



## EnerPro EPA Series Boilers EnerPro EPAW Series Water Heaters

### Installation and Operation Manual

#### EPA SERIES: Gas Heating Boilers :

EPA1050	EPA1600	EPA2080
1,050 MBtu	1,600 MBtu	2,080 MBtu

#### EPAW Series: Gas Water Heaters :

EPAW1050	EPAW1600	EPAW2080
1,050 MBtu	1,600 MBtu	2,080 MBtu



#### WARNING

If the information in these instructions are not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.



#### WARNING

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.



#### WARNING

#### WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance
- Do not touch any electrical switch, do not use any phone in your building

#### Immediately:

- Call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions. If you can not reach your gas supplier, call the fire department.
- Installation and service must be performed by a qualified Installer, Service agency or a gas supplier.

#### Important:

Read and save these instructions for future reference.  
Document#: 50-1000



Boiler may not be exactly as illustrated



Distributor:

**DDR Americas Inc.**

1090 Fountain Street North, Unit10  
Cambridge, Ontario, N3E 1A3 Canada



## WARNING

If the information in this manual is not followed exactly, a fire or explosion may result. Causing property damage , personal Injury or loss of life

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**Instruction and service must be performed by a qualified installer, Service agency or the gas supplier.**



## WARNING

Improper installation, adjustment, and/or Operation could cause carbon monoxide poisoning resulting injury or loss of life. **This product must be installed and serviced by a professional service technician who is experienced and qualified in hot water boiler installation and gas combustion.**

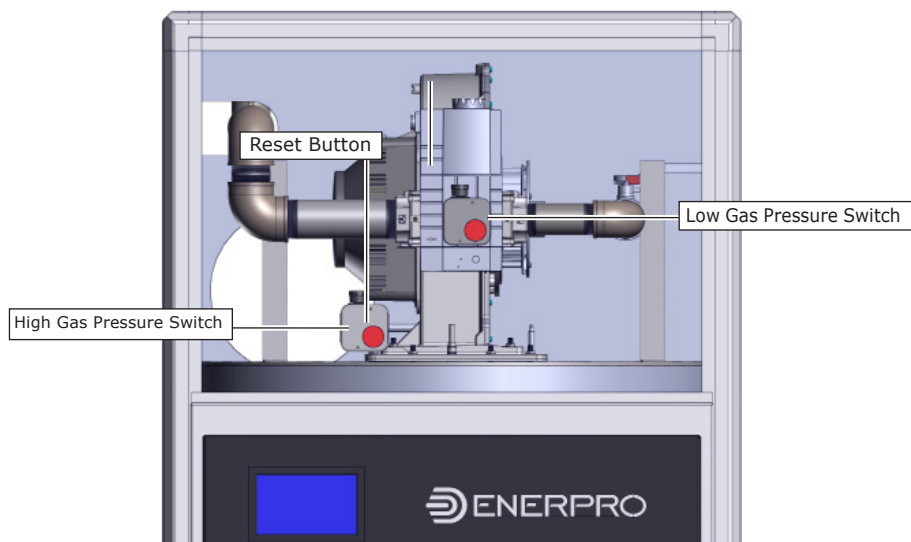


## WARNING

Do not use this unit if any part has been under water.

Immediately call a qualified heating contractor to inspect the unit and to replace any part of the control system and any gas control which has been under water.

Do not store chemicals containing chlorine or other corrosive materials near the unit, such as bleach, cleaning solvents, detergents, acids, hair spray cans, paint thinners, paint, or water softener salt.



This Boiler is equipped with high gas pressure switch that will shut down the unit in case of the exhaust block.

It is manual reset and need to be reset, it is shown in the picture and need to be reset by pushing the reset button. If you need to re adjust or replace this component, you need to call manufacturer, or qualified service Technician.

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# 1. SAFETY INSTRUCTIONS

## 1.1 Symbols

The following symbols are used in this document to emphasize certain instructions. This is in order to increase your personal safety and to safeguard the technical reliability of the boiler.

	<b>CAUTION</b>	Indicates a potentially hazardous situation which, if ignored, may result in minor injury or product/property damage.
	<b>WARNING</b>	Indicates a potentially hazardous situation which, if ignored, can result in danger, serious injury or substantial product/property damage.
	<b>DANGER</b>	Indicates the presence of a hazardous situation which, if ignored, will result in <b>death, serious injury</b> or substantial product/property damage.
	<b>READ</b>	Indicates recommendations made by <b>EnerPro Boilers</b> for the installers which help to ensure optimum operation and longevity of the equipment.



### Professional licensed heating contractor

The assembly, installation, adjustment, service and maintenance of this boiler must be performed by a professional licensed heating contractor.



### Boiler Documentation

Make sure to read all documentation related to the product before starting the installation. The product documentation should be stored near the boiler where it can be accessed for future reference.



### Advice for the owner

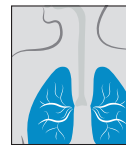
When the installation has been completed, the heating contractor has to familiarize the operator/owner with the installed equipment as well as any safety precautions and requirements, and shut-down procedures. The heating contractor also needs to inform the operator/owner of the need for professional annual servicing of the boiler prior to the heating season.

### Contaminated air

Chemicals can contaminate the air and cause by-products during the combustion process. These by-products are poisonous to the occupants and very destructive to EnerPro boilers.



### Carbon monoxide



Flue products can flow into living spaces if improperly installed, adjusted, serviced or maintained. The flue gases contain carbon monoxide which is poisonous.

### Fresh air



Adequate ventilation and combustion air must be provided for the equipment as it requires fresh air for safe operation. Make sure the equipment is installed ensuring an adequate supply of fresh air.

### Boiler venting



Always operate the boiler with an installed vent system. Carbon monoxide poisoning can be caused by an improperly installed vent system. All combustion products must be vented safely to the outdoors.

### Warranty

The information in this manual and any other related manuals must be read and proper procedures followed. The warranty is rendered null and void if the procedures are not followed as prescribed.

**Note:** Some products may not be exactly as illustrated. Information contained herein is deemed as accurate as possible. Clarification of material supply, pipe sizing, thread type, and typographical errors should be noted as soon as possible. Dimensions have been converted from the Metric standard. Fractional rounding may affect dimensional tolerances.

## 1.2 Lighting Instructions

### FOR YOUR SAFETY READ BEFORE OPERATING

**WARNING:** If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life

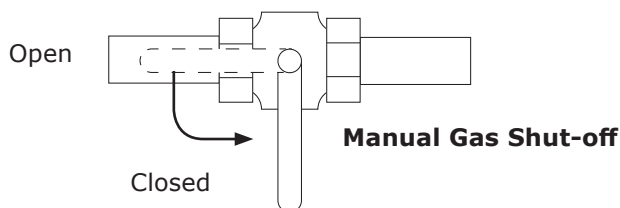
- A. This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
- B. BEFORE OPERATING smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.
- C. Use only your hand to push in or turn the gas control knob. Never use tools. If the knob will not push in or turn by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.

### WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electric switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.
- D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

### Operating Instructions

- 1- STOP! Read the safety information above on this label.
- 2- Set thermostat or other operating control to lowest setting.
- 3- Turn off all electric power to the appliance
- 4- This appliance is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
- 5- Close main gas shut-off valve.
- 6- Wait five (5) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, STOP! Follow "B" in the safety information above on this label. If you don't smell gas, go to the next step.
- 7- Open main gas shut-off valve.
- 8- Turn on all electric Power to the appliance.
- 9- Set thermostat or other operating control to desired setting.
- 10- If the appliance will not operate, Follow the instructions "To Turn Off Gas To Appliance" and call your service technician or gas supplier.



### TO TURN OFF GAS TO APPLIANCE

- 1- Set thermostat or other operating control to lowest setting.
- 2- Turn off all electric power to the appliance if service is to be performed.
- 3- Close main gas shut-off Valve.

### 1.3 Operation

Before operating the boiler, make sure you fully understand its method of operation. Your heating contractor should always perform the initial start-up and explain the system. Any warranty is null and void if these instructions are not followed.



#### Warning

What to do if you smell flue gas

- Ensure all people are evacuated from the building immediately
- Deactivate heating equipment.
- Open windows and doors.
- Do not try to light any appliances.
- Do not touch any electrical switches, do not use any phone in your building.
- Immediately call your heating contractor or gas supplier from a neighbour's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

### 1.4 Working on the equipment

All personnel working on the equipment or the heating system must have the proper qualifications and hold all necessary licenses.

Ensure main power to equipment, heating system, and all external controls has been deactivated. Close main gas supply valve. Take precautions in all instances to avoid accidental activation of power during service work.

### 1.5 Dangerous conditions

- Deactivate main power immediately.
- Close gas supply valve.



#### CAUTION

Incomplete combustion and poisonous gases result if the fresh air intakes in the mechanical room are closed. Never close these openings.

### 1.6 Maintenance and cleaning

Regular inspection and service by a qualified heating contractor is critical to the performance of the boiler. Neglected maintenance impacts the warranty; regular cleaning and maintenance ensures clean, environmentally friendly and efficient operation. We recommend a maintenance contract with a qualified heating contractor.

### 1.7 For safe operation

#### We recommend that you frequently:

- Check for debris which could obstruct the flow of flue gases. The vent or chimney must not be blocked. A blocked or partially blocked vent or chimney can cause flue gases to leak into the structure. Flue gases leaking into the house can cause injury or death. Blocked or partially blocked chimneys must have the blockage removed by a qualified heating contractor.
- Check pressure gauge for correct system (water) pressure.
- Check for water on the floor from the discharge pipe of the pressure relief valve or any other pipe, pipe joint, valve or air vent.
- Check for moisture, water, or appearance of rust on the flue gas pipes, their joints as well as vent dampers, or side wall vent terminals (if so equipped).
- Ensure that nothing is obstructing the flow of combustion and ventilation air and no chemicals, propane tanks, garbage, gasoline, combustible materials, flammable vapours and liquids are stored (not even temporarily) in the vicinity of the boiler.
- Do not allow unsupervised children near the boiler.
- Service/inspection of the boiler and the system must be serviced yearly. Maintenance, service and cleaning are specified in the Installation Instructions.
- Before the heating season begins, the boiler must be serviced by a qualified heating contractor.

Do not use this boiler if any part has been under water. Immediately call a qualified heating contractor to inspect the boiler and to replace any part of the control system and any gas control which has been under water.

**Warning**

- There are no user serviceable parts on the boiler, burners or control. Failure to heed this warning can cause property damage, severe personal injury, or loss of life.
- Improper installation, adjustment, service, or maintenance can cause flue products to flow into living space. Flue products contain poisonous carbon monoxide gas which can cause nausea or asphyxiation resulting in severe personal injury or loss of life.
- Should overheating occur or the gas supply fail to shut off, do not disconnect the electrical supply to the pump. Instead, shut off the gas supply at a location external to the appliance.

Do not store chemicals containing chlorine or other corrosive materials near the boiler, such as bleach, cleaning solvents, detergents, acids, hair spray, spray cans, paint thinners, paint, or water softener salt.

**1.8 Boiler modification and spare parts**

This boiler uses specific original manufactured parts. The boiler must not be modified or non-OEM parts used without the written approval from DDR Americas Inc.

**1.9 Carbon monoxide**

The installation of carbon monoxide detectors is highly recommended by the U.S. Consumer Product Safety Commission for buildings with gas burning equipment.

Sources of carbon monoxide include exhaust vents for gas

appliances or wood burning fireplaces that are not properly vented, malfunctioning furnaces and exhaust fumes from idling cars.

Carbon monoxide is a colourless and odourless gas that is highly toxic. It can interfere with the delivery of oxygen by the blood to the body. Exposure to low levels of CO can cause headaches, confusion, nausea,

dizziness, fatigue, and shortness of breath. High level exposure of CO can cause impaired vision, convulsions, coma and possibly death. Have a qualified service technician inspect the heating equipment exhaust vent pipes and chimney flues on a yearly basis.

In winter, inspect the exhaust vents for the dryer, furnace, wood burning or gas stove, fireplace and heat recovery ventilator to ensure they are not obstructed by snow build-up.

Carbon monoxide detectors should be installed and maintained in buildings that house gas burning equipment. It is recommended to use a carbon monoxide detector that is in compliance with a nationally recognized standard such as ANSI/UL 2034-or CSA 6.19-01. (*Current Revision*)

**DANGER**

Improper installation, adjustment, service, or maintenance can cause flue products to flow into living space. Flue products contain poisonous carbon monoxide gas which can cause nausea or asphyxiation resulting in severe personal injury or loss of life.

**1.10 Codes**

Installation, servicing and maintenance of this product must be performed by a licensed and trained heating contractor, experienced in hot water heating boilers as well as gas and oil combustion. The installation must conform to all national

and local codes having jurisdiction:

- In Canada, CSA B149.1 Gas Code (*Current Revision*)
- In USA, ANSI Z223.1 (NFPA 54) Gas Code, and ASME CSD-1 Automatically Fired Boilers. (*Current Revision*)

If you have any technical questions or need assistance with this product, please call your local Sales Representative or EnerPro Boilers.

### **1.11 Standards applied**

We hereby certify that the series of appliances specified hereinafter are in compliance with the current standards described, and that they are manufactured and marketed in compliance with the requirements of the following North American standards: (*Current revision*)

- ASME Section IV
- CSA B51
- ANSI Z21.13-CSA 4.9 - Gas fired steam and hot water boilers.
- CAN/CGA 2.17-M91 - Gas fired appliances for use at high altitude.
- CGA P.2- Testing method for measuring annual fuel efficiencies or residential furnaces and boilers.
- CAN/CSA C22.2 No.0-M91 - General requirements - Canadian electrical codes part II.
- CSA C22.2 No.3-M1988 - Electrical features of fuel burning equipment.



## 1.12 Water pipe freezing hazard



### WARNING

Serious property damage and/or personal injury can occur if the pipes are not protected from freezing, resulting in the pipes bursting. The boiler may also shut down. Turn off the water supply and drain the water pipes or protect them from freezing when leaving the home unattended for long periods of time during very cold weather conditions.

The boiler is designed to provide a comfortable and warm environment and is not designed for the prevention of frozen water pipes. In case an unsafe condition occurs, the boiler has been designed and equipped with several safety devices that will shut down the boiler and stop it from restarting.

If the boiler is dormant for an extended period of time during cold winter weather, the water pipes may freeze and burst which can result in extensive water damage and lead to mold growth. A variety of molds can cause serious health and respiratory problems. If water damage should occur, immediately dry the affected areas to avoid the possibility of mold growth. If the building will be empty for an extended period of time in cold winter conditions, then the following steps should be taken:

- Turn off the building's water supply, drain the pipes and add some antifreeze for potable water for the toilet tanks and drain traps.
- Open faucets where appropriate.
- Have the building monitored and checked during cold winter weather and call a qualified service technician if necessary.
- Remote temperature sensors are available which will alert someone if freezing conditions occur in the building.

## 1.13 Combustion sources and ventilation

### air contaminants

**Contaminants are likely to be found in these areas:**

- Auto body shops
- New construction
- Metal manufacturing plants
- Swimming pools
- Refrigeration repair shops
- Garages with workshops
- Furniture refinishing shops
- Plastic manufacturing plants
- Hobby rooms and remodelling areas
- Dry cleaners and laundromats
- Photo processing companies
- Beauty salons

**Contaminants found in various products:**

- Paint and varnish removers
- Chlorinated cleaners and waxes
- Glues and cements
- Swimming pool chemicals containing chlorine
- Refrigerant leaks
- Water softener salt containing sodium chloride
- Cleaning products such as chlorine-based bleaches, detergents and cleaning solvents
- Spray cans containing chlorofluorocarbons
- Muriatic and hydrochloric acid
- Calcium chloride utilized in thawing
- Permanent wave solutions
- Adhesives utilized for building products and other similar items
- Fabric softeners used in clothing dryers

## **2. Start-Up & Shut-Down Procedures**

### **2.1 Start-up**

#### **Initial start-up**

The heating contractor must perform the initial start-up and explain the operation of the system. The operation of the boiler control must also be explained to the system operator/ultimate owner by the heating contractor. Refer to literature packaged with boiler control.

#### **Necessary preparations prior to initial start-up, your contractor will:**

1. Check for water on the floor from the discharge pipe or the pressure relief valve or any other pipe joint, valve or air vent. If pressure relief valve is discharging, the contractor will locate the source of the problem and take corrective measures. Never cap or plug end of pressure relief valve discharge pipe. Ensure correct system (water) pressure.
2. Ensure fresh combustion air supply vents to boiler room are open and unobstructed. Nothing must obstruct the flow of combustion and ventilation air.
3. Open main fuel supply valve.
4. Activate the system. Ensure power supply is activated and then activate system power switch.

#### **Operation**

Refer to "Lighting and operation instructions". The boiler control regulates operation of the heating system automatically in conjunction with the indoor/outdoor control and any programmed settings (if applicable). Changes to the settings or programming can be made according to separate instructions provided with the boiler control.

#### **For optimum operation**

Keep the boiler and the boiler room clean and free of dust and dirt.

Ensure proper system pressure by occasionally checking pressure gauge.

Allow a qualified heating contractor to regularly service and maintain your heating system.

Neglected maintenance impacts on product warranty; regular cleaning and maintenance ensures clean, environmentally friendly and efficient operation.

We recommend a maintenance contract with a qualified heating contractor.

If you require assistance finding a qualified heating contractor, please contact your local Sales Representative or EnerPro Boilers.

### **2.2 Shut-down**

#### **Shut-down procedure**

1. Close main fuel supply valve.
2. Deactivate system power switch.
3. Deactivate main power supply to boiler and control.

We recommend that you contact your heating contractor Prior to and after an extended shut-down period. In this manner, the appropriate precautions, i.e. system freeze-up protection or heat exchanger maintenance, can be taken.



#### **Warning**

Do not attempt to start the burner if excessive fuel has accumulated in the combustion chamber. Do not open the boiler door or clean outs when the boiler is hot.

### 3. Lighting and Operating Instructions

#### For your safety, read before operating



#### Warning

If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

- Do not try to light any appliance.
- Do not touch any electric switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

- This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand. Consult burner manual as supplied.
  - BEFORE OPERATING smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.
- Use only your hand to push in or turn the gas control knob. Never use tools. If the knob will not push in or turn by hand, don't try to repair it: call a qualified service technician. Force or attempted repair may result in a fire or explosion.
  - Do not use this appliance if any part has been under water. Immediately call a qualified technician to inspect the appliance and to replace any part of the control system and any gas control which has been under

#### What to do if you smell gas

#### Start-up procedure

- Inspect for proper baffling insertion into flue passes. All clean out doors properly sealed. Burner flange closed and properly bolted.
- Gas and oil systems ready. Proper vent connections. Required combustion and ventilation air provided.
- Waterside of system properly filled and vented of air.
- Lighting instruction followed.
- To be performed by a licensed tradesperson in accordance with the guidelines shown in this manual. Follow burner manufactures instructions.
- Mandatory factory start-up report to be completed and returned to comply with the warranty process.
- Proper operating instructions of equipment to be related to operating personnel.

#### Shut-down procedure

- Disengage all electrical power switches to heating system burners, pumps. Isolate all boiler valves and fuel valves.
- For off-season shutdown, open boiler combustion flue passages and clean. Ensure venting, chimney, combustion and ventilation air openings free from blockage. Do not drain waterside of system.

## **4. Installation**

### **4.1 INTRODUCTION**

This Chapter provides the descriptions and procedures necessary to unpack, inspect and install the EPA and EPAW units.

### **4.2 RECEIVING THE UNIT**

Each EPA-EPAW is shipped as a single skid unit. The unit must be moved with the proper rigging equipment for safety and to avoid equipment damage. The unit should be completely inspected for evidence of shipping damage and shipment completeness at the time of receipt from the carrier and before the bill of lading is signed.



#### **Caution**

EnerPro is not responsible for lost or damaged freight.

Note the information on the carrier's paperwork and request a freight claim and inspection by a claims adjuster before proceeding. Any other visual damage to the packaging materials should also be made clear to the delivering carrier.

