

SENTINEL-Xr20

144lbs. Per Hour



# *PRIMO ROASTING EQUIPMENT*

THE MOST RELIABLE AND CUSTOMIZABLE  
MACHINES ON THE MARKET.

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# SENTINEL-XR20 TECHNICAL DATA

## 1. Sentinel-Xr20 Roaster Technical Data

This section contains a table, on the next pages, with technical data information applicable to both the Standard Sentinel-Xr20 and a Custom Sentinel-Xr20 roaster. Information in this table is subject to change.

<b>SENTINEL-Xr20 Information</b>	<b>Technical Data</b>
Green coffee capacity, min-max	20 - 45 lb.; 9.072 - 20.41 kg
Dimensions, maximum L x W x H	90" x 80" x 78"
Shipping Weight (Approximate)	1,650 lb; 748.42 kg
Roaster	1200 lb; 544.3 kg
Cyclone	300 lb; 136.1 kg
Full Batch Roast Time	Approximately 15 minutes
Hourly Output	144 lb/hr.; 65.3 kg/hr.
Roast Air, Maximum	360 scfm
Cooling Bin Air, Maximum	1125 scfm
Cyclone Exhaust Diameter	6 in; 152.4 mm
Roaster Exhaust Diameter	6 in; 152.4 mm
Temperature High Limit	500F/ 260C
<b>Gas Information</b>	
Gas Types	Liquid Propane (LP) or Natural Gas (NG)
Maximum Consumption	300,000 BTU/hr.; 88 kW
Typical Consumption per roast	53,000 BTU; 15.5 kWh
Inlet Pressure LP	11 in WC; 27.4 mbar
Inlet Pressure NG	7 in WC; 17.4 mbar
Inlet Gas Supply Connection	3/4" in male NPT on the roaster
<b>Electrical Information</b>	
Volts AC	220V 14.5 amps
Frequencies	60Hz

# SENTINEL-XR20 ROASTER DRAWINGS

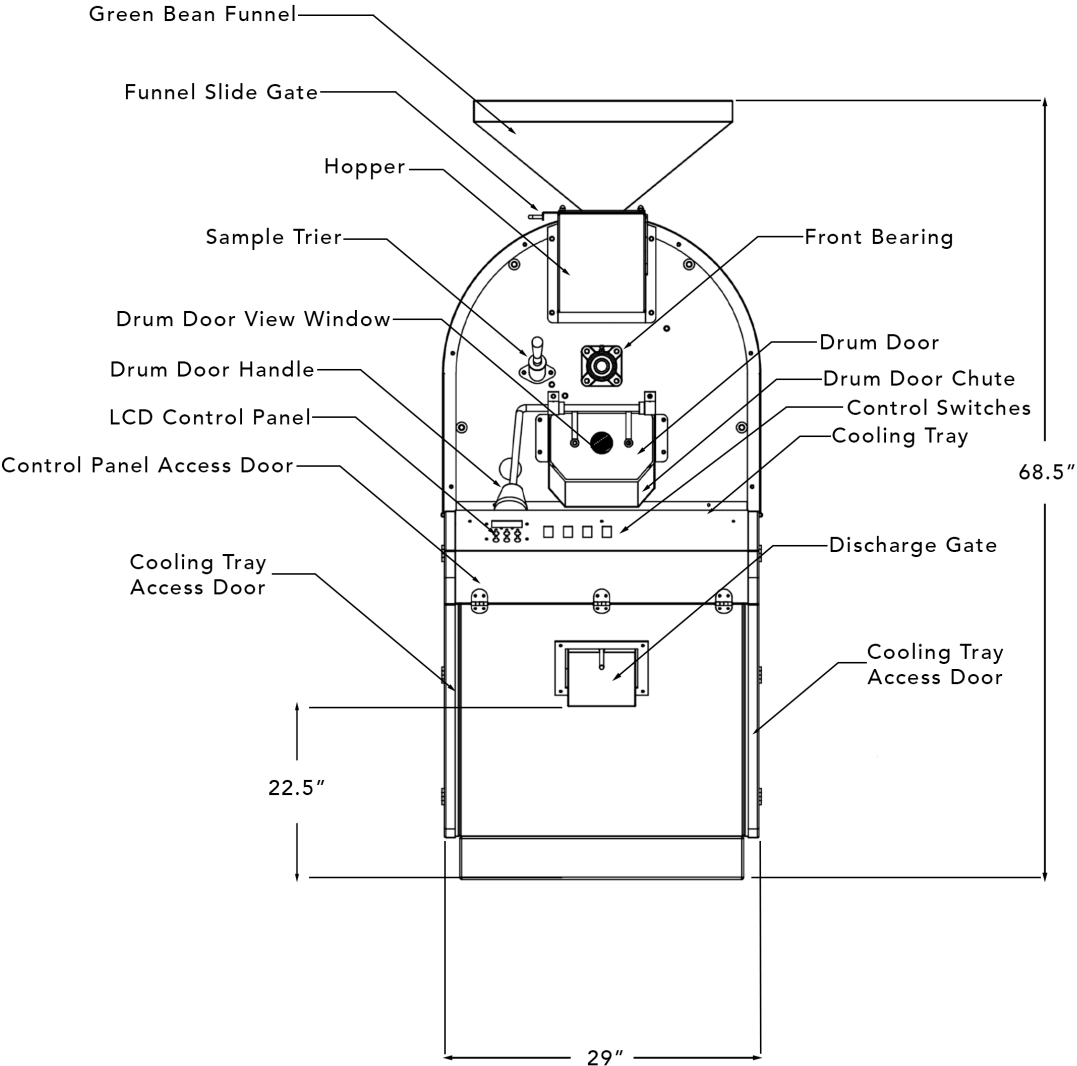
## **2. Sentinel-Xr20 Roaster Drawings**

