NEOTHERM®

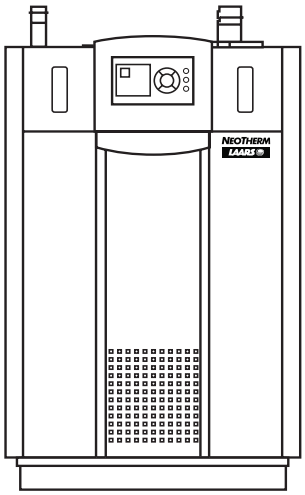
Residential Hydronic Boiler

NTH | Hydronic Boiler

Indoor Sizes 080-210

Submittal Data

LAARS® Heating Systems Company



Date:

Project #:

Engineer:

Prepared By:

Bid Date:

Project Name:

Location:

Contractor:

Standard Equipment

- Large LCD display with touchpad user-interface
- Quick start feature for basic installations
- Password-protected parameters for installer use
- Customizable display screen and LCD contrast
- Test feature allows forced min or max firing
- Complete on-screen diagnostics
- Displays in clear text form
- High condensing efficiency
- Modulation down to 20% of full fire (5:1 turndown)
- Sealed combustion chamber
- Pre-mix stainless steel burner
- Low NOx system exceeds the most stringent regulations for air quality – 10ppm NOx
- Horizontal or vertical direct vent
- Horizontal vent and air terminals
- Vent and air pipe lengths of up to 100 equivalent feet (each)
- Built-in condensate trap
- Vent temperature cutoff
- Indirect water heater priority (sensor included)
- ASME 30 psi (207 kPa) working pressure heat exchanger (50 psi optional)
- Stainless steel heat exchanger with welded construction
- ASME “H” stamp
- 30 psi (207 kPa) ASME rated pressure relief valve
- Temperature and pressure gauge
- Drain valve
- Multiple pump control for boiler pump, system pump and indirect domestic water pump, each with delay
- Optional pump (sized to model) available for field installation
- Electronic PID modulating control
- Direct spark ignition
- Integrated PID temperature and ignition controls
- Alarm output
- Accepts external (4- 20mA or 0-10VDC) modulation signal
- Outdoor reset (sensor included)
- On/Off toggle switch
- Manual reset high limit
- Burner site glass
- Flue gas temperature cutoff
- Zero clearance to combustible surfaces
- Meets Energy Star 'Most Efficient' criteria
- 12-year limited warranty

Boiler Data

Number of Units:

Fuel

- ☐ Natural
- ☐ Propane

Pump Options

- ☐ Pump-included
- ☐ No pump

Factory Mounted Options

- ☐ 50 psi rating and relief valve
- ☐ Alarm bell for ignition failure with silencing switch
- ☐ Additional automatic reset high limit
- ☐ Color touch-screen display

Most Efficient 2018 www.energystar.gov

AHRI CERTIFIED www.ahridirectory.org Ask About Our Certified Products

Sizing Data

Model	Input BTU/h	Input kW	Output BTU/h	Output kW	AFUE	Gas Conn. Size inches	Water Conn. Size inches	Product Weight lbs	Product Weight kg	Shipping Weight lbs	Shipping Weight kg
☐ NT 080	**80,000**	*23.4*	**74,000**	*21.7*	95%	1/2 NPT	1 NPT	130	59	**202**	*92*
☐ NT 105	**105,000**	*30.8*	**96,000**	*28.1*	95%	1/2 NPT	1 NPT	155	70	**216**	*98*
☐ NT 150	**150,000**	*44.0*	**138,000**	*40.4*	95%	1/2 NPT	1 NPT	180	82	**228**	*104*
☐ NT 210	**210,000**	*61.5*	**194,000**	*61.5*	95%	1/2 NPT	1 NPT	195	88	**270**	*123*

NOTES:

1. For other boiler ratings:
Boiler Horsepower: HP = $\frac{\text{Output}}{33{,}475}$ Radiation Surface: EDR sq. ft. = $\frac{\text{Output}}{150}$

Accessories for Field Mounting

- ☐ Water flow switch
- ☐ Low water cutoff
- ☐ 3" Concentric vent terminal
- ☐ High & Low gas pressure switches
- ☐ 2" Concentric vent terminal
- ☐ Boiler pump
- ☐ 2" Flush-mount terminal
- ☐ 3" Flush-mount terminal
- ☐ Propane conversion kit
- ☐ Condensate neutralizer kit
- ☐ BACnet gateway
- ☐ LON gateway
- ☐ Vari-prime variable speed pump control
- ☐ Color touch-screen display upgrade

