

 AIR-MOTION **3**



 AIR-MOTION **6**



 AIR-MOTION **12**



# User Manual



AIR-MOTION **3**  
AIR-MOTION **6**  
AIR-MOTION **12**

# For Your Safety

Air-Motion Roasters™ has taken every possible precaution to ensure safe operation and an efficient machine. The incorporated safety devices protect operators and authorized technicians.

Carefully read this manual before installing, starting, and using the machine. Failure to observe these instructions may cause damage to the machine, poor performance, and risks to health or personal injury.

This manual is an integral part of the machine and must always be available to the user and/or maintenance technician. In case of loss or if you require further information, contact the manufacturer.

This manual reflects the state of technology at the present time and cannot be considered inadequate for any subsequent updates. The manufacturer reserves the right to modify the manual without the obligation to update previous versions, except in exceptional cases.

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# Part 1: Safety Standards



# PART 1: Safety Standards

## Read First!

1. Before installing the Air-Motion Roaster™ (Roaster), check that the dedicated area is compatible with the size and weight of the machine. See the Appendix for [roaster specifications](#).
2. Do not install the Roaster near heat sources.
3. Do not use the Roaster with wet hands or bare feet.
4. Before cleaning and/or servicing the Roaster and before removing any guard, **check that the main switch is set to OFF** so that power to the Roaster is cut during the operation.
5. The purchaser's power supply system must be fitted with an automatic breaker upstream of the roaster's main switch and a suitable grounding system that meets all accident prevention regulations.
6. If you need to operate on or near the main switch, cut the power to the line to which the main switch is connected.
7. **Do not remove any safety devices.**
8. To prevent personal risks, only use suitable tools compliant with national safety standards.
9. In case of the Roaster malfunctioning or damage to the components, contact our Air-Motion Roasters™ USA team. See [contact information](#) at the end of this User Manual.
10. These safety standards integrate or balance local safety regulations.
11. In case of doubt, always request the intervention of the specialized technician provided by Air-Motion Roasters™ USA.
12. **Any electrical/electronic or mechanical tampering with the Roaster by the user and negligent use of the Roaster relieve the manufacturer of all responsibilities. It makes the user solely responsible toward the competent bodies for the prevention of accidents.**

## It Is Prohibited To:

1. Operate the Air-Motion Roaster™ (Roaster) without observing the safety rules in force in the country of installation.
2. Operate the Roaster if it is not connected to a suitable grounding system. Failure to observe this instruction may give rise to electric shock.
3. Replace or remove the safety decals and the data plate affixed directly on the Roaster for proper installation and use.
4. Place your hands or arms directly inside the Roast Chamber during operation, as Roaster parts are hot and can cause burns.
5. Remove or tamper with any part of the roaster and make arbitrary modifications. If necessary, contact the authorized and specialized technician provided by our Air-Motion Roasters™ USA team.
6. Pull the power cable to disconnect the power/plug.
7. Use adaptors, multiple sockets, and/or extensions.
8. Use the Roaster if any of the cables are frayed or damaged.
9. Let children or unqualified/untrained persons use/operate the Roaster.
10. Expose the Roaster to atmospheric agents (sun, rain, etc.).
11. Leave the Roaster in places where the ambient temperature is equal to or below 32°F, as the residual water in the dousing system could freeze and cause damage.
12. Install the Roaster in places where water jets that could reach the Roaster are used.
13. Operate the Roaster if all the doors (chaff collector, exit chute) or panels are not properly closed.
14. Insert any objects other than coffee beans into the Roast Chamber or inner parts of the Roaster.
15. Operate the Roaster without the required electricity, without water, or without the required extraction system in place.
16. Obstruct the vents; install the required extraction system and leave at least 24 inches of space between the roaster and any walls on either side to allow proper ventilation.

## For Proper Functioning, Use:

- Only raw coffee beans.
- Only fresh mains water supply.
- Only original Air-Motion Roaster™ spare parts.

**Failure to comply with these instructions will result in forfeiture of the warranty, and the manufacturer or the maintenance technician will decline all responsibility.**

## Air-Motion Roasters™ and Its Dealers Decline All Responsibility in the Following Cases:

- If the Roaster is used in ways different from those described in this User Manual.
- If the safety and maintenance rules are not complied with.
- If original Air-Motion Roaster™ spare parts are not used.
- If the **INSTALLER** or **MAINTENANCE TECHNICIAN** is not authorized or specialized.

## Installer/Maintenance Technician Responsibilities

The INSTALLER or MAINTENANCE TECHNICIAN must:

- Inform the manufacturer of POSSIBLE MALFUNCTIONS or MISUSE that could affect the original safety of the system.
- Check the conditions of the components, and if defective, stop the installation and ask for their replacement.
- Disconnect the power and turn off the water supply (if connected) if the Roaster is not to be used for a long period of time.

### 1.1 Machine Description

The main features of the Air-Motion Roaster™ are listed below:

- **Roast Chamber** houses blowers and heating elements for elevating coffee beans, heating them up, and roasting them.
- **Exit Chute** dispenses roasted coffee beans into a cooling tray.
- **Cooling Tray** cools down the beans to room temperature after they have been roasted.
- **Direct water connection and dousing system** stops and cools beans after a roast.
- **Cyclone, Chaff Collector, and Extraction System** remove dust, chaff, and smoke from the Roast Chamber during the roast, dispensing the chaff into a Chaff Collector for dispersal and extraction for dispersing diluted smoke and heated air out of the roasting room.

- **Touchscreen and Control Panel** control the roast profile, record information, and graph the roast profile in real time.

## 1.2 Intended Use

The Air-Motion Roaster™ has been designed and constructed for professional operators and solely for the roasting of coffee beans from their raw state to a roasted state. **It may only be used for this purpose; any other use is to be considered improper and, hence, dangerous.**

## 1.3 Incorrect Use

The Air-Motion Roaster™ has been designed and constructed exclusively for the roasting of coffee beans. It is therefore prohibited to:

- Introduce any liquids to the Roaster other than that provided for in the dousing system.
- Heat other food items or non-food items, or any other substances.
- Introduce ground substances/coffee to the Roast Chamber.
- Place other objects other than raw coffee beans into the Roast Chamber.
- Place cups or containers containing liquids on any part of the Control Panel or Roaster.
- Obstruct vents with cloths or other materials.
- Touch or place hands and arms into the Roast Chamber while operating the Roaster.
- Use the Roaster if it is wet or standing in water.

### **IMPORTANT!**

**THE ABOVE LISTS ONLY A FEW REASONABLE FORESEEABLE MISUSES. THE ROASTER MUST, IN ALL CASES, BE USED ACCORDING TO THE INSTRUCTIONS GIVEN IN THE PARAGRAPH “INTENDED USE” (1.2).**

## 1.4 Preparation by the Purchaser

### **Preparation of Installation Location**

The purchaser must prepare a proper support surface for the Roaster.

### **Electrical Preparation**

The electric system must comply with national regulations in force in the place of installation and have an efficient ground system. **The power cables must be sized according to the maximum current required by the Roaster so that the total voltage drop at full load is less than 2%.**

### **Water Supply Preparation**

Prepare a water main supply as required by the specifications of the Roaster with a shut-off valve located upstream of the machine.



## 1.5 Emergency Operations in Case of Fire

In case of a fire in the Roast Chamber, switch the MODE dial from ROAST mode to OFF mode or the WATER dial to ON mode. This will turn the elements off in the Roast Chamber and douse the beans. If it is an electrical fire, do not use water but extinguish the fire with a suitable fire extinguisher. **When the Roaster is powered, it is prohibited to extinguish a fire with water.**

## 1.6 Risk of Explosion

The Roaster is unsuitable for use in environments with any risk of explosion.

## 1.7 Operator Areas

The Roaster is designed for one operator to stand in front of it between the Control Panel and the Roast Chamber to operate it safely and easily.

## 1.8 Areas with Residual Risk

Residual risk areas are areas that cannot be protected because they serve a specific purpose; for the Air-Motion Roaster™, these are the following:

- The Roast Chamber for roasting the coffee beans. **There is a risk of burns in this area.**

## 1.9 Hazardous Areas

**Hazardous areas are all the areas inside the Roaster protected by safety guards where the technician may operate during repairs. Only a technician may access these areas.**

This concludes PART 1:  
Safety Standards



## Part 2:

# Roaster System Setup



# PART 2: Roaster System Setup

## Step 1: Test Water Supply

Test the yellow override switch to ensure the water mains are on. Pull the Roast Chamber forward and place a small container underneath the dousing nozzle. Then, turn the yellow override switch on and off to ensure there is water.

## Step 2: Adjust Water Dousing

On the Touchscreen:

- Press the SETTINGS icon (the wrench) to open the SETTINGS window.
- Press the WATER DOUSING button to adjust the water dousing to the correct time required:
  - 20 to 25 seconds should be adequate for the 3 kg and 6 kg roasters
  - 30 to 35 seconds should be adequate for the 12 kg roaster

To deactivate the water dousing feature, set the WATER DOUSING OPTION button (just above the WATER DOUSING icon) to 0. (Set to 1 to re-activate.)

## Step 3: Check Graph/Save Setting

Remain in the settings window and ensure the graph/save setting is set to 1. This activates the SAVE OR VIEW graph that appears after the roast.

## Step 4: Save Your Settings

You may now close this window by pressing the BEAN icon.

## Step 5: Control Extraction Airflow

To control the airflow and direct it to the Extraction Hood, move the wooden handle 90 degrees to the right away from you. Then, move the wood handle on top of the Cooling Tray ducting where it attaches to the Cyclone to face you.

Place your hand under the Extraction Hood to ensure suction. When the roast is over and you've dumped the beans into the Cooling Tray, reverse this procedure to direct airflow to the Cooling Tray.

## Step 6: Touchscreen Applications

Your Touchscreen is Bluetooth- and Cropster/Artisan-ready, with the icons appearing in the bottom left of your Touchscreen.

## Helpful Tips

The coffee beans continue to lose weight due to chaff and moisture loss during the roast cycle, so they get lighter during the roast. You must keep an eye on the beans and

continually lower the airflow in the Roast Chamber by turning back the BLOWER dial. This will lower the beans in the Roast Chamber and prevent them from blowing out.

**PRO TIP #1:** Always turn the BLOWER dial up or down by looking at the blower percentage on your Touchscreen and lowering the airflow by 1-2% at a time — instead of lowering the airflow by eye, or watching the beans lift or drop. This dial is quite sensitive, so if you overshoot, you might panic and either drop your beans completely or turn up too quickly, and the beans will end up on the floor.

