AIR-MOTION
ROASTERS™ USA

AIR-MOTION 3

AIR-MOTION 6

AIR-MOTION 12

User Manual

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

2023

For Your Safety

Air-Motion Roasters™ has taken every possible precaution to ensure safe operation and an efficient machine. The incorporated safety devices are aimed at protecting 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 requiring 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 power supply system of the purchaser must be fitted with an automatic breaker upstream of the main switch of the Roaster and a suitable grounding system that meets all requirements of 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 relieves the manufacturer of all responsibilities and 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 requirements, without water, or without the required extraction system in place.

16. Obstruct the vents; install the required extraction system and leave enough space between the Roaster and any walls at least 24 inches 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 and the recording of information and graphing of 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 to be operated by one operator standing in front of the Roaster 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. These areas may only be accessed by a technician.

This concludes PART 1:
Safety Standards

Part 2:
Roaster System Setup

PART 2: Roaster System Setup

Step 1: Test Water Supply
Make sure the water mains are on by testing the yellow override switch. Pull the Roast Chamber forward and place a small container underneath the dousing nozzle to do this. Then, turn the yellow override switch on and off to make sure 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 3kg and 6kg roasters
    - 30 to 35 seconds should be adequate for the 12kg 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 on the Extraction Hood 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 make sure there's 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. The beans, therefore, continue to 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™.

You can control and adjust your roast by sight with our patented Open Chamber Roasting. And you can plot your roasting course through the Touchscreen Interface's real-time tracking and graphs.

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 so that they are touching 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 your 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 allow 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℉. 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℉	Start of Roast
3:00 - 3:20	212℉	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℉	Browning
5:30 - 7:00	Steady rise in temp	Browning continues
7:00	320℉	Maillard Reaction
7:00 - 9:30	Steady rise up to 379.4℉	First Crack at 9:30
9:30 - 12:00	379.4℉	Roast development/2nd Crack
12:00	379.4℉	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 bready 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, Co2) and water vapor have built up in the beans. As a result, the beans will begin to emit an audible cracking sound when this pressure is finally released. The sound is very similar to that of popcorn popping.

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

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 structure of the bean 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: De-Gassing 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 de-gasses. 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 in the negative degrees, one may use the PRIME function to get 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 has risen to over 163 degrees Celsius (325.4 Fahrenheit).
- By 1:30 minutes, the element/air temperature rose to over 200 degrees Celsius (392 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 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 right amount of attention and love it needs throughout the entire 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. Please have an aluminum scoop handy in order to spread the hot beans into the Cooling Tray, stopping the beans from spilling out.

STEP 3:
Some beans will not have exited the Roast Chamber, as it requires the blowers to blow the beans 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 your 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

Specifications

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 (light to dark roast)

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

External: Bluetooth, USB connectivity, Artisan/Cropster compatible

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, 63 Amps, 15 kW
Three-Phase: 240V/60 Hz, 34 Amps, 14 kW

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

AIR-MOTION 3

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AIR-MOTION ROASTERS™ USA
www.air-motionroastersusa.com

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

COMPONENT	RAW UNCRATED WEIGHT	DIMENSIONS
Cyclone	179 LBS	43" x 26.6" x 77.2" (3.6' x 2.2' x 6.4')
Cooling Tray	77 LBS	27.6" x 27.6" x 16.5" (2.3' x 2.3' x 1.4')
Roast Chamber	157 LBS	27.2" x 21.7" x 41.3" (2.3' x 1.8' x 3.4')
TOTAL	**413 LBS**	

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

CRATE	CRATED WEIGHT	CRATE DIMENSIONS
Crate #1	328 LBS	43" X 26.6" X 77.2" (3.6' X 2.2' X 6.4')
Crate #2	232 LBS	31.5" X 27.2" X 46.3" (2.6' X 2.3' X 3.9')
TOTAL	**560 LBS**	

AIR-MOTION 3 CYCLONE VENTING DIAMETER

Exit Pipe Diameter: 197mm
Outside Diameter of aluminum flex pipe: 200mm (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.

SERVICING

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

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.

WARRANTY

AMR provides a 1-year warranty on all moving parts.

DECIBEL READING

85 dB

EMISSION TESTING

Emission testing report included in User Manual.

