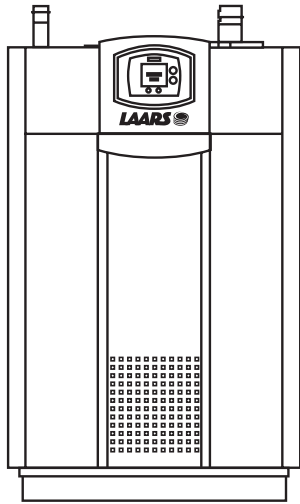


NEOTHERM®

Residential Hydronic Boiler



Date:

Project #:

Engineer:

Prepared By:

Bid Date:

NTH | Hydronic Boiler

Indoor Sizes 080-210

Submission Data **LAARS**
Heating Systems Company

Project Name:

Location:

Contractor:

Standard Equipment

- 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
- 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
- Large user-interface and display
- 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
- 12-year limited warranty

Boiler Data

Number of Units:

Fuel

- Natural
- Propane

Pump Options

- Pump-included
- No pump

Factory Mounted Options

- Bell for ignition failure
- Low temp controls

- Alarm bell with silencing switch
- 200°F maximum control

- Additional automatic reset high limit



Sizing Data

Model	Input		Output		AFUE	Combustion Efficiency %	Gas Conn. Size inches	Water Conn. Size inches	Shipping Weight	
	BTU/h	kW	BTU/h	kW					lbs	kg
<input type="checkbox"/> NT 080	80,000	23.4	76,160	22.3	95.2%	93.9	1/2 NPT	1 NPT	160	73
<input type="checkbox"/> NT 105	105,000	30.8	100,065	29.3	95.3%	94.0	1/2 NPT	1 NPT	185	84
<input type="checkbox"/> NT 150	150,000	44.0	142,800	41.8	95.2%	93.9	1/2 NPT	1 NPT	210	95
<input type="checkbox"/> NT 210	210,000	61.5	200,240	58.7	95.4%	94.1	1/2 NPT	1 NPT	235	107

NOTES:

1. For other boiler ratings:

$$\text{Boiler Horsepower: HP} = \frac{\text{Output}}{33,475} \quad \text{Radiation Surface: EDR sq. ft.} = \frac{\text{Output}}{150}$$

Accessories for Field Mounting

<input type="checkbox"/> Water flow switch	<input type="checkbox"/> 3" Concentric vent terminal
<input type="checkbox"/> Low water cutoff	<input type="checkbox"/> High & Low gas pressure switches

Clearances

Appliance Surface	Required Clearance from Combustible Material		Suggested Service Access Clearance	
	inches	cm	inches	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	–	–

Electrical Data

Sizes	Boiler (includes pump)		
	Volts	Phase	Amps
80-210 No pump	120	Single	Less than 2*
080-210 (With Pump)	120	Single	Less than 6*

* Minimum 15A circuit required

Vent System

Size	Max Equivalent* Vent and Air Pipe Length (each)			
	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

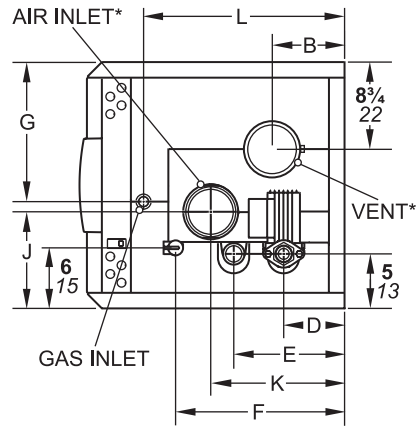
Intake (air) pipe may be PVC, CPVC, ABS or galvanized pipe.

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.

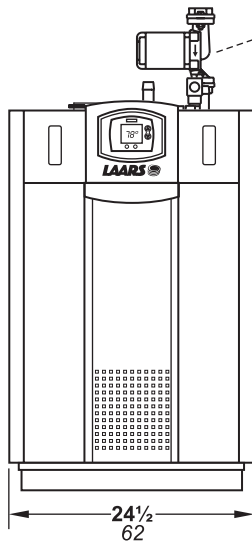
Dimensional Data



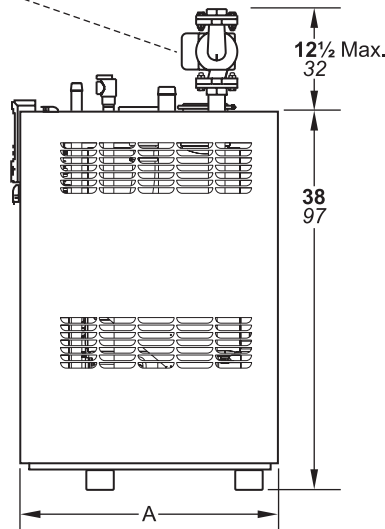
* NeoTherm is shipped with adapters for the air and vent that accept standard pipe of the proper size and type.

TOP VIEW

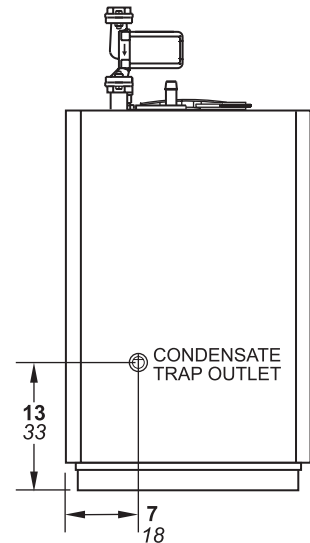
Optional Pump Location
(field-mounted for 285-500 only)



FRONT VIEW



RIGHT SIDE VIEW



BACK VIEW

NTH SIZE	A IN	B IN	WATER INLET IN	WATER OUTLET IN	F IN	G IN	J IN	PRV OUTLET IN	L IN	AIR INLET* IN	VENT* IN
80	19 1/2	9 1/2	7 1/2	11	10 3/4	13 3/4	3 1/2	11 3/4	13 1/2	2	2
105	19 1/2	8 1/4	6 1/4	11	9	14 1/4	3 1/2	11 3/4	13 1/2	2	2
150	19 1/2	5 1/2	3 1/4	11	7 1/2	14 1/4	5	7 1/2	13 1/2	3	3
210	26 3/4	5 1/2	3 1/4	18	11 3/4	14 1/4	5	7 1/2	20 1/2	3	3
	CM	CM	CM	CM	CM	CM	CM	CM	CM	CM	CM
80	49	24	19	28	27	35	9	30	34	5	5
105	49	21	16	28	22	36	9	30	34	5	5
150	49	14	8	28	19	36	13	19	34	7	7
210	68	14	8	45	30	36	13	19	52	7	7

Water Flow Requirements

Temperature Rise in °F											
		20°F		25°F		30°F		35°F		40°F	
Size	Flow	H/L	Flow	H/L	Flow	H/L	Flow	H/L	Flow	H/L	
	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	
Size	Flow	H/L	Flow	H/L	Flow	H/L	Flow	H/L	Flow	H/L	
	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.

Laars Heating Systems Company reserves the right to change specifications, components, features, or to discontinue products without notice.