**PRO TIP #2:** Before you start roasting, switch on the CYCLONE, put your desired amount of beans in the Roast Chamber, and without switching the Roaster to ROAST mode, practice lifting and lowering the beans in the Roast Chamber until you get used to it. You may even want to simulate the beans dropping in the Roast Chamber. You can do this by turning the BLOWER dial to “0” to simulate this. Follow the instructions above a few times to practice before you start your first roast.

You are now ready to roast! Please proceed to the next section, [Roasting Procedures](#).

This concludes PART 2: Roaster System Setup



# Part 3: Roasting Procedures & Refining Your Roast



# PART 3: Roasting Procedures on the Air-Motion Roaster™

[View Instructional Video](#)

After completing your [Air-Motion Roaster Setup](#), you are now ready to begin your roast. Roasting on an Air-Motion Roaster™ couldn't be more simple or more straightforward.

You are the 'pilot' of your roast. A pilot navigates a plane in two ways: by sight and by using instruments. At different points in a flight, the pilot can look through the window for familiar landmarks, or they'll rely on equipment to monitor progress. The same applies to your interaction with your roast on an Air-Motion Roaster™.

With our patented Open Chamber Roasting, you can control and adjust your roast by sight. The touchscreen Interface's real-time tracking and graphs allow you to plot your roasting course.

While you have full creativity over your unique roasting technique, if you consider the below tested and proven roasting procedure as your flight path, we guarantee you'll 'land the plane' with a consistent, clean roast.

## **Quick Note About Preheating**

Air-Motion Roasters™ DO NOT require preheating and are designed to start a roast from a normal ambient temperature. Air-Motion Roasters™ roast with instantly heated air and is specifically built with a highly efficient bank of heating elements and airflow system and a stainless-steel Roast Chamber. These specially designed elements react instantly when being turned on, turned up, or turned down, providing heat instantly when the roast is initiated and switching off instantly when needed.

In colder ambient temperatures, you can switch the MODE dial to PRIME mode to bring the Roast Chamber to a double-digit temperature prior to roasting.

## **Step 1: Check Control Panel**

Make sure all dials on the Control Panel are in the OFF or ZERO position.

## **Step 2: Turn On Roaster**

Turn the Roaster on using the main ON/OFF switch on the left-hand side of the Roast Chamber.

**Step 3: Set Target Temperature**

On the Touchscreen control, set the desired target temperature, which will end the roast automatically.

**Step 4: Check Roast Chamber**

Use the handle on the Roast Chamber console to pull it forward and gain access. Verify the Exit Chute discharge door is closed and that the Roast Chamber is clear.

**Step 5: Turn On Cyclone**

Set the CYCLONE control dial to the ON position.

**Step 6: Turn On Blower**

Turn the BLOWER control dial to 10%.

**Step 7: Load Your Beans**

Pour your green beans into the Roast Chamber.

**Step 8: Place Roast Chamber Screen**

Place the Roast Chamber Screen onto the Roast Chamber.

**Step 9: Return Roast Chamber Console**

Push the Roast Chamber console back so it sits directly under the Extraction Hood.

**Step 10: Clean the Beans**

Turn the BLOWER control dial up gently so that the coffee beans lift to a height where they touch the Roast Chamber Screen.

**Step 11: Turn Up the Heat**

Turn the HEATER control dial to the initial setting, normally between 90% and 100%.

**Step 12: Reduce Blower Speed/Lower Beans**

Gently lower the beans in the airflow by reducing the Blower speed to a comfortable height so that the Roast Chamber Screen can be removed.

**Step 13: Replace Bean Retainer Handle**

Replace with the Bean Retainer Handle. When you become more confident in your roasting and establish a comfortable roast height, you may choose to roast without the Bean Retainer Handle and roast by sight.

**Step 14: Begin Your Roast**

Switch the MODE control dial to the ROAST position, passing through the PRIME position, in order to start the roast and activate the graphs on the Touchscreen. Your roast has now started.

### **Step 15: Keep Your Beans Lifted**

Keep the beans lifted in the airflow at all times. Beans become lighter during the roast, so you must reduce the Blower speed to maintain proper height.

### **Step 16: Prepare for First Crack**

When the coffee beans reach the First Crack, they produce a sound like popcorn popping. As soon as you can hear 3 to 4 consistent pops in a row, press the BEAN icon on the Touchscreen, and the Roaster will start recording the following information: First Crack Temperature, First Crack Start Time, Development Percentage, and Development Time. For more details on managing your roast, see the next section, [Refining Your Roast](#).

### **Step 17: Reduce Bean Height**

Before reaching the target temperature, if using the Bean Retainer Handle, first slightly reduce the height of the beans in the Roast Chamber so you can comfortably remove it. This also allows the water dousing (if activated) to occur without obstruction.

### **Step 18: End of Roast**

Once the target temperature is reached, the roast will end automatically.

### **Step 19: Prepare Cooling Tray**

When the water dousing stops, place the Roast Chamber Screen onto the Roast Chamber. Switch on the Cooling Tray. Divert airflow away from the Extraction Hood to the Cooling Tray.

### **Step 20: Dump Your Beans**

The beans may now be dumped into the Cooling Tray via the Exit Chute.

And that's it! May you have many successful roasts ahead with your Air-Motion Roaster™.

Most importantly, don't forget, it's all in the taste.

### **Tip: To Reset Roaster for Next Roast...**

- Turn the BLOWER control dial to 100% to cool off the Roaster.
- Turn the HEATER control dial to 0%.
- Switch the MODE control dial back to the OFF position and wait 60-90 seconds. (The Roaster needs to be cooled to less than 176 degrees Fahrenheit)



# Refining Your Roast

The Air-Motion Roaster™ (Roaster) has an amazing capacity and power that allows you to play with your roast profiles by dialing back the temperature to create more development in the different roasting phases.

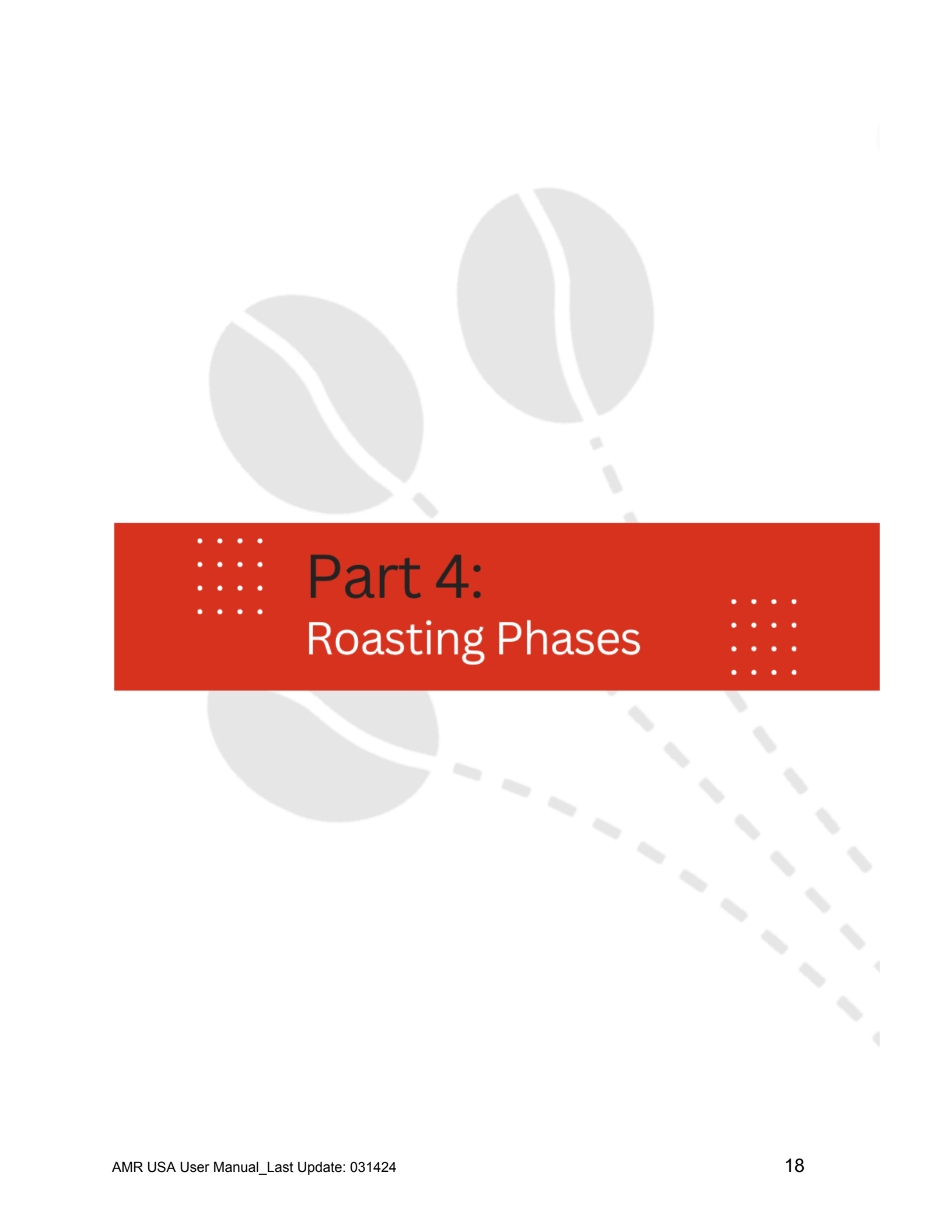
As you control the temperature at different phases, remember these two guidelines:



1. **Do not dial back more than 30%.** Your roast will likely stall due to too much cold air being sucked into the Roaster. We recommend not letting your beans' Rate-of-Rise (RoR) drop below 35°-37°F. If your RoR does drop lower than that, then dial up the heat again to get the beans back on track.
2. **Do not dial back too early.** This will result in the Roaster not having enough energy to complete the roast. As you experiment, you'll find your sweet spot.

The following bean time and temperature parameters that our Air-Motion Master Roaster has provided might serve as a helpful guide, but remember that it is only that. Don't worry if your Roaster doesn't perform the exact same. You have a lot of control over your roast, so just experiment to define your own parameters based on the type of roasting profile you prefer.

TIME (IN MINUTES)	TEMPERATURE	ROASTING PHASE
1:00 - 3:00	Steady rise to 212°F	Start of Roast
3:00 - 3:20	212°F	Drying/Yellowing begins
3:20 - 5:00	Steady rise in temp	Drying/Yellowing
5:00	Steady rise in temp	Drying/Yellowing ends
5:30	284°F	Browning
5:30 - 7:00	Steady rise in temp	Browning continues
7:00	320°F	Maillard Reaction
7:00 - 9:30	Steady rise up to 379.4°F	First Crack at 9:30
9:30 - 12:00	379.4°F	Roast development/2nd Crack
12:00	379.4°F	End of roast

This concludes PART 3:  
Roasting Procedures and Refining Your Roast on the Air-Motion Roaster™



 **Part 4:**  
Roasting Phases 

# PART 4: Roasting Phases of the Air-Motion Roaster™

## Phase 1: Turn-Around

There's no turn-around on an Air-Motion Roaster™ (Roaster), so there's no need to preheat the Roast Chamber. When cold beans are dumped into the hot roast chamber of a drum roaster, this causes a dip in the roast chamber temperature.