CERTIFICATIONS

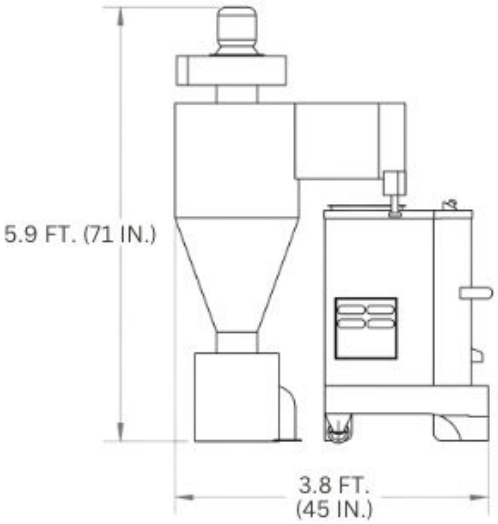
CE, UL, IEC (International Electrotechnical Commission)

REQUIRED CLEARANCES

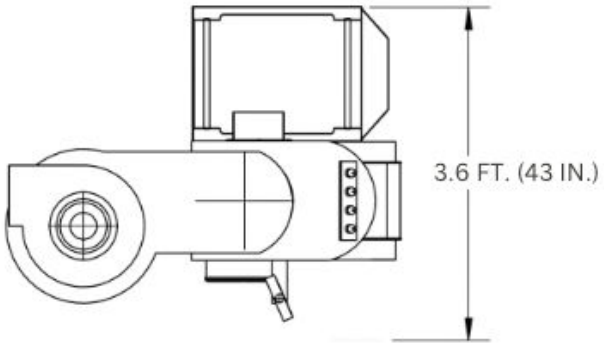
Position roaster at least 24" from walls or other equipment, and allow for at least 48" in front of roaster for user operation.

AIR-MOTION 3 ROASTER LAYOUT

SIDE VIEW



TOP VIEW



NOTE: The **AIR-MOTION 3** roaster is on casters to allow for easy positioning.

AIR-MOTION ROASTERS™ USA

AIR-MOTION 3

AIR-MOTION 6

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.

AIR-MOTION 6

CAPACITY/OUTPUT

Batch Size: Max 6 kg roasting capacity (13 lbs of green beans)

Roast Time: 8-12 minutes (light to dark roast)

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

External: Bluetooth, USB connectivity, Artisan/Cropster compatible

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, 24.22 kW, 58 Amps — OR — 480 V/60 Hz, 24.22 KW, 29 Amps

COMPONENTS

Air Flow: High-efficienty 3kW 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!

Visit www.air-motionroastersusa.com/financing/

Info: 855.579.6400

sales@air-motionroastersusa.com

AIR-MOTION ROASTERS™ USA

www.air-motionroastersusa.com

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

COMPONENT	RAW UNCRATED WEIGHT	DIMENSIONS
Cyclone	276 LBS	87.4" x 39.4" x 59" (7.3' x 3.3' x 4.9')
Cooling Tray	77 LBS	16.5" x 27.6" x 27.6" (1.4' x 2.3' x 2.3')
Roast Chamber	231 LBS	41.7" x 25.2" x 32.7" (3.5' x 2.1' x 2.7')
TOTAL	**584 LBS**	

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

CRATE	CRATED WEIGHT	CRATE DIMENSIONS
Crate #1	551 LBS	67" x 31" x 91" (6' x 2.5' x 7.5')
Crate #2	322 LBS	37" x 29" x 49" (3' x 2.5' x 4')
TOTAL	**873 LBS**	

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.

SERVICING

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

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.

WARRANTY

AMR provides a 1-year warranty on all moving parts.

DECIBEL READING

85 dB

EMISSION TESTING

Emission testing report included in User Manual.

CERTIFICATIONS

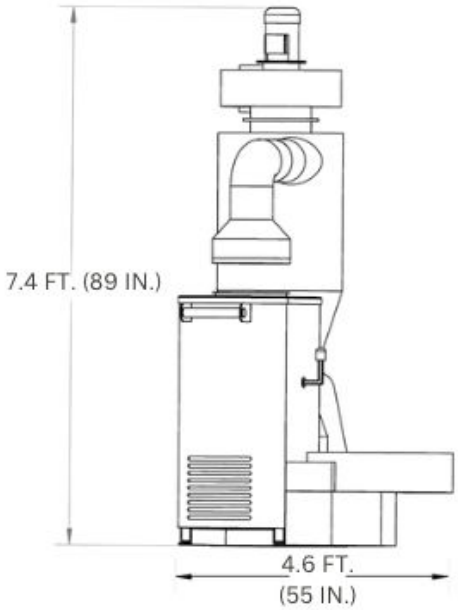
CE, UL, IEC (International Electrotechnical Commission)

REQUIRED CLEARANCES

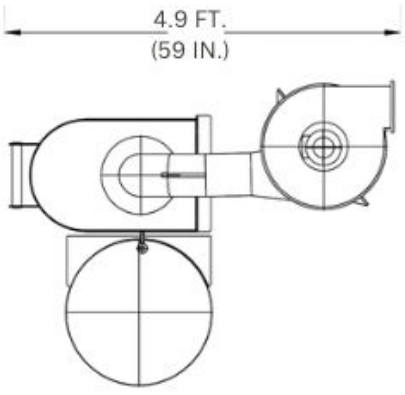
Position roaster at least 24" from walls or other equipment, and allow for at least 48" in front of roaster for user operation.