### **4.3 UNPACKING**

Carefully unpack the unit taking care not to damage the unit enclosure when cutting away packaging materials

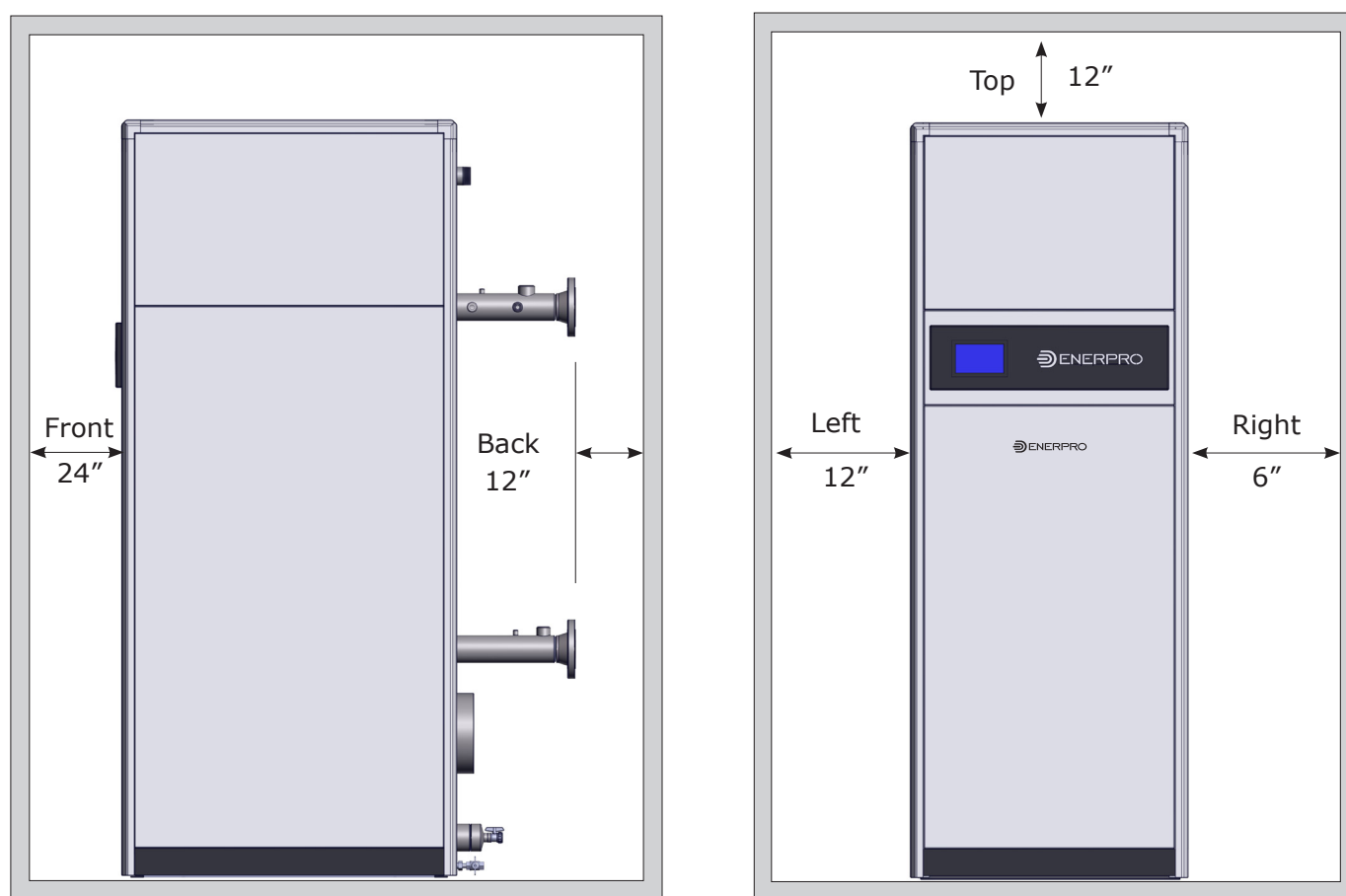
After unpacking, a close inspection of the unit should be made to ensure that there is no evidence of damage. The freight carrier should be notified immediately if any damage is detected.

The following accessories come standard with each unit and are either packed separately within the unit's shipping container or are factory installed on the unit:

- Pressure/Temperature Gauge
- ASME Pressure Relief Valve
- Low Water Cut Off
- Vent Valves
- High Temperature Limit Cut Off

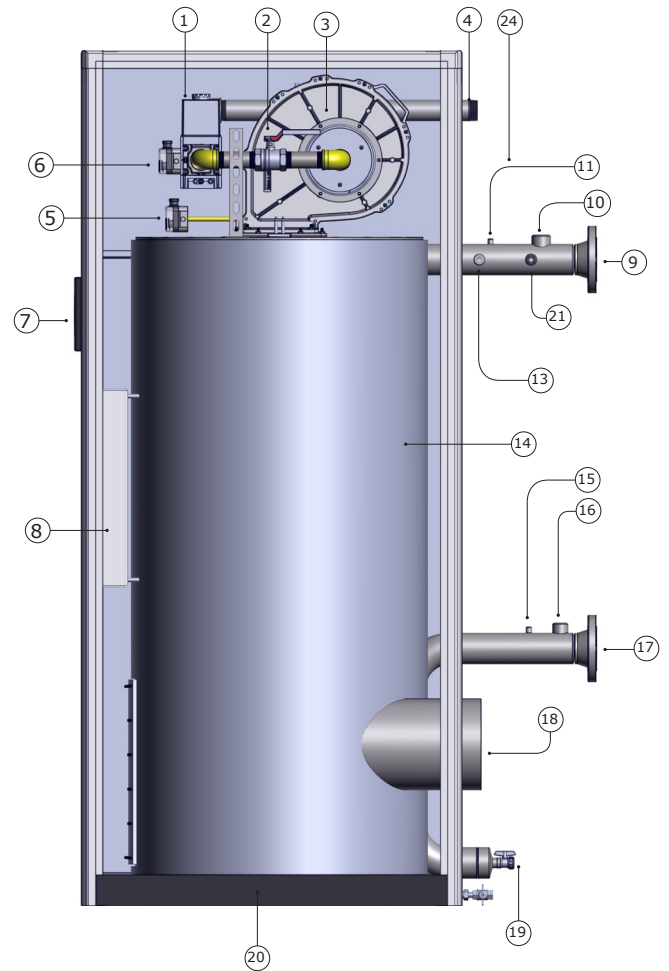
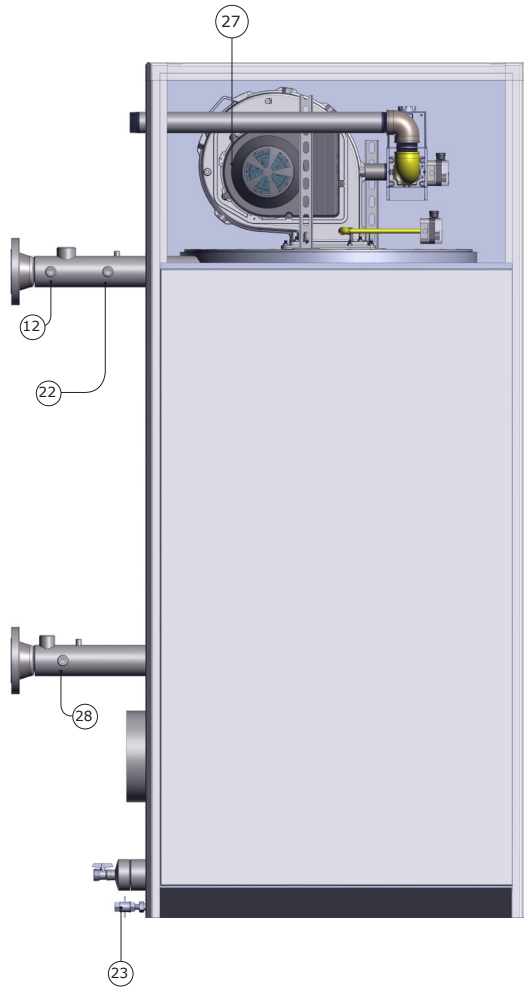
### **4.4 Installation Clearances**

The EPA and EPAW models are packaged in an enclosure having identical exterior dimensions. The unit must be installed with the prescribed clearances for service as shown in Figure \*\*\*\*. The minimum clearance dimensions, required by EPA and EPAW are listed below. However, if Local Building Codes require additional clearances, these codes shall supersede EnerPro Boilers requirements. Minimum acceptable clearances required are as follows:



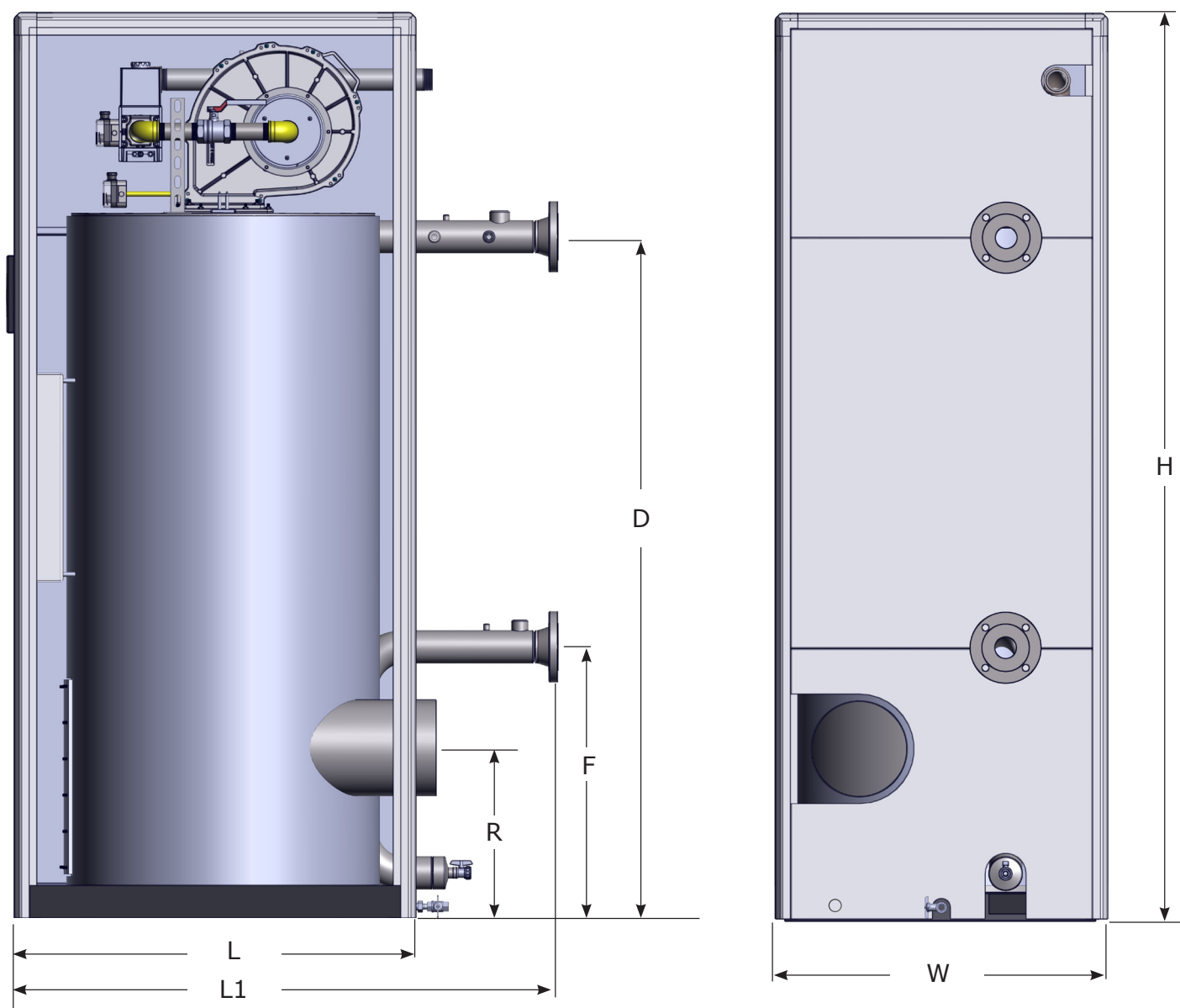
All gas piping, water piping and electrical conduit or cable must be arranged so that they do not interfere with the removal of any panels, or inhibit service or maintenance of the unit.

## 4.4.1 Technical Information



①	Air Gas Ratio Valve	⑭	Heat Exchanger
②	Manual Gas Valve	⑮	Air Vent
③	Combustion Blower	⑯	Flow switch
④	Supply Gas	⑰	Water Return
⑤	High Gas Pressure Switch	⑱	Boiler Exhaust
⑥	Low Gas Pressure Switch	⑲	Boiler Drain
⑦	Touch Screen Display	⑳	Base Frame
⑧	Control Panel	㉑	High Temperature Limit Cut Off
⑨	Boiler Supply	㉒	Low Water Cut Off
⑩	Pressure Relief Valve	㉓	Condensate Drain
⑪	Air Vent	㉔	Air Inlet
⑫	Pressure and Temperature Gauge	㉘	Return Temperature Sensor
⑬	Temperature Sensor		

### 4.4.3 Boiler Dimensions



Boiler Model	W	L	L1	H	D	F	R
<b>EPA-EPAW 1050</b>	32"	36 <sup>1/2</sup> "	51 <sup>1/2</sup> "	78"	60"	27"	15"
<b>EPA-EPAW 1600</b>	35"	40"	55"	88"	65"	28"	16"
<b>EPA-EPAW 2080</b>	35"	40"	55"	95"	72"	30"	17"

#### 4.4.4 Boiler Technical Specifications

EPA/EPAW Boiler Model				
Item	Unit	1050	1600	2080
Firing Sequence		Fully modulating		
Min. Fuel Input	MBH	105	160	208
Max. Fuel Input	MBH	1,050	1,600	2,080
Thermal Efficiency	%	Up to 98		
Fuel Type	Type	Natural Gas		
Vent Connection	Inch	6	8	10
Condensate Drain Connection	Inch	1¼	1¼	1¼
Water Return	Inch	2½" F	2½" F	3" F
Water Supply	Inch	2½" F	2½" F	3" F
ASME MAWP	psig	160 psig		
Max. Water Temp. Safety Limit	F°/°C	200/93.3		
Water Capacity	US Gal/L	51/194	66/248	77/290
Max. Flue Gas Temp.	F°/°C	230/110		
Total Weight	lbs/kg	1,240/562	1,750/795	1,980/899
Control Voltage	V/P/H	110/1/60		
Blower Voltage	V/P/H	110/1/60		
NO <sub>x</sub> Emissions	ppm	<30		
Control System	-	Honeywell Sola		
Supply Gas Pressure	Inch of Water Column	3.5"-14" wc (Honeywell gas valve) 3.5"-20" wc Dungs Gas Valve		



## 4.5 Moving and Setting the Unit



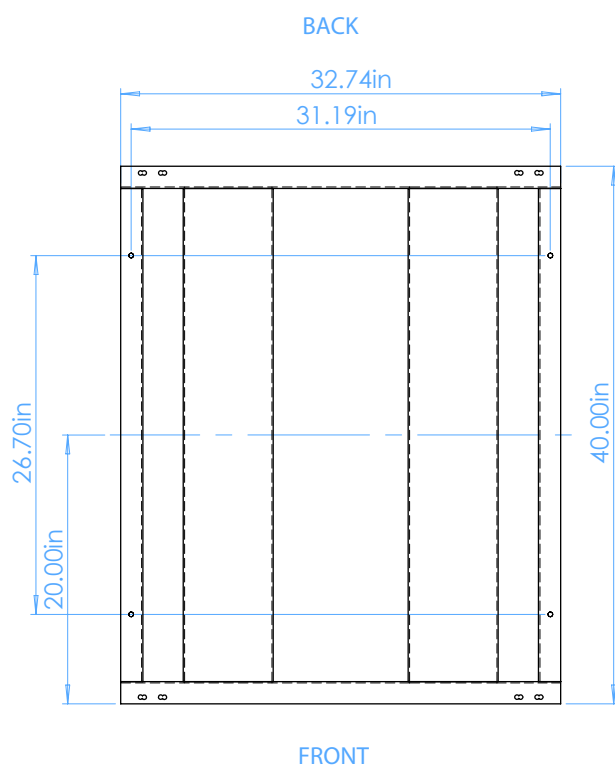
### Warning

KEEP THE UNIT AREA CLEAR AND FREE FROM ALL COMBUSTIBLE MATERIALS AND FLAMMABLE VAPORS OR LIQUIDS.

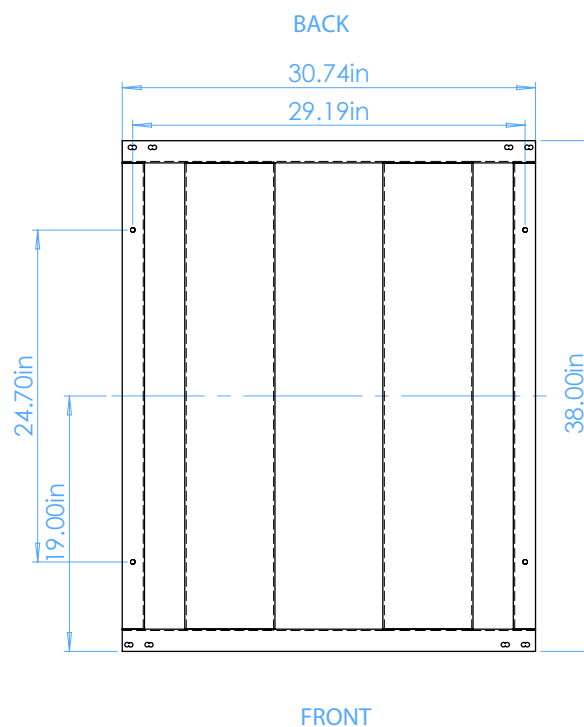


### Warning

While packaged in the shipping container, the unit must be moved by pallet jack or forklift from the FRONT ONLY.



EPA-EPAW1600  
EPA-EPAW2080



EPA-EPAW1050

### 5. GAS SUPPLY PIPING

line upstream of the boiler as shown in Figure 2-7.



#### Warning

NEVER USE MATCHES, CANDLES, FLAMES OR OTHER SOURCES OF IGNITION TO CHECK FOR GAS LEAKS.



#### Warning

Many of the soaps used for gas pipe leak testing are corrosive to metals. Therefore, piping must be rinsed thoroughly with clean water after leak checks have been completed.

#### NOTE

All gas piping must be arranged so that it does not interfere with removal of any covers, inhibit service/maintenance, or restrict access between the unit and walls, or another unit.

EPA and EPAW Boilers contain a 1 1/2 - 2 inch NPT gas inlet connection on the back of the unit as shown in Figure\*\*\*.

Prior to installation, all pipes should be de-burred and internally cleared of any scale, metal chips or other foreign particles. Do Not install any flexible connectors or unapproved gas fittings. Piping must be supported from the floor, ceiling or walls only and must not be supported by the unit.

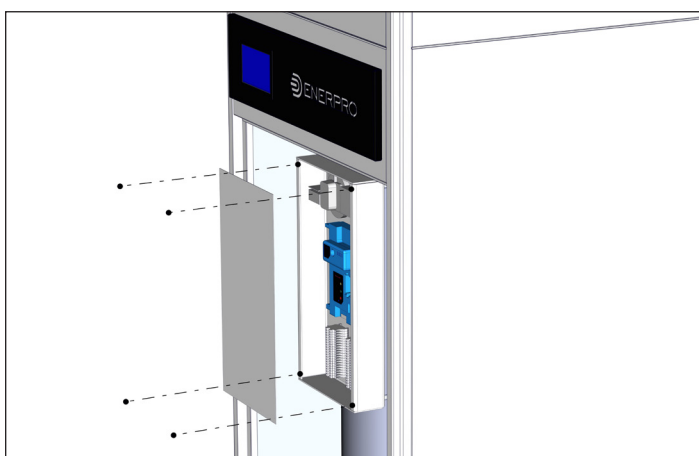
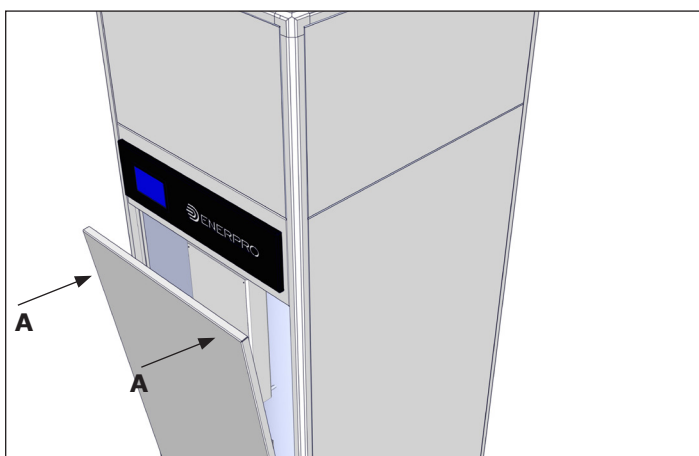
A suitable piping compound, approved for use with natural gas, should be used. Any excess must be wiped off to prevent clogging of components.