When the beans and drum roaster's roast chamber reach the same temperature, the temperature moves from a negative Rate-of-Rise (RoR) to a positive RoR. This 'turn-around' time may take between 1 to 2 minutes.

However, when you start a roast on an Air-Motion Roaster™, the Roast Chamber and beans immediately increase in temperature, eliminating the time needed to heat up the Roast Chamber and for turn-around to occur.

## Phase 2: Drying

Raw coffee beans contain 12-14% moisture. When the Roaster is turned on with the raw beans in the Roast Chamber, it will look as if nothing is happening during the first few minutes. However, be assured that the beans *are* warming up. They'll start slightly expanding and shed their thin papery skin, or chaff. A large amount of energy is required for this first part.

About 2-3 minutes into the roast, the water contained inside the beans will begin to evaporate. As this happens, the bean changes from bright green to yellow. This drying phase may also be called the 'yellowing phase.' The aroma coming off the beans at this stage resembles yeast or fresh-baked bread notes.

## Phase 3: Browning

In this phase, the coffee beans have dried out and go from a bright yellow color to caramel to tan before turning brown. The aroma at this stage becomes sweeter and resembles pancakes or waffles. This phase is also known as the Maillard Reaction, where the sugars, amino acids, and other chemical reactions begin to activate.

## Phase 4: First Crack

As the coffee beans have browned and initiated the Maillard Reaction, gases (in particular, Co<sub>2</sub>) and water vapor have built up in them. When this pressure is finally released, the beans will begin to emit an audible cracking sound, similar to that of popcorn popping.

At this point, the coffee beans have been roasted enough to be used for making coffee. However, depending on your preferred roasting profile, you decide when the roasting stops.

Light roast coffee is usually stopped on or just after First Crack, and you'll usually get the real flavor of the bean at this point. However, the acidity might be quite high, and you may get a lot of sourness — especially when making an espresso.

## Phase 5: Roast Development

This phase is where the delicate art of coffee roasting comes into its own, due largely to roaster preference. The final flavor is mainly determined by how long the beans are subjected to heat after First Crack.

Longer roasting time produces a less acidic and sweet bean due to the sugars and acids caramelizing. Think about the sweetness of simple syrup compared to caramel or molasses. As heat is applied to sugar, less sweetness is present. The same is true inside the coffee bean.

The coffee bean becomes browner and smoother. There are various terms to describe the roast level during this phase: From 'Cinnamon' to 'City' to 'Full City' — this is essentially the medium roasted phase, and the coffee undergoes a transformation into something wonderful!

## Phase 6: Second Crack

At the end of the development phase, the beans begin to crack again. This time, it's a sharper, cracklier sound, like the sound of a bonfire, and signifies that the bean's structure is beginning to break down. The beans become darker, oils will appear on the surface, and they'll start to look a lot shinier.

The French or Italian roast stage follows First Crack, and, essentially, the original and unique flavor of the coffee has been lost. The bitterness is high because the coffee has essentially been burnt.

If you want to explore the different flavors of each origin, then these dark roasts may not be for you. The uniqueness has gone, and a coffee from Brazil will taste very similar to one from Ethiopia.

## Phase 7: Degassing and Resting Period

After the coffee has been roasted and cooled, it needs to be placed into a storage container. During the first 2-3 days, the coffee releases a Co2 gas and degasses. After this, it is recommended to continue to store the roasted beans for up to 10 days for the coffee to settle and fully develop its final flavor.

## Phase 8: Tasting Your Coffee

This is definitely the bonus phase! It's time to make yourself a delicious cup of coffee and enjoy the efforts you have put into it. Enjoy and remember, with Air-Motion Roasters™, it's all in the taste!

This concludes PART 4:  
Roasting Phases of the Air-Motion Roaster™



# Part 5: No Pre-Heating Procedure



# PART 5: No Pre-Heating Procedure

## [View Instructional Video](#)

An Air-Motion Roaster™ is NOT a drum roaster. Drum roasters require pre-heating before commencing a roast. Air-Motion Roasters DO NOT require pre-heating at all.

During winter, when ambient temperatures are in the lower single digits or negative degrees, one may use the PRIME function to heat the Roast Chamber to a double-digit temperature prior to roasting.

In our [No Pre-Heating Procedure video](#), the ambient temperature prior to roasting was 26.6 degrees Celsius (79.9 degrees Fahrenheit). Beans were then deposited into the Roast Chamber at ambient temperature. For the purposes of the video, the element power was only set to 90%.

- The roast began, and within one minute, the element/air temperature had risen to over 163 degrees Celsius (325.4 degrees Fahrenheit).
- By 1:30 minutes, the element/air temperature rose to over 200 degrees Celsius (392 degrees Fahrenheit), and the temperature kept rising.

The Air-Motion Roaster™ has been specifically built and designed with a highly efficient bank of heating elements and airflow system and a stainless steel Roast Chamber. These specially designed elements react instantly when turned on, turned up, or turned down — providing heat instantly when the roast is initiated and switching off instantly when needed.

In our video, the roast managed to reach all parameters required, First Crack started at 191.1 degrees Celsius (375.9 degrees Fahrenheit) — a development percentage of 19.1% in 2 minutes, 18 seconds — and the roast ended at 12 minutes. The outcome was fantastic, with good bean development. The Maillard Reaction and development phases were stretched, resulting in reduced acidity and increased sweetness from the beans.

The Air-Motion Roaster™ is designed to start a roast from normal ambient temperature with no required pre-heating or charging of the Roast Chamber. Remember, we roast with instantly heated air at a pace that takes the coffee bean through the different phases in the roasting process in the right amount of time, allowing enough bean development in each phase. This is definitely a different technology from the drum roasting technology.

The Air-Motion Roaster™ gives the coffee bean the attention and love it needs throughout the roasting process, resulting in a great cup of coffee.

This concludes PART 5:  
No Pre-Heating Procedure



# Part 6: Power Failure Procedure





# PART 6: Power Failure Procedure

[View Instructional Video](#)

In case of power failure:

## **SCENARIO**

Power has just been cut, and your Air-Motion Roaster™ has stopped roasting. Beans will drop into the Roast Chamber, which could cause them to burn.

## **STEP 1:**

Don't panic. Open the Exit Chute door and drop the beans into the Cooling Tray.

## **STEP 2:**

The beans will pile up at the Exit Chute within the Cooling Tray. Have an aluminum scoop handy to spread the hot beans into the Cooling Tray and prevent them from spilling out.

## **STEP 3:**

Some beans will not have exited the Roast Chamber, as it requires the blowers to blow them out of the Exit Chute door. These beans will have been in contact with the hot Roast Chamber and could start smoking.

In this case, turn on the water override switch for only a few seconds, allowing the fine mist of water to cool down the beans and stop them from smoking. PLEASE DON'T KEEP IT ON FOR MORE THAN A FEW SECONDS. WE DON'T WANT WATER FLOWING INTO THE ELEMENT CHAMBER.

## **STEP 4:**

Use the aluminum scoop to scoop the remaining beans out of the Roast Chamber through the Exit Chute door.

Done! As simple as that.

This concludes PART 6:  
Power Failure Procedure



# Part 7: Appendix





## **3 KG Specifications**

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## AIR-MOTION 3 QUICK SPECIFICATIONS

- Overview:**
- Operator has total, full-variation control of convection and conduction heat transfer via a patented "Open Chamber Roasting" fluid-bed 3 kg air-roasting chamber.
  - All electric. No fuel or afterburner needed.
  - Extremely low emissions. Environmentally smart.
  - Clean, consistent roast every time.

## CAPACITY/OUTPUT

**Batch Size:** Max 3 kg roasting capacity (6.5 lbs of green beans)

**Roast Time:** 8-12 minutes (dependent on roast level)

**Output:** Max 25 lbs/hour; 200 lbs/day (based on 8-hour day)

## DATA LOGGING

**Internal:** 5 real-time graphs: bean temp, heater temp, RoR bean temp, RoR heater temp, and saved profile curve line

## CONTROL POINTS

- Integrated touchscreen control panel
- Presetting profile parameters
- Fast-reacting thermocouples
- Quick-response heat transfer
- Speed controller to adjust bean lifting height during roasting

## ELECTRICAL REQUIREMENTS

**Single-Phase:** 240V // 60 Hz // 58.3 Amps

**Three-Phase:** 240V // 60 Hz // 33 Amps

## COMPONENTS

**Air Flow:** High-efficiency 2 kW heater blower

**Cooling:** Optional 30-40 second water dousing system for high-speed bean cooling

**Extraction:** Centrifugal type extraction fan (2.2 kW 1ph, 1.3 kW 3ph) immediately moves dust, smoke, and chaff from roast chamber

**Heating:** 10.5 kW Nichrome plated electrical spiral elements

**Roast**

**Chamber:** Stainless steel construction, durable, easy cleaning



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### DIMENSIONS AND WEIGHT: AIR-MOTION 3 ROASTER COMPONENTS

To allow for best space planning, measurements account for the widest, tallest, and deepest parts of components (e.g., touchscreen arm, casters, etc.).

COMPONENT	RAW UNCRATED WEIGHT	DIMENSIONS (L x W x H)
Roast Chamber	156.5 LBS (71 KG)	28.3" L x 32.6" W x 48.3" H (2.4' L x 2.7' W x 4.03' H)
Cyclone	178.5 LBS (81 KG)	41.2" L x 27.2" W x 75.5" H (3.4' L x 2.3' W x 6.3' H)
Cooling Tray	77.2 LBS (35 KG)	27.4" L x 24.6" W x 14.6" H (2.3' L x 2.05' W x 1.2' H)
<b>TOTAL</b>	<b>412.2 LBS (187 KG)</b>	

### DIMENSIONS AND WEIGHT: AIR-MOTION 3 ROASTER CRATING

CRATE	CRATED WEIGHT	CRATE DIMENSIONS (L x W x H)
Crate #1	See note below.	81" L x 49" W x 37" H (6.8' L x 4.08' W x 3.08' H)
Crate #2	See note below.	35" L x 31" W x 52" H (2.9' L x 2.6' W x 4.3' H)
<b>TOTAL</b>	<b>551 LBS (250 KG)</b>	

**NOTE:** Weight provided is total weight for both crates. Individual crate weights will be received prior to shipping.

### AIR-MOTION 3 CYCLONE VENTING DIAMETER

Exit Pipe Diameter: 147mm

Outside Diameter of aluminum flex pipe: 150mm (3mm wall thickness)

Purchase ducting from **Nordfab** or **Selkirk**.