This section contains drawing views with dimensions and component descriptions. These drawings are valuable for familiarization with the Sentinel-Xr20 roaster and for space and utility connection planning.

Dimensions and some details are subject to change.

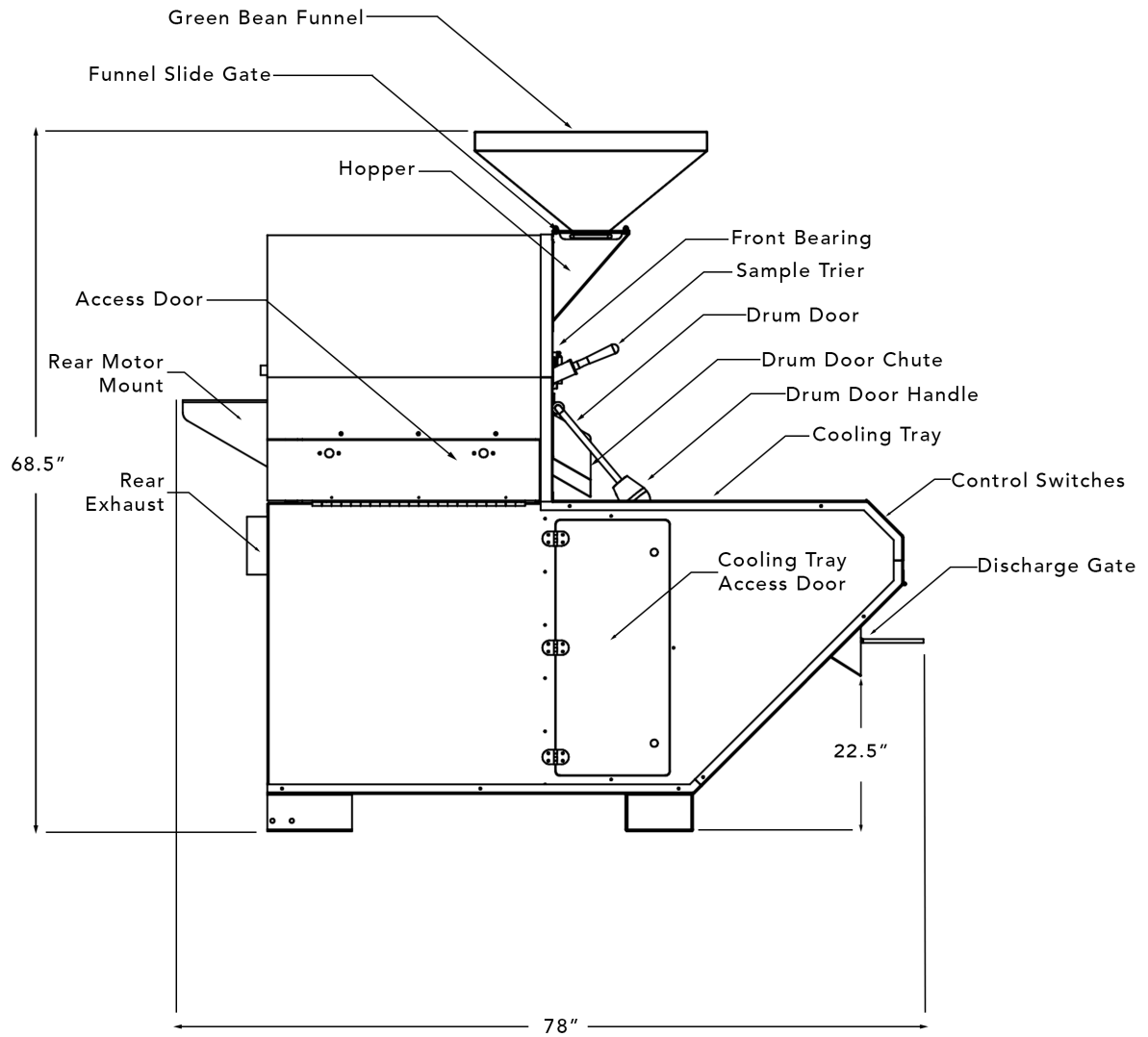
These drawings each take a full page so the remainder of this page is intentionally blank.

