

# **DIEDRICH<sup>TM</sup>**

## **ROASTERS**



# **DR-3 ROASTER GUIDE**

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Original Instructions  
GUI-DR3-0001, Rev 002

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# 1. DR-3 ROASTER TECHNICAL DATA

DR-3 Roaster Information	Technical Data	
Green coffee capacity, min-max	2.2 – 6.6 lbs.	1 – 3 kg
Dimensions <sup>1</sup> , maximum L x W <sup>1</sup> x H	54 x 39 x 68.5 in	1372 x 991 x 1740 mm
Crated shipping weight (approximate)	Actual shipping weight may vary	
Roaster, Main Electrical Panel, Cooling Bin	750 lbs.	340 kg
Shipping crate size, L x W x H	60L X 43W X 73T (INCH)	1.52 M L X 1.09W X 1.85T (METER)
Full batch roast time to 440F (227C)	12 min.	
Hourly output <sup>2</sup> (Four 15-minute roasts)	26.4 lbs.	12kg
Roast Air/Cooling Air maximum	213 CFM	362 CMH
Cyclone outlet diameter	6 in	152 mm
Temperature high limit	485°F	252°C
Gas Information		
Gas Types (others if pre-approved)	Natural gas, Propane	
Maximum consumption	33,000 BTU/hr.	9.7 kW
Typical consumption per roast <sup>3</sup>	3,938 BTU/Roast	1.15 kwh/Roast
Inlet Pressure LP	12 – 14 inches WC	30-35 mbar
Inlet Pressure NG	7 – 11 inches WC	17.5-27 mbar
Inlet gas supply connection	½ NPT	
Electrical Information		
Volts AC	110 V	230V
Frequencies	50Hz or 60Hz	
Full Load Amps <sup>4</sup> (FLA)	6.5 AMP	4.7 AMP
Main Breaker size	10 AMP	6 AMP
Internet/Network Information		
Ethernet connection	Cat5 or Equivalent	
Customer network connection	Customer will have to supply a Common network between their laptop and the Diedrich roaster to utilize Modbus TCP/IP connection for data logging	
Internet connection	An internet connection is required for remote trouble shooting with Diedrich Roasters Technical Support.	
Environmental conditions <sup>5</sup>		
Temperature range:	41°F and 86°F	+5°C and +30°C
Relative humidity	Up to 50% at a maximum temperature of 104°F/40°C.	
Altitude above mean sea level	up to 3281 ft	up to 1,000 m
Transportation and storage temperature	- 77°F to 131°F	25°C to 55°C

<sup>1</sup> Dimensions rounded to the nearest inch. Maximum width is with HMI arm fully extended. See Figure 5: Top View.

<sup>2</sup> Hourly "green" coffee output. Thus, the weight has not been corrected for moisture loss.

<sup>3</sup> Based on a 15-minute roast to 440°F/204°C.

<sup>4</sup> Full Load Amps (FLA) at voltages other than what is shown will differ some.

<sup>5</sup> It is suggested that the roaster be operated under the following environmental conditions:

## 2. SEMI-AUTO THROUGH 3<sup>RD</sup> PARTY DATA LOGGING

The Semi-Auto through 3<sup>rd</sup> party data logging allows the user to connect to the roaster over an Ethernet Connection via Modbus TCP/IP and log the following data points. It also allows the user to write data to the Fuel and Air registers to control the roaster through 3<sup>rd</sup> party data logging. The HMI is the main control interface for the roaster.

Listed below are the data points displayed in the Diedrich software. These data points can be logged through 3rd party software supporting Modbus TCP/IP during a roast cycle.

- **Bean Thermocouple**
- **Drum Inlet Thermocouple**
- **Drum Outlet Thermocouple**
- **Fuel Percentage (0-100%)**
- **Air Percentage (0-100%)**

The data values below can be controlled through 3rd party software supporting Modbus TCP/IP. **WARNING CONTROL OPERATOR UTILIZING 3RD PARTY SOFTWARE SHOULD STILL BE WITH THE ROASTER AT ALL TIMES IN CASE OF LOSS OF COMMUNICATION FROM 3RD PARTY SOFTWARE**

