surfaces of the Autoload Hopper with a damp cloth to remove accumulated coffee bean dust and debris. Wipe out the Auger chute to remove any accumulated dust and debris.

7. Wipe down the internal surface of the Hopper and the top of the Bean Load Valve with a damp cloth to remove accumulated dust and debris.

8. Remove the roaster Drum window per the process instructions listed in "Clean Roaster Drum Window" below. With the Drum Door assembly removed, use a damp cloth to wipe down the internal surfaces of the roasting chamber to remove any chaff and debris. Pay special attention to areas around the door seal and the air inlet screen. Scrub the Door Seal flange as needed to remove any debris that may accumulate during the roasting process with a mild soap and water. Dry these surfaces prior to reinstalling the Drum Door assembly.

If there is build up of material behind the air inlet screen, pull the screen out of the inlet port and remove any debris buildup. Reinstall the Air Inlet screen in the reverse process used in pulling it out.

9. Wipe down the internal and external surfaces of the Bean Cooling Bucket using a mild soap and water. Allow to dry thoroughly before reinstalling in the roaster.

10. Clean bean bucket- remove and wash internal surfaces of the bean bucket with soapy water. Rinse thoroughly and allow to dry before reinstalling into the roaster.

NOTE: It is recommended using a cleaning solution that does not have any perfumes or additives to prevent affecting the coffee stored in the container after roasting.

Clean Roaster Drum Window

WARNING: Only clean the drum window when the roaster is powered down and the glass is completely cool.

1. Remove the front bezel from around the glass by gripping its edge and rotating approximately 30 degrees in the counterclockwise direction. It will stop and you can pull the bezel away from the glass frame.

2. Pull outward on the quantity three (3) Cam levers to release the pressure on the door. Once the pressure from the Cam is released, with the lever facing straight out, rotate the handle of the lever to unscrew the lever assembly from the drum. Repeat for the other two levers.

3. When all three (3) screws are free, grab the edge of the window frame and pull out. The window will come free of the roaster. (The safety glass is a part of this assembly and will come free as well.) **CAUTION:** This assembly is a little heavy due to the frame and thickness of the Drum glass.

4. The easiest way to clean the glass is to use a straight razor blade to scrape the coffee residue from the glass.

WARNING: Please be careful if using this method to clean the glass as the razor is very sharp.

5. Once the majority of the coffee residue has been scraped from the window, use a glass scrubbing pad and warm/hot water to remove any final residue.

NOTE: DO NOT USE soap or cleaning solution with a fragrance or residue as this could negatively affect the final coffee product.

6. Dry the glass thoroughly with a microfiber cloth.

7. Reinsert the Drum Window assembly back into the roaster. (It can rest on the edge of the frame while holding the top portion to make sure it doesn't fall). Secure the Drum Door assembly to the roaster by re-inserting the three (3) lever assemblies by means of reversing the steps taken in Step 2 above. You may need to add or remove a rotation as needed to apply proper force to the door with the lever activated cam. Fine adjustment of the pressure on the door can be made using the adjusting nut at the bottom of the lever assembly as needed.

8. Reinstall the Bezel by reversing the steps taken in Step 1 above.

| Frequency | Maintenance Procedure | Tools |
|---|--|---|
| After every roast | Wipe spilled beans and chaff off of all surfaces. | <ul style="list-style-type: none"> • White Cloth • Receptacle to hold beans and chaff. |
| | Sweep up spilled beans on the floor. | <ul style="list-style-type: none"> • Broom • Whisk tray |
| As prompted by Maintenance Tracking App | Empty Chaff Can and Water Bottle | <ul style="list-style-type: none"> • Sink • Compost or other disposal receptacle |
| | Wipe roaster clean of all handprints and fingerprints. | <ul style="list-style-type: none"> • White Cloth |
| Daily | Clean the chaff can and water bottle - be sure to wipe the interior of the container clean with a cloth. | <ul style="list-style-type: none"> • Cleaning Cloth • Trash Can |
| | Clean Pre-filters | <ul style="list-style-type: none"> • Wipe or Vacuum |
| | Wipe clean hard to reach places to remove green beans and chaff debris. | <ul style="list-style-type: none"> • Wipe • Hand brush/broom • Vacuum |
| Weekly | Check every surface, nook, and cranny to extract spilled beans and bean chaff. | <ul style="list-style-type: none"> • Wipe • Hand brush/broom • Vacuum |
| | Clean roaster Drum window (if desired) | <ul style="list-style-type: none"> • Warm Water • Non-abrasive cloth • Razor |
| | Wash external surfaces | <ul style="list-style-type: none"> • Cleaning solution • Warm Water • Cleaning Cloth |



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Coffee**

Our team is here for you.
support@bellwethercoffee.com