# FRONT VIEW



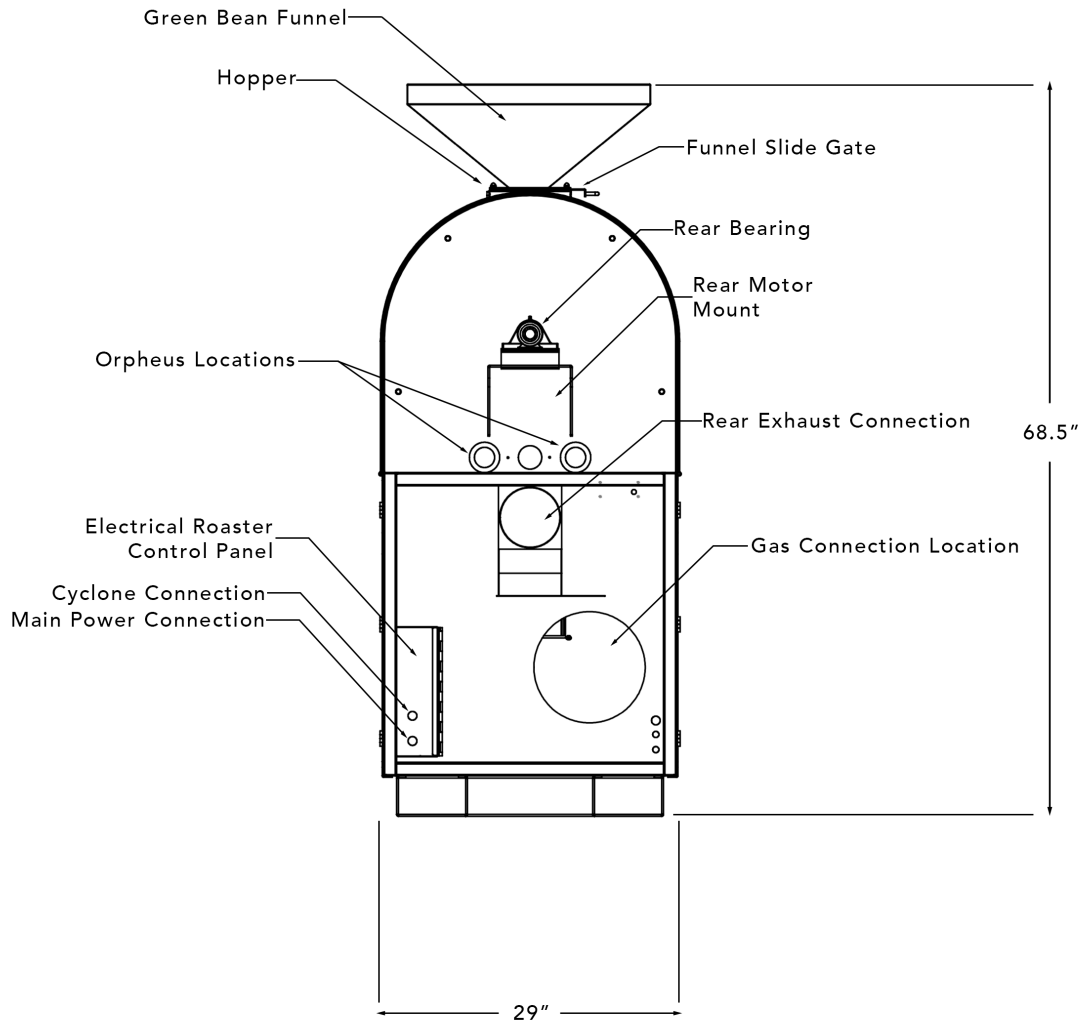
Scale 1:32

# LEFT SIDE VIEW



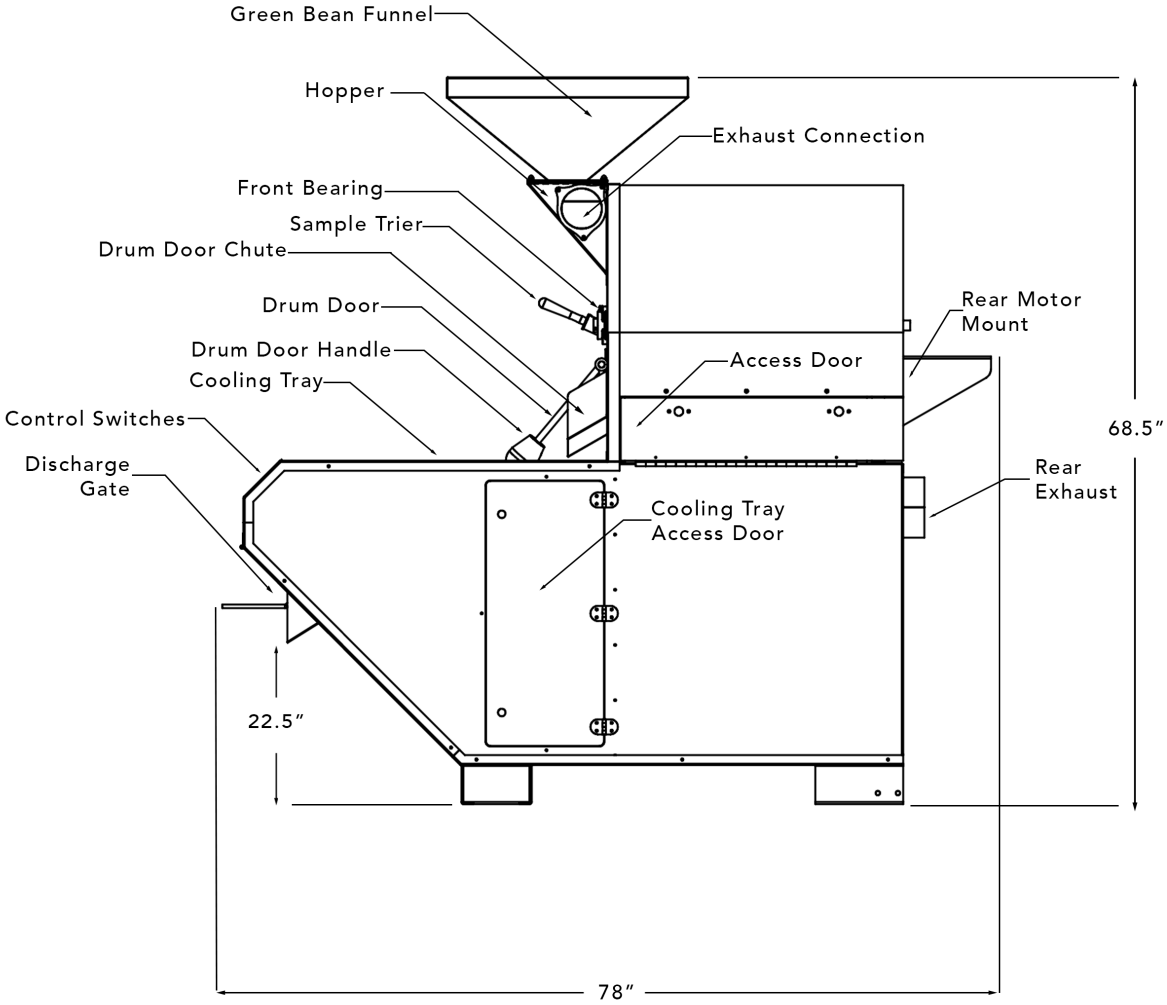
Scale 1:32

# REAR VIEW



Scale 1:32

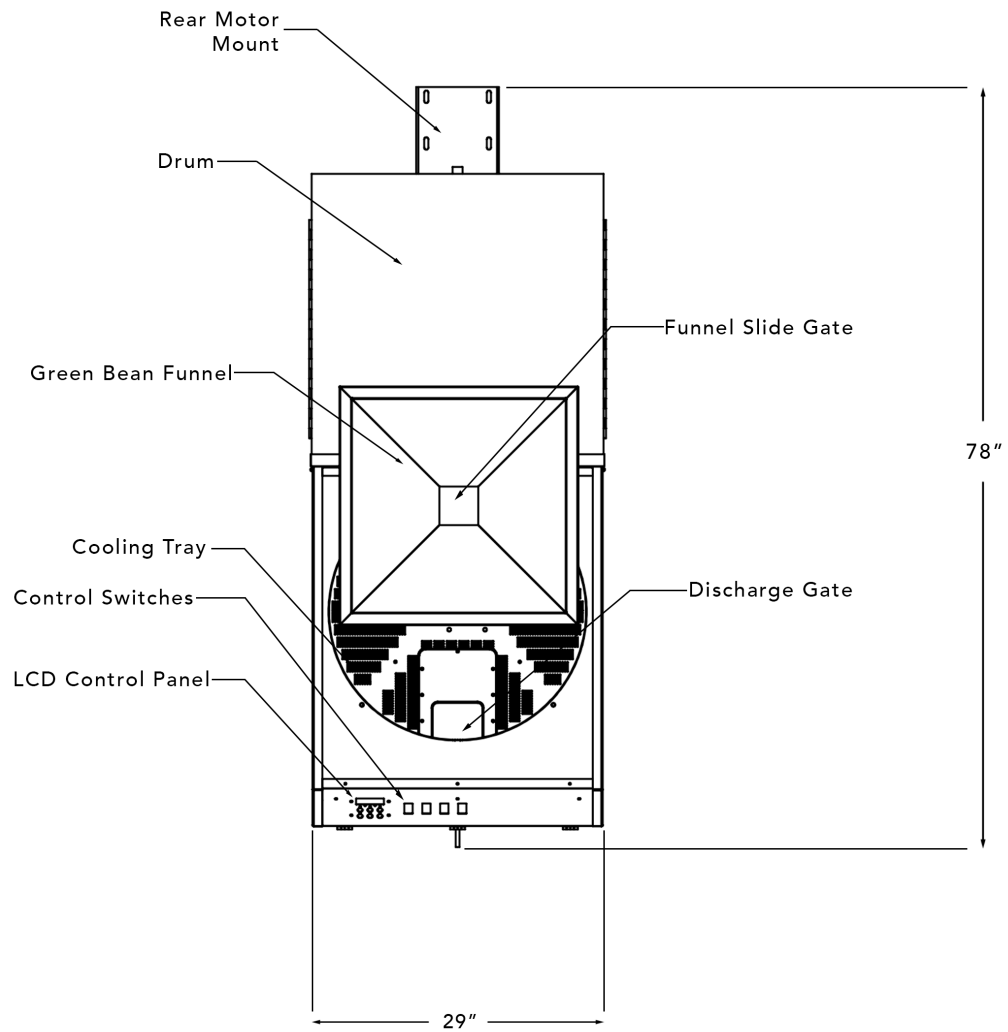