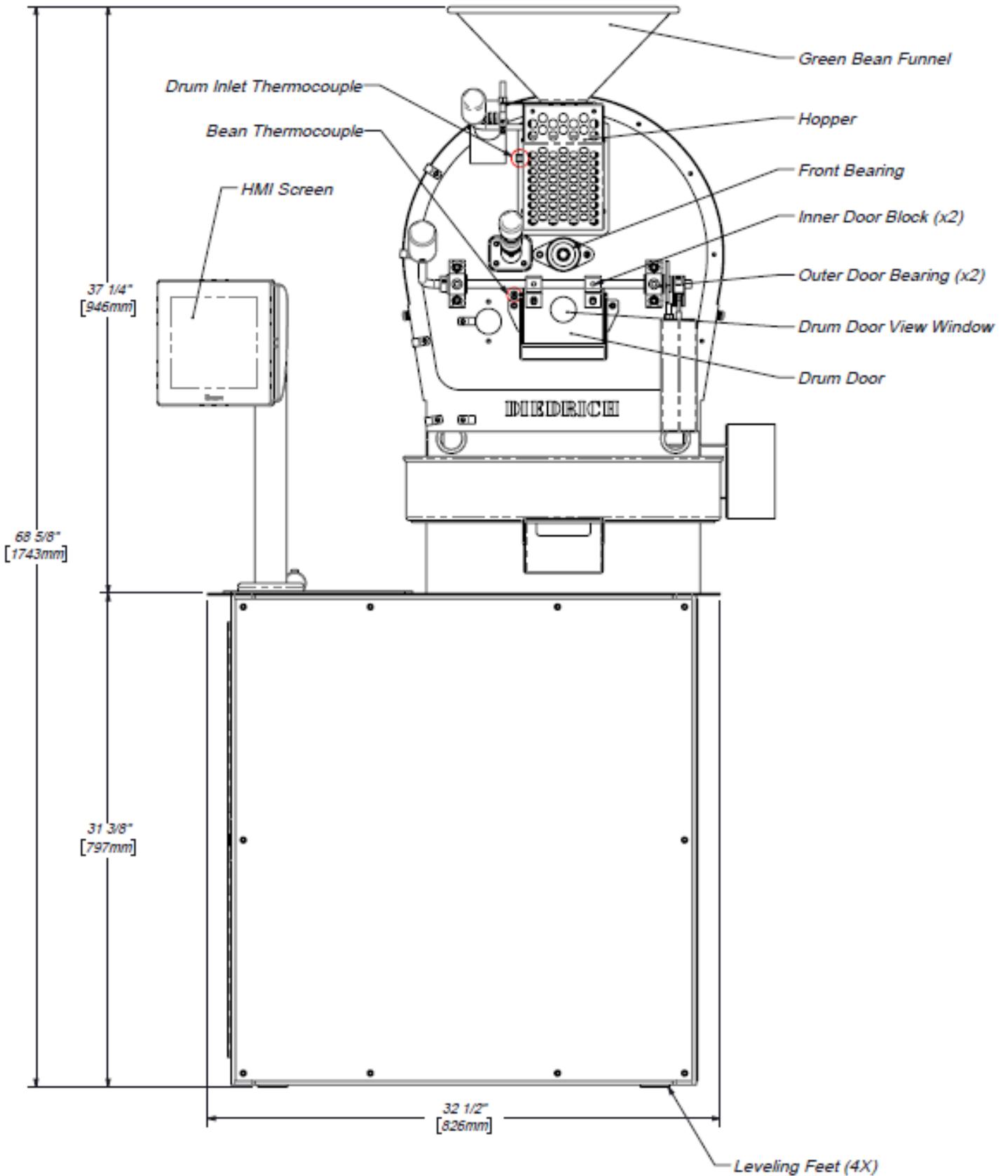
- **Fuel Percentage (0-100%)**
- **Air Percentage (0-100%)**

## 3. DR-3 ROASTER DRAWINGS

This section contains drawing views with dimensions and component descriptions. These drawing are valuable for familiarization with the Diedrich DR-3 roaster and for space and utility connection planning.

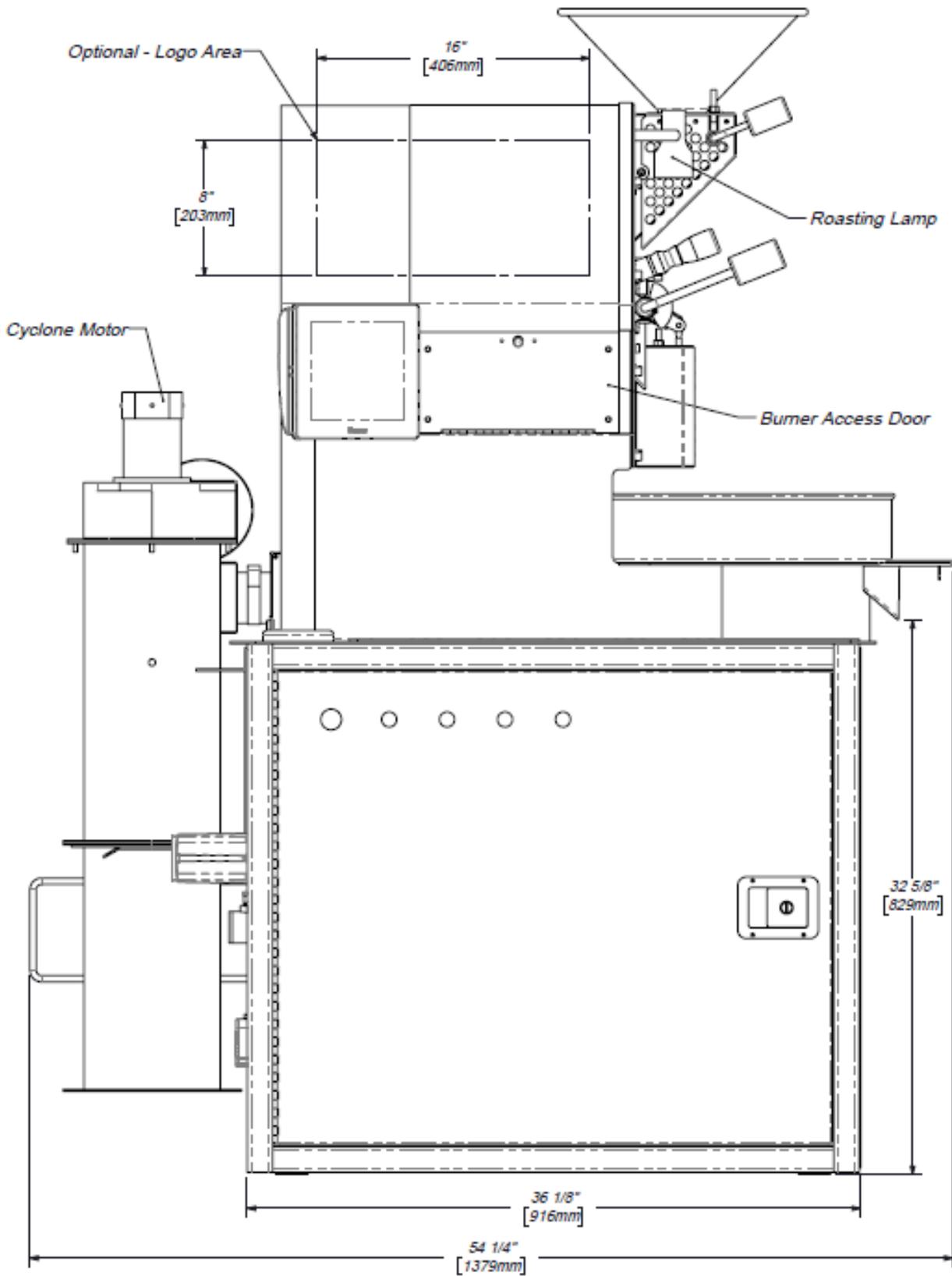
Dimensions and some details are subject to change.

