

DIEDRICH™

— **ROASTERS** —



CR-70 CACAO ROASTER

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Original Instructions
GUI-CR70-CACAO-0001, Rev 002

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1. CR-70 ROASTER TECHNICAL DATA

This section contains a table, on the next pages, with technical information applicable to a CR-70 Auto roaster. Information in the technical data table is subject to change.

CR-70 Roaster Information	Technical Data
Cocoa bean capacity, min-max	77 – 154 lb.; 35 - 70 kg
Dimensions ¹ , maximum L x W ¹ x H	13'6"x 7' ¹ x 8'5"; 4098 x 2134 ¹ x 2549 mm
Shipping weight (Approximate)	Actual shipping weight may vary
Roaster and main electrical ctr panel	3,350 lb; 1,520 kg
Cooling Bin	1,077 lb; 489 kg
Green Bean Funnel	759 lb; 344 kg
Roast Air Cyclone	540 lb; 245 kg
Shipping crate size, L x W x H	Actual crate size may vary
Roaster and main electrical panel	74 x 87 x 86 in; 1880 x 2210 x 2184 mm
Cooling Bin	57 x 68 x 42 in; 1448 x 1728 x 1069 mm
Green Bean Funnel	74 x 87 x 45 in; 1880 x 2210 x 1143 mm
Roast Air Cyclone	50 x 75 x 34 in; 1270 x 1905 x 864 mm
Roast Air, maximum	750 scfm; 1,274 scmh
Cooling Bin Air, maximum	2,000 scfm; 3,398 scmh
Roast Air Cyclone outlet diameter	8 in; 203 mm
Cooling Bin Blower outlet diameter	10 in; 254 mm
Temperature high limit	475F/246C burner off, 485F/252C pilot off
Air Pressure	70 psi; 4826 mbar
Air Connection	¼" female NPT on the roaster
Water Pressure	40 - 70 psi; 2757-4826 mbar
Water Connection	¼ inch female NPT on the roaster
Water flow to roaster at 40 psi/2.8 bar	2 gallons per minute; 7.57 liters per minute
Water flow to chaff barrel at 40psi	2 gallons per minute; 7.57 liters per minute
Gas Information	
Gas Types (others if pre-approved)	Liquid Propane (LP) or Natural Gas (NG)
Maximum consumption	250,000 BTU/hr.; 73.25 kW
Typical consumption per roast ³	66,665 BTU; 16.6 kWh
Inlet Pressure LP	11 in WC; 27.4 mbar
Inlet Pressure NG	7 in WC; 17.4 mbar
Inlet gas supply connection	¾ in female NPT on the roaster

¹ Dimensions rounded to the nearest inch. Maximum width is with HMI arm fully extended. See Top View drawing.

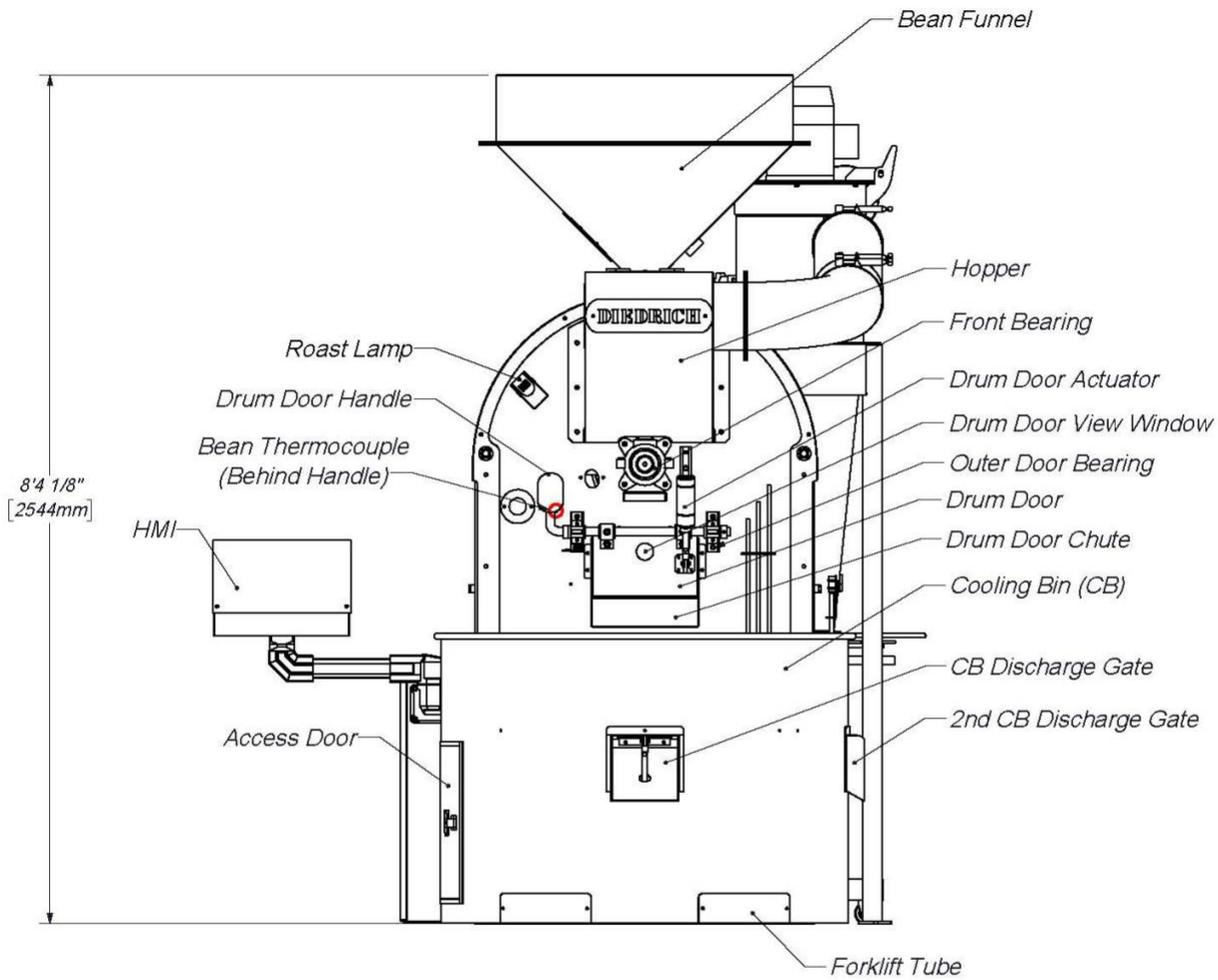
Continued on next page	Continued on next page
Electrical Information	
Volts AC	200-240V 3 PH & 380-415V 3PH
Frequencies	50Hz/60Hz
Full Load Amps; <u>Roaster</u> Full Load Amps (FLA) at voltages other than what is shown will differ some.	27.1 Amps at 230V 3PH 50/60Hz 14.4 Amps at 380V 3PH 50/60Hz
Main Breaker size	35 Amps at 230V 3PH 50/60Hz 20 Amps at 380V 3PH 50/60Hz