Clearances

Appliance Surface	Required Clearance from Combustible Material inches	Required Clearance from Combustible Material cm	Suggested Service Access Clearance inches	Suggested Service Access Clearance cm
Left Side	**1**	*2.5*	**1**	*2.5*
Right Side	**1**	*2.5*	**12**	*31*
Top	**1**	*2.5*	**24**	*61*
Back	**1**	*2.5*	**6**	*15*
Closet, Front	**1**	*2.5*	**6**	*15*
Alcove, Front	**1**	*2.5*	**24**	*61*
Vent	**0**	*0*	–	–

Vent System

Max Equivalent* Vent and Air Pipe Length (each)

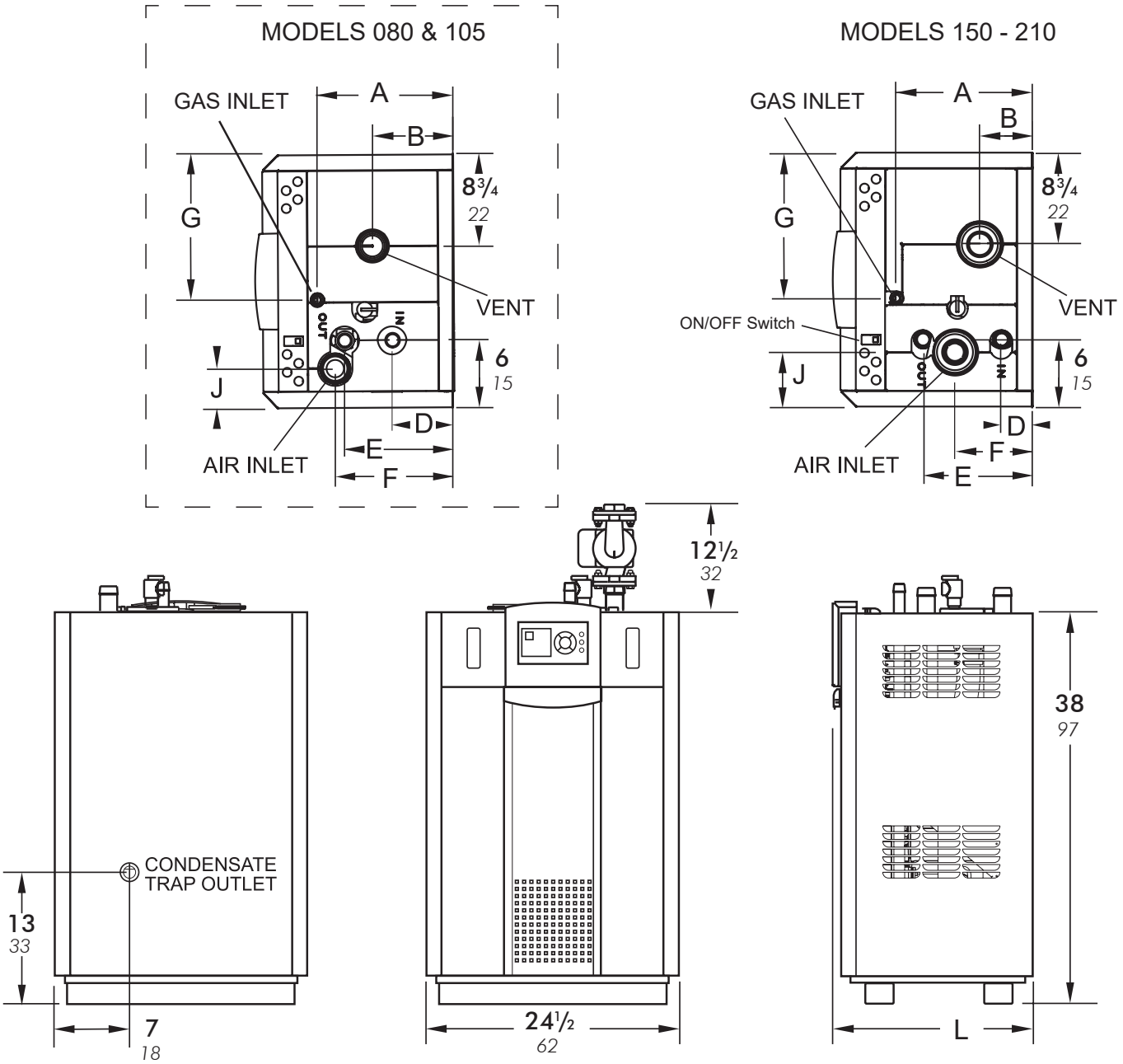
Size	2" dia / 5.1cm	3" dia / 7.6cm
080	40 ft *12.2m*	100 ft *30.5m*
105	40 ft *12.2m*	100 ft *30.5m*
150	n/a	100 ft *30.5m*
210	n/a	100 ft *30.5m*

Intake (air) pipe may be PVC, CPVC, ABS or galvanized pipe.