To avoid unit damage when pressure testing gas piping, isolate the unit from the gas supply piping. At no time should the gas pressure applied to the unit exceed the factory specified pressure. Leak test all external piping thoroughly using a soap and water solution or suitable equivalent. The gas piping used must meet all applicable codes.

#### 5.1 Manual Gas Shutoff Valve

A manual shut-off valve must be installed in the gas supply

## 6. AC ELECTRICAL POWER WIRING



## **7. Flue gas Venting**

### **7.1-Use Only an approved gas vent category II or IV type PH fabricated from AL29-4C.**

The vent shall be sized by a chimney venting specialist or a professional engineer using methods or vent calculations that are acceptable to National and local Codes having jurisdiction..

Any improper operating of the venting system must be corrected so the installation conforms to both ANSI Z223.1/ NFPA 54 or CAN/CSA B149 gas installation Codes.

When resizing any portion of common venting system, the system shall be resized to approach the minimum size as determined using the appropriate table in part II of ANSI Z223.1/ NFPA54 gas code and /or CAN/CSA B149. Natural gas and propane installation Code.

[For Category II – Negative breeching pressure range shall be between 0 to -0.09 inches water column (0 to 0.22 mbar)]

The boiler requires a vent system that will produce sufficient draft at all time to ensure safe and correct operation of the boiler. The vent system must exhaust all flue gases to the outside in a safe effective manner.

Any improper sealed venting system could result in carbon monoxide (CO) poisoning. Ensure adequate support and fastening of the vent system, according to vent manufacturer recommended or supplied instructions for proper support, fastening and sealing requirements.

Do not use barometric draft control on a positive vent pressure ( Category IV). The vent as sized must exhaust all flue gas gases to the outside in a safe and effective manner in any case.

When resizing any portion of the common venting system, the common venting system shall be resized to approach the minimum size as determined using the appropriate tables in Part II of ANSI Z223.1/NFPA54 Blocked vent safety device is equipped on the burner ( High gas pressure switch).

### **7.2 Co-Venting – Retrofitting:**

At the time of removal of any existing boiler, when is removed from a common vent system, the following steps shall be performed with the each remaining appliance connected to the common vent in operation and not in operation. This boiler must not be co-vented with a category I or III appliance.

- 1) Seal any unused opening in the common venting system.
- 2) visually inspect the venting system for proper size and horizontal pitch, determine there is no blockage, restriction, leakage, corrosion and other deficiencies which could cause an unsafe condition.
- 3) Close all building doors, windows and all doors between the appliances which remain connected to the common venting system are located and other space of the building. Turn on clothes dryers, exhaust fan at maximum speed and any appliance not connected to the common vent system, close fireplace dampers.
- 4) Place in operation each of the appliances installed in the common vent system being inspected. Follow the lighting instructions. Adjust thermostat so appliance will operate continuously.
- 5) Test for spillage at the draft hood relief opening near and around the each of the gas appliances after 5 minutes of main burner operation. Use the flame of the match or candle, or smoke from a cigarette, cigar, or pipe.
- 6) After determining that each appliance remaining connected to the common venting system properly vents when tested as outlined above, return all doors, windows, exhaust fan, fireplace dampers and any other gas burning appliance to their normal positions.
- 7) Any improper operating of the venting system must be corrected so the installation conforms to both ANSI Z223.1/

NFPA 54 or CAN/CSA B149.1 gas installation codes. When resizing any portion of the common venting system, the common venting system shall be resized to approach the minimum size as determined using the appropriate tables in Part II of ANSI Z223.1/NFPA 54 gas code &/or CAN/CSA B149.1 natural gas and propane installation code.

The combustion air inlet must be provided with a debris/bird-rodent screen. All terminals shall be arranged to avoid and prevent the accumulation of flue gas Condensation.

Installation, commissioning, maintenance and repair work must only be carried out by a suitably qualified specialist/Engineer in accordance with all relevant national/local standards and certifications.

Always disconnect the main power supply and close the main gas cock before working on the boiler.

Casing panels should only be removed for maintenance and servicing purposes. Refit all panels on completion of maintenance or servicing before putting the boiler back into service.

Instructions and warning labels on the boiler must never be removed or covered and must be clearly legible throughout the entire service life of the boiler. Damaged or illegible instructions and warning labels must be replaced immediately.

Generally applicable safety instructions related to accident prevention must be consulted in addition to the information supplied in this technical documentation.

### **7.3- Each condensate drain must contain an anti – siphon/ pigtail ( P- trap ) to prevent the flue gas flow through the condensate piping.**

Consult local authorities and national codes regarding the disposal of flue gas condensate into public waste water system.

Flue gas condensate is very aggressive and corrosive, which would lead to failure of the venting system or drains.

The flue gas condensation may require a neutralization system before entering the drain.

Routine inspection s shall determine that there is no blockage in the condensate fittings or lines.

Condensation neutralization materials requires replenishing, the PH level shall be maintained around 7 (neutral). Consult a water chemical specialist for application and maintenance assistance.

Any horizontal portion of the breeching or main chimney must be sloped upwards ¼” per linear foot (6mm per 300mm) from the boiler to the vent terminal.

### **7.4- Direct Vent ( Ducted Combustion Air)**

Air intake vent Materials

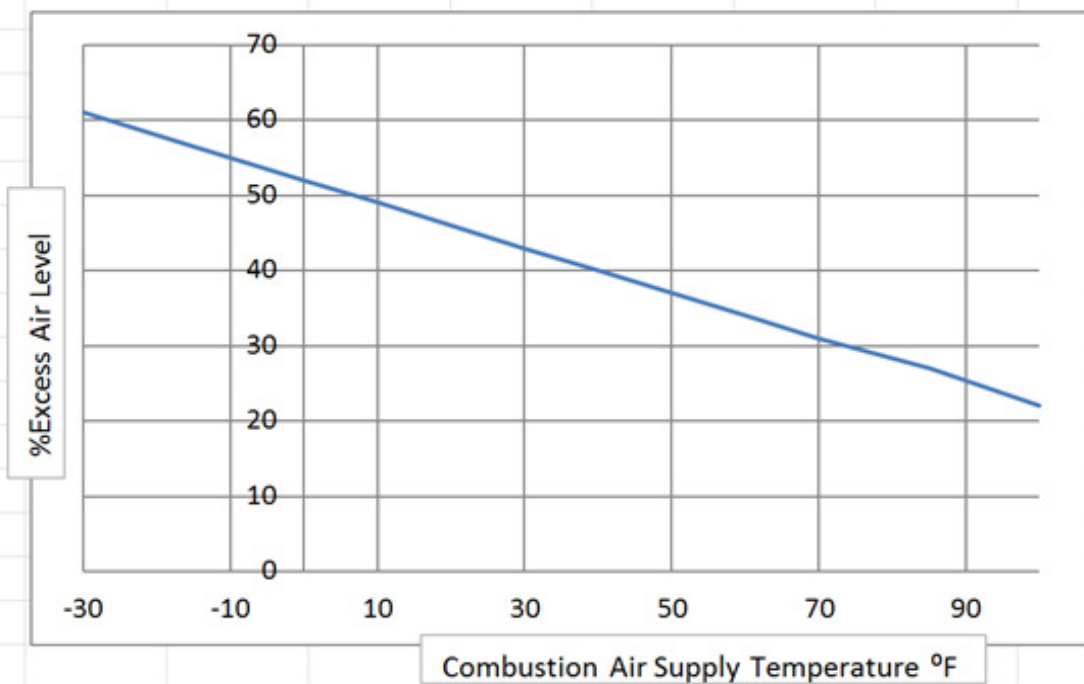
- 1- Rigid rectangular or round vent pipe of Aluminum or Stainless steel sheet metal.



#### **Warning**

These applications require special attention to the seasonal operating conditions, as influence of the combustion air temperature will adversely affect the boiler emission.

High level of CO can be produces if the excess air is reduced and could cause an unsafe operating condition that may cause personal injury including loss of life or damage to the equipment. Using the bellow graph, determines the minimum and maximum outside combustion air temperature the boiler would operate with, using the correction factor to determine what excess air level the boiler would safely operates with during the entire heating season. Also the level or pressure of which the air is drawn from limits the maximum vent length.



Determine your maximum and minimum air combustion temperature, use the chart determine if the excess air level will be less than %20@ maximum combustion air temperature, if so more excess air will be needed.

Note: Although the graph illustrates excess air with the changes of the combustion air temperature, the graph shall be used only as guide and does not indicates how each application will react. It is the sole responsibility of the installing contractor to ensure and confirm if the boiler/burner combination will perform safely in each extreme condition.

## 7.5 Sidewall vent applications:

These system do not fall under any of the gas vent categories, these systems are pre- engineered. The applications of these venting systems must be followed exactly for safe and trouble free operation.



### Warning

Improperly sealed venting system could result in carbon monoxide [CO] poisoning. Ensure adequate support and fastening of system. Ensure venting can safely exhaust all flue gases outside in an effective manner. These systems must operate under a positive vent pressure condition that is stable. Do not puncture or drill holes in any portion of the venting. The venting to be sealed according to the vent manufacturer recommended method.

### System requires:

- 1- Use vent type "BH" [AL294C] material only.
- 2- Use vent termination T
- 3- Vent safety device , equipped on burner or venting , must be a manual reset type. The device shall be accurately adjusted to disconnect the fuel supply or power to the burner in the event of partial blockage of the venting system.

## 7.6 Vent Termination Inlet/Outlet

The vent terminals must be installed to provide suitable protection against wind, rain, snow or blockage along with a rodent/debris screen. See this section for other require a termination T fitting.



### Warning

The flue gas vent pipe must be airtight and watertight. Horizontal sections of the venting must slope downward towards the boiler 1/2" per linear foot (12mm) and adequate vent support must be provided. Horizontal parts of venting system, shall be supported to prevent sagging, Please follow, venting manufacturer's instruction for the methods of, and intervals for support.

EPA/EPAW 1050, 1600,2080 are category II and IV

## 7.7 Category II vent length chart [room supplied combustion air]

Model	Vent Ø	Vent Length (Min)		Vent Length (Max)		90°EL Length
	in	Ft	meter	Ft	meter	Ft (meter)
EPA/EPAW1050	6	5	1.5	100	30	12 (3.5)
EPA/EPAW1600	8					
EPA/EPAW2080	10					

## 7.8 Category IV venting length chart [sealed combustion air]

Model	Vent Ø	Vent Length (Min)		Vent Length (Max)		90°EL Length
	in	Ft	meter	Ft	meter	Ft (meter)
EPA/EPAW1050	6	5	1.5	100	30	12 (3.5)
EPA/EPAW1600	8					
EPA/EPAW2080	10					

Venting lengths must not be less than minimum or exceed the maximum equivalent lengths shown in above table . Any horizontal runs of the venting must slope towards the boiler 1/2" per linear foot.

This venting system uses a single vent to discharge all flue gases to the outside, combustion air provided within the boiler room, the air source must be sized in accordance to national codes CSA B149 & ANSI Z223.1 or local codes having jurisdiction, more than one source may be required. The vent terminal locations follow local and national codes requirements. The vent terminal shall discharge flue gases away from the building structure so that the flue gases do not cause damage to the building, the vent terminal locations must also follow CSA B149 & ANSI Z223.1.

## 7.9 -Direct vent applications:

Model	Vent Ø	Vent Length (Min)		Vent Length (Max)		90°EL Length
	in	Ft	meter	Ft	meter	Ft (meter)
EPA/EPAW1050	6	5	1.5	100	30	12 (3.5)
EPA/EPAW1600	8					
EPA/EPAW2080	10					

Please make sure the vent- air intake system, properly reassembled and sealed after any dis- assembling, or repairing them. ( Follow up vent manufacturer, instruction for re sealing)

In all installations avoid vent termination locations where excessive debris or snow could accumulate leading to blocking of the vent terminals. Vent terminals should avoid being installed where the building exterior could be tarnished from the flue gases, a shield or another location should be considered. The vent terminals shall be installed according to the instructions as provided terminals shall not be less than 2 inches [50mm] from the wall surface or more than 10 inches [254mm] from the terminal to the wall. For high traffic locations, the vent terminal shall be guarded. According to the national gas codes [CSA B149 & ANSI Z223.1/NFPA 54] a vent shall not terminate:

- Directly above a paved walkway or driveway which serves two or more buildings or where the flue gas condensation or vapor could create a hazard or improper operation of regulators, relief's or valves or any other device.
- Above or below any electric or gas meter, regulators & relief devices unless a 4ft [1.2m] horizontal clearance distance to be maintained.
- Less than 7ft [2.1m] above any paved sidewalk or driveway.
- Less than 6ft [1.8m] from any combustion air inlet source from any nearby building.
- Less than 4 ft. [1.2m] above a meter/regulator assembly horizontally from a vertical centerline of the regulator vent outlet to a maximum vertical distance of 15ft [4.6m].
- Less than 1ft [0.3m] above grade or normal snow level in the area is expected.
- Less than 3ft [0.9m] from windows, doorways, and combustion air supplies nearby buildings or other appliances.
- Under a veranda, porch or deck, unless [1] the veranda, porch or deck is fully open on at least 2 sides underneath. [2] The distance between the top of the terminal and the grade is greater than 1ft (0.3m)

For other than direct vent appliance , the appliance must be located as close as practicable to a chimney or gas vent. The appliance should be located in an area where leakage of the tank or connection will not result in damage to the area adjacent to the appliance or to lower floors of the structure. When such locations cannot be avoided ,it is recommended that a suitable drain pan, adequately drained, be installed under the appliance. The pan must not restrict combustion air flow.



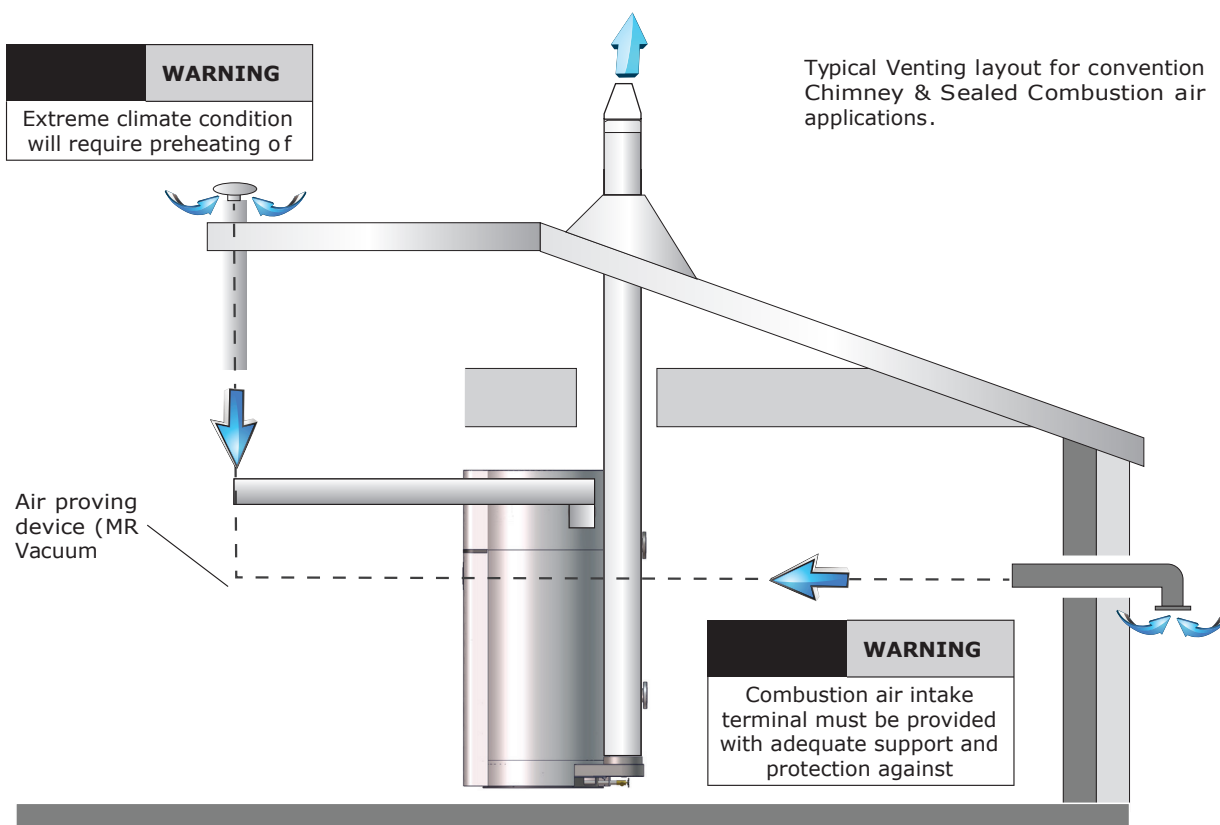
- 1- Combustion air preheating as necessary
- 2- Aluminum, Stainless Steel or Galvanized rigid round vent or square duct.
- 3- Burner equipped with a combustion air supply proving device. ( Manual Reset)
- 4- Minimum vent diameter size per table1
- 5- Less than maximum vent length per table 1
- 6- Air inlet terminal side wall application must be either a 90° elbow or T w/bird rodent protective screen.
- 7- For vertical application or non restrictive rain



## Warning

Do not use plastic, PVC, or flexible venting materials. The intake air terminal must be protected against wind, rain, and debris and snow accumulation. A bird and rodent screen must be provided on the vent terminal. The screen opening must be less than 1/4".

**WARNING**  
Extreme climate condition will require preheating of



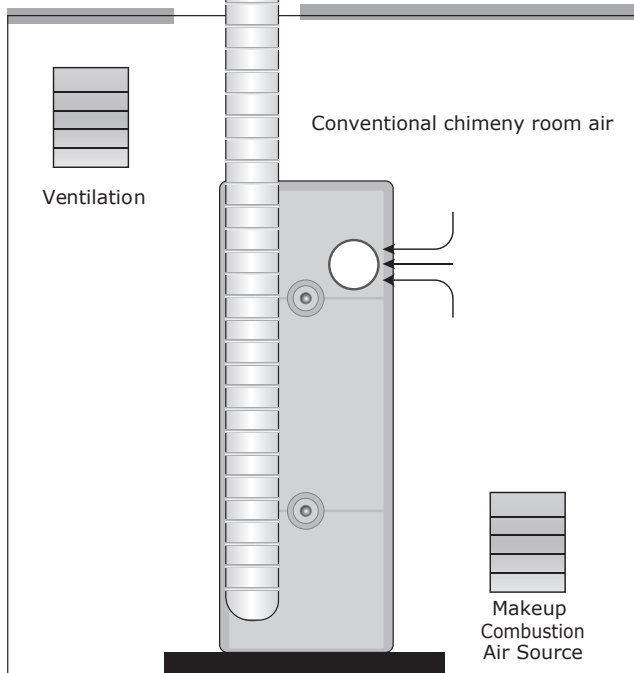
Typical boiler vent materials: AL294C for all applications. Combustion air intake terminal must be provided with a rodent-bird screen. P protection from debris or source of contaminated air. Please follow burner manufacturers instructions, limits and warnings. A suitable combustion air providing device ( manual reset) shall be provided. Do not insulate the combustion air duct or venting.