## MAINTENANCE

The only maintenance required is the emptying of the Chaff Collector Bucket every couple of days depending on the frequency of roasting and the wiping down of the Roast Chamber with a wet cloth after completion of roasting schedule for the day.

## REPLACEMENT PARTS (IF NEEDED)

The only parts that may need to be replaced due to natural wear and tear:

- Blower fan
- Element bank

Contact Air-Motion Roasters USA to purchase replacement parts.

## DECIBEL READING

85 dB

## CERTIFICATIONS

CE, UL, IEC (International Electrotechnical Commission)

## AIR-MOTION 3 ROASTER LAYOUT

See next 3 pages for 3kg AMR roast chamber, cooler tray, and cyclone weight, layout, and dimensions.

## SERVICING

No servicing is required other than the Maintenance Schedule as listed.

## WARRANTY

AMR provides a 2-year warranty on all machine parts.

## EMISSION TESTING

Emission testing report included in User Manual.

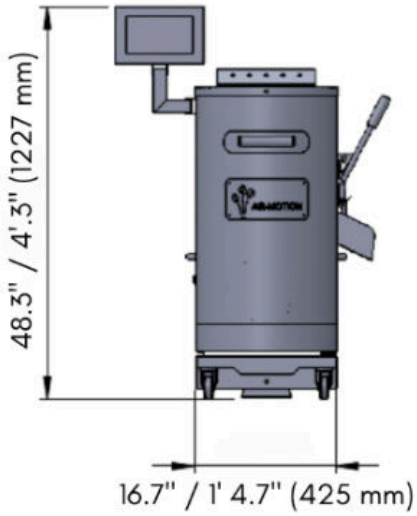
## REQUIRED CLEARANCES

Position roaster at least 24" from walls or other equipment, and allow for at least 48" in front of roaster for user operation.

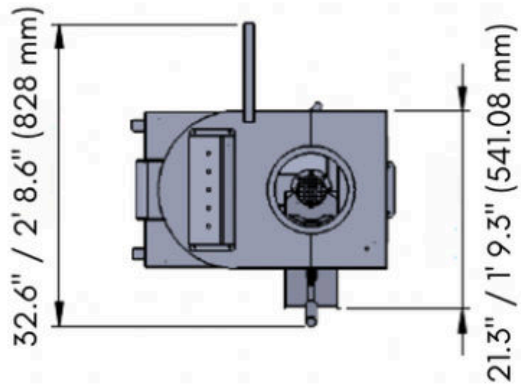
## AIR-MOTION 3: ROAST CHAMBER

WEIGHT: 156.5 lbs (71 kg)

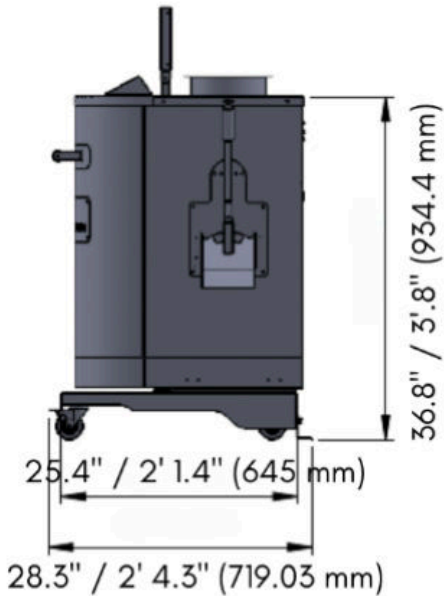
NOTE: The AMR 3 roaster comes on casters to allow for easy positioning and cleaning. Below measurements are provided in inches, feet, and millimeters (mm).



FRONT VIEW



TOP VIEW



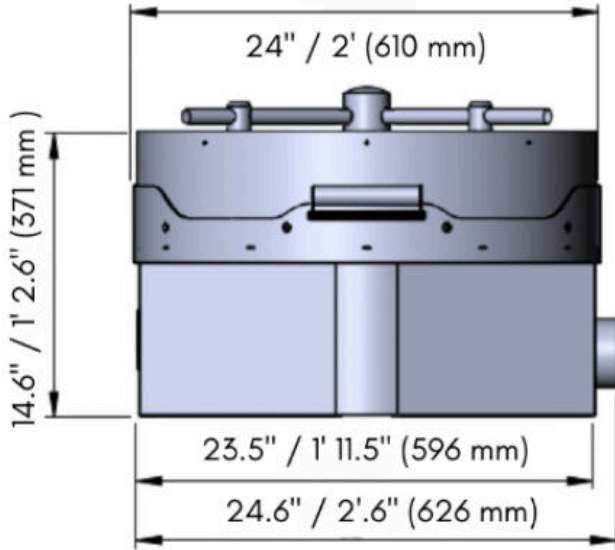
SIDE VIEW



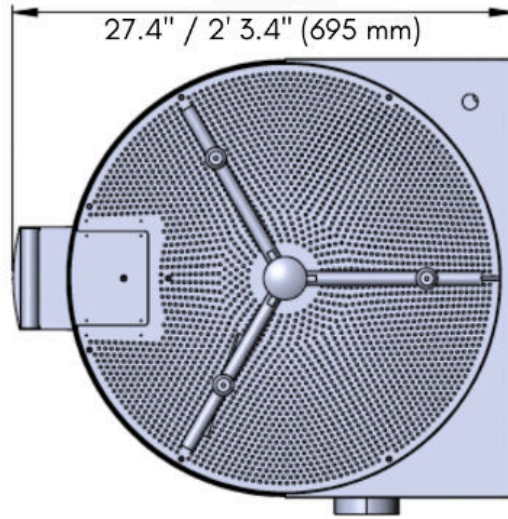
## AIR-MOTION 3: COOLER TRAY

WEIGHT: 77.2 lbs (35 kg)

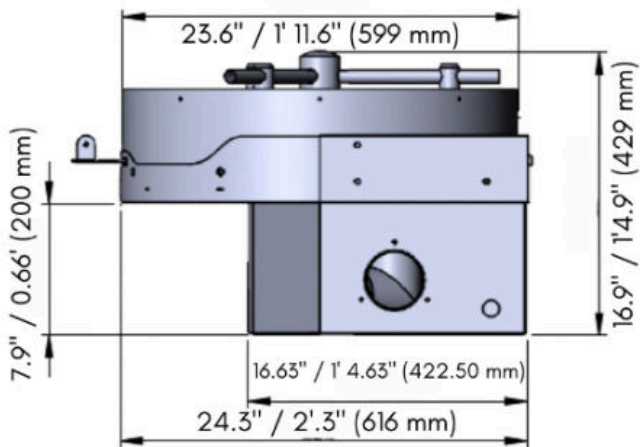
Below measurements are provided in inches, feet, and millimeters (mm).



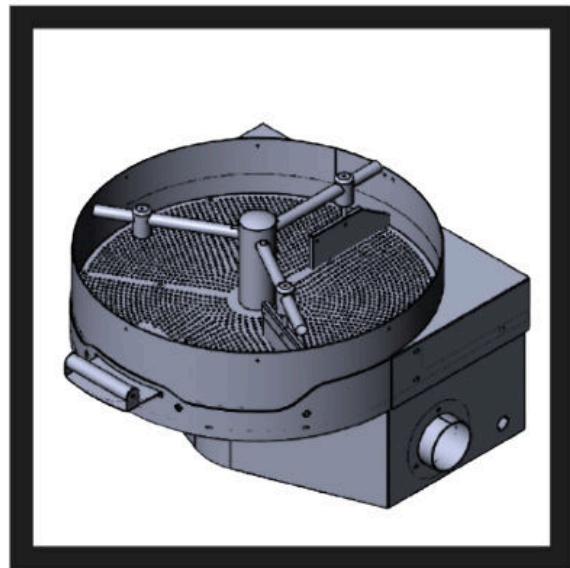
FRONT VIEW



TOP VIEW



SIDE VIEW

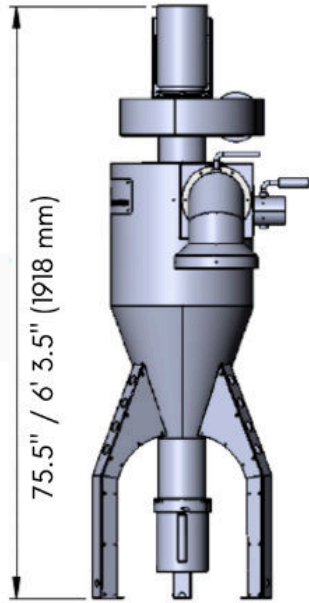




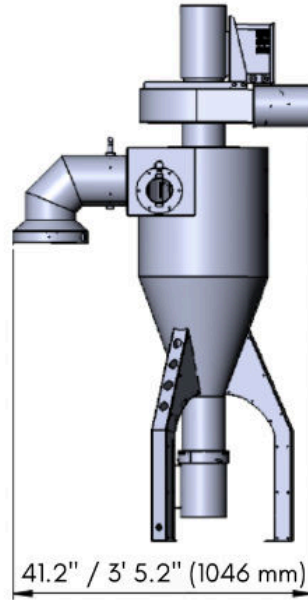
## AIR-MOTION 3: CYCLONE

WEIGHT: 81 lbs (178.5 kg)

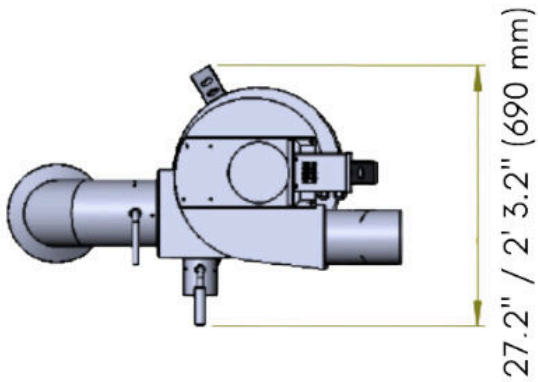
Below measurements are provided in inches, feet, and millimeters (mm).



