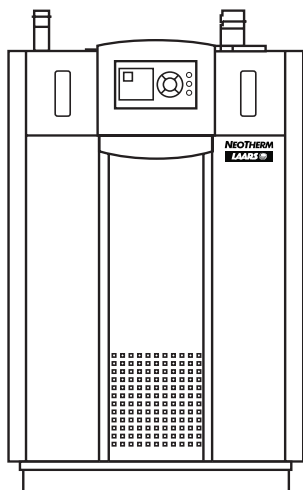


# NEOTHERM®



Date:

Project #:

Engineer:

Prepared By:

Bid Date:

## Residential Hydronic Boiler

NTH | Hydronic Boiler

Indoor Sizes 080-285

Submittal Data



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 working pressure:  
80-210: 30 psi (207 kPa)  
285: 160 psi (1103 kPa)
- Stainless steel heat exchanger with welded construction
- ASME "H" stamp
- ASME pressure relief valve:  
80-210: 30 psi (207 kPa)  
285: 75 psi (517 kPa)
- 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



## Sizing Data

Model	Input		AHRI Certified Heating Capacity		Net AHRI Rating		AHRI Certified AFUE	Gas Conn. Size inches	Water Conn. Size inches	Product Weight		Shipping Weight	
	BTU/h	kW	BTU/h	kW	BTU/h	kW				lbs	kg	lbs	kg
<input type="checkbox"/> NT 080	80,000	23.4	74,000	21.7	64,000	18.8	95%	1/2 NPT	1 NPT	130	59	202	92
<input type="checkbox"/> NT 105	105,000	30.8	96,000	28.1	83,000	24.3	95%	1/2 NPT	1 NPT	155	70	216	98
<input type="checkbox"/> NT 150	150,000	44.0	138,000	40.4	120,000	35.2	95%	1/2 NPT	1 NPT	180	82	228	104
<input type="checkbox"/> NT 210	210,000	61.5	194,000	61.5	171,000	50.1	95%	1/2 NPT	1 NPT	195	88	270	123
<input type="checkbox"/> NT 285	285,000	83.5	264,000	77.4	229,000	67.1	95%	3/4 NPT	1 1/4 NPT	205	93	299	136

### NOTES:

1. For other boiler ratings:

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

2. The Net AHRI Water Ratings shown are based on a piping and pickup allowance of 1.15.

## Accessories for Field Mounting

<input type="checkbox"/> Water flow switch	<input type="checkbox"/> 2" Concentric vent terminal	<input type="checkbox"/> Common vent kit (one required for each unit)
<input type="checkbox"/> High & low gas pressure switches	<input type="checkbox"/> 3" Flush-mount terminal	<input type="checkbox"/> Propane conversion kit
<input type="checkbox"/> Boiler pump	<input type="checkbox"/> 2" Flush-mount terminal	
<input type="checkbox"/> 3" Concentric vent terminal	<input type="checkbox"/> Condensate neutralizer kit	

## Clearances

UNIT SURFACE	SUGGESTED SERVICE ACCESS CLEARANCE	
	INCHES	CM
Left Side	1	2.5
Right Side	12	31
Top	24	61
Back	6	15
Closet, Front	1	2.5
Alcove, Front	24	61
Vent	Per Vent Manufacturer	

Certified by CSA for zero clearance to combustible materials on all sides.

## 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
285	n/a		20 ft	6.1m

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.

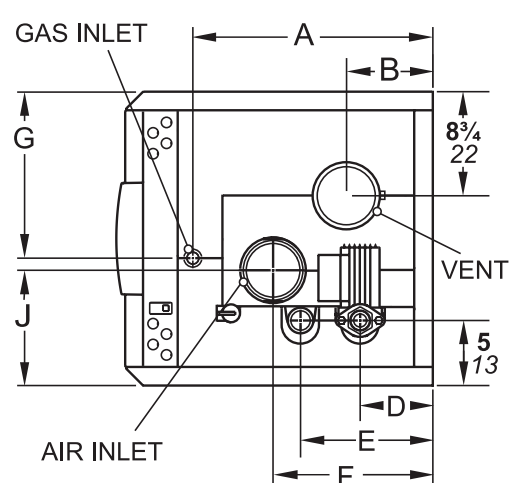
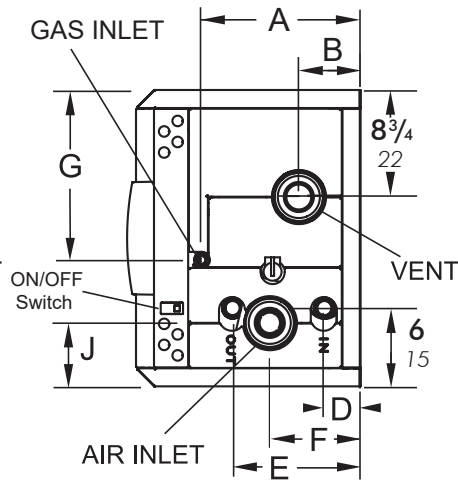
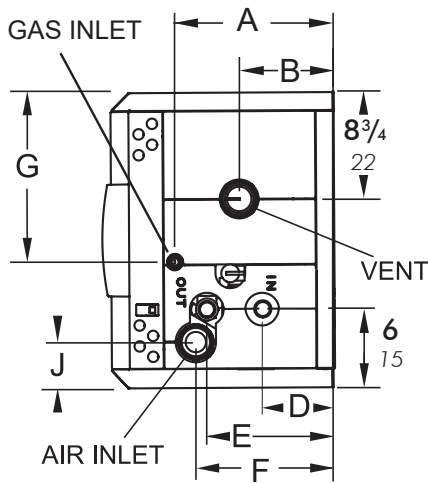
\*To calculate equivalent length, measure the linear feet of the pipe, and add 5 feet (1.5m) for each elbow used.