## Combustion Air Supply

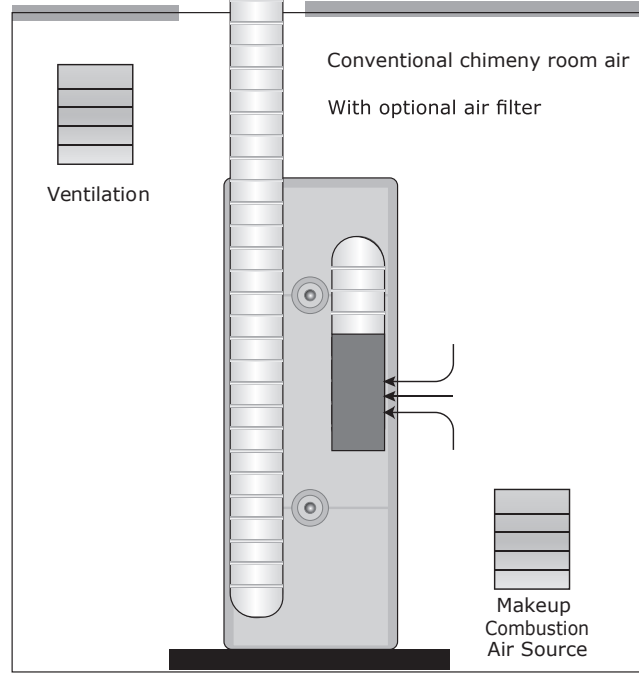
Boiler Model	Fuel Input (Gas) MBH	Round Duct	Eq. Length 90 EL	Eq. Length 45 EL	Eq. Length 180 Offset	Max. Equivalent Length	
EPA/EPAW 1050	1,050	6 inch	10ft/3m	5ft/1.5m	30ft/9.1	100ft/30m	  
EPA/EPAW 1600	1,600	8 inch					
EPA/EPAW 2080	2,080	10 inch					

**7.9 Venting Types**

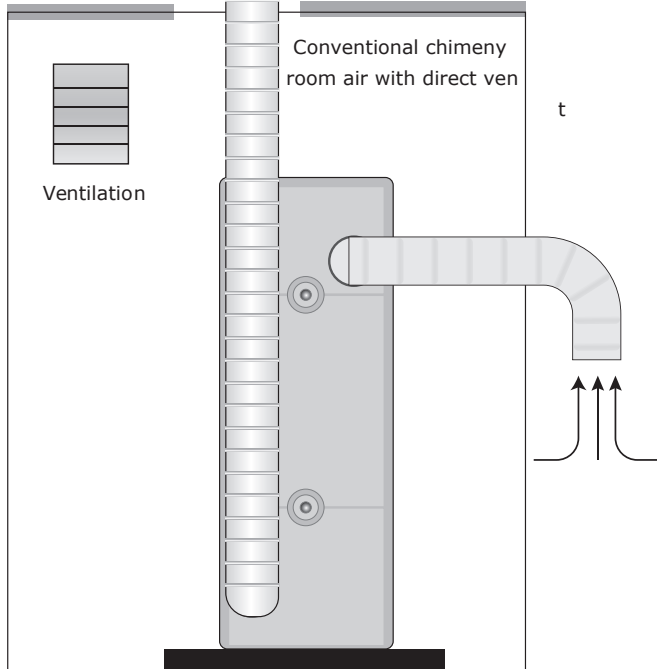
**Vent Type 1**  
Category II



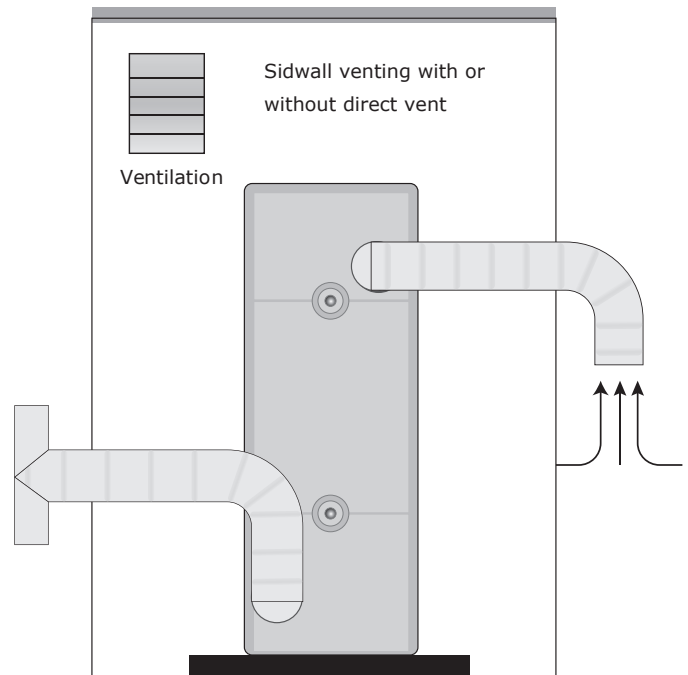
**Vent Type 1**  
Category II

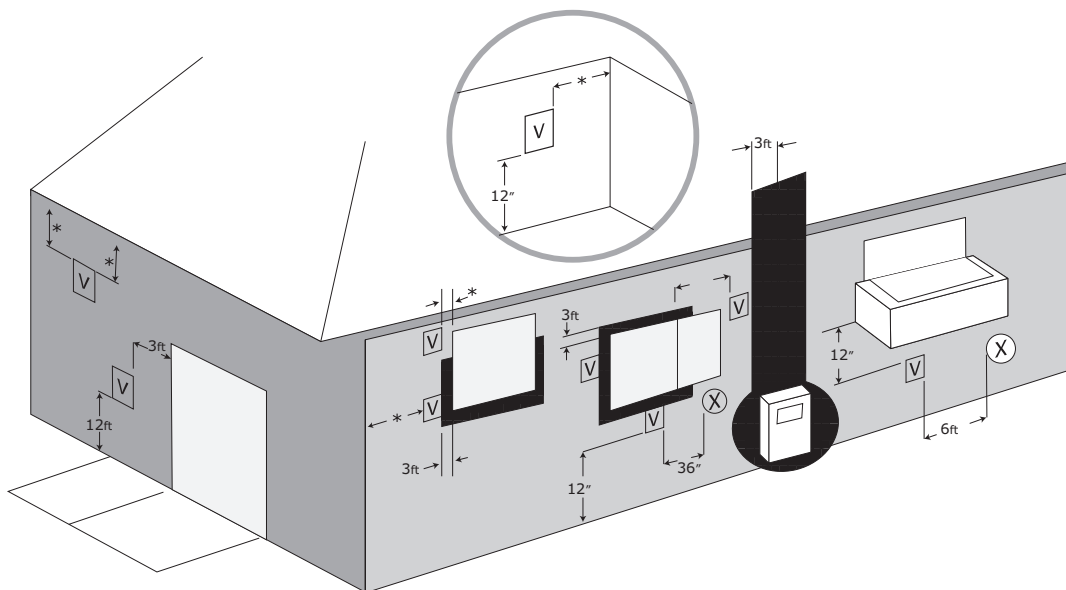


**Vent Type 2**  
Direct Vent



**Vent Type 2**

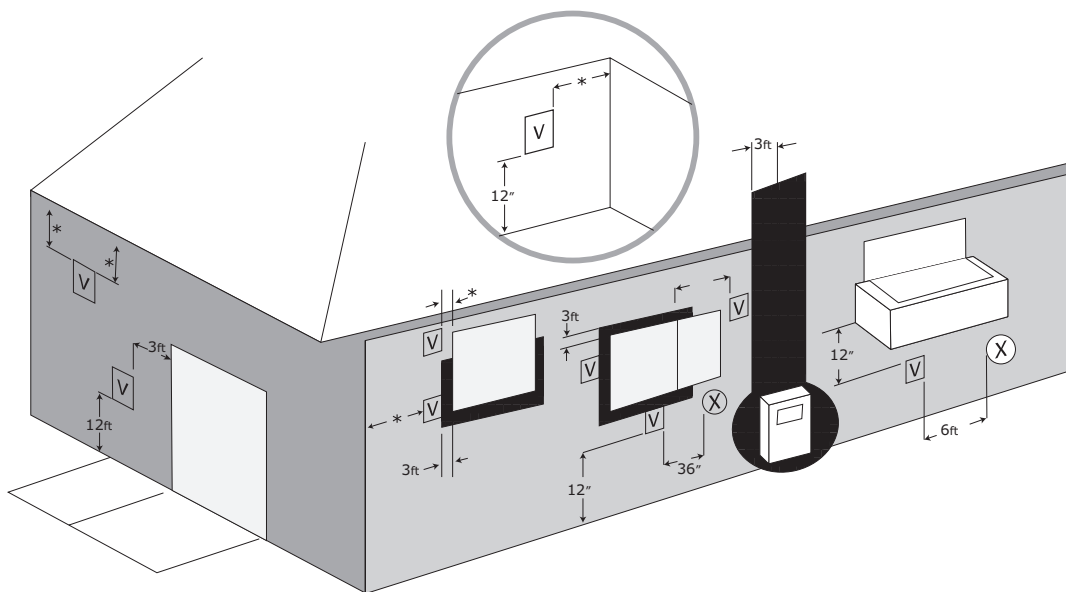




## 7.10 Direct Vent Terminal Clearances

\* For Clearance not specified in ANSI Z223.1/NF PA 54 or CSA--B149.1 one of the following shall be done

- A minimum Clearance value determined by testing in accordance with section 2.20 of ANSI Z21.10/CSA 4.3
- Clearance in accordance with local installation codes and requirements in this manual.



## 7.11 Other than Direct Vent Terminal Clearances

\* For Clearance not specified in ANSI Z223.1/NF PA 54 or CSA--B149.1 one of the following shall be done

- A minimum Clearance value determined by testing in accordance with section 2.20 of ANSI Z21.10/CSA 4.3
- Clearance in accordance with local installation codes and requirements in this manual.

### 7.12 Water pressure

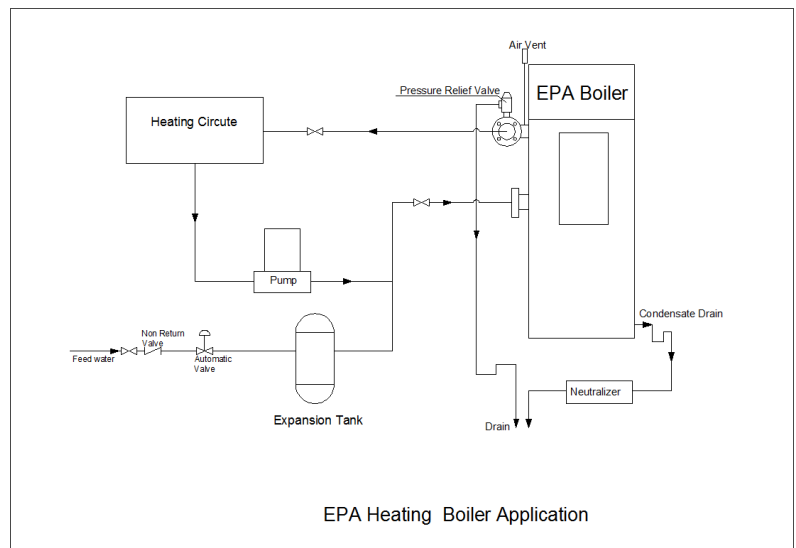
- The boiler is suitable for a maximum working pressure of 160 psi
- The system should be filled with mains, cold water.
- The system is flushed thoroughly to remove all fluxes and debris and filled completely once.
- The hardness of the water shall conform to the water quality document requirements All scale deposits will reduce the efficiency of the boiler and should be prevented.

### 7.13 Typical water system layout

- The piping diagram illustrates the minimum boiler system controls needed, the by-pass system is not necessary, but can be used in multiple heating temperature circuits.
- Consult all national, local and building codes having jurisdiction for other requirements regarding the boiler system.
- It is strongly suggested a decoupling device is used when the system flow is unknown. For multiple boilers, consult the factory. Page \*\*\*\*
- Check local codes regarding condensate discharge into the common drain.
- Water must be analyzed to ensure acceptable quality. If make water consumption is unknown, the system should be checked at regular intervals – consult water specialists for assistance.
- When the boiler is connected to a refrigeration system, it must be installed so the chilled medium is piped in parallel with the boiler with appropriate valve to prevent the chilled medium from entering the boiler.

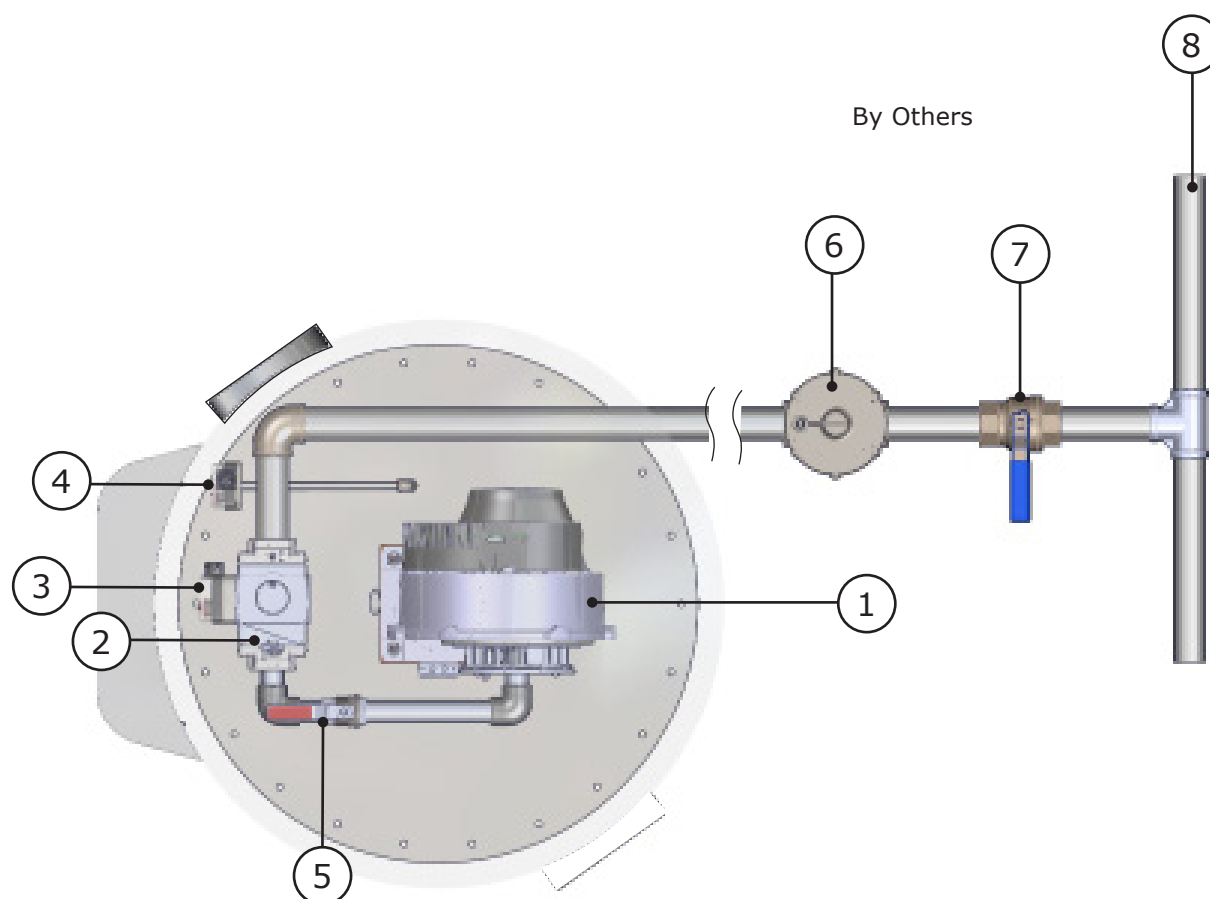
The boiler piping system of a hot water boiler connected to heating coils located in air handling units where they may be exposed to refrigeration air circulation must be equipped with flow controls valves or other automatic means to prevent gravity circulation of the boiler water during cooling operations.

All water piping and reliefs shall be piped to avoid any ingest of water near the boiler controls. The piping diagram shown below does not reflect all systems consult local and national codes having jurisdictions regarding other water system controls required. If water heater is installed in a closed water supply system, such as one having a backflow preventer in the cold water supply line, means shall be provided to control thermal expansion. Contact the water supplier local plumbing inspector on how to control the situation. If a relief valve discharges periodically, this may be due to thermal expansion in a closed water supply system. Contact the water supplier or local plumbing plumbing inspector on how to correct this situation. Do not plug the relief valve.



## 8. Gas line

The Boiler and its gas connection must be leak tested before placing the boiler in operation. Boiler shall be installed such that the gas ignition system components are protected from water (dripping, spraying, rain, etc.) during appliance operation and service (circulator replacement, condensate trap, control replacement, etc.).



- 1. Variable Speed Motor
- 2. Modulating Gas Valve
- 3. Low Gas Pressure Switch
- 4. High Pressure Switch

- 5. Manual Gas Valve
- 6. Gas Pressure Regulator
- 7. Manual Gas Valve

## 9. Operator Interface Display



### Warning

#### Explosion Hazard.

Improper configuration can cause fuel buildup and explosion. Operators of this display may move fuel and/or air actuators to positions that can create hazardous burner conditions. Improper user operation may result in PROPERTY LOSS, PHYSICAL INJURY or DEATH.

The S7999D System Display device is to be used only by experienced and/or licensed burner/boiler operators and mechanics.



### Warning

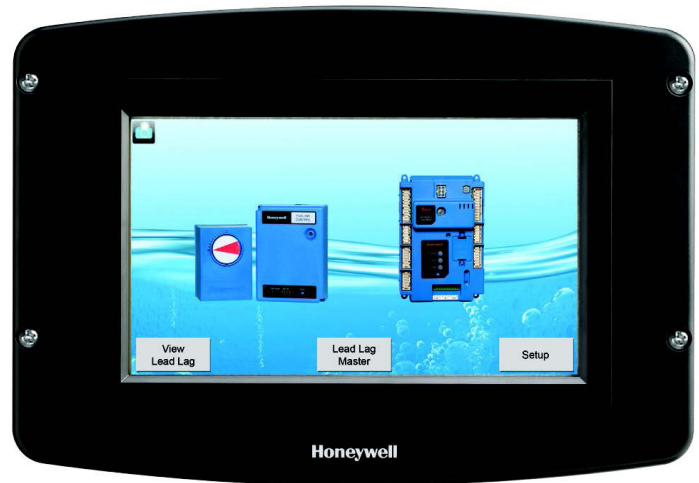
#### Electrical shock hazard, can cause personal injury or loss of life, including property damage.

\*\* All electrical wiring to the boiler and controls must be protected from ingest of water and be properly grounded and bonded according to CEC part I CSA 22.1 & NEC NFPA 70.

#### SAFETY FEATURES :

The S7999D contains software that incorporates many features that are designed to guide you safely through the commissioning process. Safety, however, is your responsibility. Read all documentation carefully and respond appropriately to all error messages.

Be aware that as you command the R7999 to open and close actuators, the R7999 is designed to prevent you from opening or closing them too rapidly. When any of the system actuators are below 20% of their open position, the R7999 effectively limits any actuator from traveling more than three degrees without moving the other actuators in the system. When all the actuators are over 20% of their open position, the limit increases to 10 degrees.



#### SPECIFICATIONS

##### Electrical Ratings:

**Input Voltage:** 18 – 30 Vac (24Vac nominal), 50/60 Hz

##### Input Current:

**500 mA max**

##### Power consumption:

**12W max**

##### Operating Temperature:

**-4 to 158 °F (-20 to 70 °C)**

**Humidity: 90% RH, non condensing**

**Enclosure rating: IP10 / NEMA 1**

## 9.1 Honeywell Sola Control Programming/Configuration

The Honeywell control has been fully programmed and configured by the factory for most installations, in most installation no adjustments or configurations are required, please note that optional items like, Outdoor reset, DHW production and lead/lag systems require configuration, see separate instruction provide with the kits.