Installations in the U.S. require exhaust vent pipe that is PVC or CPVC complying with ANSI/ASTM D1785 F441 or stainless steel complying with UL1738. Laars supplies the first section of vent pipe which is 16" of CPVC with each boiler. Installations in Canada require exhaust vent pipe that is certified to ULC S636.

***To calculate equivalent length, measure the linear feet of the pipe, and add 5 feet *(1.5m)* for each elbow used.

Dimensional Data



BACK VIEW **FRONT VIEW** **RIGHT SIDE VIEW**

Dimensions are nominal and are shown in **inches** *cm*
Optional pump is shown only in the front view

	A		B		D		E		F		G		J		L		AIR INLET		VENT	
Size	in	*cm*	in	*cm*	in	*cm*	in	*cm*	in	*cm*	in	*cm*	in	*cm*	IN	*CM*	IN	*CM*	IN	*CM*
80	13½	*34*	9½	*24*	7½	*19*	10¾	*28*	11¾	*30*	13¾	*35*	3½	*9*	19½	*49*	2	*5.1*	2	*5.1*
105	13½	*34*	8	*21*	6	*16*	10¾	*28*	11¾	*30*	14¼	*36*	3½	*9*	19½	*49*	2	*5.1*	2	*5.1*
150	13¼	*34*	5¼	*14*	3¼	*8*	10¾	*28*	7½	*19*	14¼	*36*	5	*13*	19½	*49*	3	*7.6*	3	*7.6*
210	20½	*52*	5¼	*14*	3¼	*8*	17¾	*45*	7½	*19*	14¼	*36*	5	*13*	26¾	*68*	3	*7.6*	3	*7.6*

Electrical Data

Sizes	Boiler			Pump Connections Ratings (System Pump and DHW Pump Connections)
	Volts	Phase	Amps	
80-210 No Pump	120	Single	2*	115V – Maximum 1HP or 7.4A max
080–210 With Pump	120	Single	Less than 6*	115V – Maximum 1HP or 7.4A max

***** Minimum 15A circuit required

Water Flow Requirements

Temperature Rise in °F

	20°F		25°F		30°F		35°F		40°F	
	Flow	H/L	Flow	H/L	Flow	H/L	Flow	H/L	Flow	H/L
Size	gpm	feet	gpm	feet	gpm	feet	gpm	feet	gpm	feet
080	**7.6**	**14.9**	**6.1**	**10.1**	**5.1**	**7.1**	**4.3**	**5.8**	**3.8**	**4.6**
105	**10.0**	**23.1**	**8.0**	**17.0**	**6.7**	**12.4**	**5.7**	**9.6**	**5.0**	**7.6**
150	**14.3**	**28.5**	**11.4**	**19.0**	**9.5**	**13.6**	**8.1**	**11.2**	**7.1**	**8.8**
210	**20.0**	**24.1**	**16.0**	**16.7**	**13.4**	**11.6**	**11.3**	**9.0**	**9.9**	**6.9**

Temperature Rise in °C

	11°C		*14°C*		*17°C*		*19°C*		*22°C*	
	Flow	*H/L*	*Flow*	*H/L*	*Flow*	*H/L*	*Flow*	*H/L*	*Flow*	*H/L*
Size	*lpm*	*m*	*lpm*	*m*	*lpm*	*m*	*lpm*	*m*	*lpm*	*m*
080	*29*	*4.5*	*23*	*3.1*	*19*	*2.2*	*16*	*1.8*	*14*	*1.4*
105	*38*	*7.0*	*30*	*5.2*	*25*	*3.8*	*22*	*2.9*	*19*	*2.3*
150	*54*	*8.7*	*43*	*5.8*	*36*	*4.1*	*31*	*3.4*	*27*	*2.1*
210	*76*	*7.3*	*61*	*5.1*	*51*	*3.5*	*43*	*2.7*	*37*	*2.4*

Note that pumps are sized for a) 25-30°F temperature rise across the boiler; b) 30 feet of external boiler loop piping (1"); c) six 90° elbows.

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