# RIGHT SIDE VIEW



Scale 1:32

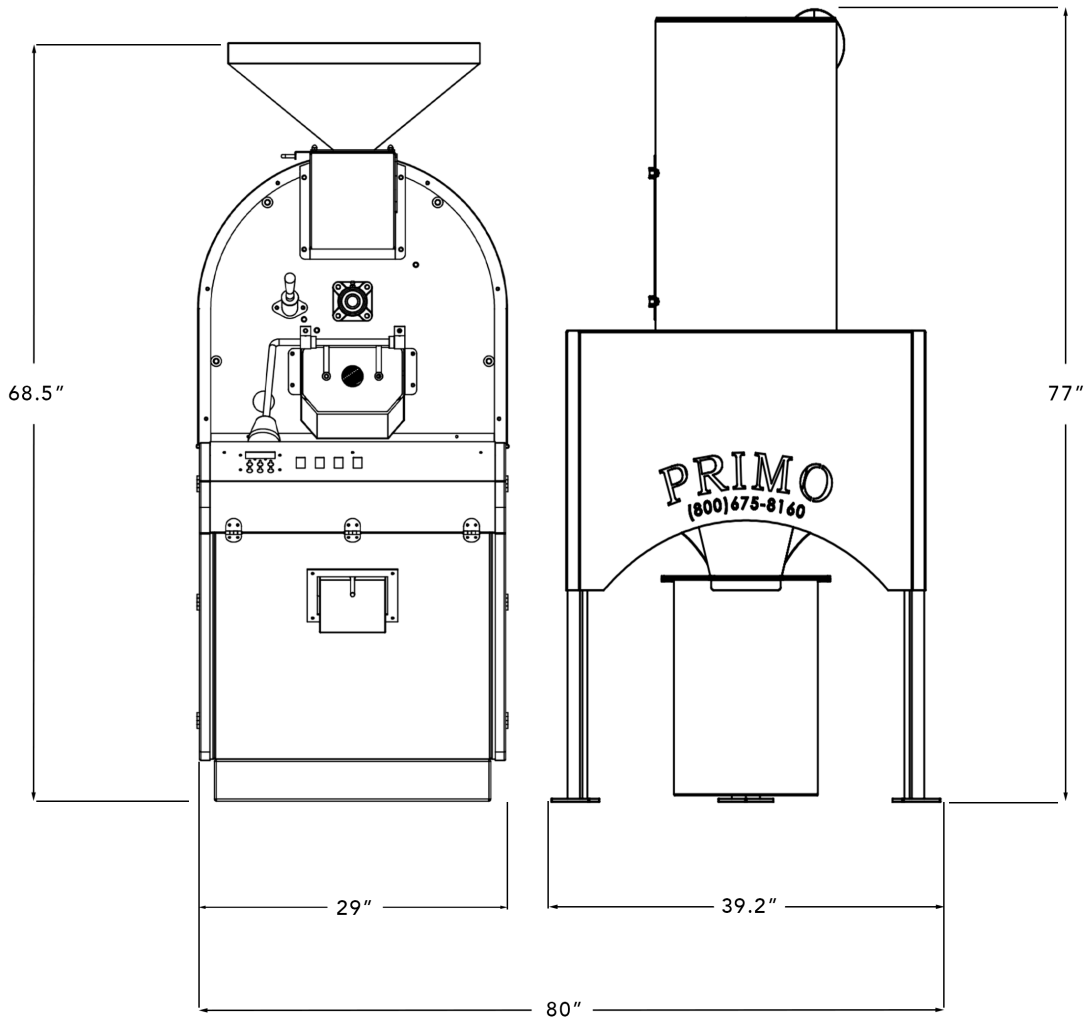


# TOP VIEW



Scale 1:32

# FRONT VIEW WITH CYCLONE



Scale 1:32

Roaster to Cyclone Connection Not Pictured Above\*

## SAFETY INFORMATION

Prior to installing & operating your roaster please read the entire manual. If you see this symbol in the manual, make sure to read what follows because it is a caution for actions that can cause harm or damage to your machine and/or the operator.