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



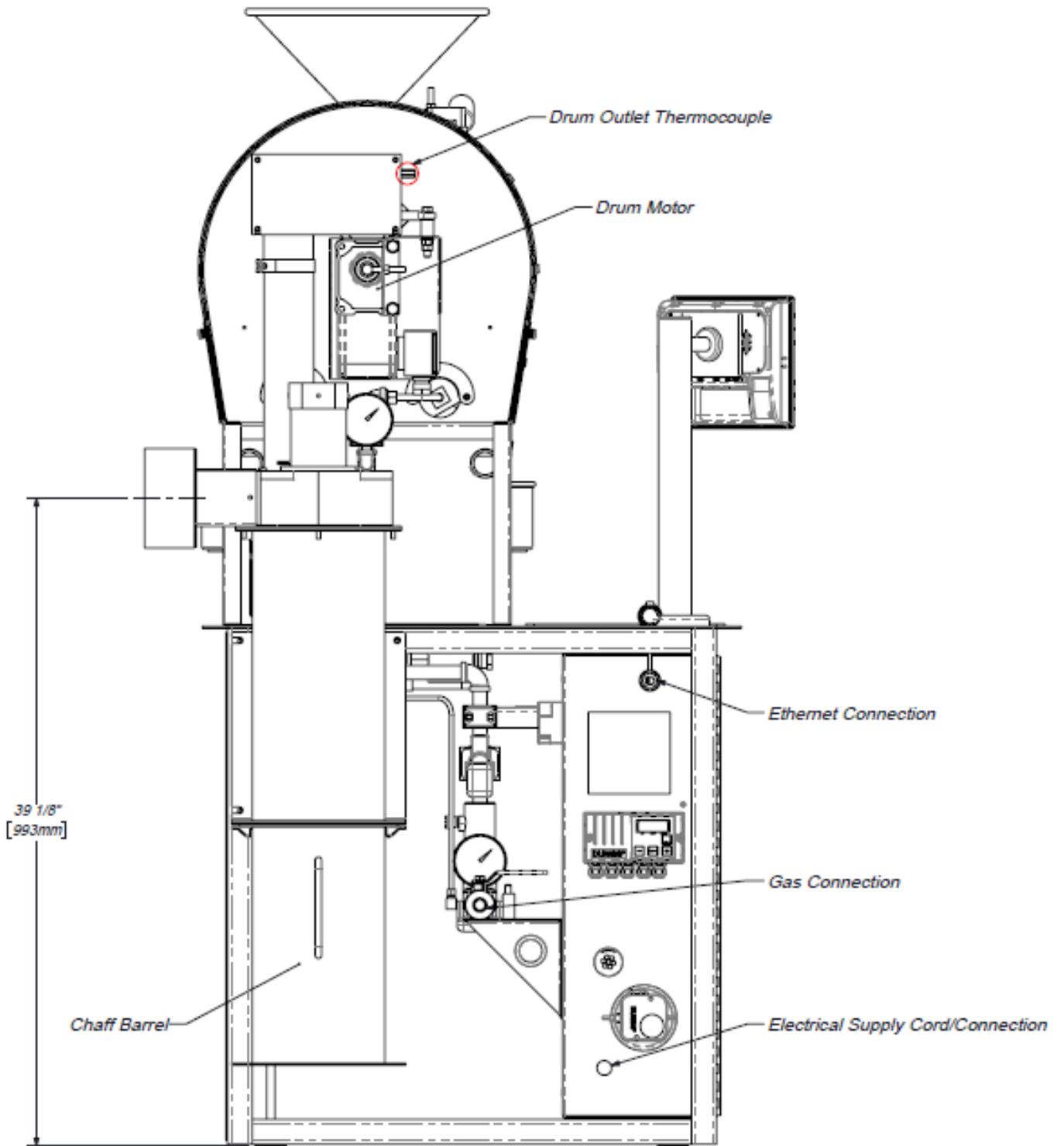
## Front View

Scale 1:8



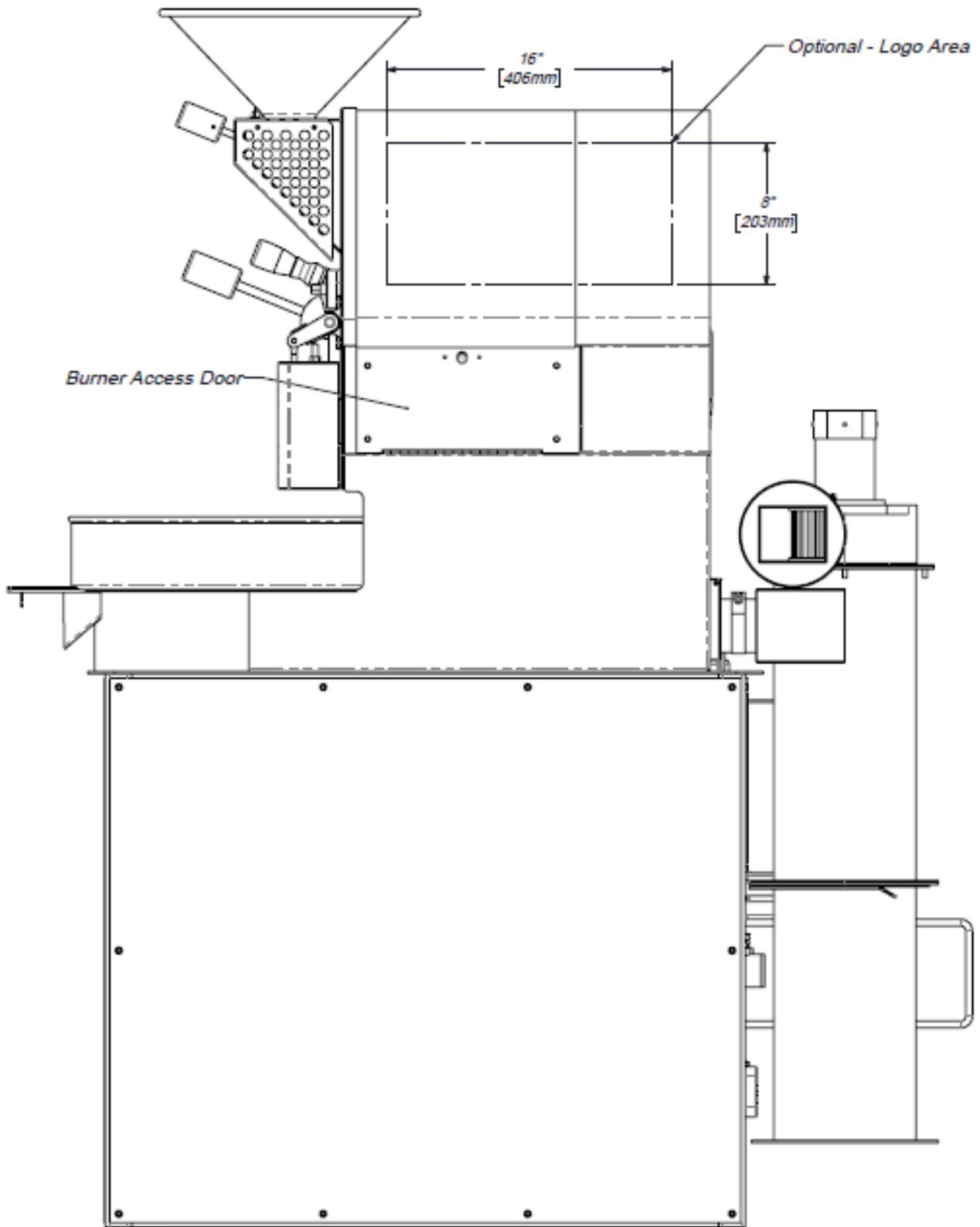
**Left Side View**

Scale 1:8



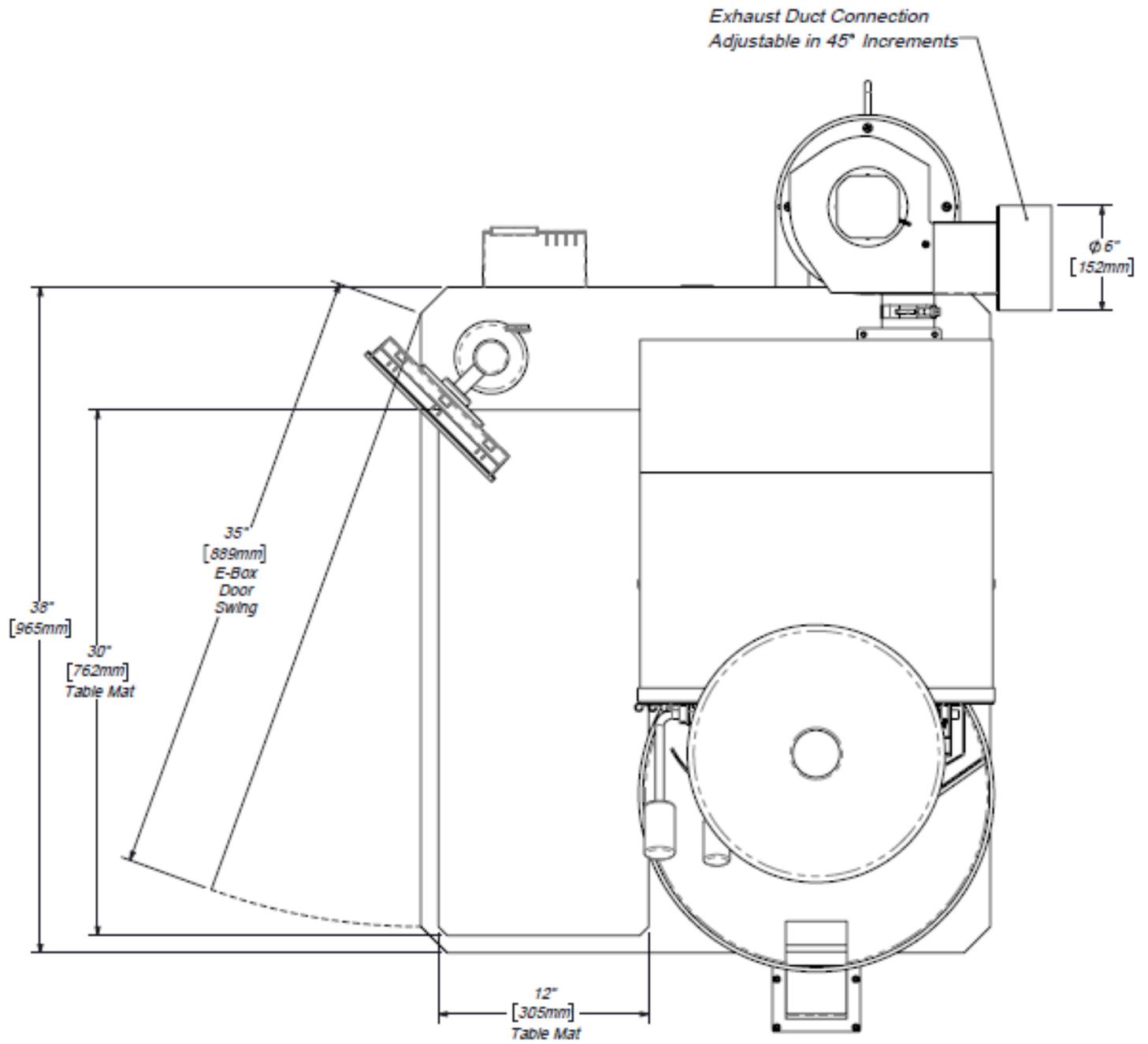
## ***Rear View***

*Scale 1:8*



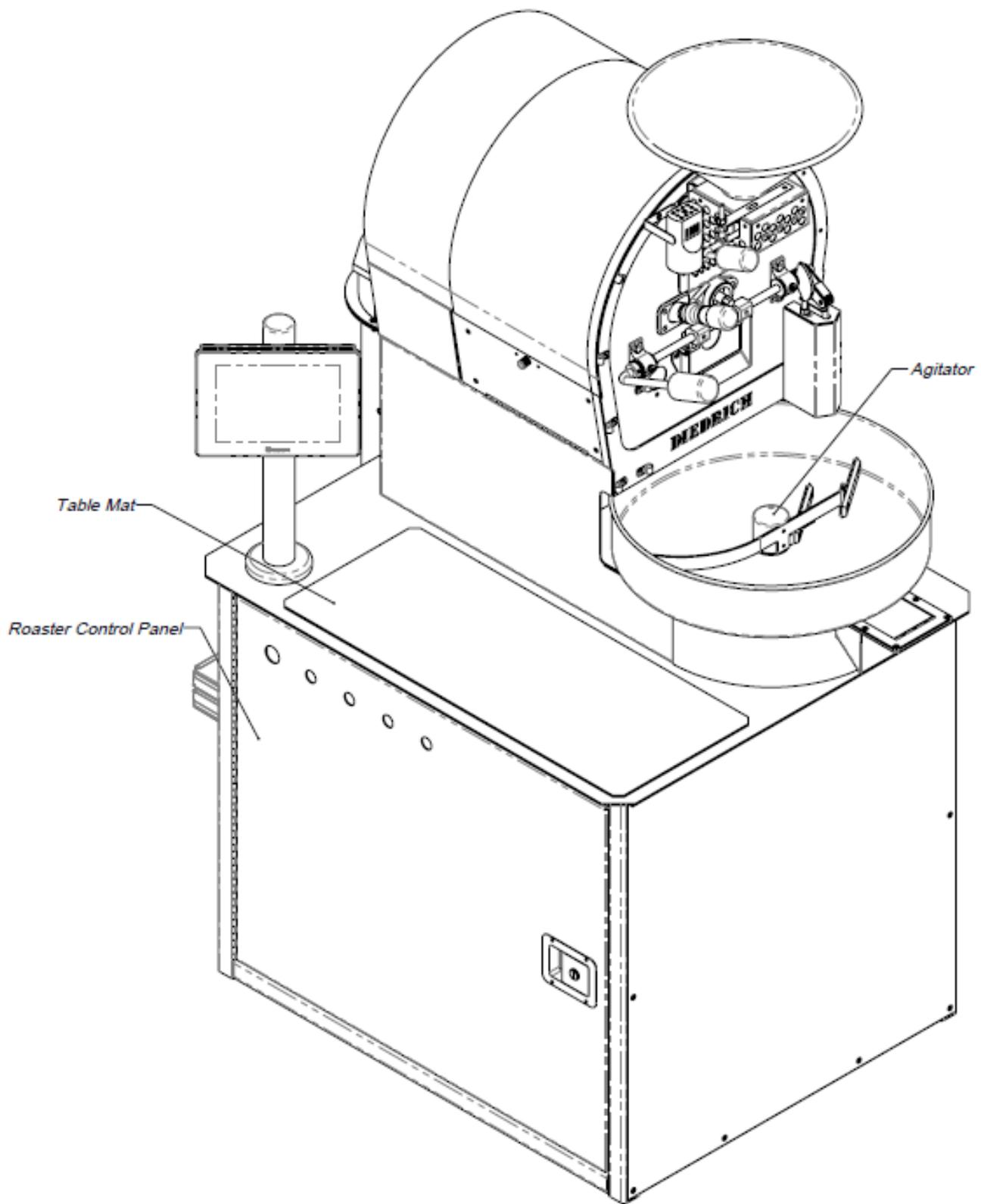
***Right Side View***

Scale 1:8



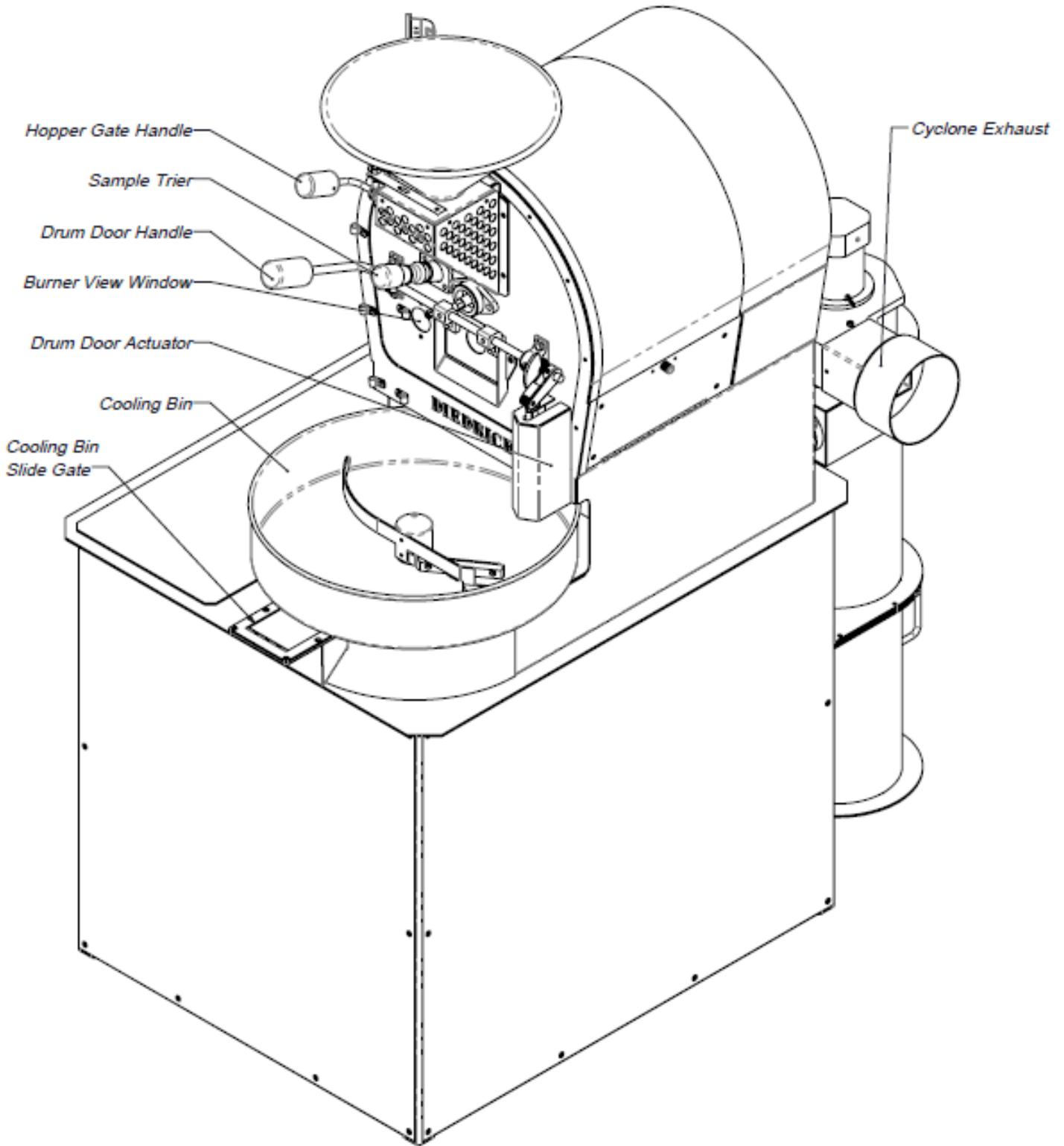
## Top View

Scale 1:8



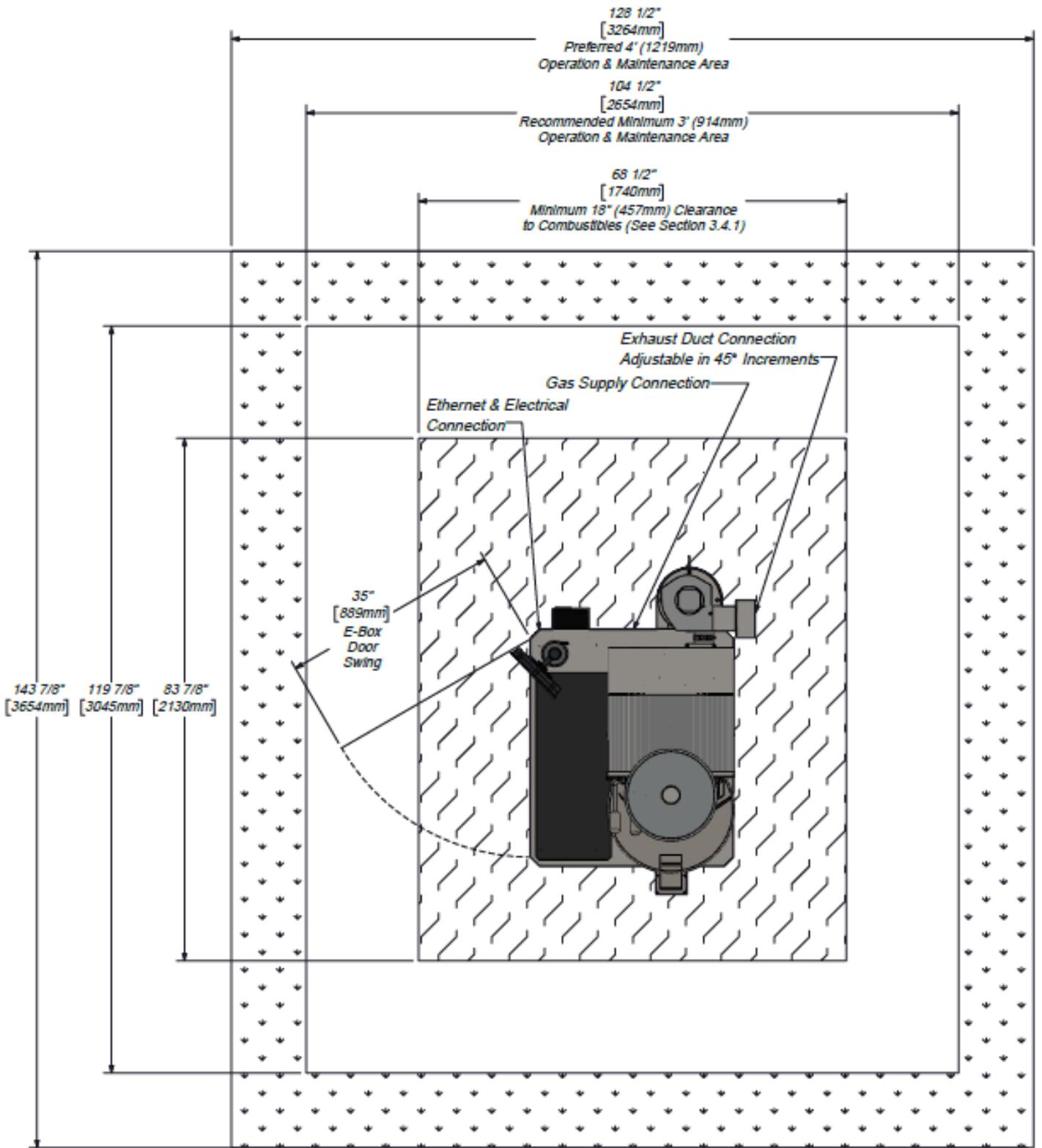
***Front Left - Isometric View***

*Scale 1:8*



**Front Right - Isometric View**

Scale 1:8