2. CR-70 ROASTER DRAWINGS

This section contains drawing views with dimensions and component descriptions. These drawing are valuable for familiarization with the Diedrich CR-70 roaster and for space and utility connection planning.

Dimensions and some details are subject to change.

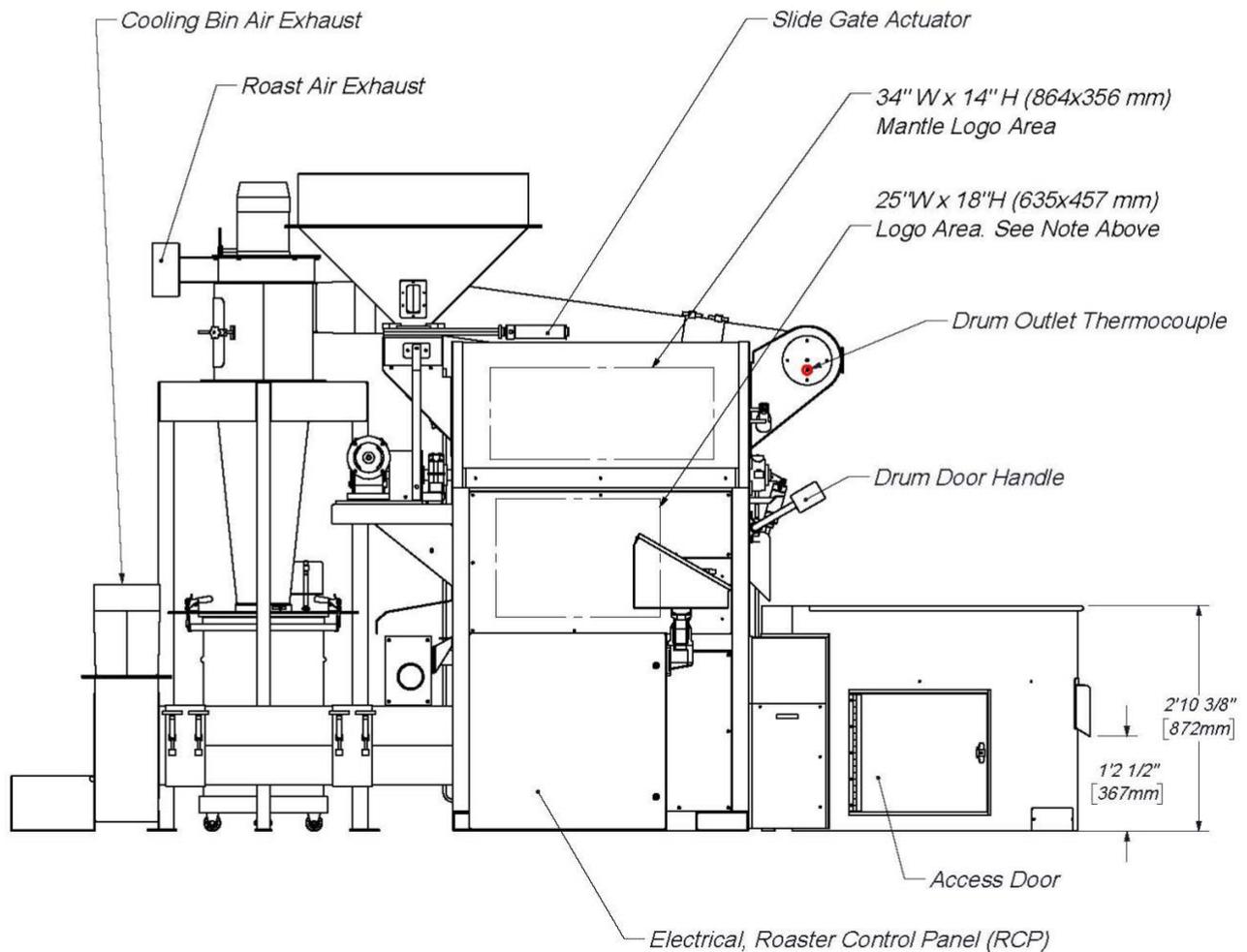
These drawings each take a full page, so the remainder of this page is intentionally blank.