AIR-MOTION 6 ROASTER LAYOUT

FRONT VIEW



TOP VIEW



AIR-MOTION ROASTERS™ USA

AIR-MOTION 6

Specifications

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.

AIR-MOTION 12

CAPACITY/OUTPUT

Batch Size: Max 12 kg roasting capacity (26 lbs of green beans)

Roast Time: 8-12 minutes (light to dark roast)

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

External: Bluetooth, USB connectivity, Artisan/Cropster compatible

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, 34.2 kW, 41 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

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

Visit www.air-motionroastersusa.com/financing/

Info: 855.579.6400

sales@air-motionroastersusa.com

AIR-MOTION ROASTERS™ USA

www.air-motionroastersusa.com

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

COMPONENT	RAW UNCRATED WEIGHT	DIMENSIONS
Cyclone	276 LBS	84.4" x 39.4" x 59" (7.3' x 3.3' x 4.9')
Cooling Tray	101 LBS	16.9" x 33.9" x 36" (1.4' x 2.8' x 3')
Roast Chamber	276 LBS	45.7" x 25.6" x 36" (3.8' x 2.1' x 3')
TOTAL	**653 LBS**	

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

CRATE	CRATED WEIGHT	CRATE DIMENSIONS
Crate #1	685 LBS	70" x 56" x 93.5" (5.8' x 4.6' x 7.8')
Crate #2	406 LBS	40" x 34" x 53.5" (3.3' x 2.8' x 4.5')
TOTAL	**1,091 LBS**	

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.

SERVICING

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

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.

WARRANTY

AMR provides a 1-year warranty on all moving parts. See User Manual for sample warranty.

DECIBEL READING

85 dB

EMISSION TESTING

Emission testing report included in User Manual.

CERTIFICATIONS

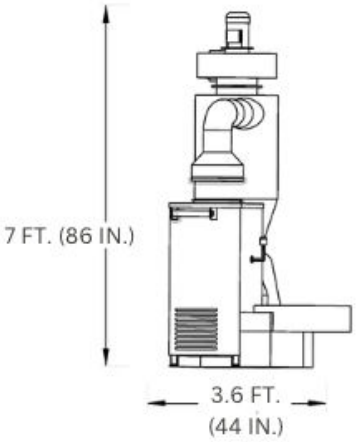
CE, UL, IEC (International Electrotechnical Commission)

REQUIRED CLEARANCES

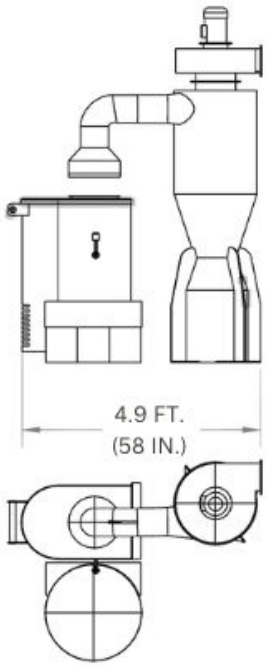
Position roaster at least 24" from walls or other equipment, and allow for at least 48" in front of roaster for user operation.