Death, injury, or property damage can be caused because of improper installation, adjustment, alteration, service, or maintenance. The entire installation guide must be read prior to installing, cleaning, operating, or servicing this roaster.



It is the owner's responsibility to ensure the installation, cleaning, and operation of the roaster are done safely/properly. Only a qualified professional should operate this roaster.

Keep any flammable items including but not limited to, gases, vapors, liquids, & solids, far away from the roaster at all times. The roaster needs to have a fire extinguisher nearby easily accessible in case of fire. Your local fire department will have information on which fire extinguishers should be used. Fires may be caused from not cleaning the roaster or exhaust system correctly and/or often enough.

The roaster needs 18 inches of space around it at all times. **Do not touch hot surfaces.**

Once the installation of the roaster is completed, you will need to have it inspected to ensure it is compliant to local building codes. A local fire inspector must also inspect the machine. These things must be done prior to operating. The Primo Roasting Equipment warranty may be null/void if the inspections are not done. This would relieve Primo Roasting Equipment from any liability that has to do with the use of the machine & how the installation was done.

Instructions for what to do when the roaster operator finds a gas leak and/or smells gas need to be posted in a location easily accessible/readable. Your local gas company or company that supplies gas will have the instructions for you to get from them.

## THINGS TO CONSIDER

### i. Ease of movement

**ATTENTION: Prior to moving machine and/or cyclone make sure the roaster is turned off, unplugged, and the gas is disconnected/off.**

To move the roaster and/or cyclone the machine must be taken apart.

1. Remove exhaust arm by pulling it off via compression fittings and set aside.

2. Unbolt cyclone from ground if applicable.

(1) Use forklift to pickup machine from the back \*make sure to tilt forklift back once the roaster is lifted up to avoid it sliding off or tipping the forklift\*

3. Place roaster in desired location using the installation guide/spacing requirements.

Make sure to leave ample room behind the machine in order to let forklift have access for movement purposes.

**\*Every time the machine is moved, disassembled, & put back together the operator must inspect machine prior to resuming operations\***

## PRE-INSTALLATION

### i. Receiving/Un-Crating

**ATTENTION: Hire a professional to install your roaster.**

#### **Roaster:**

The roaster comes in a crate.

Cut plastic walls off to expose roaster.

**\*Be careful not to drop/slide the tool you are using to cut into the crate, on the roaster\***

Once all walls are taken off, cut the steel cord strapped over the cooling tray to the pallet.

After the roaster is free standing on the pallet use forklift to move off of the pallet.

Pick up roaster from the back of the machine to get off of the pallet

**\*Make sure to tilt the forklift arms up once roaster is in the air\***

**\*We recommend keeping the roaster as close to the ground as possible when moving\***

Set roaster in desired area **\*Spacing requirements further down\***

#### **Cyclone:**

The cyclone comes bolted down on a pallet, wrapped in plastic.

Remove plastic wrap from cyclone & pallet Move pallet as close to desired position for the cyclone to make moving it easier.

**\*Use spacing requirements further down\***

Remove bolts from cyclone legs.

Pick up cyclone using forklift in-between the cyclone legs.

**\*Wrap and protect the forklift arms/cyclone arms to prevent abrasion on the cyclone when moving\***

Place cyclone on correct side of roaster using spacing requirements below.

#### **Spacing Requirements:**

Be sure you have ample access to the green bean funnel, control panel, access doors, chaff bin, hopper, etc.

Space your roaster about 18" from back wall to ensure you have ample access for venting the machine.

The footprint of the roaster and cyclone is 90" x 80" x 78". The cyclone needs to be placed 12" to the right of the roaster. The cyclone vent should be flush with the roaster vent to make adding the exhaust arm simple & easy. There must be easy access to the following areas: cyclone chaff bin, left and right side access doors, control panel, hopper, and gas line connection located on the back of the machine. Having easy access to these places will make cleaning and maintenance much easier.

## INSTALLATION

**ATTENTION: Hire a professional to install your roaster. This manual must be read completely through prior to any installation. Check with local building authorities for their local codes & installation requirements prior to installation.**

### i. Electrical

**ATTENTION: Use a licensed electrical company when installing the electrical on your Primo roaster.**

Consult your licensed electrician to ensure proper installation of either the 110 V or 220 V, based off requested voltage. If using 220v a 3 prong 220v will not be included and must be wired to the 3 wires from the machine.

### ii. Gas

**ATTENTION: Use a licensed gas company when installing the gas line on your Primo roaster.**

Local codes, regulations, and/or laws must be followed when doing the gas installation for the machine.

**\*Propane roasters must use propane only and are required to use a gas regulator.**

**\*Have a certified gas worker inspect and double check any gas connection work you do.\***

### iii. Roaster Funnel & Cyclone Exhaust Fitting

1. Remove a total of four nut caps (7/16") from the hopper.
2. Place funnel slide gate in designated position on top of the hopper.
3. Place green bean funnel on top of the funnel slide gate.
4. Before tightening the green bean funnel to the hopper ensure that your funnel slide gate is operating smoothly. (Slide gate should move with ease.)
5. After the slide gate and green bean funnel are in position you may begin tightening the four nut caps using a (7/16") wrench.
6. Finally, slide the exhaust on, connecting the roaster and cyclone via compression fit.