Front View

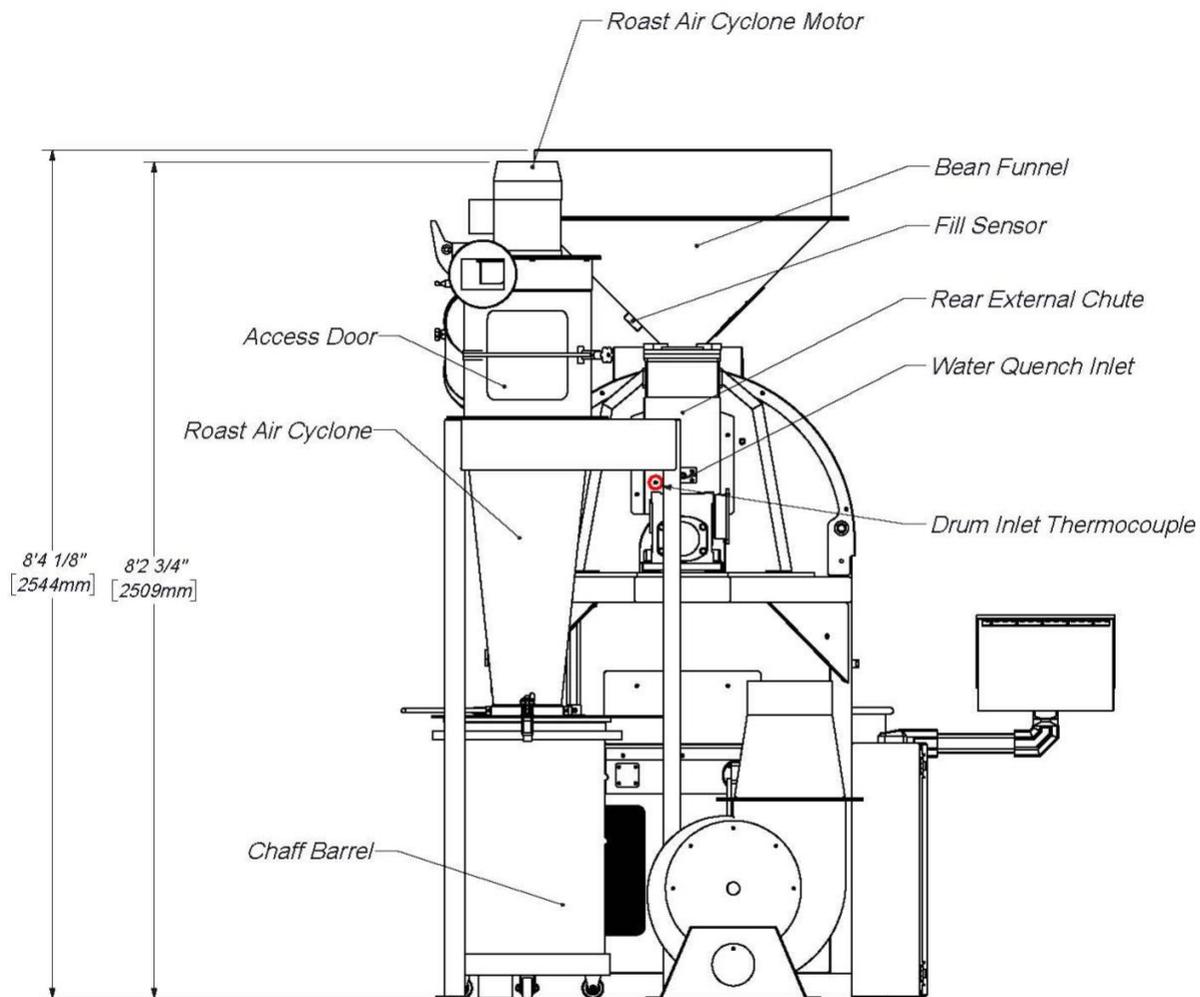
Scale 1:20

Note: Dimensions for a logo "centered" on the side panel is 20" W x 18" H (508 x 457 mm)
Logo's for each logo area are optional.



Left Side View

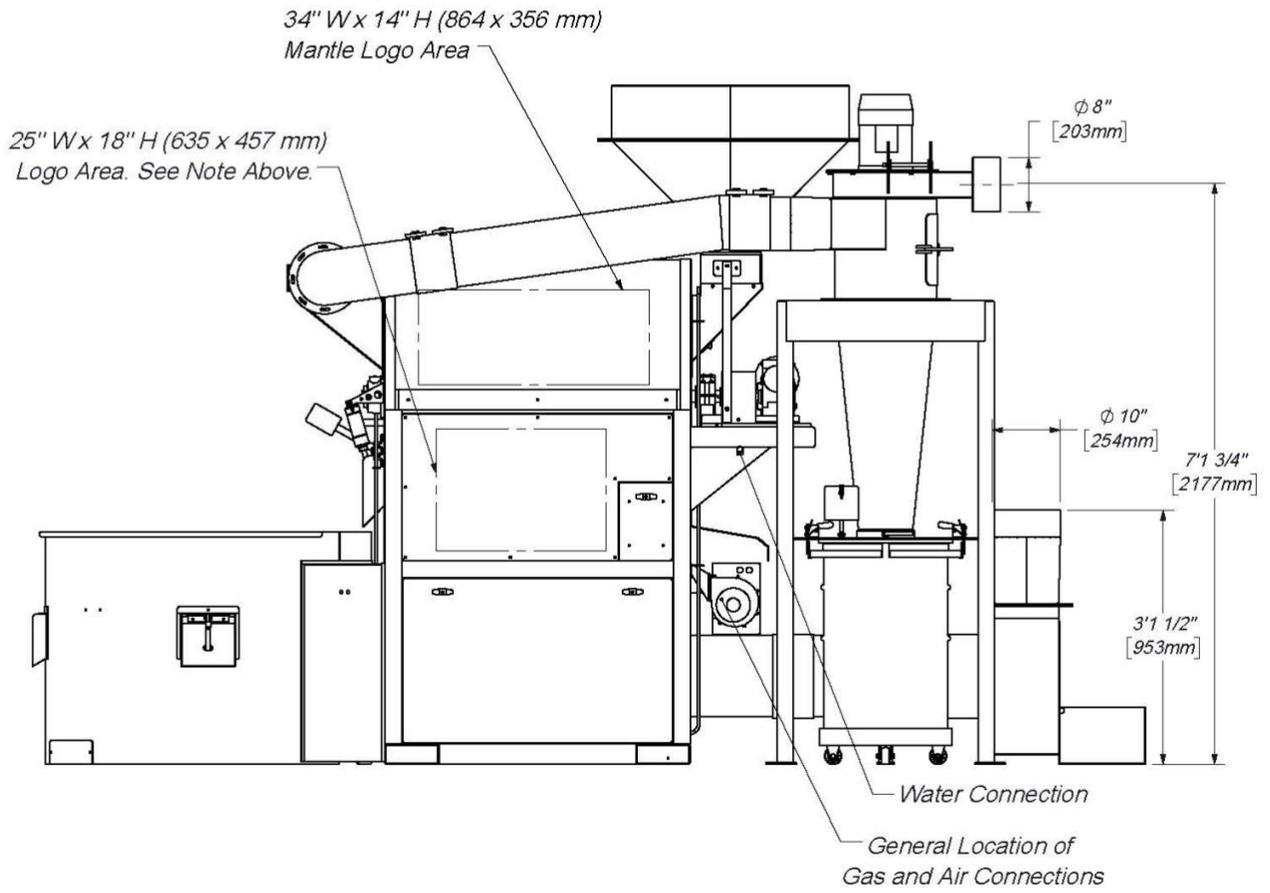
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Rear View