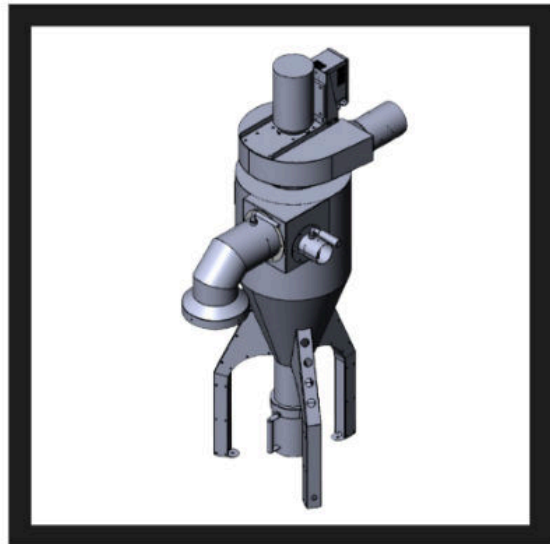
FRONT VIEW



SIDE VIEW



TOP VIEW







## **6 KG Specifications**

---

## AIR-MOTION 6 QUICK SPECIFICATIONS

- Overview:**
- Operator has total, full-variation control of convection and conduction heat transfer via a patented "Open Chamber Roasting" fluid-bed 6 kg air-roasting chamber.
  - All electric. No fuel or afterburner needed.
  - Extremely low emissions. Environmentally smart.
  - Clean, consistent roast every time.

## CAPACITY/OUTPUT

- Batch Size:** Max 6 kg roasting capacity (13 lbs of green beans)
- Roast Time:** 8-12 minutes (dependent on roast level)
- Output:** Max 50 lbs/hour; 400 lbs/day (based on 8-hour day)

## DATA LOGGING

- Internal:** 5 real-time graphs: bean temp, heater temp, RoR bean temp, RoR heater temp, and saved profile curve line

## CONTROL POINTS

- Integrated touchscreen control panel
- Presetting profile parameters
- Fast-reacting thermocouples
- Quick-response heat transfer
- Speed controller to adjust bean lifting height during roasting

## ELECTRICAL REQUIREMENTS

- 3-Phase:** 240 V // 60 Hz // 55 Amps — OR —  
480 V // 60 Hz // 27.5 Amps

## COMPONENTS

- Air Flow:** High-efficiency 3 kW heater blower
- Cooling:** Optional 30-40 second water dousing system for high-speed bean cooling
- Extraction:** Centrifugal 2.6 kW extraction fan immediately moves dust, smoke, and chaff from roast chamber
- Heating:** 18 kW Nichrome plated electrical spiral elements
- Roast Chamber:** Stainless steel construction, durable, easy cleaning



Take advantage of  
our private,  
competitive  
lending program,  
AMR Approved!

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[www.air-motionroastersusa.com/financing/](http://www.air-motionroastersusa.com/financing/)

Info:  
855.579.6400

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air-motion  
roastersusa.com



[www.air-motionroastersusa.com](http://www.air-motionroastersusa.com)

## DIMENSIONS AND WEIGHT: AIR-MOTION 6 ROASTER COMPONENTS

To allow for best space planning, measurements account for the widest, tallest, and deepest parts of components (e.g., touchscreen arm, casters, etc.).

COMPONENT	RAW UNCRATED WEIGHT	DIMENSIONS (L x W x H)
Roast Chamber	231.5 LBS (105 KG)	29.07" L x 21.6" W x 21.6" H (2.4' L x 1.8' W x 1.8' H)
Cyclone	275.6 LBS (125 KG)	55" L x 31.5" W x 85.4" H (4.6' L x 2.6' W x 7.1' H)
Cooling Tray	77.2 LBS (35 KG)	27.4" L x 24.6" W x 14.6" H (2.3' L x 2.05' W x 1.2' H)
<b>TOTAL</b>	<b>584.3 LBS (265 KG)</b>	

## DIMENSIONS AND WEIGHT: AIR-MOTION 6 ROASTER CRATING

CRATE	CRATED WEIGHT	CRATE DIMENSIONS (L x W x H)
Crate #1	See note below.	89" L x 59" W x 37" H (7.4' L x 4.9' W x 3.08' H)
Crate #2	See note below.	39" L x 32" W x 53" H (3.25' L x 2.7' W x 4.4' H)
<b>TOTAL</b>	<b>873 LBS (396 KG)</b>	

**NOTE:** Weight provided is total weight for both crates. Individual crate weights will be received prior to shipping.

## AIR-MOTION 6 CYCLONE VENTING DIAMETER

Exit Pipe Diameter: 247 mm

Outside Diameter of aluminum flex pipe: 250 mm (3mm wall thickness)

Purchase ducting from **Nordfab** or **Selkirk**.

## **MAINTENANCE**

The only maintenance required is the emptying of the Chaff Collector Bucket every couple of days depending on the frequency of roasting and the wiping down of the Roast Chamber with a wet cloth after completion of roasting schedule for the day.

## **REPLACEMENT PARTS (IF NEEDED)**

The only parts that may need to be replaced due to natural wear and tear:

- Blower fan
- Element bank

Contact Air-Motion Roasters USA to purchase replacement parts.

## **DECIBEL READING**

85 dB

## **CERTIFICATIONS**

CE, UL, IEC (International Electrotechnical Commission)

## **AIR-MOTION 6 ROASTER LAYOUT**

See next 3 pages for 6kg AMR roast chamber, cooler tray, and cyclone weight, layout, and dimensions.

## **SERVICING**

No servicing is required other than the Maintenance Schedule as listed.

## **WARRANTY**

AMR provides a 2-year warranty on all machine parts

## **EMISSION TESTING**

Emission testing report included in User Manual.

## **REQUIRED CLEARANCES**

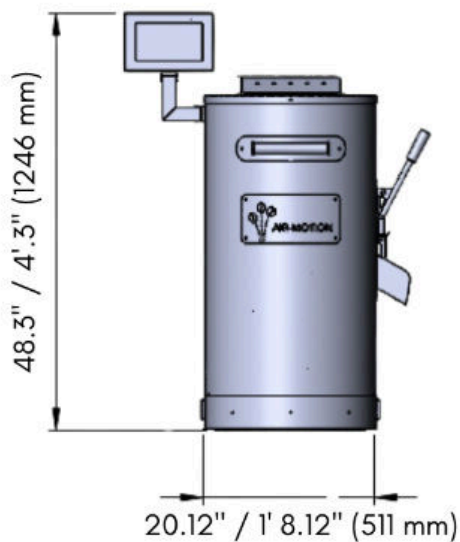
Position roaster at least 24" from walls or other equipment, and allow for at least 48" in front of roaster for user operation.



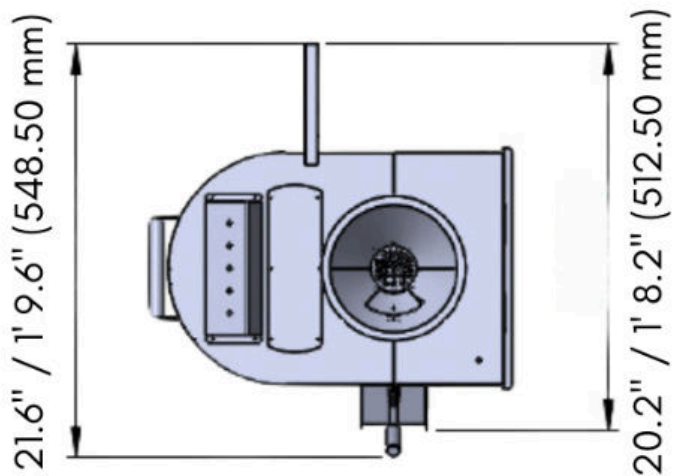
## AIR-MOTION 6: ROAST CHAMBER

WEIGHT: 235.1 lbs (105 kg)

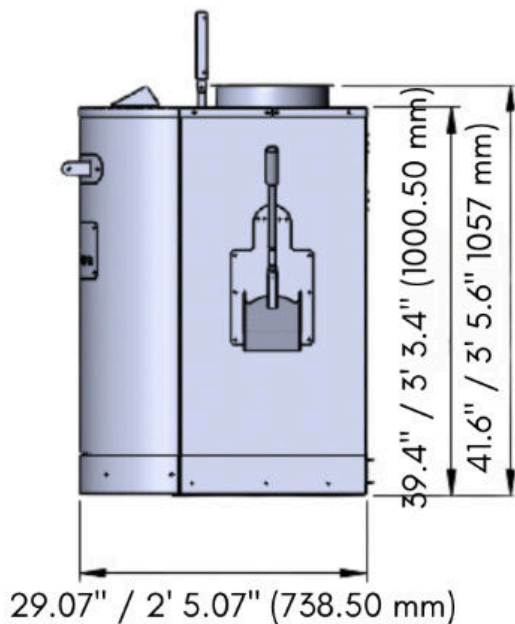
Below measurements are provided in inches, feet, and millimeters (mm).



FRONT VIEW



TOP VIEW



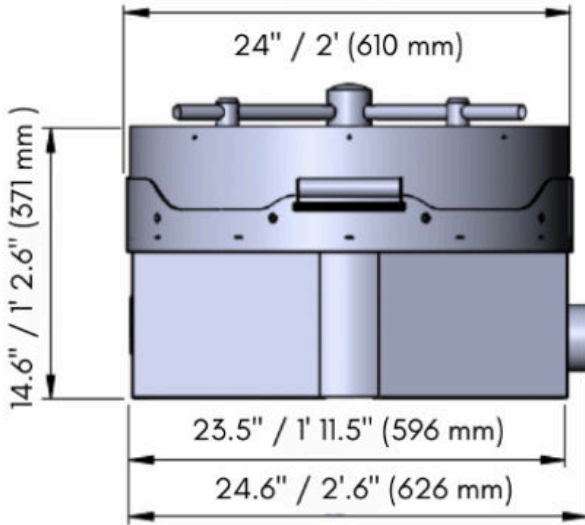
SIDE VIEW



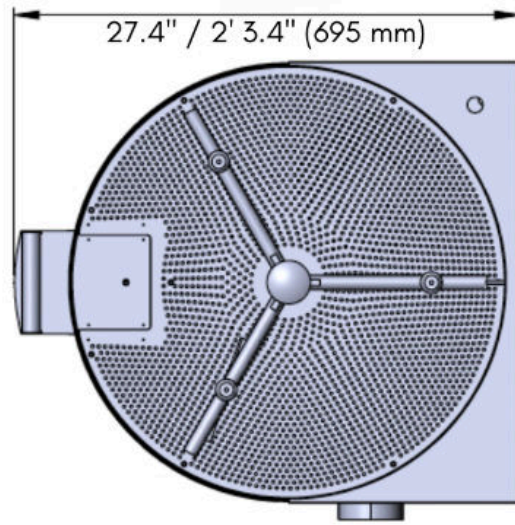
## AIR-MOTION 6: COOLER TRAY

WEIGHT: 77.2 lbs (35 kg)

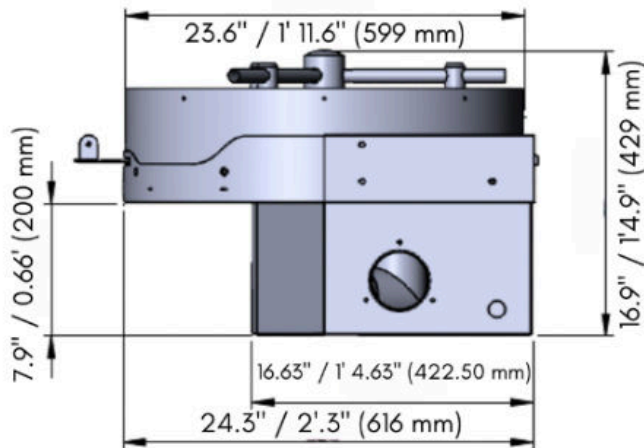
Below measurements are provided in inches, feet, and millimeters (mm).