**Top View**  
**Space and Utility Connection Information**

Scale 1:20

## 4. FACILITY AND INSTALLATION PREPARATIONS

Review the Installation and Operation Manual upon purchase. Read it thoroughly prior to installation of the roaster and/or ancillary equipment.

It is the purchaser's responsibility to ensure the installation conforms with local codes and regulations. These requirements will govern in the event they exceed or contradict the information provided by Diedrich Roasters LLC, in this document or elsewhere.

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.

See the Top View Space and Utility Connection Information drawing. Three to four feet (1-1.2 meters) minimum clearance is recommended for operation, maintenance, and repairs. 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.

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.

Seek licensed and certified professionals for preparation, installation, and connection of electrical, gas, water, and exhaust ducting to the roaster and any ancillary equipment.

Make sure the appropriate electrical power is available.

Make sure the appropriate gas supply is available. See *Section 1. DR-3 Roaster Technical Data* of this document for additional information. Additional considerations for the gas supply line include:

A safety shut-off valve must be installed in the gas supply line before, and close to, the connection to the roaster. 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.

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.

The roasting system will remove fresh air from the building. An additional fresh air inlet may be required to allow "make up air". *Section 1. DR-3 Roaster Technical Data* of this document for roaster airflow information. Consultation with a licensed Heating, Ventilation, and Air Conditioning (HVAC) contractor is recommended.

Ensure the appropriate size and type of exhaust ducting is installed. *Section 1. DR-3 Roaster Technical Data* 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.

## 5. EXHAUST DUCTING – GENERAL INFORMATION

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.

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.

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 found in the technical data table in *Section 1. DR-3 Roaster Technical Data*. Customers should contact their sales or project manager representative with any questions.