#### **iv. Cyclone**

**ATTENTION: When installing the cyclone to your roaster use a licensed contractor.**

The cyclone uses 6" ducting too vent.

Consult your licensed contractor to ensure proper installation of duct work.

## EXHAUST DUCTING & GENERAL INFORMATION

1. Throughout the remainder of this document, the term exhaust ducting refers to the ducting that the customer, or their contractor/representative, select, acquire, and install. The exhaust ducting will connect to the applicable Primo Roasting provided equipment.

2. One of the most important aspects of the equipment installation is the use of an approved exhaust ducting system. Its design can greatly affect the equipment performance and the product quality. The cost and time to order and install the exhaust ducting are also important customer considerations.

3. Designing the exhaust ducting system requires a qualified professional to calculate the efficiency of the system and the proper size of ducting. The ducting must be of sufficient diameter to accommodate the air flow (SCFM - standard cubic feet per minute or SCMh - standard cubic meters per hour), and meet applicable regulations. A licensed engineer or Heating, Ventilation, Air Conditioning (HVAC) professional can assist. Information the qualified professional will need, such as the diameter of the exhaust ducting and the maximum exhaust air flow, is located on page 3 Technical Data table. Customers should contact their sales or project manager representative with any questions.

4. A properly designed and installed chimney and rain cap is essential to the equipment performance and longevity. Water leaking in may cause an electrical short or damage the equipment. Your contractor will be able to coordinate with local jurisdictions for the correct cap. The cap should not have a screen since it will clog with residue of chaff over time.

5. The Primo Roasting Equipment (roaster, cyclone, Afterburner, loader, or destoner, as applicable) **MUST NOT** support the weight of the exhaust system.

6. The exhaust air from Primo products fits into one of the two general categories. Either hot exhaust air, such as from the roaster or an afterburner; or ambient/room temperature exhaust air, from products such as loaders and destoners. The sections that follow will discuss ducting considerations specific to these general categories.



## EXHAUST DUCTING, HOT AIR - ROASTERS & AFTERBURNERS

1. The exhaust air from the roasting process is hot and contains oils and residues which are flammable. In the event of a ducting/flue fire, the internal duct temperatures can exceed 1000° F (538°C), which could cause nearby combustible materials to ignite. Thus, Primo recommends, at a minimum, fire rated, positive pressure ducting that meets the applicable region/local standards, such as UL for USA, ULC for Canada, and CE for the European Union.

2. An important consideration when designing an exhaust ducting system is the static pressure. The static pressure is the back-pressure or suction within the system. The exhaust ducting that connects to the roaster, cyclone, or afterburner, must be designed to operate with a static flue pressure between negative 0.15"WC (suction) and positive 0.25"WC (back-pressure) at the exhaust of the roaster (cyclone or Afterburner, as applicable) while in operation.

3. For Roasters (with or without cooling bin cyclone, and without an Afterburner).

Ducting must be suitable for 500°F (260°C) continuous, 2,000°F (1,093°C) for 30, minutes, in the USA/Canada, and/or equivalent standards for other countries (such as CE standards for the European Union).

Installation must be done in accordance with appropriate NFPA standards in the USA or equivalent standards in other countries. The installation must also comply with the manufacturer's installation specifications and allowable distance to combustible/noncombustible materials.

4. For Roasters with an Afterburner.

Ducting from the Afterburner must be suitable for 1,000°F (538°C) continuous, 1,400°F (927°C) intermittent, and comply with UL103/ULC\_ORD-C959 in the USA/Canada, and/or equivalent standards for other countries (such as CE standards for the European Union).

Installation must be done in accordance with appropriate NFPA standards in the USA or equivalent standards in other countries. The installation must also comply with the manufacturer's installation specifications and allowable distance to combustible/noncombustible materials.

## **EXHAUST DUCTING, AMBIENT AIR -LOADERS & DESTONERS**

### **DANGER**

**DO NOT USE CLASS B OR SPIRAL-WRAP DUCTING FOR ROASTER OR AFTERBURNER DUCTING UNDER ANY CIRCUMSTANCES.**

### **DANGER**

**Fires are caused by failure to maintain a clean roaster and its exhaust ducting system. Regular cleaning of the roaster and exhaust ducting will prevent the buildup of residues that could cause fire.**

1. The exhaust air from loaders and destoners is about the same temperature as the ambient air in the room or operating area. The regulatory requirements for the exhaust ducting for these components are much less stringent than the requirements for the hot air roaster, cyclone and afterburner exhaust.
2. The exhaust air from the green bean loader and the destoner will likely contain some dust and/or other particulate matter. A dust collection system should be considered.