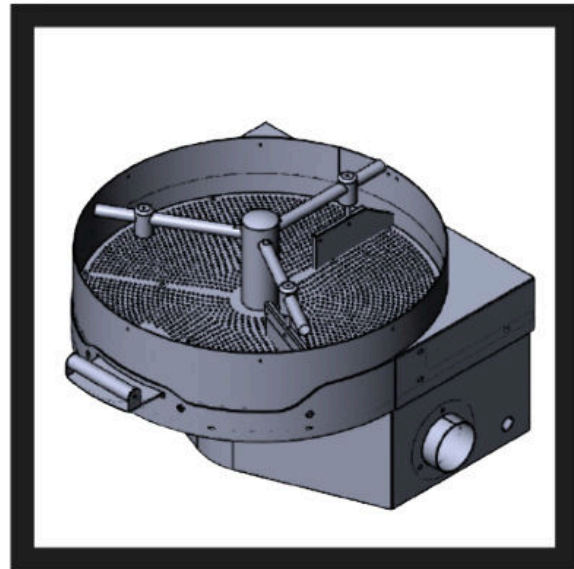
FRONT VIEW



TOP VIEW



SIDE VIEW

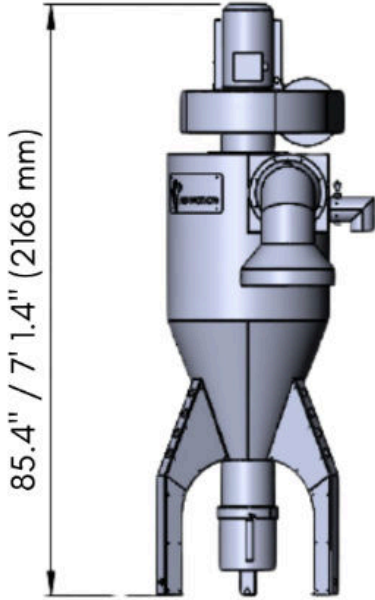




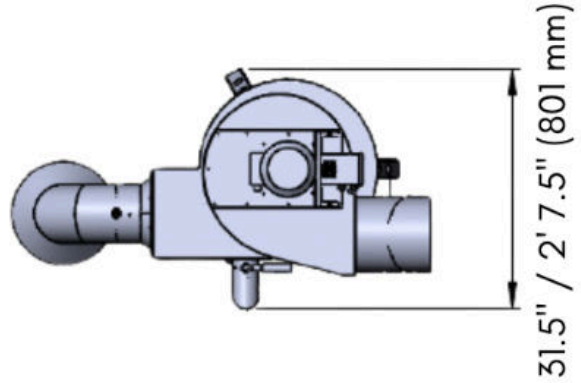
## AIR-MOTION 6: CYCLONE

WEIGHT: 275.6 lbs (125 kg)

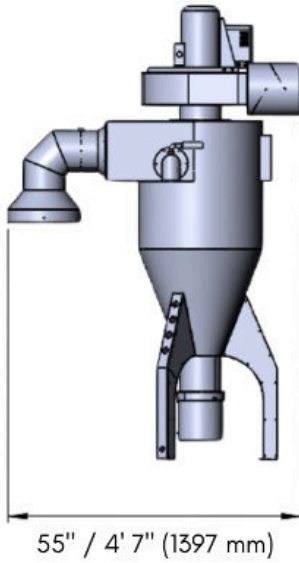
Below measurements are provided in inches, feet, and millimeters (mm).



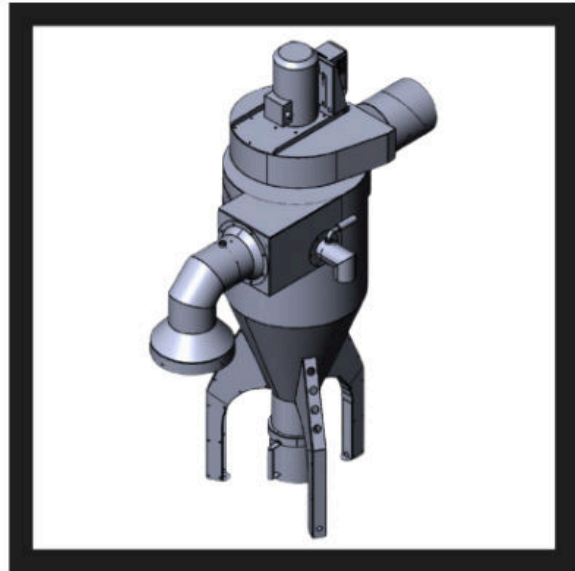
FRONT VIEW



TOP VIEW



SIDE VIEW







## **12 KG Specifications**

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## AIR-MOTION 12 QUICK SPECIFICATIONS

- Overview:**
- Operator has total, full-variation control of convection and conduction heat transfer via a patented "Open Chamber Roasting" fluid-bed 12 kg air-roasting chamber.
  - All electric. No fuel or afterburner needed.
  - Extremely low emissions. Environmentally smart.
  - Clean, consistent roast every time.

## CAPACITY/OUTPUT

- Batch Size:** Max 12 kg roasting capacity (26 lbs of green beans)
- Roast Time:** 8-12 minutes (dependent on roast level)
- Output:** Max 100 lbs/hour; 800 lbs/day (based on 8-hour day)

## DATA LOGGING

- Internal:** 5 real-time graphs: bean temp, heater temp, RoR bean temp, RoR heater temp, and saved profile curve line

## CONTROL POINTS

- Integrated touchscreen control panel
- Presetting profile parameters
- Fast-reacting thermocouples
- Quick-response heat transfer
- Speed controller to adjust bean lifting height during roasting

## ELECTRICAL REQUIREMENTS

- 3-Phase:** 480 V // 60 Hz // 42 Amps

## COMPONENTS

- Air Flow:** High-efficiency 4 kW heater blower
- Cooling:** Optional 30-40 second water dousing system for high-speed bean cooling
- Extraction:** Centrifugal 2.6 kW extraction fan immediately moves dust, smoke, and chaff from roast chamber
- Heating:** 27 kW Nichrome plated electrical spiral elements
- Roast Chamber:** Stainless steel construction, durable, easy cleaning



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roastersusa.com





## DIMENSIONS AND WEIGHT: AIR-MOTION 12 ROASTER COMPONENTS

To allow for best space planning, measurements account for the widest, tallest, and deepest parts of components (e.g., touchscreen arm, casters, etc.).

COMPONENT	RAW UNCRATED WEIGHT	DIMENSIONS (L x W x H)
Roast Chamber	275.6 LBS (125 KG)	32.3" L x 35.5" W x 53.2" H (2.7' L x 2.9' W x 4.4' H)
Cyclone	275.6 LBS (125 KG)	56.1" L x 31.5" W x 85.4" H (4.7' L x 2.6' W x 7.1' H)
Cooling Tray	101.4 LBS (46 KG)	35.9" L x 33.1" W x 15.7" H (2.9' L x 2.8' W x 1.3' H)
<b>TOTAL</b>	<b>652.6 LBS (296 KG)</b>	

## DIMENSIONS AND WEIGHT: AIR-MOTION 12 ROASTER CRATING

CRATE	CRATED WEIGHT	CRATE DIMENSIONS (L x W x H)
Crate #1	See note below.	89" L x 59" W x 43" H (7.4' L x 4.9' W x 3.6' H)
Crate #2	See note below.	43" L x 33" W x 56" H (3.6' L x 2.75' W x 4.7' H)
<b>TOTAL</b>	<b>1,091 LBS (495 KG)</b>	

**NOTE:** Weight provided is total weight for both crates. Individual crate weights will be received prior to shipping.

## AIR-MOTION 12 CYCLONE VENTING DIAMETER

Exit Pipe Diameter: 247 mm

Outside Diameter of aluminum flex pipe: 250 mm (3mm wall thickness)

Purchase ducting from **Nordfab** or **Selkirk**.

## MAINTENANCE

The only maintenance required is the emptying of the Chaff Collector Bucket every couple of days depending on the frequency of roasting and the wiping down of the Roast Chamber with a wet cloth after completion of roasting schedule for the day.

## REPLACEMENT PARTS (IF NEEDED)

The only parts that may need to be replaced due to natural wear and tear:

- Blower fan
- Element bank

Contact Air-Motion Roasters USA to purchase replacement parts.

## DECIBEL READING

85 dB

## CERTIFICATIONS

CE, UL, IEC (International Electrotechnical Commission)

## AIR-MOTION 12 ROASTER LAYOUT

See next 3 pages for 12kg AMR roast chamber, cooler tray, and cyclone weight, layout, and dimensions.

## SERVICING

No servicing is required other than the Maintenance Schedule as listed.

## WARRANTY

AMR provides a 2-year warranty on all machine parts

## EMISSION TESTING

Emission testing report included in User Manual.

## REQUIRED CLEARANCES

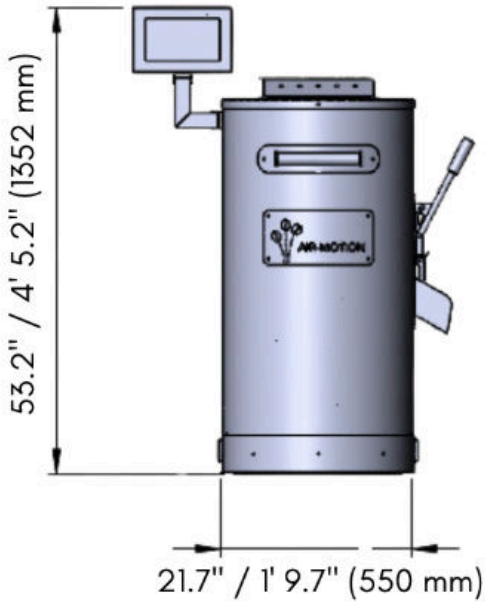
Position roaster at least 24" from walls or other equipment, and allow for at least 48" in front of roaster for user operation.