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. The Diedrich equipment (roaster, cyclone, Afterburner, loader, or destoner, as applicable) MUST NOT support the weight of the exhaust system.

The exhaust air from Diedrich 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.

## 6. EXHAUSTING DUCTING, HOT AIR – ROASTERS AND AFTERBURNERS

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.

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, cyclone, or afterburner, 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 (cyclone or Afterburner, as applicable) while in operation.

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, 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).

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.

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 UL-103/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.

There are companies that offer ducting products that comply with both the UL 1978 and the UL 103 standards. Some of these companies are listed below along with their websites and contact information.

Van-Packer [www.vpstack.com](http://www.vpstack.com), 888-877-8225, and/or [VPTech@vpstack.com](mailto:VPTech@vpstack.com)

Selkirk [www.selkirkcorp.com](http://www.selkirkcorp.com) and/or customer service at 800-848-2149

Jeremias [www.jeremiasinc.com](http://www.jeremiasinc.com) and/or e-mail [jeremiastech@jeremiasinc.com](mailto:jeremiastech@jeremiasinc.com)

DuraVent [www.duravent.com](http://www.duravent.com) and/or e-mail [customerservice@duravent.com](mailto:customerservice@duravent.com)

## **7. CERTIFICATES & CONFORMITIES**

Diedrich Roasters, LLC manufactures coffee roasters in compliance with UL or CE regulation. The roasters are built to order, specifically to the standards of the governing regulatory body in the country of operation. Please refer to your equipment data labels for reference to the regulatory specification to which the roaster has been built.

# CERTIFICATE OF COMPLIANCE

**Certificate Number** 20170703-MH61804  
**Report Reference** MH61804-20160628  
**Issue Date** 2017-JULY-03

**Issued to:** Diedrich Roasters, LLC  
24 Emerald Industrial Park Rd  
Ponderay ID 83864

**This is to certify that  
representative samples of**

**GAS-FIRED FOOD SERVICE EQUIPMENT**  
Commercial Gas Fired Coffee Bean Roasters, models  
IR-1, IR-2.5, IR-5, IR-12, CR-025, CR-035, CR-050,  
CR-070

Have been investigated by UL in accordance with the  
Standard(s) indicated on this Certificate.

**Standard(s) for Safety:** Standard for Gas Food Service Equipment, ANSI Z83.11b-  
2016/CSA 1.8b-2016

**Additional Information:** See the UL Online Certifications Directory at  
[www.ul.com/database](http://www.ul.com/database) for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's  
Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.

*B. Mahlenz*

Bruce Mahrenholz, Director North American Certification Program  
UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please  
contact a local UL Customer Service Representative at <http://ul.com/aboutul/locations/>



# CERTIFICATE OF COMPLIANCE

**Certificate Number** 20160525-E478523  
**Report Reference** E478523-20150831  
**Issue Date** 2015-MAY-25

**Issued to:** DIEDRICH ROASTERS, LLC.  
24 Emerald Industrial Park Road  
Ponderay, ID 83864 USA

**This is to certify that representative samples of** Industrial Control Panels  
USL, CNL - Industrial Control Panels – General Coverage.

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

**Standard(s) for Safety:** UL 508A, Industrial Control Panels  
C22.2 No. 14, Industrial Control Equipment

**Additional Information:** See the UL Online Certifications Directory at [www.ul.com/database](http://www.ul.com/database) for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.



Bruce Mahrenholz, Director North American Certification Program  
UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at <http://ul.com/aboutul/locations>.



# EU DECLARATION OF CONFORMITY

**MANUFACTURER:** Diedrich Roasters, LLC  
850 Hawthorne Avenue  
Ponderay, Idaho 83852 USA  
Phone: 844.343.3742  
URL: www.diedrichroasters.com

**EU CONTACT ADDRESS:** Jamie Banwell  
Rubiaceae Consulting Ltd  
Unit 3a Imperial Studios  
Imperial Road  
Fulham  
SW6 2AG

**MODEL / TYPE:** DR Series: DR-3, DR-25

**DESCRIPTION:** Coffee Roaster

**REPORTS:** F2P25157A-01S-R1, F2P25157A-02E

**DIRECTIVES:** Machinery Directive 2006/42/EC, EMC Directive 2014/30/EU

## STANDARDS CONSIDERED, FULL OR IN PART:

- EN / ISO 13849-1:2015
- EN 60204-1:2018
- EN 61000-6-3:2007+A2:2011
- EN 61000-6-1:2007

## THIRD PARTY TESTING:



www.f2labs.com

26501 Ridge Road  
Damascus, MD 20872 USA  
Phone: 301.253.4500  
Fax: 301.253.5179  
Toll Free: 877.405.1580

16740 Peters Road  
Middlefield, OH 44062 USA  
Phone: 440.632.5541  
Fax: 440.632.5542

8583 Zionsville Road  
Indianapolis, IN 46268 USA  
Phone: 317.610.0611  
Fax: 317.610.0525

Diedrich Roasters, LLC declares under its sole responsibility that the **DR Series Coffee Roaster** is in conformity with the Machinery Directive 2006/42/EC and the EMC Directive 2014/30/EU.

Authorized by:

A handwritten signature in blue ink that reads 'Karl J. Schmidt'.

(signature)

Date: September 16, 2021

Name: Karl Schmidt

Title: CEO

Location: Ponderay, Idaho