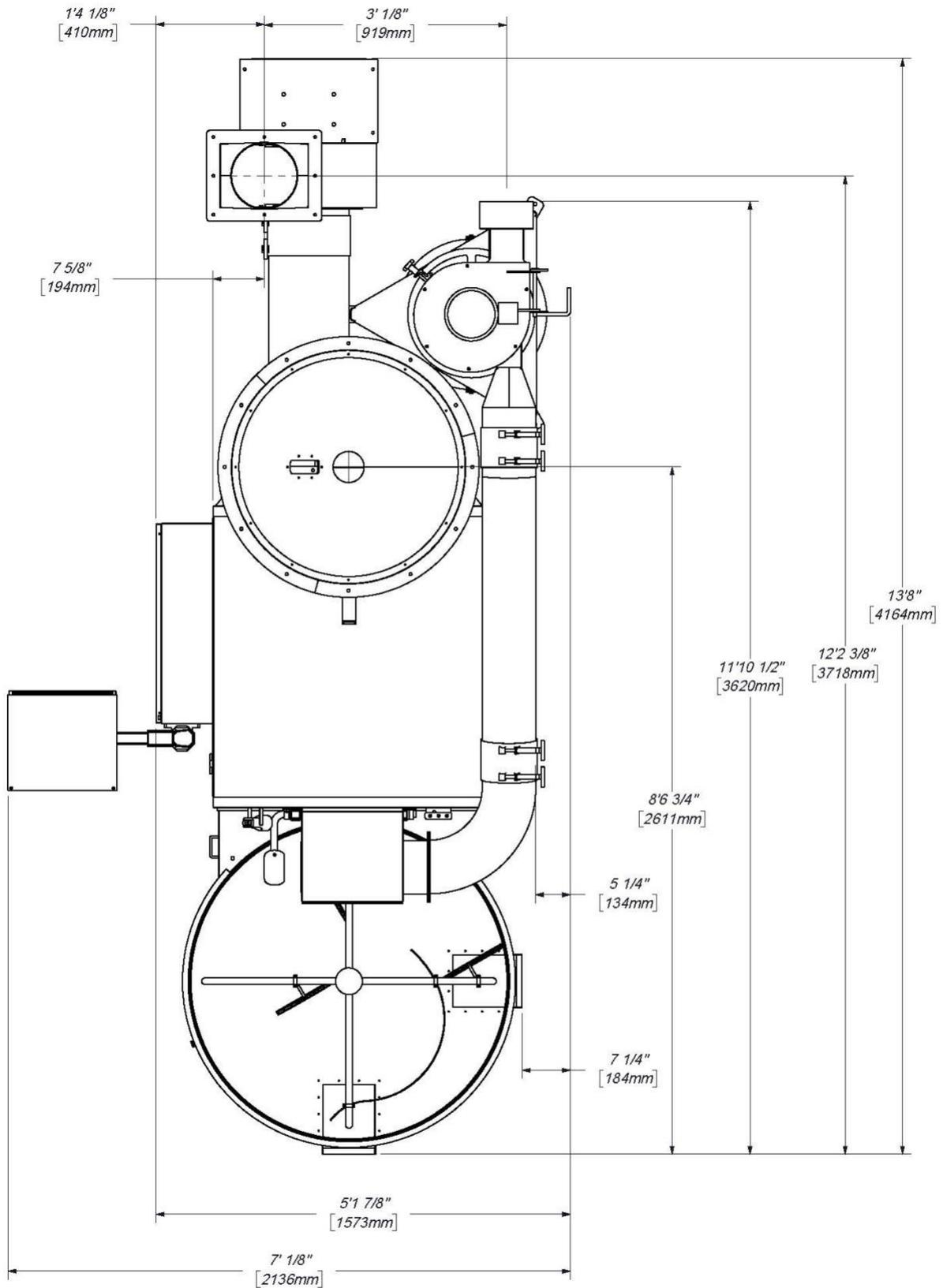
Scale 1:20

Note: Dimensions for a logo "centered" on the side panel is 20" W x 18" H (508 x 457 mm)
Logo's for each logo area are optional.