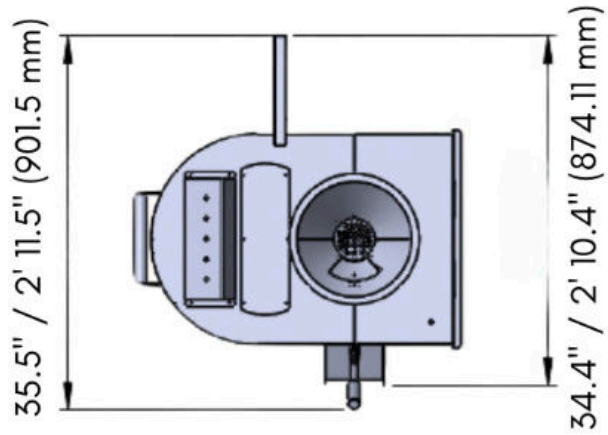
## AIR-MOTION 12: ROAST CHAMBER

WEIGHT: 175.6 lbs (125 kg)

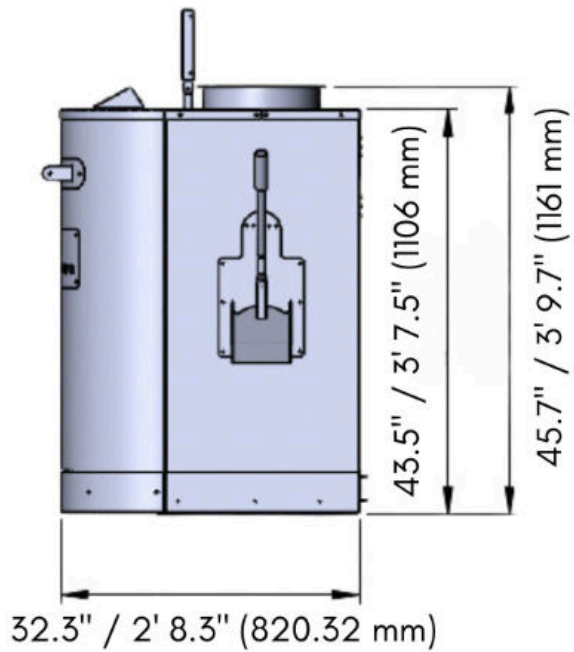
Below measurements are provided in inches, feet, and millimeters (mm).



FRONT VIEW



TOP VIEW



SIDE VIEW

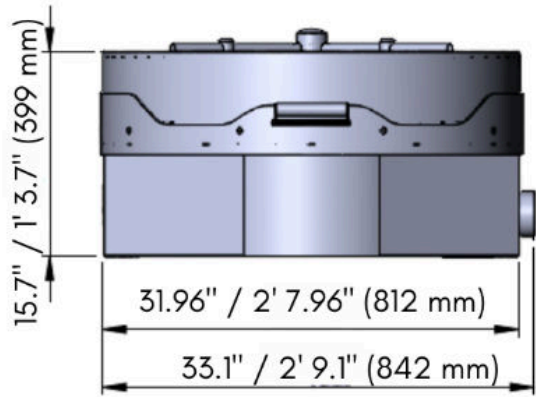




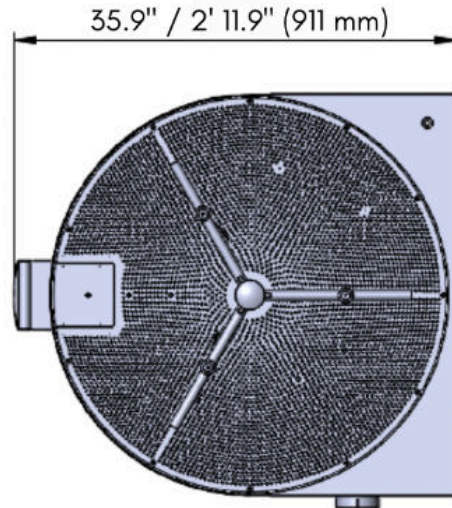
## AIR-MOTION 12: COOLER TRAY

WEIGHT: 101.4 lbs (46 kg)

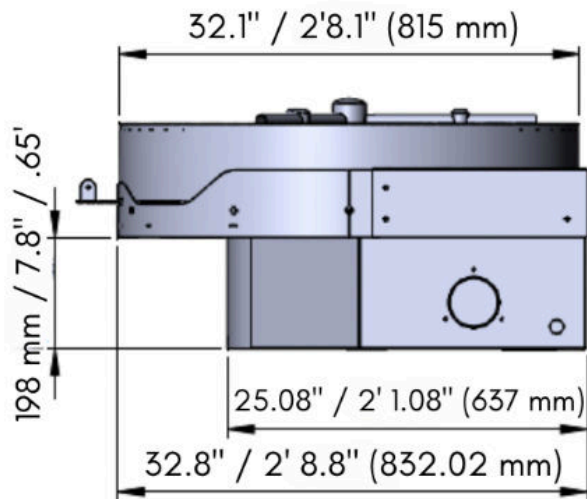
Below measurements are provided in inches, feet, and millimeters (mm).



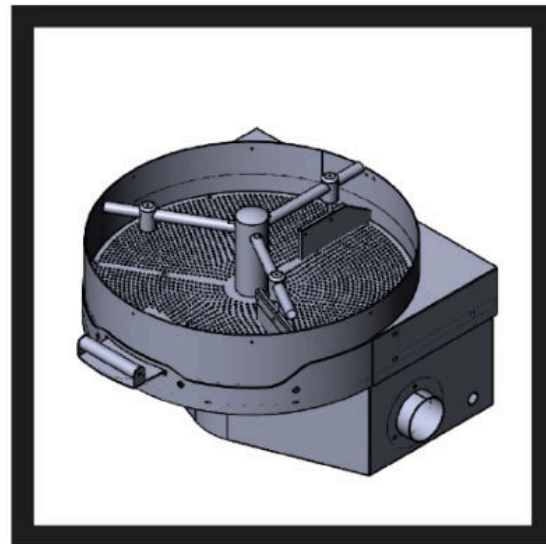
FRONT VIEW



TOP VIEW



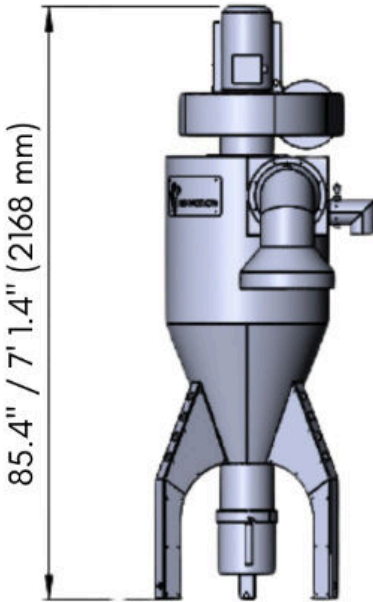
SIDE VIEW



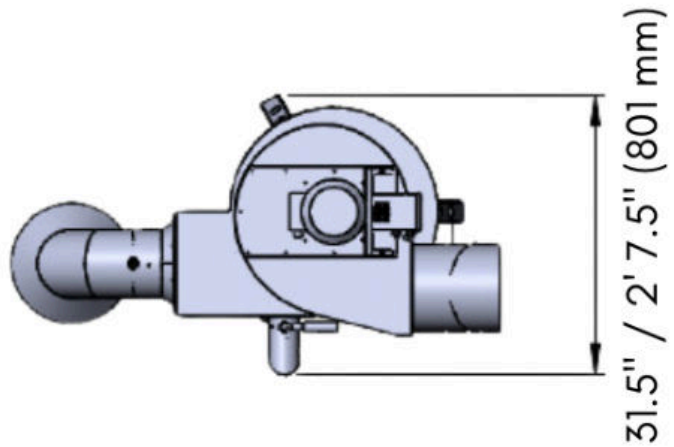
## AIR-MOTION 12: CYCLONE

WEIGHT: 275.6 lbs (125 kg)

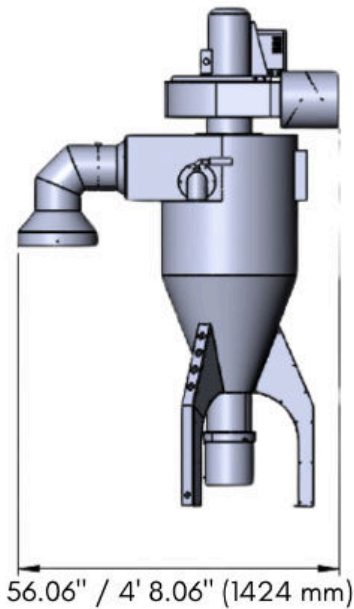
Below measurements are provided in inches, feet, and millimeters (mm).