**The Honeywell Sola has 3 different levels or access.**

- a. OEM – Factory = (factory only)
- b. Service – (Service password or login = serial #)
- c. User – (no password or login required)

A = OEM – Factory, access by authorized factory personnel only

B = Service – trained installers, operators (Access to configure optional items, lead/lag, etc.)

C = User – end user or operator (limited access)

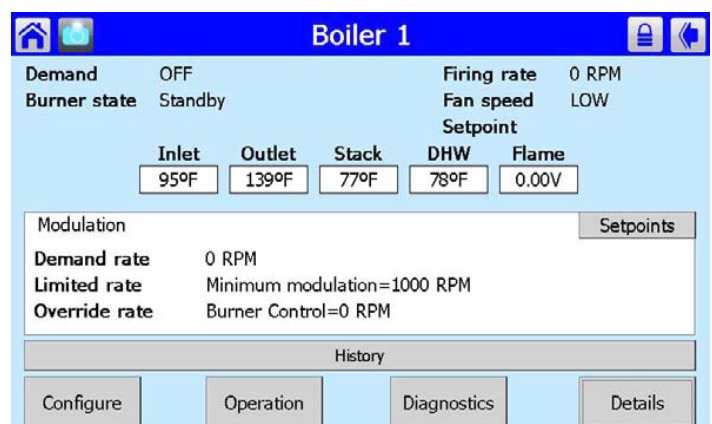
In the configuration menu the User no password required has access to view all parameters but user cannot change unless either a Service or OEM password is entered.

Login only required if specific parameters are required to be accessed, for example cascade or outdoor reset or DHW production all other parameter shall not be changed without consent from the Manufacturer.

## 9.2 Programming Access:

### Step 1:

from the Home screen touch the Sola control icon. From the overview screen touch the configure button in the bottom left hand corner.



### Step 2:

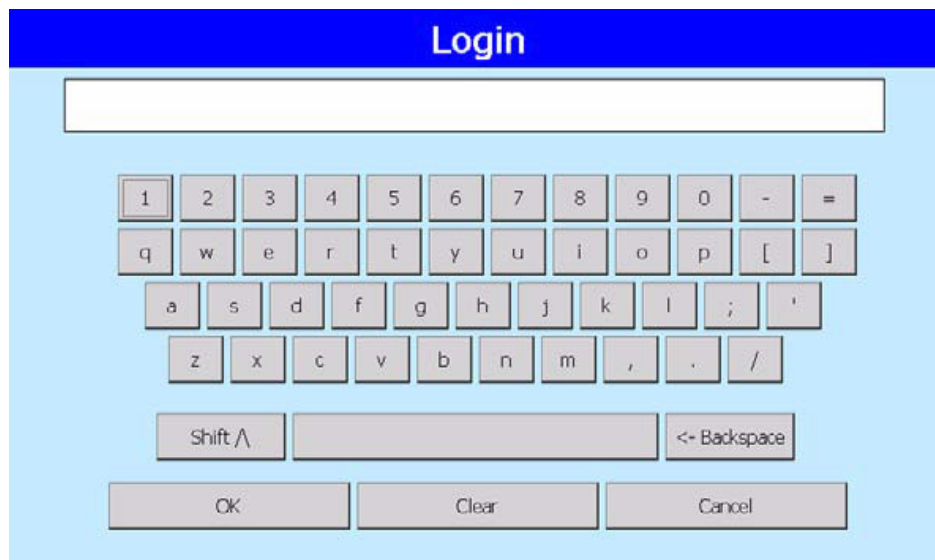
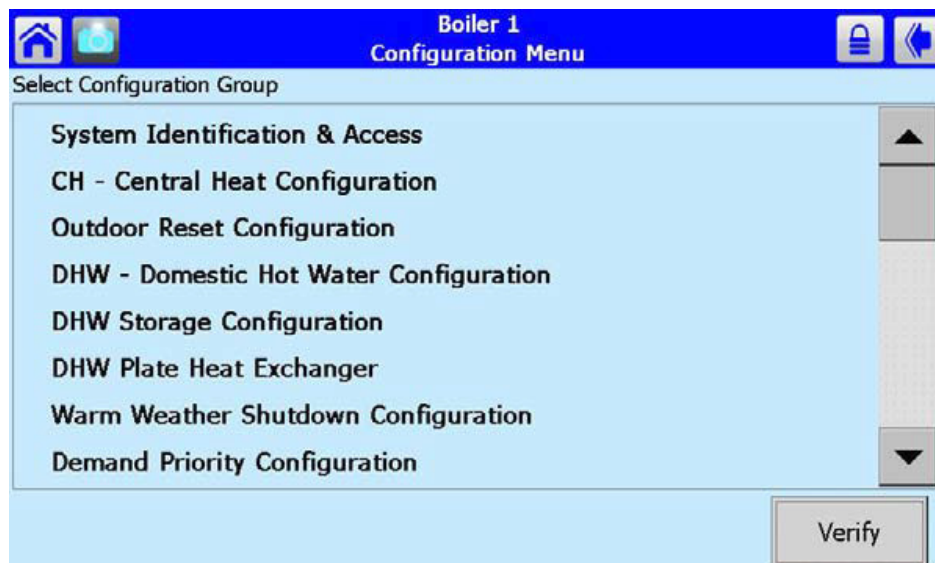
From the Configuration window, use the slide bar on the right hand side and select the group by touching the group name.

### Step 3:

Verify in correct group and view setting, determine the parameter in the group you wish to either view (confirm) or change, if changes to a group parameter is needed, a service password will have to be entered.

### Step 4:

Enter service password (Serial #) by touching the locked padlock icon near the top right hand corner, this will bring you to the login screen enter service password (serial #). The locked padlock icon will change to an unlock padlock icon and return back to the configuration menu, select the configuration group and then inside each group are specific parameters.





## 10. COMMISSIONING



### Warning

If you do not follow the commissioning instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

### 10.1 Pre operational checks

1. Check power supply ensure fused and service disconnect provided as required by local code or authorities having jurisdiction.
2. Check gas connection to boiler and check for gas leaks, purge gas according to local codes or authorities having jurisdiction.
3. Check gas supply pressure on inlet of gas valve and confirm greater than 3.5 inch w.c. gas pressure is measured
4. Check flue and air vent connections
5. Ensure boiler is fully filled with water and all air is purged, the boiler pressure shall be at least 20 psig.
6. Check pumps for correct flow capacity and flow direction
7. Ensure relief valve is properly connected, sized and piped to nearby drain
8. Fill condensate P trap assembly, if Ph neutralizer used, ensure no obstructed flow through neutralizer to drain. Ensure all piping of condensate is gravity feed to drain.
9. Check water connections to the system are correct and all isolation valves are open
10. Check to ensure boiler drain connection is provided.
11. Ensure boiler has been installed and properly mounted to the boiler pad if provided, anchoring of boiler per local codes and seismic
12. Ensure required service area has been provided around boiler as recommended.

### 10.2 Safety checks and lighting instructions

1. Turn ON main power supply
2. Turn OFF Firing gas valve
3. Open the main gas valve.
4. Check the gas connections for gas leaks.
5. Ensure boiler is open to system, pumps ON and adequate flow is provided through boiler.
6. Adjust the boiler controls to heat demand.
7. The boiler should start and check start interlocks and start purge to pre-ventilation purge position
8. The boiler will automatically go into the ignition phase and then shutdown on ignition/flame failure
9. Reset control
10. Open firing valve
11. Check ignition quality, and flame stability and flame signal, the minimum flame signal shall be at least 5 $\mu$ A/V, nominally the flame signal shall range from 8 to 32 $\mu$ A/V

### 10.3 Commissioning Steps



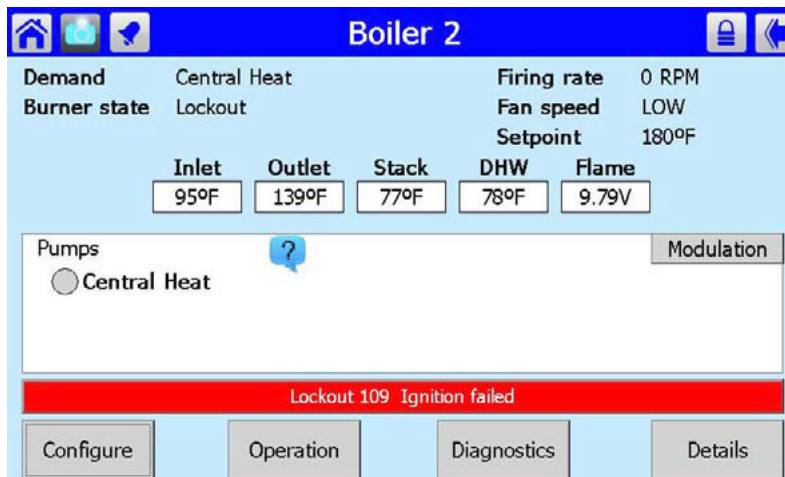
### NOTE

- Commissioning can only be performed with the Honeywell S7999D 1006 color touch screen display
- All units are fully factory tested, due to varying field conditions, boiler must be tested on final site for safety shutdown, operation, and combustion limits.
- The display maybe in a screen saver mode or in the home position (Sola control icon)

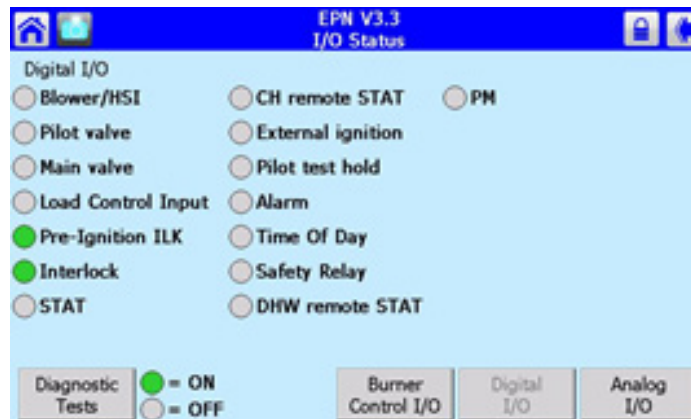
1. Start main screen touch the Sola control, this will bring you to the Operation Overview window.



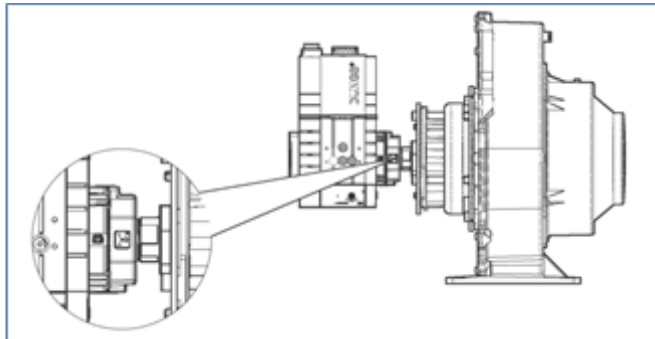
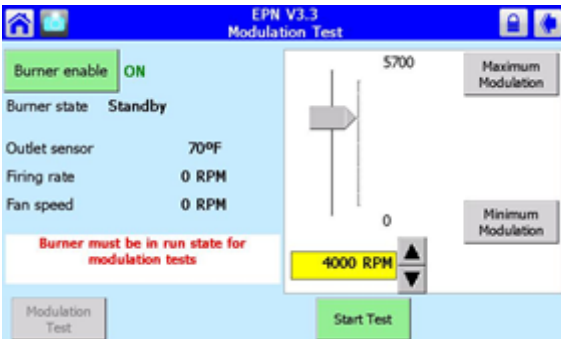
2. Touch the diagnostics button, screen changes to the I/O Status window



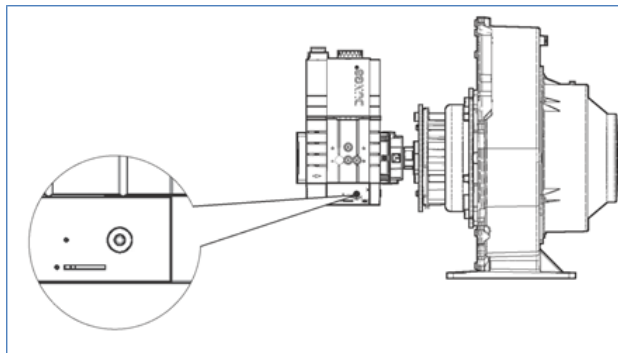
3. Touch the Diagnostics test button, screen changes to the Modulating Test window



4. Press the Maximum Modulation button (High fire position), this will force the boiler into the High fire position. Once in the High fire position and stable conditions are reached check the following:
  - a. Check combustion (see table) for factory and field combustion limits
  - b. Adjust main flow (High fire) as necessary via shutter adjustment slotted screw  $\pm$
  - c. Measure breeching/vent draft condition
  - d. Check flame signal on operation overview window and observe flame condition via sight glass.

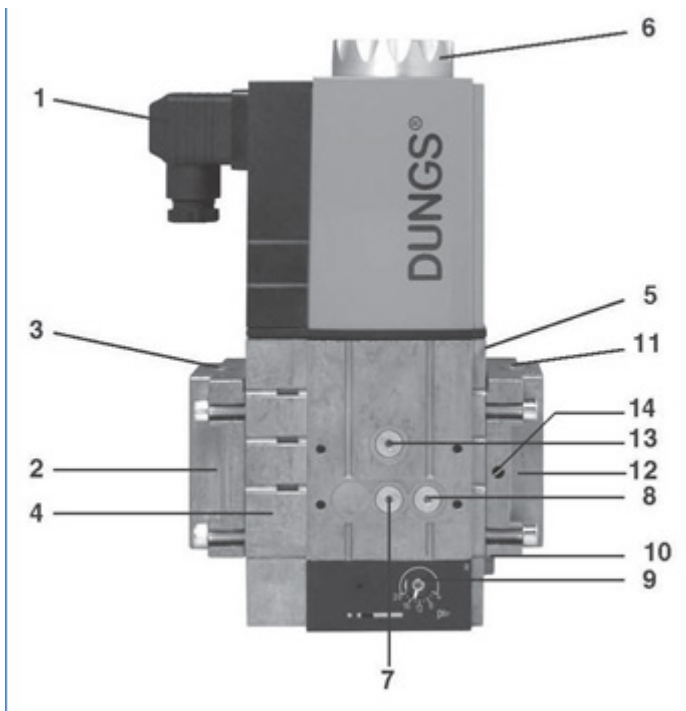


5. Press the Minimum Modulation button, this will force the boiler into the Low fire position. Once in the Low fire position and stable conditions are reached check the following:
  - a. Check combustion (see table) for factory and field combustion limits
  - b. Adjust offset (Low fire) as necessary via Offset 2.5mm hex screw  $\pm$
  - c. Measure breeching/vent draft condition
  - d. Check flame signal on operation overview window and observe flame condition via sight glass.



Combustion Readings				
Emission	Unit	Range	Part Load (20%)	Full Load (100%)
CO <sub>2</sub> Range	%	6 - 9.5	8.0	9.0
O <sub>2</sub> Range	%	8.0 - 4.0	7.0	5.0
CO Limit	ppm	< 100		

Gas Pressure Readings				
	Full Load (100%)		Part Load (20%)	
	$\Delta p$ [in w.c.]	$\Delta p$ [mbar]	$\Delta p$ [in w.c.]	$\Delta p$ [mbar]
EPN/EPAW1050				
EPN/EPAW1600				
EPN/EPAW2080				



1. Electrical DIN Connector
2. Upstream Flange
3. G1/8 inlet test port
4. Filter
5. Valve Body
6. Coil
7. Test port connection #2, G 1/8 between V1 and V2; both sides.
8. Test port connection #3, G1/8 downstream of V2; both sides.
9. Regulator outlet pressure adjustment screw; both side
10. Vent-less regulator vent connection is G1/8 threaded. The brass vent limiting orifice is 0.2mm in diameter.
11. Downstream flange
12. Test port connection #1, G1/8 upstream of V1; both sides.
13. Offset adjustment cover

### 10.4 IMPORTANT SAFETY WARNING:

**The installation of the boiler is not completed until all controls and safety device have been tested and verified for correct function and operation. It is the sole responsibility of the installer to ensure that safety control system and gas ignition system and any there safety control must be tested**

#### Note:

EnerPro Boilers are supplied with a number of factory default settings that should be correct for most installations. If there setting values are required: The following operating situations are now possible:

- a. Local operation via internal set point, The output of the boiler modulates on the basis of the flow temperature.
- b. Remote operation via external signal (4-20mA) for output or temperature set-point
- c. Lead/Lag (Cascade master control) communicates directly to each boiler via Modbus communication protocol.

**Important!! – No frost protection when the boiler power is turned off**

- 6. Air pressure switch calibration and check
  - a. Check sensing tube, connected no cracks or splits
  - b. Command boiler on, disconnect sensing tube from switch our air shroud
  - c. Boiler shall shutdown on air pressure switch open
  - d. Reattach sensing line and restart boiler and confirm correct operation



- 7. Low gas pressure calibration and check (manual reset)
  - a. Check for leaks around the surface mount of low gas pressure switch for gas leaks
  - b. Command boiler on, while starting turn dial to the maximum setting or until boiler shutdown on LCI (operating interlocks), the switch is equipped with a LED indication when switch has activated.
  - c. Set switch setting back to 3.5" w.c., press the reset on switch and observe boiler shall start again automatically.
  - d. Confirm pressure via inlet test point of the gas valve (3), measure the pressure while operating in high fire position to confirm sufficient gas pressure if available, inlet gas pressure lower than 3 1/2 inch w.c. will result in poor air/fuel ratio and reduce output. The gas pressure shall always be above the 3.5 inch w.c. at all times. The switch will activate in low gas supply pressure conditions and shall not be circumvented.