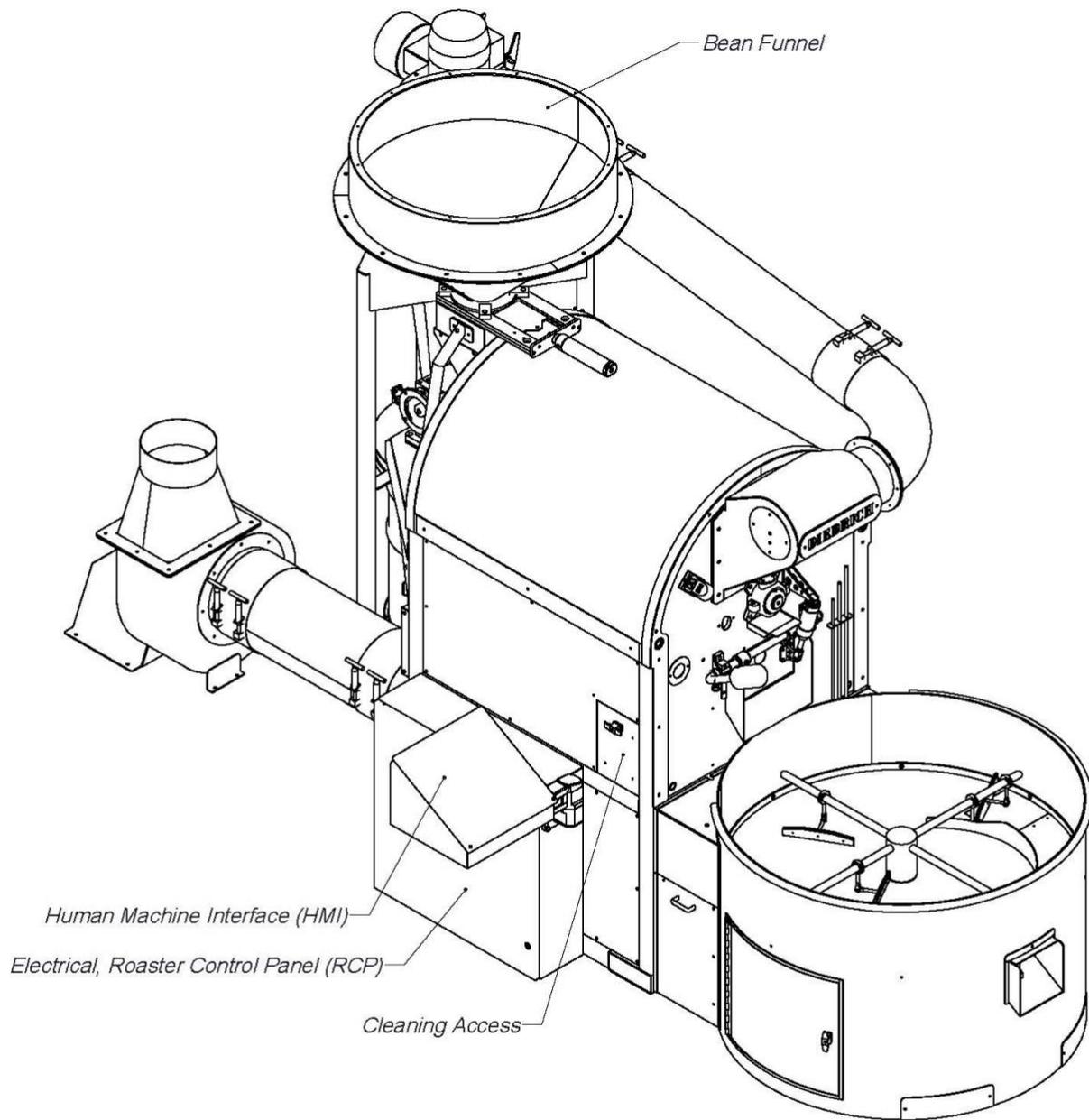
Right Side View

Scale 1:25



Top View

Scale 1:20

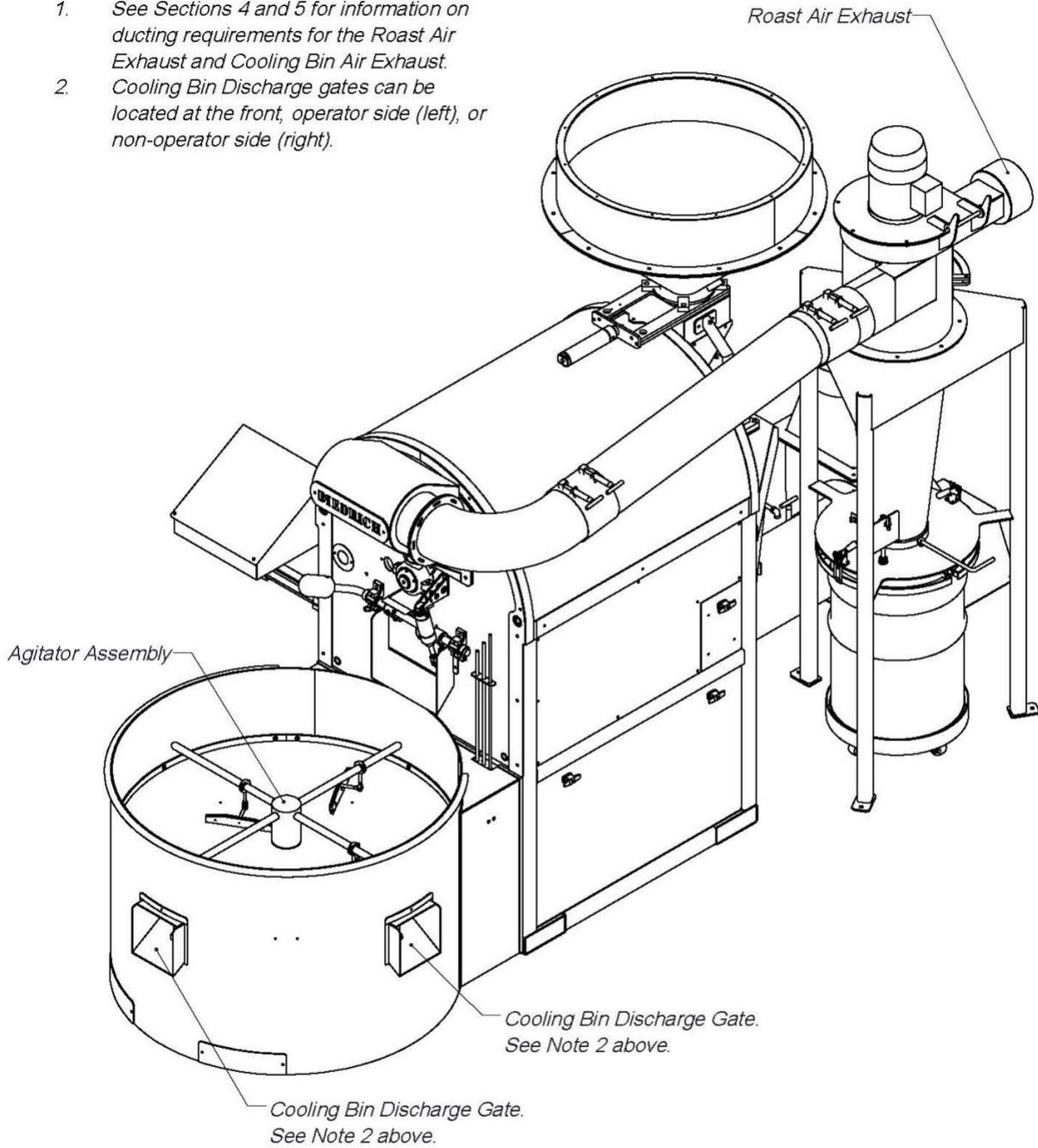


Front Left - Isometric View

Scale 1:20

Notes:

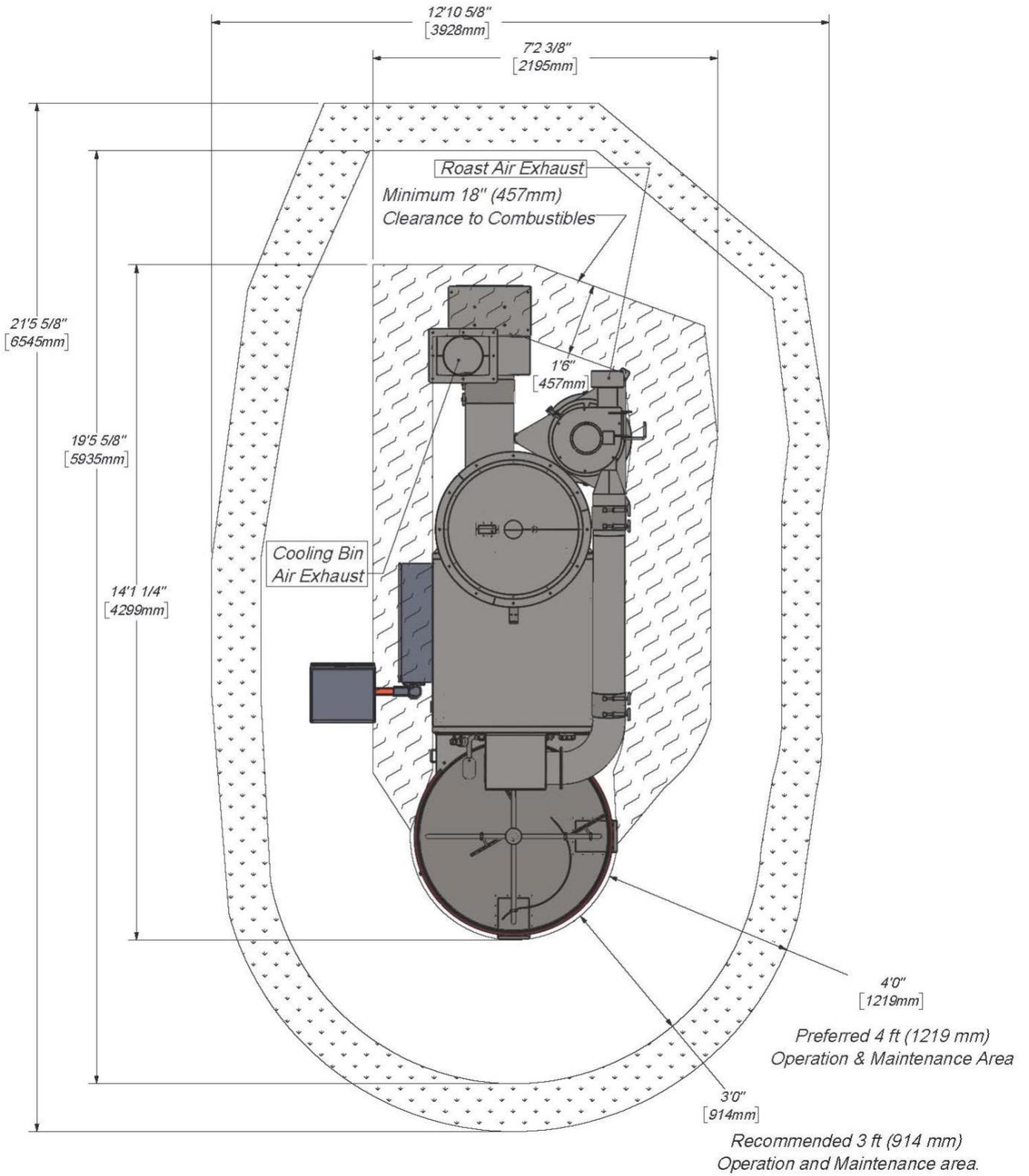
1. See Sections 4 and 5 for information on ducting requirements for the Roast Air Exhaust and Cooling Bin Air Exhaust.
2. Cooling Bin Discharge gates can be located at the front, operator side (left), or non-operator side (right).