## OPERATING MACHINE

Primo Roasters have 3 or 4 switches depending on model. The switches in order from left to right: Ignition (IGN), Drum (DRUM), Cooler (COOLER), & Agitator (AGT). Every Primo Roaster is outfitted with a LCD screen. This LCD screen shows your current drum temperature, Temp 1 & Temp 2 set points, and your Burners switch (ON/OFF).

### **i. Starting Roaster**

1. Make sure roaster is properly connected to correct gas source.
2. Make sure roaster is properly plugged in to correct outlet.
3. Make sure the chaff bin is empty and that the under cooler & side panels are clean of debris.

How to turn roaster on:

### **ii. Roasting**

1. Preheat roaster before first roast for 15-20 minutes or at 400 F.
2. Turn Drum on by pushing in the drum switch on the control panel of the roaster.
3. Next push in the ignition switch next to the drum switch to activate the LCD screen.
4. Press the ON button located on the LCD screen to ignite the burners.
5. Push temp 1 button on the LCD, use keypad to set desired temperature.
6. Push temp 2 button on the LCD, use keypad to set desired temperature.
7. Let roaster preheat to desired temperature and stay constant for 3 minutes.
8. Fill hopper with raw material.
9. Once filling stops pull funnel slide gate open to allow material to fall into the drum.
10. Close funnel slide gate.
11. Once the material reaches desired temperature turn on the agitator switch and the cooler switch.
12. When material is finished open drum door to allow all material to fall into the cooling tray.
13. Allow machine to reheat prior to next material.
14. Open discharge gate to allow first roast to be transported before the new roast reaches desired degrees.
15. Close discharge gate when all roasted material is out of cooling tray to prepare it for the batch currently roasting.
16. Repeat steps for multiple batches.

### **iii. Cooling**

#### Cooler/Agitator

Primo Roasters are equipped with an agitator/cooler to cool down the roasted material.

Before dropping roasted material into the cooler tray turn on the agitator and cooler switches (The Genesis-Xr3 & Ranger-Xr5 models do NOT have both switches).

Once your material has cooled to the desired temp you can open the discharge gate to drop material into storage bin. Be sure to close the discharge gate correctly before dropping the next batch of material into the cooler tray.

### **iv. Misc**

#### Shut-off

1. Open funnel slide gate and the drum door when shutting off to speed up cooling process.
2. Push stop button on the LCD screen until the burners turn off.
3. Leave the drum switch on until temp drops to 200 degrees F.
4. Turn all switches to the off position once the roaster has cooled down.
5. Close funnel slide gate and drum door.
6. Turn gas valves off and unplug the roaster.

## MAINTENANCE & CLEANING

### i. Maintenance Schedule

#### Changing Drum Depth

1. Make sure machine is shut-off.
2. Loosen the two set screws on the front bearing with a 3/32" HEX Key.
3. Use a rubber mallet to push the drum axle back to desired distance **\*Use rubber mallet as to not damage the machine. Do NOT hit any other part than the front flat section of the drum axle\***

#### Grease Bearings

1. Add grease to front and rear bearing every 500 pounds of coffee.
2. Use greasing tool to add teflon grease to the pin on the side of the front bearing.
3. Wipe excess grease off with a rag.

### ii Cleaning Schedule

**ATTENTION: Unplug machine prior to cleaning. Turn gas valve off prior to cleaning machine. Let machine cool down if hot prior to cleaning to avoid injury.**

#### Daily Cleaning

1. Empty chaff bin beneath cyclone, remove the bin by sliding it away from the front of the cyclone. **\*Be sure the chaff bin is below cyclone prior to operating machine.\***
2. Open cooler tray access doors to vacuum out chaff that has fallen below the cooling tray. **\*Be sure to close both doors and lock latches before operating machine.\***
3. If the cooling tray screen has any blockages in it be sure to clean them out via a brush or tool to ensure maximum cooling is taking place.
4. Open side access doors on roaster by turning each of the knobs and lowering the panel. Remove the heat shield. Vacuum out the burner area to clear all chaff. **\*Be sure side panels are closed properly before your next roast.\***

#### Every 10th Day Cleaning

1. Clean exterior of machine/cyclone using either compressed air or microfiber cloth.
2. Inspect front/rear drum bearings and lubricate as necessary.
3. Inspect venting system from roaster to cyclone, cyclone to vent, and roaster to vent for blockage. Clean as necessary.

4. Inspect all ducting on roaster/cyclone for accumulation. If necessary clean and remove the accumulation prior to cleaning.
5. Check blower motor fan and if necessary, clean.

#### Annual Cleaning

1. Check all visible bolts/screws and tighten/replace if necessary.
2. Have a professional chimney cleaner sweep clean the exhaust ducting.

## ADDITIONAL DOCUMENTS & INFORMATION

The information in this document is intended to assist customers with purchasing and facility preparation decisions. Upon purchase of a Primo Roaster, additional documentation will be provided. It is important for customers to read these documents to ensure that the installation and operation phases are smooth and safe. Please feel welcome to reach out to us with questions or information requests.

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