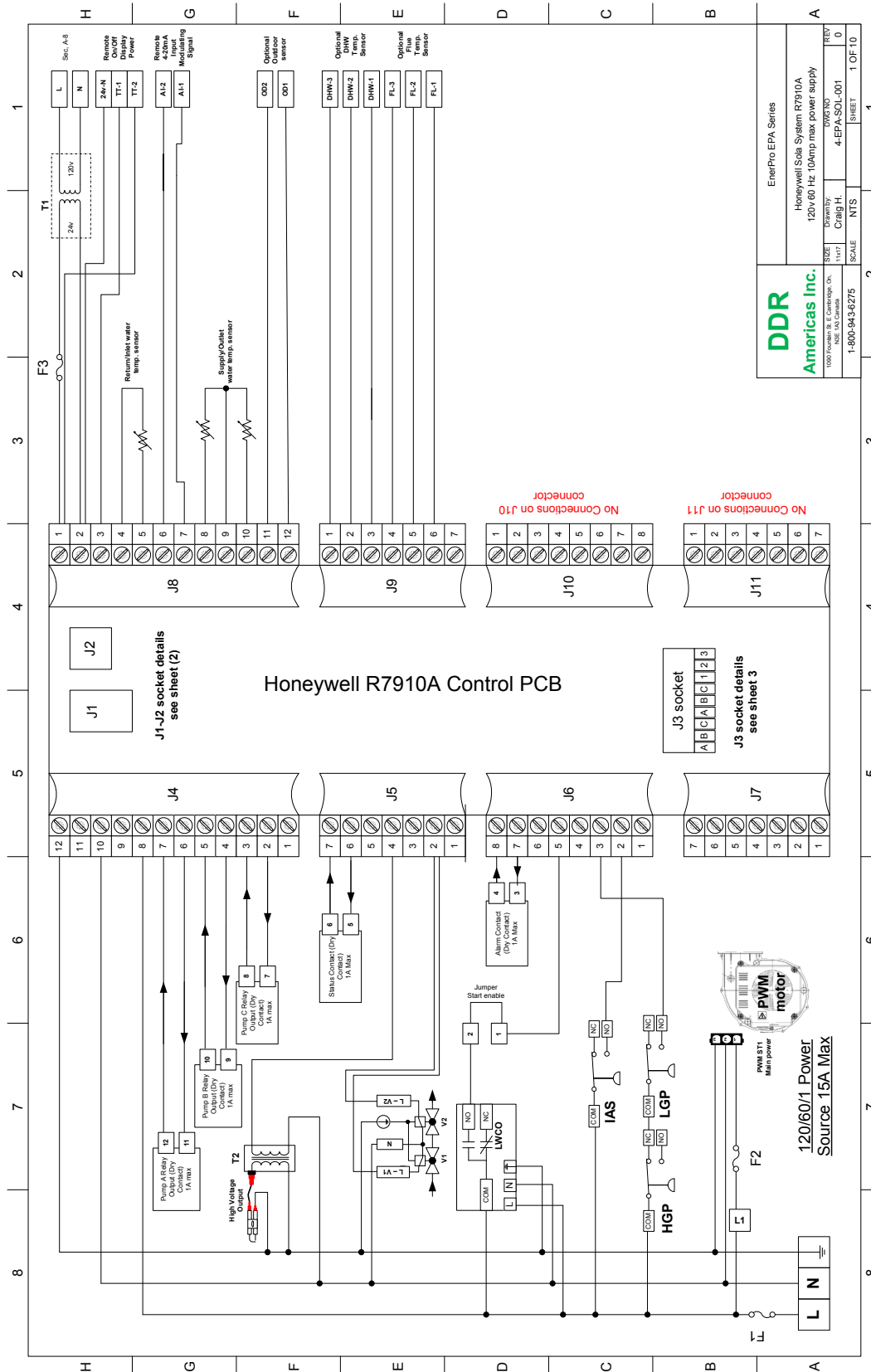
- 8. High gas/Vent Safety pressure switch calibration and check
  - a. Check for leaks around the piping of high gas pressure switch for gas leaks
  - b. Command boiler on, while starting turn dial to minimum setting or until the boiler shutdown on LCI (operating

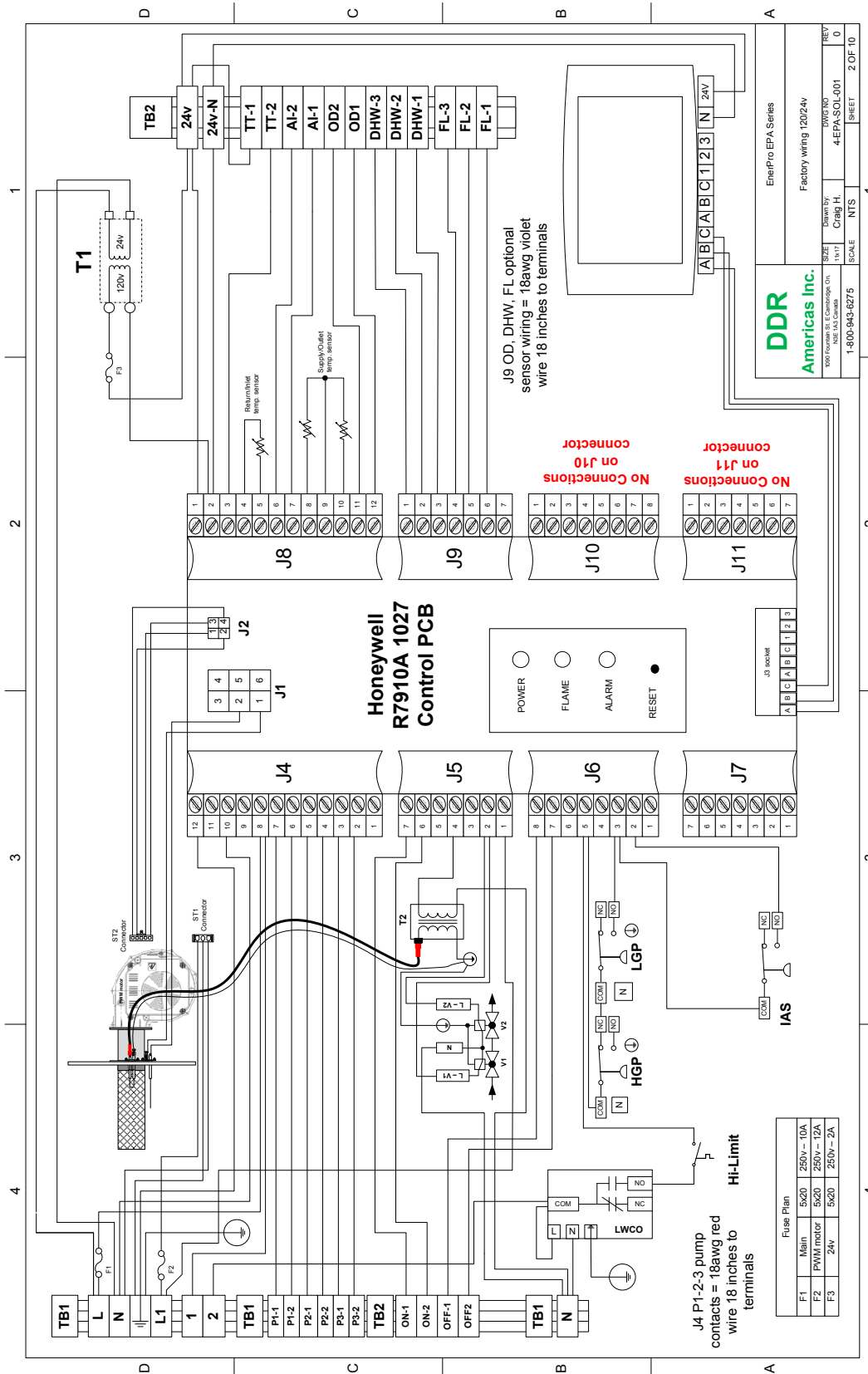
interlocks), the switch is equipped with a LED indication when switch has activated.

- c. Set switch setting back to (SEE TABLE), press the reset on switch and observe boiler shall start again automatically.
- d. Connect a manometer to the test point and observe pressure reading