Front Right - Isometric View

Scale 1:20

Space Considerations



Top View

Scale 1:32

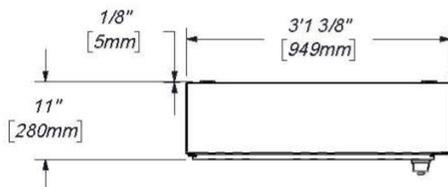
Main Control Panel (MCP) Information

Purpose: Houses electrical components needed for equipment operation.

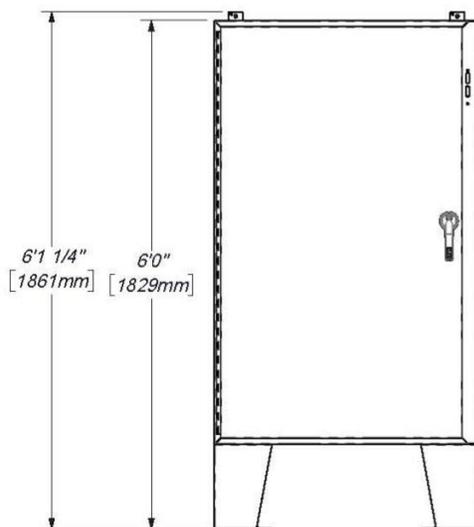
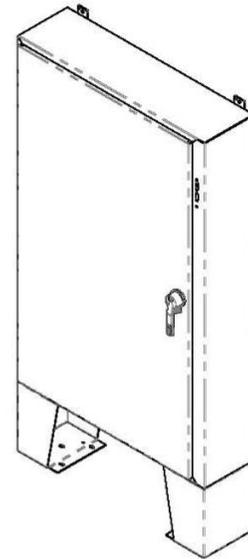
Location: Customer/contractor chooses where to place, and how to secure.

Customer/Contractor responsibility.

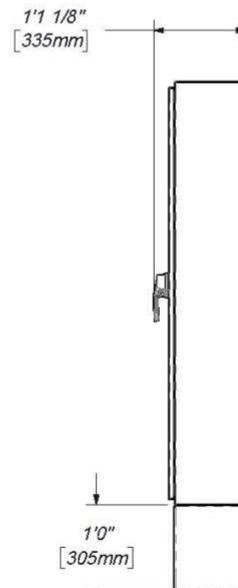
1. Connect incoming line power from facility to MCP
2. Route and connect wires from MCP to other equipment per Diedrich provided conduit schedule. The conduit schedule identifies all line voltage and low voltage wires that need to be connected to the MCP and any other electrical panels on other equipment.