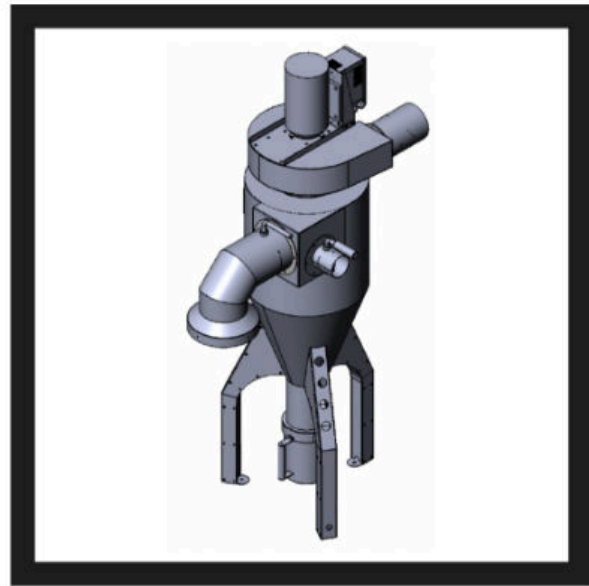
FRONT VIEW

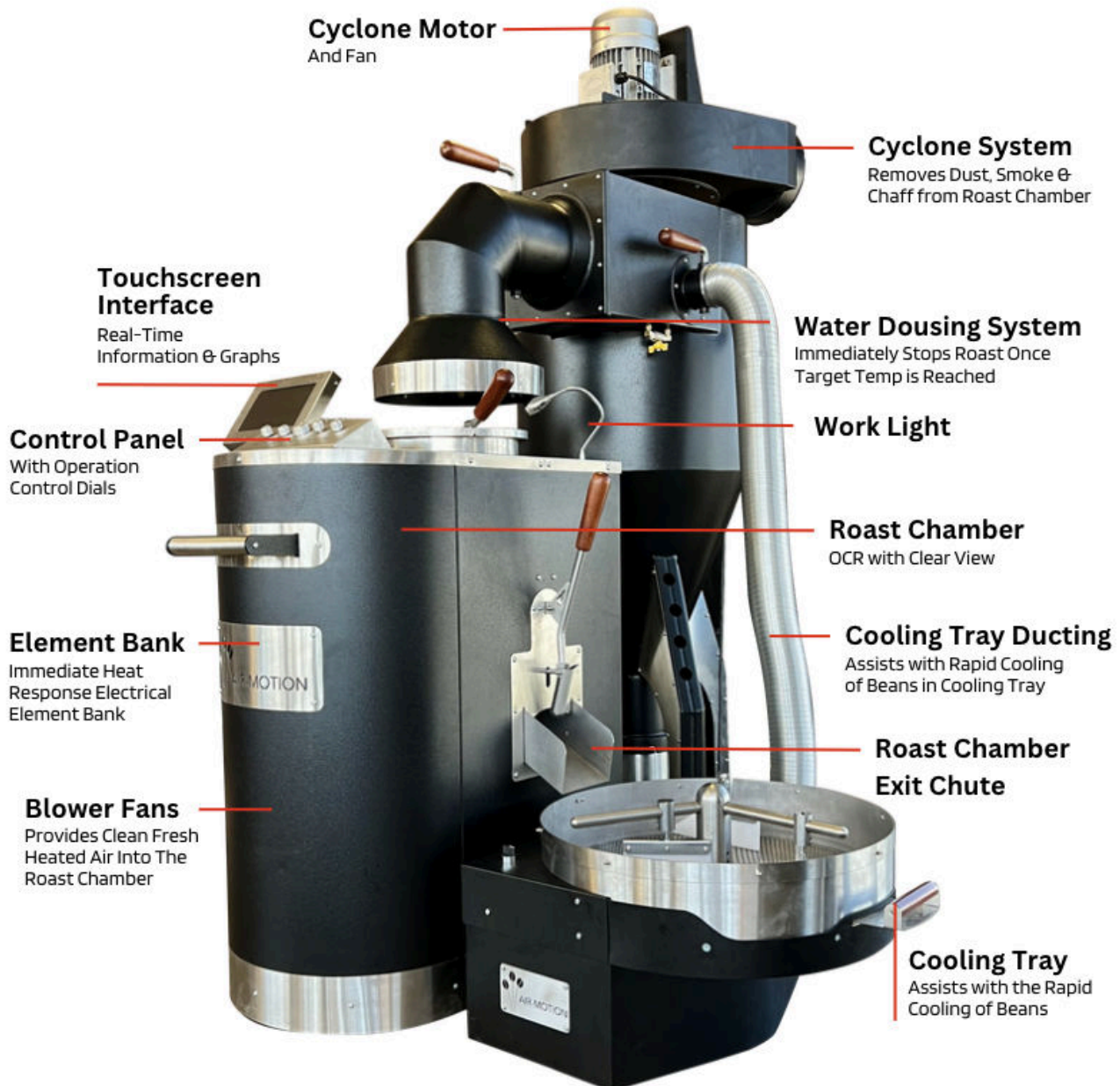


TOP VIEW



SIDE VIEW





# **Control Panel Overview**

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### MODE Control Dial

This allows the operator to set the roaster in Roast or Prime mode (which warms up the roaster in very cold ambient temperatures) or set the roaster to OFF. Note that to turn off the roaster fully, the operator must also turn off the roaster using the main yellow and red ON/OFF switch on the left-hand side of the Roast Chamber console.

### HEATER Control Dial

Controls the heating element output to your desired roasting temperature.

### BLOWER Control Dial

Controls airflow and bean height.

### CYCLONE Control Dial

Turns Cyclone on and off.

### WATER Control Dial

Turns the water dousing function on and off.

# **Emissions Summary**

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info@skyside.co.za | +27 (31) 100 – 1300 /+27 (11) 590 3000  
 Unit 2, Building 4, Ninian Westmead Estate, 33 Henry Pennington Road, Pinetown / 259 Kent Avenue, Ferndale, Randburg  
 PO Box 1726, Westville, Durban, 3630  
 Skyside (Pty) Ltd 2014/276266/07  
 Director: Quentin Hurt

**Opinion and interpretation of emission testing results conducted on Air-Motion Roaster**

Traditional coffee roasting processes are known to produce air pollutants, mainly particulate matter, combustion gases and volatile organic compounds (VOCs). Particulate matter emissions stem from the chaff (removed from the bean when roasting) and condensation by-products. Combustion gas emission mainly stem from combustion of hydrocarbon-rich fuel for heat generation. VOC emissions mainly stem from volatilisation of natural components in the beans and the reactions in the bean when roasting, as well as from fuel burning.

Skyside conducted tests for these pollutants in the exhaust duct of the Air-Motion Roaster 6kg Capacity Coffee Roaster system on 8 and 22 January 2021, with the roaster operating in batches of 12-minute duration each (please refer to Report AMR001). The results are reported below against next available international emission limits for a similar process. The unit was operated strictly in accordance with the manufacturer’s operating procedures and was maintained in accordance with standard recommendations.

Pollutant	Average test result (mg/Nm <sup>3</sup> )	Emission Limit for Vegetable Drying Processes* (mg/Nm <sup>3</sup> )
Particulate matter	4 ± 2	150
Oxides of nitrogen (NO <sub>x</sub> )	1 ± 4	200
Sulphur dioxide (SO <sub>2</sub> )	<1	35
Carbon monoxide (CO)	2 ± 4	
Volatile organic compounds (VOCs)	<1	

\*Process Guidance Note 6/27 (2005), Department for Environment, Food and Rural Affairs (UK)

Overall, the emission tests conducted under normal roasting conditions indicated what would be considered to be relatively low concentrations of pollutants emitted to atmosphere, certainly below the limits specified for comparable processes. We recommend that operators compare these results against local requirements.

**Key considerations:**

1. The Air-Motion roaster has an extraction fan and cyclone which continuously removes chaff during the roasting process, separating it from the gas stream before exhausting into atmosphere: therefore low total dust concentrations are expected.
2. The Air-Motion roaster uses electricity instead of the conventional combustion of hydrocarbon-rich fuel for heat generation, therefore low concentration of combustion gases directly emitted from the roaster are also expected.
3. Given the low roasting capacity of the Air-Motion roaster, as well as the use of electricity instead of a hydrocarbon-rich fuel, one would expect low VOC emissions from the roaster. Ambient air is used for cooling and diluting the exiting gas prior to exhausting to atmosphere.

If you have any further questions, please feel free to contact me.

Kind regards

Loren De Koker  
 Technical Manager at SKYSIDE  
 Date: 18 February 2021

*Skyside (Pty) Ltd is accredited for compliance with ISO/IEC 17025:2017, however opinions and interpretations expressed herein are outside the scope of SANAS accreditation.*

# Warranty

---





**AIR-MOTION ROASTERS WARRANTY**  
**LIMITED 24 MONTH MACHINE WARRANTY**

Serial Number: \_\_\_\_\_.

Air-Motion Roasters warrants to the original Purchaser, Name & Address:

( \_\_\_\_\_  
\_\_\_\_\_ ),

That each of our roasters (3Kg, 6Kg or 12Kg Air-Roaster) sold by Air-Motion Roasters will be free from manufacturing defects in materials and workmanship in normal and industrial service for a period of twenty four ( 24 ) months from the date of delivery, installation and commissioning, which is, Date:

( \_\_\_\_\_ ),

Provided it is operated and maintained in accordance with Air-Motion Roasters instructions and the accompanying manuals.

This twenty four-month limited warranty applies to reasonable, normal commercial or industrial use only.

Our obligation under this warranty is expressly limited, at our discretion, to the replacement or repair at Air-Motion Roasters, or at a service facility designated by us, or by a Technician appointed by us, of such parts as inspection shall disclose to have been defective.

Exclusions :

This warranty does not apply to defects caused by casualty or unreasonable use, including faulty repairs by others and failure to provide reasonable and necessary maintenance. Electrical power surges are specifically excluded for damage to PC boards and electronic equipment.

Purchaser signature: \_\_\_\_\_ .

Air-Motion Roasters representative signature: \_\_\_\_\_ .

Air-Motion Roasters  
Registration Number: 2019/592592/07  
14 Bellingham Road, Foundersview  
South, Modderfontein, Johannesburg  
1609  
Email: info@air-motionroasters.com  
www.air-motionroasters.com

# Guarantee

---



## **GUARANTEE**

All AIR-MOTION coffee roasters are guaranteed for faulty parts and faulty workmanship for a period of 24 months, from date of commissioning. Guarantee repairs must only be carried out by an authorized AIR-MOTION repair centre or service agent.

### **AIR-MOTION WARRANTY / Statement of Warranty**

Notwithstanding anything to the contrary elsewhere contained, the under mentioned shall be the sole and exclusive warranty applicable to AIR-MOTION coffee roasters sold by AIR-MOTION or its authorized agents.

AIR-MOTION undertakes at its option to repair, replace or refund the purchase price (less depreciation reasonably determined by AIR-MOTION) in respect of all coffee roaster and parts manufactured and distributed by AIR-MOTION or its authorized agent and sold under the trade name of AIR-MOTION, which fail or are defective as a result of a defect in design, materials or workmanship within the period stated in the schedule hereto, provided in the opinion of AIR-MOTION:

- Such failure/defect is not the result of wear and tear.
- The goods have been employed strictly in accordance with the relevant operating manual and under competent supervision and have not been repaired or modified by anyone other than AIR-MOTION or its duly authorized agent.
- The goods are promptly returned, carriage paid to the premises of AIR-MOTION or its authorized agent.
- The goods were sold as new and were not prototypes.

The warranty aforesaid replaces and is in lieu of any and all warranties, guarantees and the like whether express or implied by common law or statute and any liability for every form of damage whether direct or consequential is hereby expressly excluded.

### **LIMITATIONS OF GUARANTEE**

The following is not covered by the guarantee

- Damage caused by abnormal, incorrect, or excessive supply voltage or excessive supply voltage spikes or surges (outside equipment spec.)
- Physical damage to the housing of the machine.
- Transport or storage damage.
- Fire damage.
- Damage caused by natural causes eg. lightning or flooding.
- Direct or indirect damage caused by a defective machine is also not covered.
- The guarantee is void if changes are made to the machine without approval from the manufacturer, or if repairs are carried out using non-approved spare parts.
- The guarantee is also void if repairs are carried out by non-authorized agents.

# Contact Information

Sales and technical support are available by phone and email.

Air-Motion Roasters™ USA

Phone: +1.855.579.6400

Email: [sales@air-motionroastersusa.com](mailto:sales@air-motionroastersusa.com)

Online: [www.air-motionroastersusa.com](http://www.air-motionroastersusa.com)

This concludes PART 7: Appendix  
and the end of the  
Air-Motion Roasters™ USA User Manual