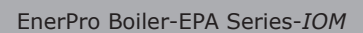


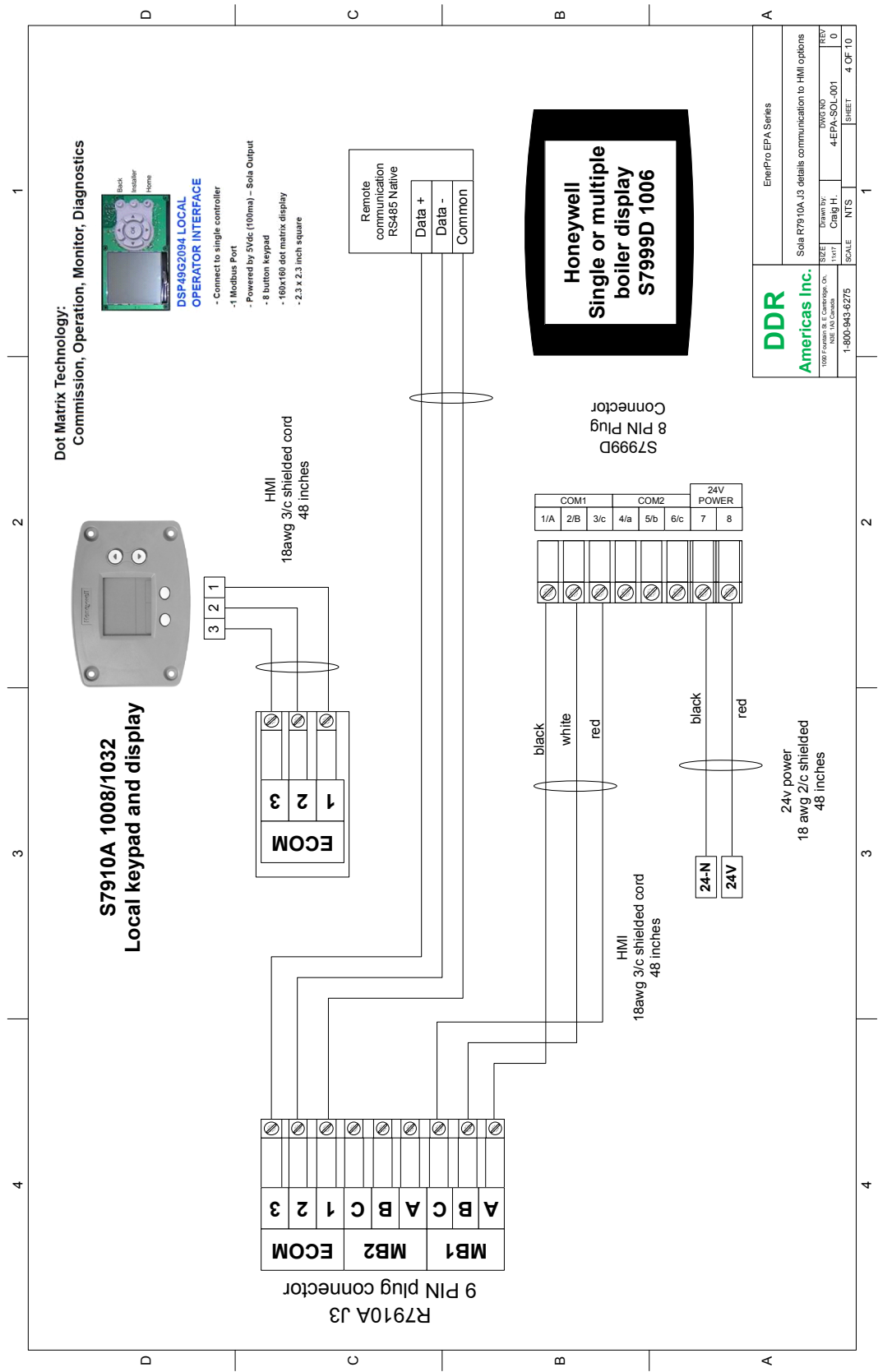
# 10. Electrical Drawings

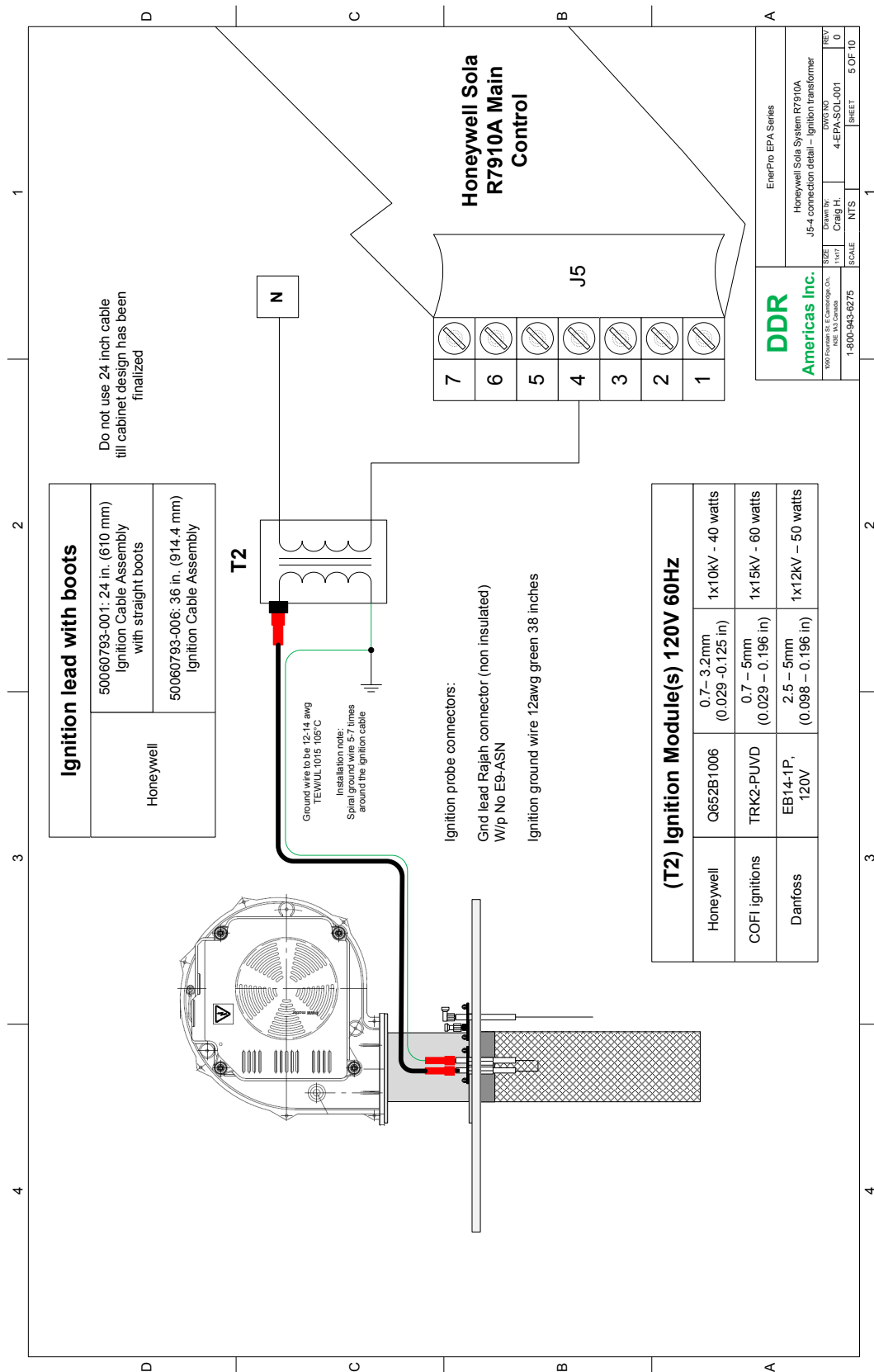


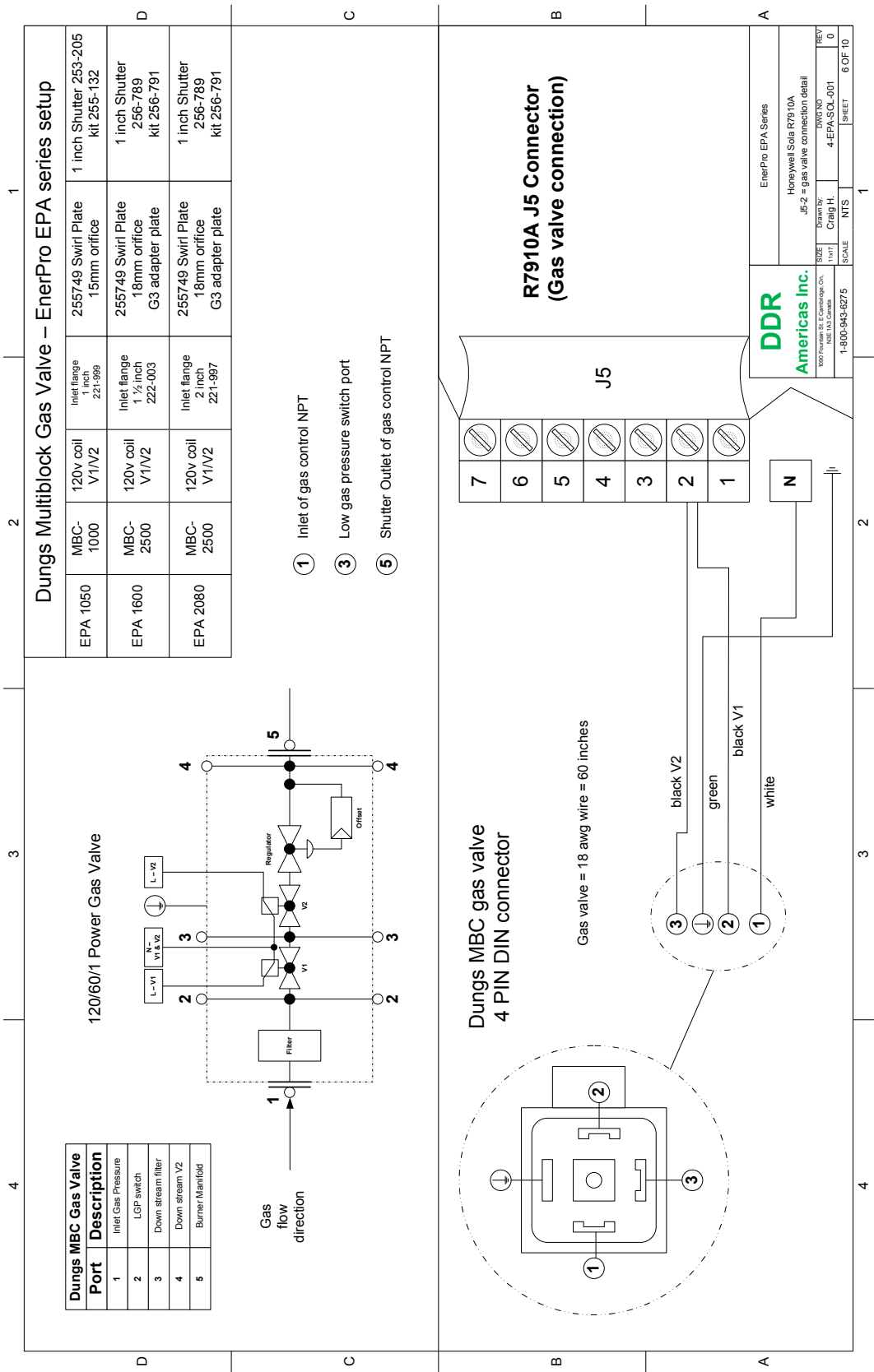


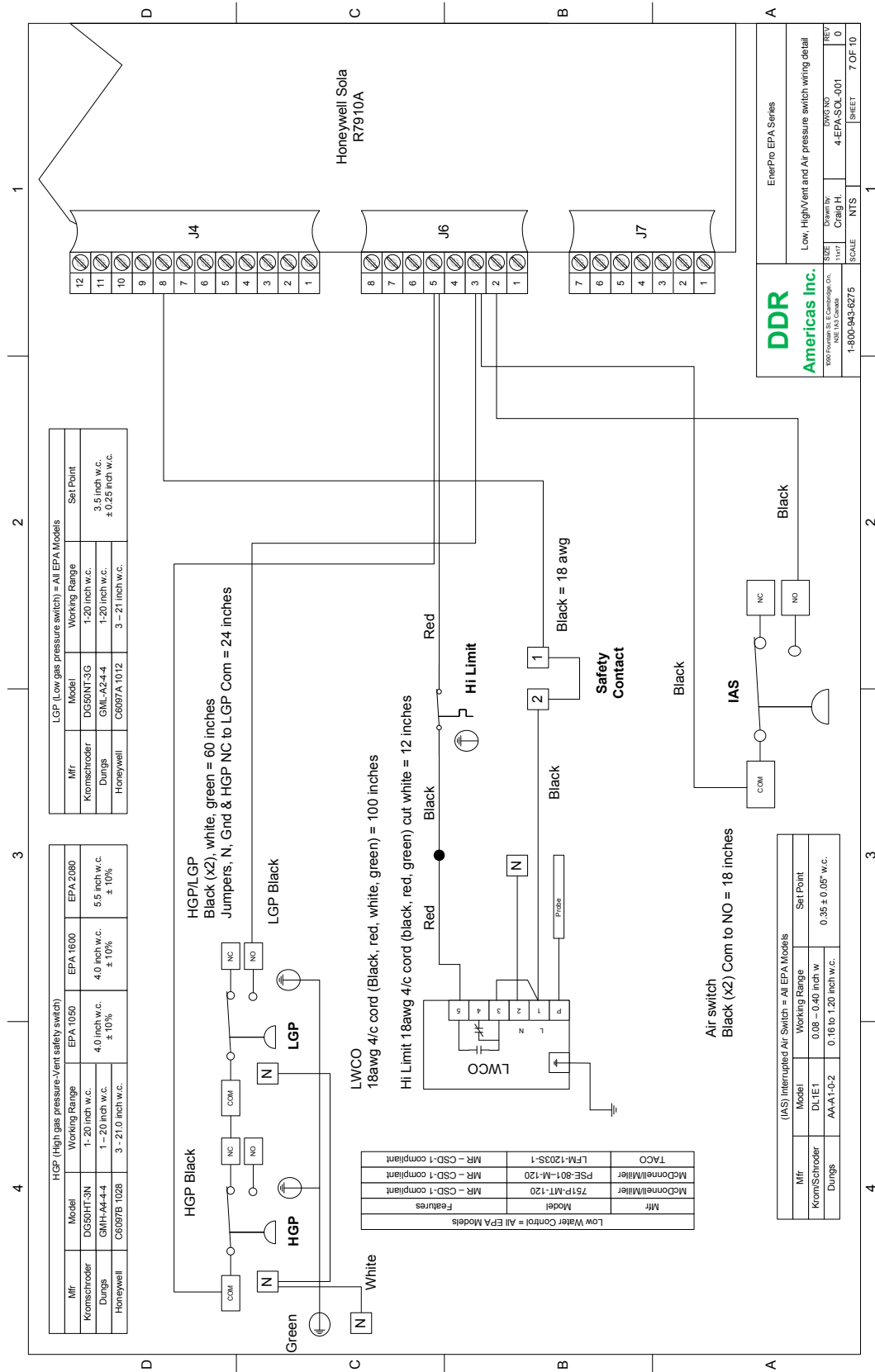


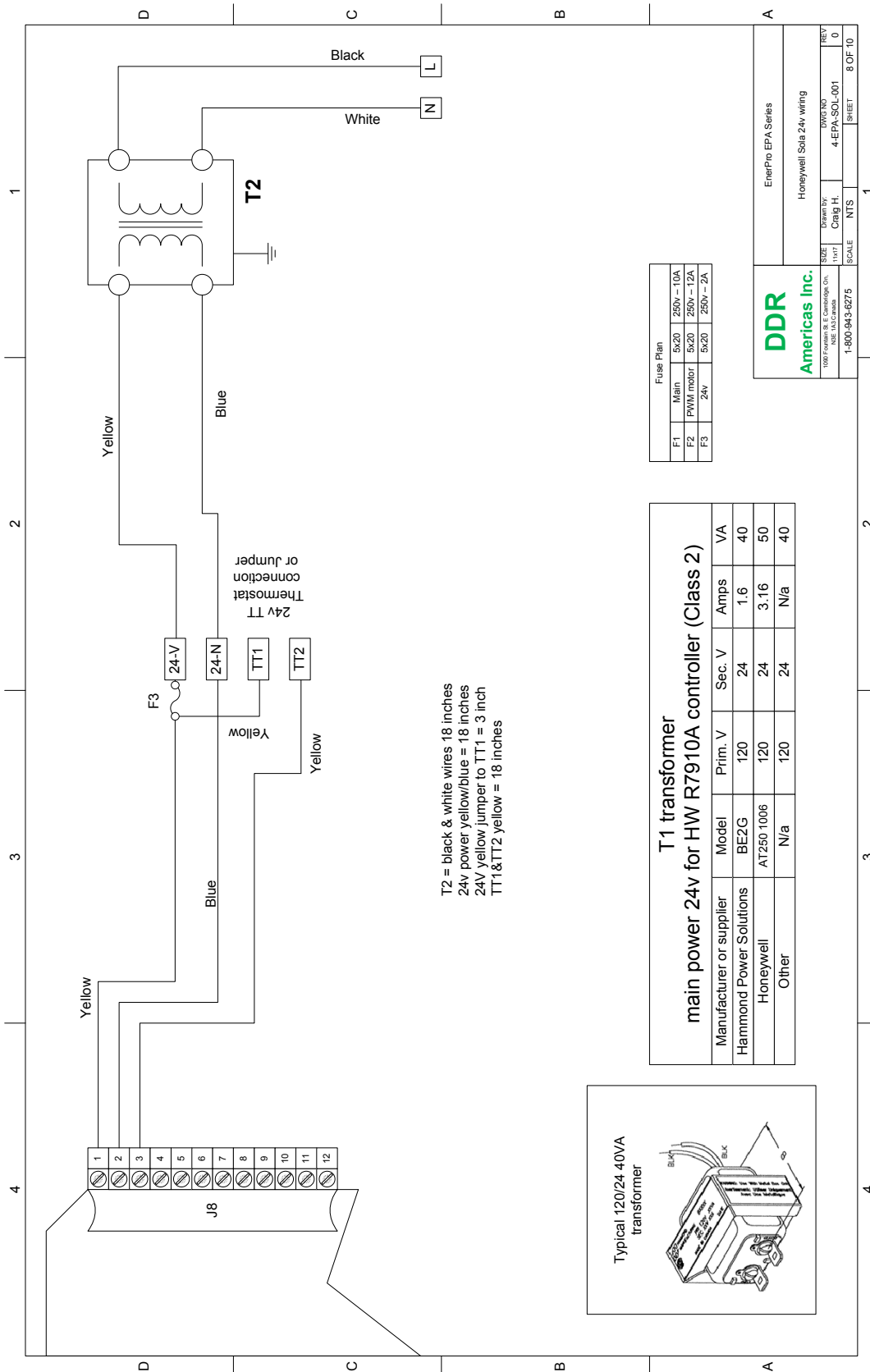


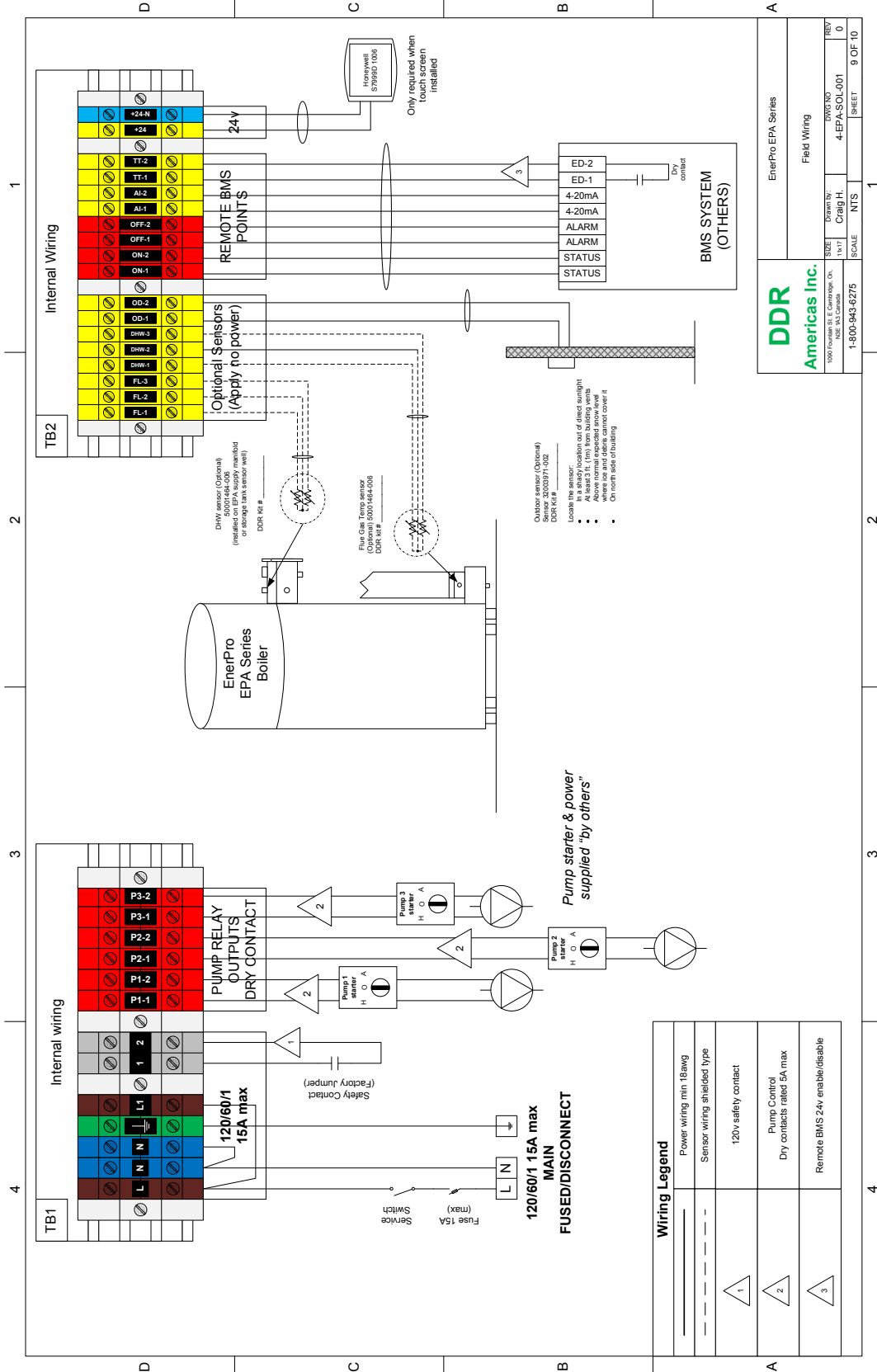


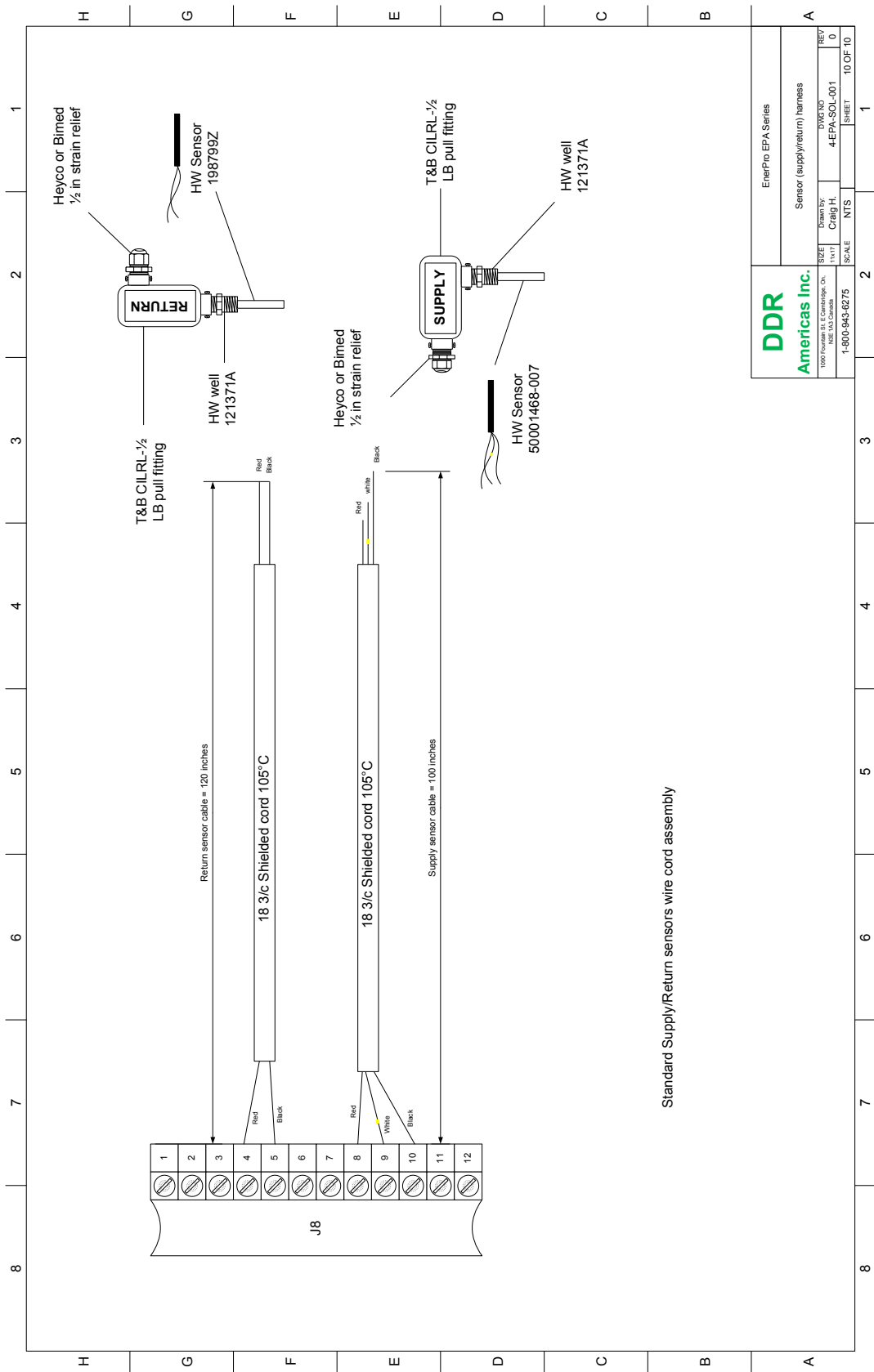












EnerPro EPA Series	
Sensor (supply/return) harness	
SIZE	Drawn By: CMB/H
DATE	10/03/03
REV	4EPA-SOL-001
SCALE	NTS
SHEET	10 OF 10

**DDR**  
**Americas Inc.**  
1000 Fourth St. Cambridge, ON  
M4B 1A5 Canada  
1-800-943-6275



## 11. Service



### NOTE

Please ensure that the gas supply and main power supply is isolated before any maintenance work is carried out on the boiler. Care should be taken when stripping the boiler for maintenance making sure that all parts, nuts, washers and gaskets, etc. are kept safe, clean and dry for re-assembly. Following maintenance/cleaning, the boiler should be re-assembled in the reverse order re-placing gaskets and joints where found necessary.

### 11.1 Combustion Air Supply Requirements

The boiler requires a clean, fresh and adequate supply of combustion air, failure to provide sufficient combustion air supply will result in carbon monoxide (CO) production that could lead to personal injury including loss of life or damage to boiler or property. Do not store any flammable liquids, fluids, vapors or materials near the vicinity of the boiler. Check the air inlet weekly if unit is operating in a construction zone. Every 2 months in regular base.

#### Special attention:

- Quality of combustion air
- Dust, fumes, corrosive elements, hydrocarbons, other unknown contaminants
- Paint, beauty, automotive etc.



### WARNING

The flue gas vent pipe must be airtight and watertight. Horizontal sections of the venting must slope downward towards the boiler 1/2" per linear foot [12mm] and adequate vent support must be provided.

### 11.2- Room combustion air supply requirements:

#### Category IV [Side wall] Applications:

A horizontal vent system with the air supply, required for combustion, provided within the boiler room or combustion air sources provided into the room. Min thickness of wall can be 2" and maximum 24".

#### Direct Vent or Seal Combustion System Applications:

A vertical or horizontal venting system for both, the flue gases and combustion air at same termination and pressure level. Minimum Thickness of the wall shall be can be 2" Maximum 24"

### 11.3- Vent Termination Inlet/Outlets

The vent terminals must be installed to provide suitable protection against wind, rain, snow or blockage along with a See 7.7 for other requirements. Conventional chimney application rodent/debris screen. tapered cone, and sidewall or direct vent require a termination TEE fitting. The boiler must be provided with an adequate combustion air supply, the combustion air supply requirements must be determined and sized in accordance to National and local Codes having jurisdiction. CSA B149 & ANSI Z223.1 – More than one combustion air source maybe required. An optional filter should be fitted air intake housing.

### **11.4 Air supply and venting materials for Direct Vent:**

Single wall aluminum or stainless steel material Min 20G for Air Supply, AL29-4C 18-20G for Vent.

### **11.5 Air supply structure:**

The air supply pipe must also be airtight. Horizontal sections in the air supply must slope away from the boiler towards the supply opening and incorporate a drain connection if the route rises from a lower point. It is necessary to provide an easily removable air vent for maintenance reasons.

### **11.6 GAS Train**

Inlet filter on gas train need to be checked and cleaned every season. Water deposit in gas train shall be drained every season.

### **11.7 items requiring periodic checks:**

At least once a year the must be checked, cleaned or replaced as required:

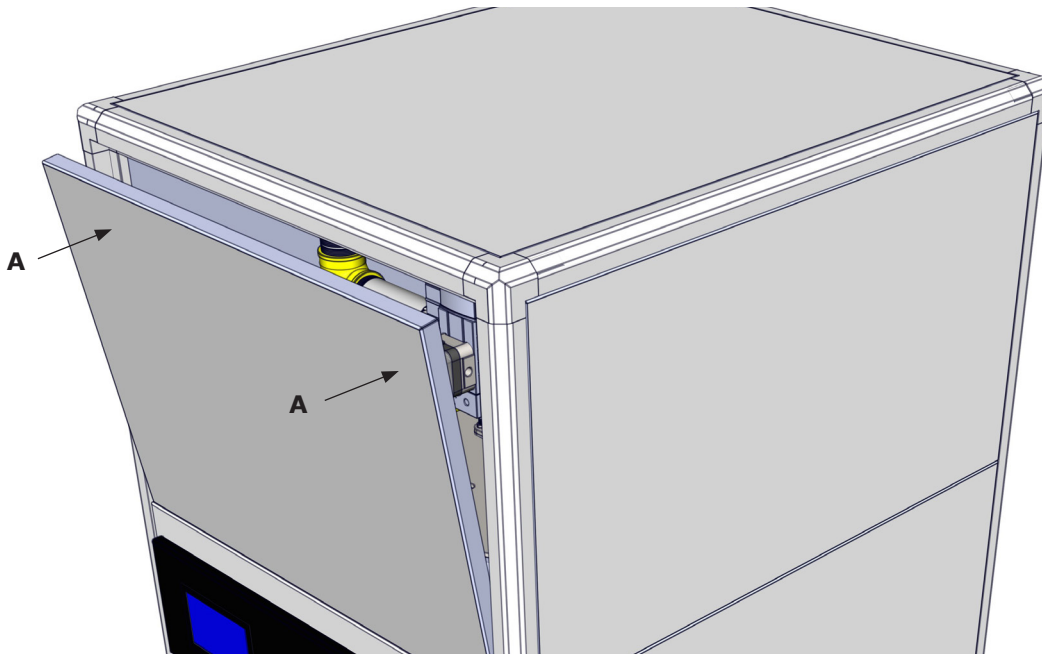
- Venting system leaks or poor connections
- Venting system sagging or damaged vent components
- Debris in vent terminal screens [exhaust and air inlet]
- Boiler room kept clear of flammable liquids, combustible materials,

### **11.8 Cleaning flue gas passageways**

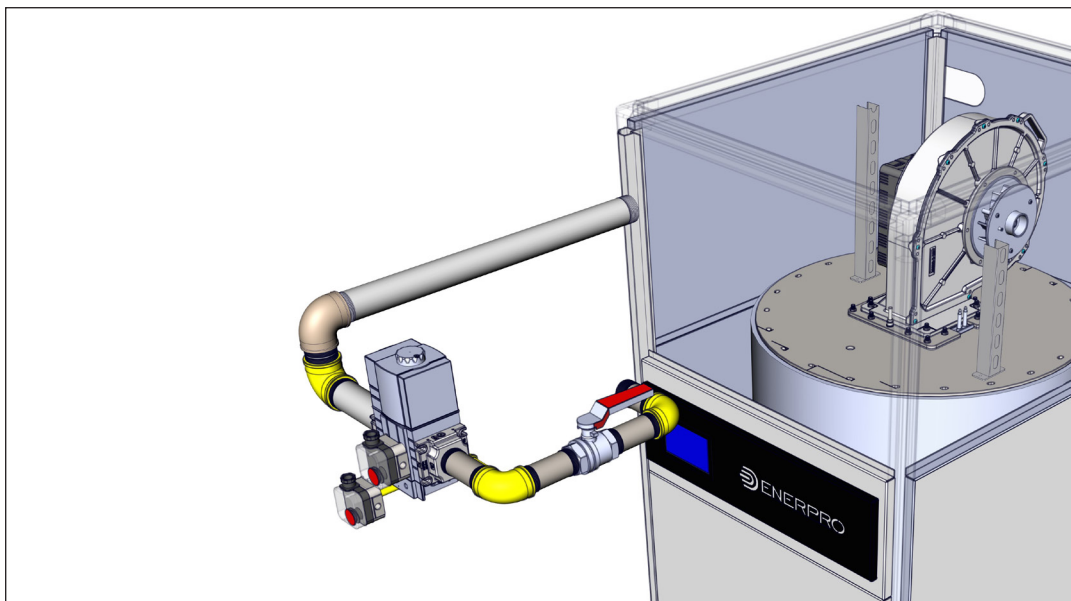
#### **A- Combustion Chamber:**

Flue gas passage shall be cleaned as followed procedure every 2 years.