Top View



Front View



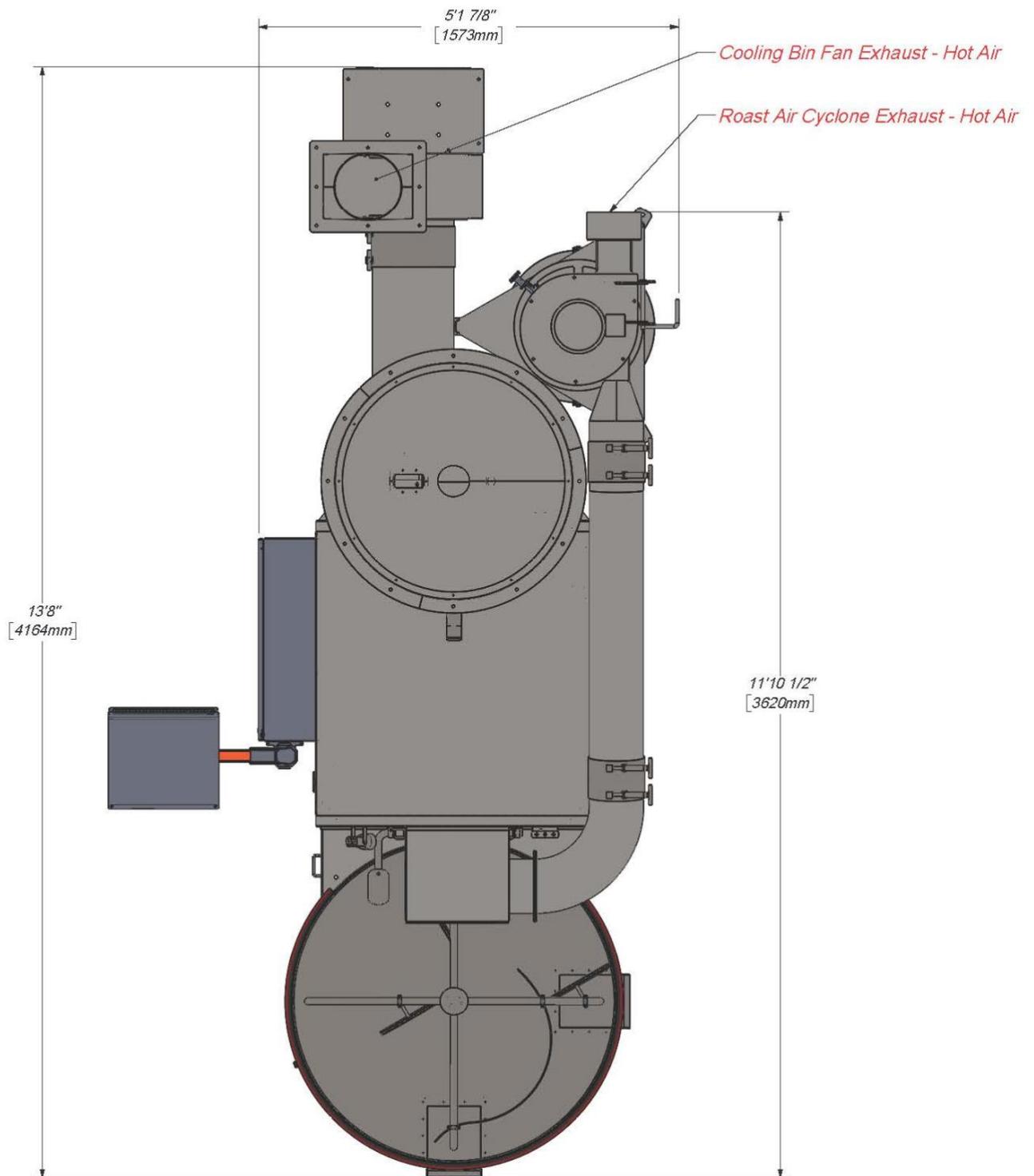
Right Side View

Electrical - Main Control Panel (MCP)

Scale 1:20

Note:

1. The customer is responsible for the exhaust ducting from the exhaust air locations noted below in **red** text. See sections 4 and 5 for additional exhaust ducting information.
2. The Diedrich provided ducting from and between the roaster and cyclones must be 18" (0.457m) from combustibles.



Top View - Full Roasting System

Scale 1:20

Scale 1:40

3 FACILITY AND INSTALLATION PREPARATIONS

- 3.1 Review the Installation and Operation Manual upon purchase. Read it thoroughly prior to installation of the roaster and/or ancillary equipment.
- 3.2 Check local building/fire codes and regulations. Installation must conform with local codes and local codes, regulations, and requirements will govern in the event they exceed or contradict information provided by Diedrich Roasters LLC, in this document or elsewhere.
 - 3.2.1 It is the purchaser's responsibility to ensure the appropriate codes and regulations, specific to their area, are followed and met.
- 3.3 Obtain any required permits such as building and air quality permits. Requests for information or assistance with permitting and/or certification forms must be submitted to Diedrich within 30 days of purchase. Anticipate approximately 15 business days from submittal of forms for Diedrich to complete our part.
- 3.4 Determine the layout/location of the roaster and any ancillary equipment.
 - 3.4.1 Clearance to combustibles must be a minimum of 18 inches (457 mm) from the sides and the back of the roaster and from the roast air and cooling bin air ducting. However, 3-4 feet (1-1.2 meters) minimum clearance is recommended for operation, maintenance, and repairs. See the Top View Space and Utility Connection Information drawing.
 - 3.4.2 Diedrich Roasters LLC may assist with a customized layout to fit within a specified space. This service is primarily available for Diedrich systems with roasters and other ancillary equipment.
- 3.5 Seek licensed and certified professionals for preparation, installation, and connection of electrical, gas, and exhaust ducting to the roaster and any ancillary equipment.
- 3.6 Make sure the appropriate electrical power is available. See section 1 of this document and the Installation, Operation, & Maintenance Manual for additional information.
- 3.7 Make sure the appropriate gas supply is available. See section 1 of this document and the Installation, Operation, & Maintenance Manual for additional information. Additional considerations for the gas supply line include:
 - 3.7.1 A safety shut-off valve must be installed in the gas supply line before, and close to, the connection to the roaster.
 - 3.7.2 An incoming regulator must be installed to adjust the incoming pressure to the roasters required pressure. Venting of the roaster and supply line regulators will likely require venting to the outdoors, per code.

- 3.7.3 A strainer or sediment trap, as well as a moisture separator or moisture trap/drip, must be installed upstream of the roaster. These must be capable of capturing and cleaning or draining sediment and moisture.
- 3.8 The roasting system will remove fresh air from the building. An additional fresh air inlet may be required to allow "make up air". See section 1 of this document for roaster airflow information. Consultation with a licensed Heating, Ventilation, and Air Conditioning (HVAC) contractor is recommended.
- 3.9 Ensure the appropriate size and type of exhaust ducting is installed. Section 1 of this document, and the "Exhaust Ducting" section below, provide technical data and other pertinent information. *The exhaust ducting can be expensive and have a long lead time.*

4 EXHAUST DUCTING – GENERAL INFORMATION

- 4.1 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 Diedrich provided equipment.
- 4.2 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.
- 4.3 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), meet the static pressure requirement (noted below), 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 in the section 1 *Technical Data* table. Customers should contact their sales or project manager representative with any questions.
- 4.4 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.
- 4.5 The Diedrich equipment MUST NOT support the weight of the exhaust system.
- 4.6 The sections that follow will discuss ducting considerations specific to hot exhaust air from the roaster and cyclone.

5 EXHAUST DUCTING, HOT AIR – ROASTERS

- 5.1 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, Diedrich recommends, at a minimum, stainless steel, double wall, positive pressure grease ducting that meets the applicable region/local standards, such as UL for USA, ULC for Canada, and CE for the European Union.
- 5.2 An important consideration when designing an exhaust ducting system is the static pressure. The static pressure is the backpressure or suction within the system. The exhaust ducting that connects to the roaster and/or cyclone must be designed to operate with a static flue pressure between negative 0.15"WC (suction) and positive 0.25"WC (backpressure) at the exhaust of the roaster (or cyclone) while in operation.
- 5.3 For Roasters
- 5.3.1 **Ducting must be suitable for 500°F (260°C) continuous, 2,000°F (1,093°C) for 30, minutes, and comply with UL-1978/ULC-SC662 Standard for Grease Ducts in the USA/Canada, and/or equivalent standards for other countries (such as CE standards for the European Union).**
- 5.3.2 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.



DANGER
DO NOT USE CLASS B OR SPIRAL-WRAP DUCTING FOR ROASTER 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.

6 ADDITIONAL DOCUMENTS AND INFORMATION

The information in this document is intended to assist customers with purchasing and facility preparation decisions. Upon purchase of a Diedrich 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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