AIR-MOTION 12 ROASTER LAYOUT

FRONT VIEW

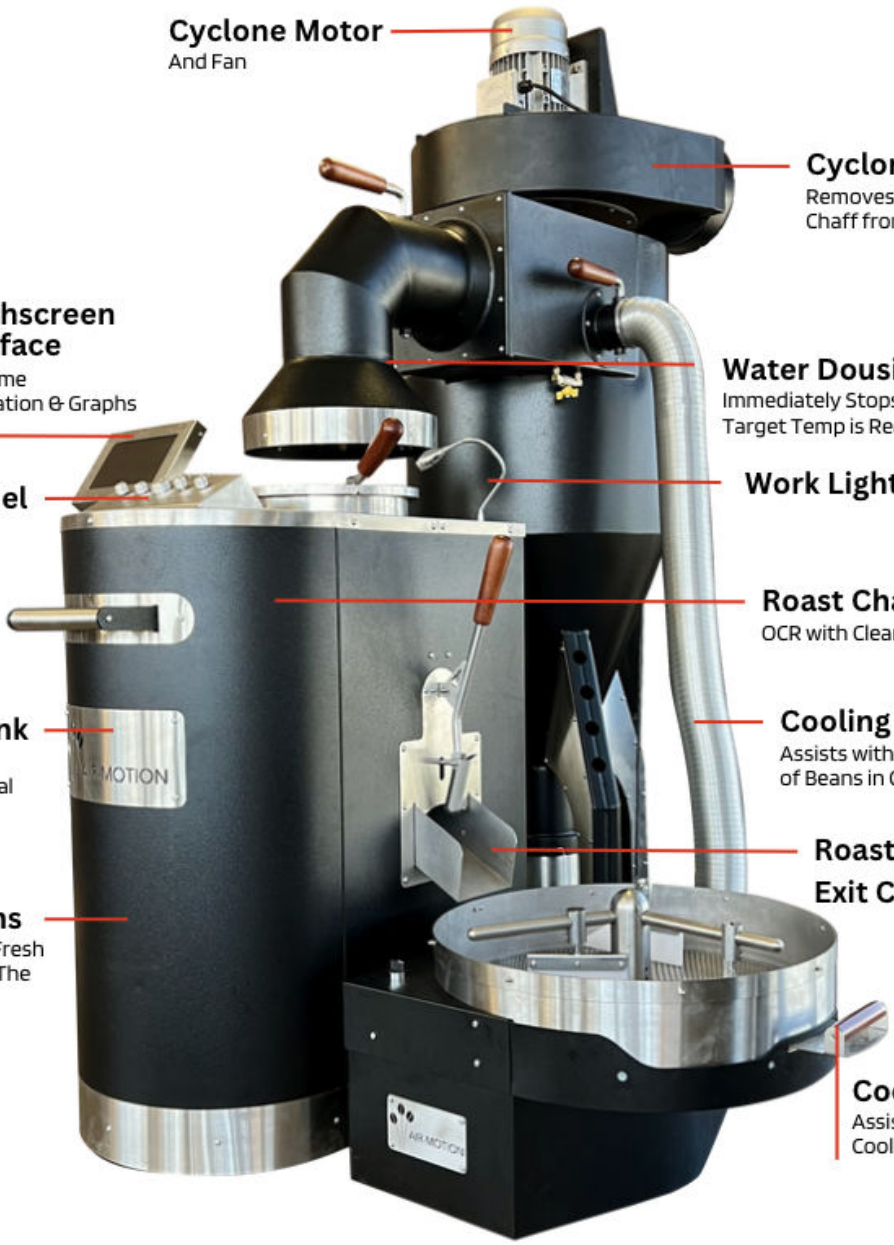


TOP VIEW



AIR-MOTION ROASTERS™ USA

AIR-MOTION 12



Control Panel

Overview

MODE Control Dial

Allows the operator to set the roaster in Roast or Prime mode (this mode warms up your roaster in very cold ambient temperatures) or set the roaster to OFF. Note that to fully turn off the roaster, 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

skyside
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^3)	Emission Limit for Vegetable Drying Processes* (mg/Nm^3)
Particulate matter	4 ± 2	150
Oxides of nitrogen (NO_x)	1 ± 4	200
Sulphur dioxide (SO_2)	<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: 9 February 2021

Warranty

AIR-MOTION
ROASTERS

AIR-MOTION ROASTERS USA
LIMITED 12-MONTH
MACHINE WARRANTY

Air-Motion Roasters USA warrants that each of our roasters (3kg, 6kg, or 12kg air roaster models) sold by Air-Motion Roasters USA will be free from manufacturing defects in materials and workmanship in normal and industrial service for a period of twelve (12) months from the date of delivery, installation, and commissioning.

Provided it is operated and maintained in accordance with Air-Motion Roasters USA's instructions and the accompanying User Manual.

This twelve-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 USA, or at a service facility designated by us, or a 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.

NOTE: Each purchase of an Air-Motion Roaster will come with a personalized warranty and signed by both parties.

Contact Information

Sales and technical support are available by phone and email.

Air-Motion Roasters™ USA
1901 Suffolk Drive, Suite 120
Fort Worth, TX 96133

SALES
Phone: 855.579.6400
Email: sales@air-motionroastersusa.com

TECH SUPPORT & DEMOS
Phone: 817.803.6464
Email: tech@air-motionroastersusa.com

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