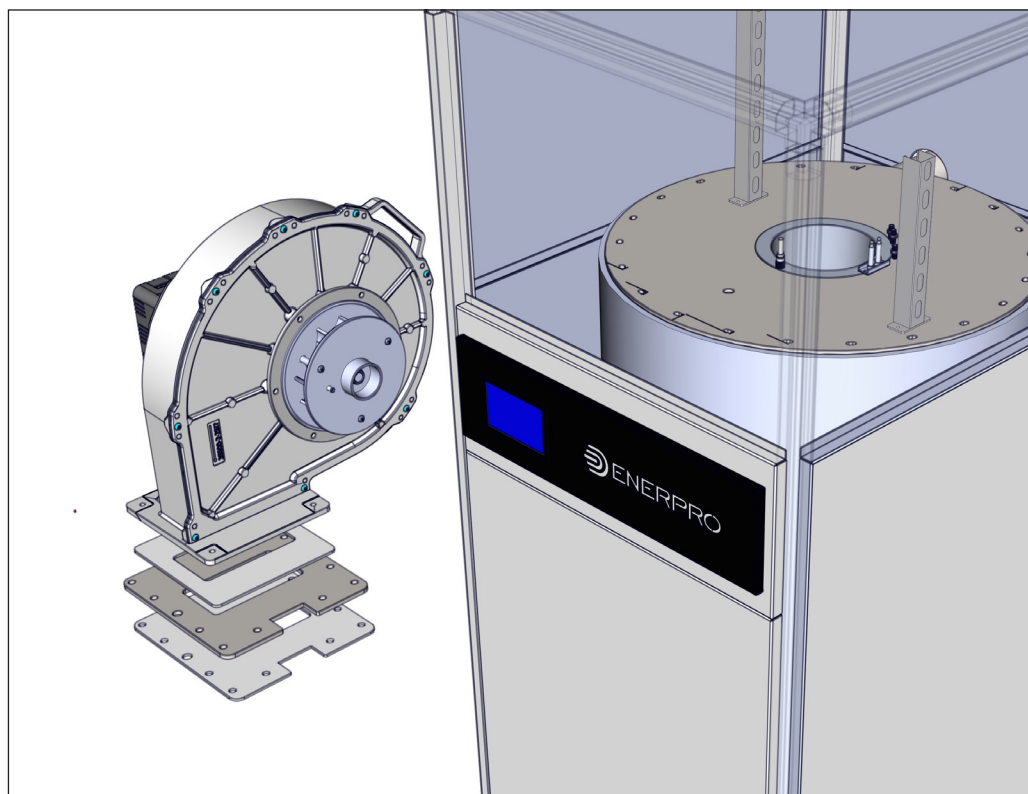
- 1- Remove the top part of the casing (Part1).

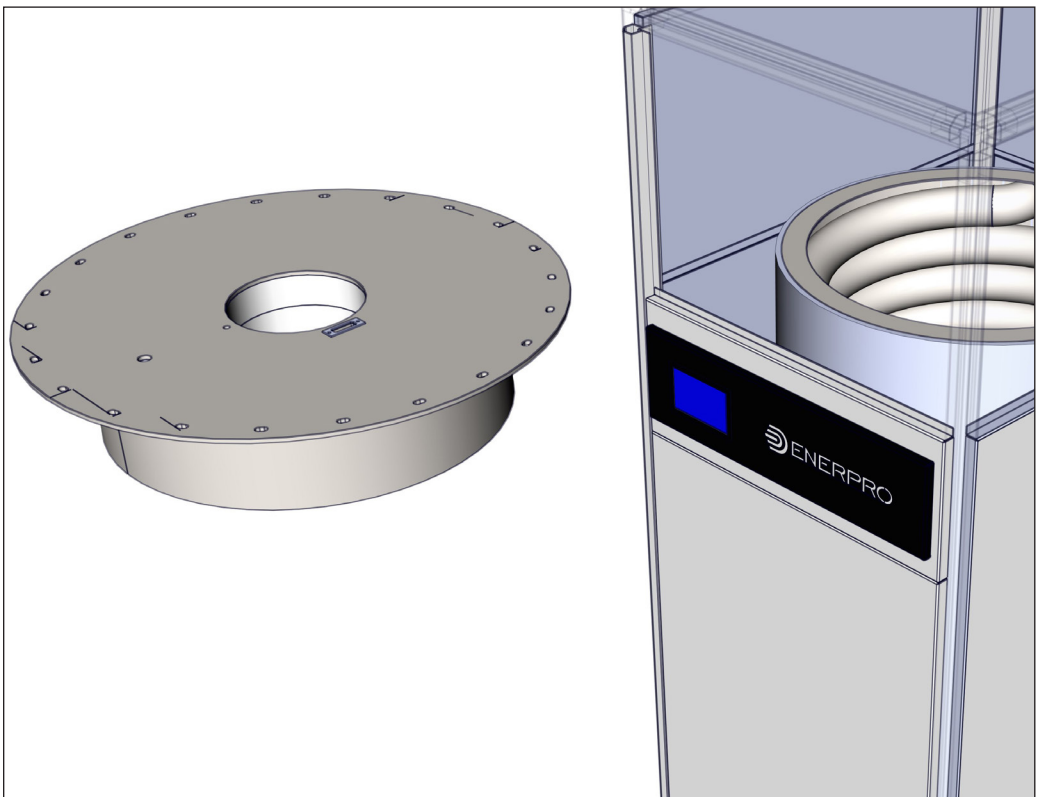
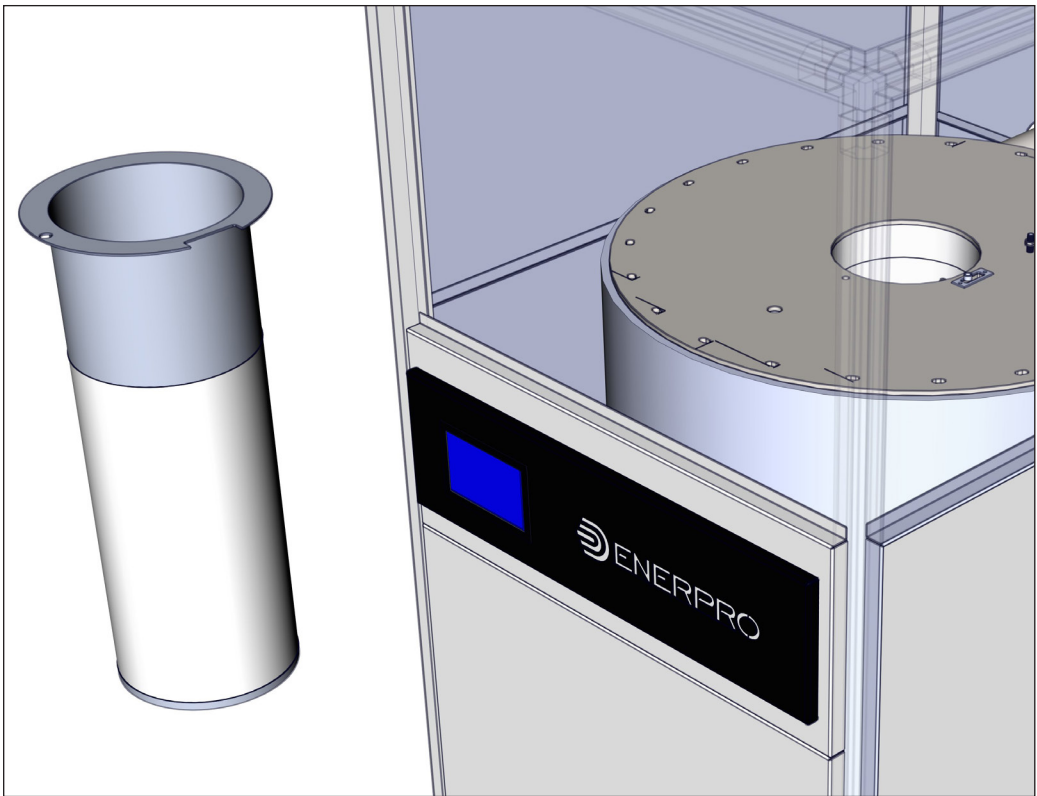


- 2- If any wire need to be disconnected, first label the wire, then disconnect it.
- 3- Remove the blower and the burner tube. And the sheet metal cover.



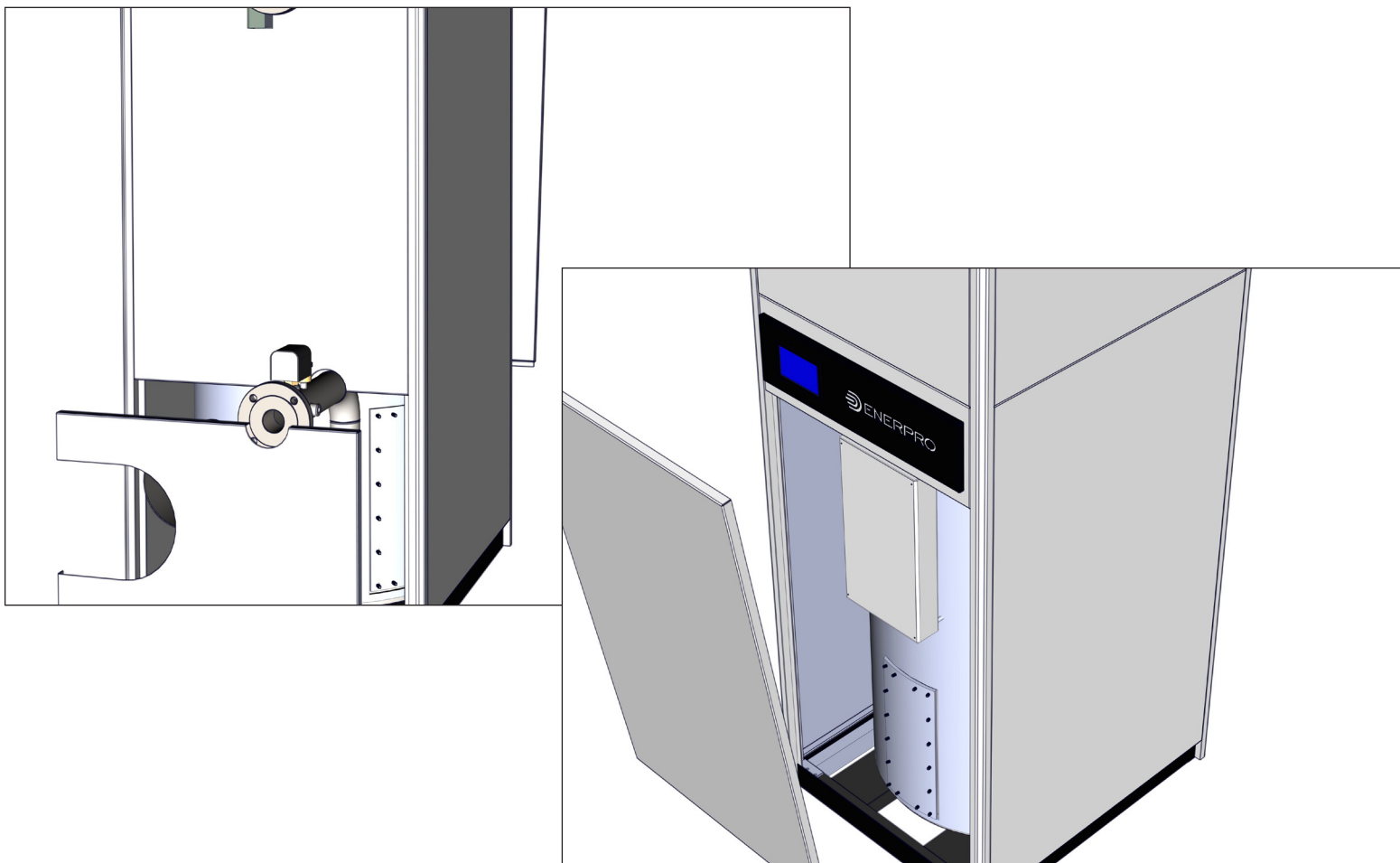
- 4- By opening the top Nuts and removing the top Plate, You will have access to inside for clean up Make sure you don't damage the rope Gasket ( In this case ask the manufacturer to supply it) Make sure you reinstall the gasket and the top Plate properly .





### B- Condenser :

There are 2 opening on the condenser jacket of EPA units, one in front , you may have easily access to it by removing the front panel, and one on the side ( Opposite to the exhaust) to have access to this you need to take the left part of the casing out, (Refer to the exploded picture in Section3, by opening these 2 doors you will have access to the condenser coils you may clean up by pressure washer and using a thin metal strip .



### 11.9 Cleaning the Burner head

- 1- Same as previous steps (5.8 A 1,2,3) Take of the cover and blower
- 2- Remove the adaptor and flange. ( Flame rod and ignition rod are assembled on the flange so move the flange gently).
- 3- Tale the Burner head slowly, inspect it carefully for any damage ( Don't use damaged or deformed burner head).
- 4- Clean the Burner head with pressure air.

## 12. Maintenance Schedule

Responsible	Description	Schedule
Responsible Description Schedule	System pressure Monthly	Monthly
	Control functioning	Monthly
	Seals or evidence of leaks Monthly	Monthly
	Unobstructed combustion air supply, no chemicals, garbage, gasoline, combustible materials, flammable liquids are stored near the boiler.	Monthly
	Check for water on the floor – around relief, vent and other parts and piping of the water system	Monthly
	Check operating limits for correct operation	Semi-annually
	Ensure neutralization system is working	Semi-annually
	Check exhaust terminals for ice, snow or debris buildup	Monthly
	Check air inlet filter ( Shall be done weekly if unit is operating in a construction zone)	Monthly
	Check and test pressure relief safety valve	Annually
	Test temperature Hi limit functions	Annually
	Checks for system leaks	Annually
	Check all auxiliary and other safety limit for function and correct operation.	Monthly
	Check system water quality	Monthly
	Check pump operation	Annually
	Check fuel lines for leaks	Annually
	Check combustion	Annually
	Check control settings	Annually
	Clean combustion chamber	Bi-Annually
	Clean condensation collector and siphon	Annually
	Clean Gas and air inlet filter	Semi-annually



## Warning

This installation must conform to the requirement of the authority having jurisdiction or, in the absence of such requirements, to the National Fuel Gas Code, ANSI Z223.1/ NFPA54 , and/or Natural Gas and Propane Installation Code, CAN/CSA B149.1.



## Warning

To assemble air intake after cleaning or service use proper sealing material to ensure air tight also install end elbow and mesh.



## Warning

The flue gas vent pipe must be airtight and watertight. Horizontal sections of the venting must slope downward towards the boiler ½" per linear foot [12mm] and adequate vent support must be provided.



## Warning

Label all wires prior to disconnection when servicing controls, wiring error can cause improper and dangerous operation. Verify proper operation after servicing,



## Warning

For Category II &IV :

combustion air provided within the boiler room, the air source must be sized in accordance to national codes CSA B149 & ANSI Z223.1 or local codes having jurisdiction, more than one source may be required. The vent terminal locations follow local and national codes requirements. The vent terminal shall discharge flue gases away from the building structure so that the flue gases do not cause damage to the building, the vent terminal locations must also follow CSA B149 & ANSI Z223.1.

For Instruction on vent installation refer to Security Chimney, Installation manual or other Stack manufacturer which their products meet UL1738 &ULC S363



## Warning

For Direct Vent Application the wall thickness shall be minimum 2" and maximum 24".



## For your safety

not Store or use Gasoline or other flammable Vapors and Liquids in the Vicinity of this or any other Appliance.



## Warning

If you do not follow these instruction exactly, a fire or explosion may result causing property damage or personal injury or loss of life.

## OPERATING INSTRUCTIONS

- A. THIS APPLIANCE HAS A DIRECT IGNITION SYSTEM EQUIPPED, CONSULT MANUAL. This appliance is equipped with an ignition device, which automatically ignites the main Burner Do Not attempt to ignite the main Burner by hand.
- B. BEFORE OPERATING THIS APPLIANCE PERFORM A GAS LEAKAGE TEST ON ALL GAS PIPING.




## WHAT TO DO IF YOU SMELL GAS: \*

Do not try to ignite or light the appliance.

- \* Do not touch any electrical switch. Do not use any Telephone in the building.
  - \* Immediately call the gas supplier from another location. Follow gas supplier's instructions.
  - \* If you can not reach the gas supplier, call the fire department.
- C. Use only your hand to turn the main gas cock valve open, never use tools. If the valve will not turn by hand. Do not repair it , call a qualified gas service technician. Forced or attempted repair may result in a fire or explosion.
  - D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician



# EPA Series -Installation and Operation Manual

Certified		Certifié		EPA Series		EPA2080		Clearances / Dégagements				
				Gas Fired Stainless Steel Condensing Boiler "INDOOR INSTALLATIONS ONLY" For either Direct Vent Installation or for installation using Indoor combustion air Condensation au gaz à condensation en acier inoxydable "INSTALLATION INTERIEURE SEULEMENT"				Floor /Plancher Non-combustible - do not install on carpet Non-combustible - ne pas installer sur le tapis				
EnerPro Boilers Inc. 185 Durham Street West Mount Forest, Ontario Canada N0G 2L1 Tel: 519-509-5000 Fax: 519-509-3122			Serial Number / Numero de Serie  EPN14-794		Electrical Supply [V/P/H] Alimentation électrique [V/P/H] <div>120/1PH(15A max)</div>		Fuel Type / Type de carburant <div>Natural Gas/Propane</div>		Direct Vent Wall Thickness 2" - 24"			
Gas Supply Pressure Range / Chaîne de pression d'offre de gaz 3.5"WC to 5psi		Gas Manifold Pressure Range / Chaîne diverse de pression de gaz 0.03"WC-1.53"WC		CSA - Gas Input Range (MBH) / CSA - Chaîne (MBH) d'entrée de gaz Min 208-Max 2080 MBH		CSA - Gas Output Range (MBH) / Chaîne (MBH) dentree de gaz 198 - Max 1982 MBH		Min		Service /Service		
Minimum Relief / Soulagement minimum  2080lb/hr		Boiler Water Content Capacity (US Gal.) / Capacité (USA gallon) de teneur en eau de chaudière  77				Maximum Allowable Water Temp °F °F maximal permis de température de l'eau  210° F				Front& Rear 24 inches-pouces  Side / le côté 24 inches-pouces		
ASME M.A.W.P. PSI G Pression maximale de l'eau permise en livre par pouces carré <div>160</div>		*WARNING / AVERTISSEMENT *  Disconnect fuel and power supply prior to servicing – Sources maybe from multiple sources. The appliance must be earth grounded (bonded) Débrancher l'alimentation de carburant et d'énergie avant d'entretenir - Les sources peuvent-être multiples. L'appareil doit être relié à la terre				Compliance / Conformité  ANSI Z21.13 2014 CSA4.92014 UL 795 2014				Top /Dessus 24 inches- pouces		
Canadian Pressure Vessel Approvals [CRN] /  Approbations canadiennes de navire de pression [CRN]  R1159.5  Made in Canada - Fabriqué au Canada		Consult Local & National Gas & Electrical Codes - Consulter le gaz local et national et les codes électriques d'installation  Canada – B149.1 & CSA 22.1-2-3 US – Z223.1-NFPA 54 NEC-NFPA 70 ANSI				Vent / Cheminée  Type 'BH' Vent Conventional Chimney & DVS, CLV Systems Direct Vent Category II & IV				Vent / Cheminée Follow venting mfr instructions and approvals  Suivre les instructions et les approbations du fabricant pour la ventilation		
		All circuit must be earth grounded (bonded) Use Copper Conductors Only 120V- 60Hz - 12A Maximum - Min wire gauge 18 AWG [0.75mm2] 90°C Tout les circuits doivent être conducteurs et reliés à terre, utiliser des circuits en cuivre uniquement 120V- 60Hz - maximum 12A - A.W.G. minimum de la mesure 18 de fil [0.75mm2] 90°C				Clearance to combustible/ Dégagement combustible  6" inches all sides and top / tout les côtés-24" front				Heating Surface Area Ft2 Wetted Superficie de Chauffage pi2 258.4		
										Model EPA2080		







**EnerPro Boilers Inc.**

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Technical Hot Line