## Dimensional Data

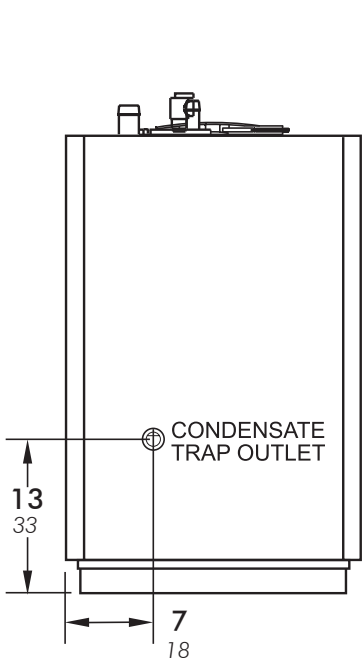
MODELS 080 & 105

MODELS 150 - 210

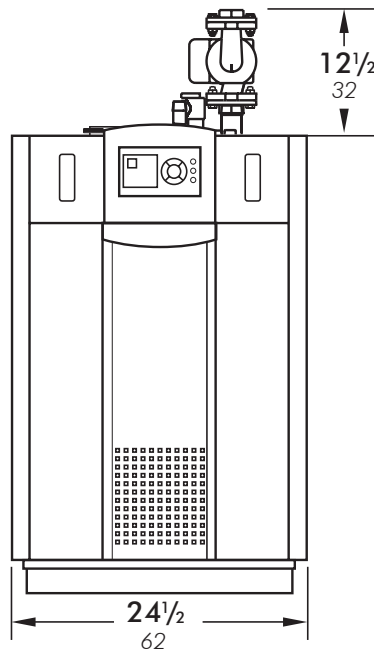
MODEL 285



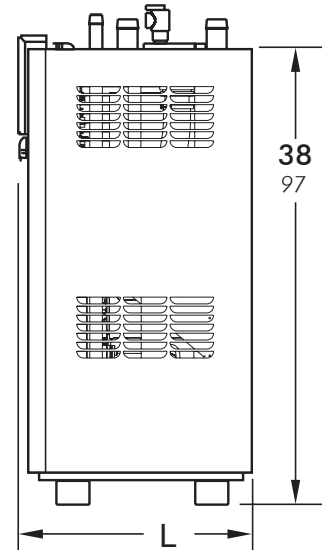
TOP VIEWS



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
285	20¼	51	7¼	18	6¼	15	11	28	13¾	34	14¼	36	9¾	25	26¾	68	4	11	4	11

## Electrical Data

### Boiler only

Size	80	105	150	210	285
Voltage	120V	120V	120V	120V	120V
FLA	2	2	2	2	2
MCA	2.5	2.5	2.5	2.5	2.5
MOP	4.5	4.5	4.5	4.5	4.5

FLA = Full Load Amperage  
MCA = Minimum Circuit Ampacity  
MOP = Maximum Over-current Protection

### Boiler and Pump\*

Size	80	105	150	210	285
Voltage	120V	120V	120V	120V	120V
FLA	2.8	3.8	3.8	4	5.2
MCA	3.5	4.75	4.75	5	6.5
MOP	6.3	8.55	8.55	9	11.7

\* For boilers that are ordered and shipped with a pump.  
Field-supplied pumps that exceed 120VAC, 7.4 Amps  
require an external pump relay / contactor.

## Water Flow Requirements

### Temperature Rise in °F

Size	20°F		30°F		40°F		50°F		60°F	
	Flow gpm	H/L feet	Flow gpm	H/L feet	Flow gpm	H/L feet	Flow gpm	H/L feet	Flow gpm	H/L feet
080	7.6	16.9	5.1	8.7	3.8	5.3	3.0	3.6	2.5	2.7
105	10.0	23.3	6.7	11.3	5.0	6.7	4.0	4.5	3.3	3.2
150	14.3	24.1	9.5	11.9	7.1	7.2	5.7	4.9	4.8	3.6
210	20.0	15.6	13.4	6.9	9.9	3.7	8.0	2.4	6.7	1.6
285	27.0	19.1	18.0	10.2	13.0	6.2	10.8	4.6	9.0	3.5

### Temperature Rise in °C

Size	11°C		17°C		22°C		28°C		33°C	
	Flow lpm	H/L m	Flow lpm	H/L m	Flow lpm	H/L m	Flow lpm	H/L m	Flow lpm	H/L m
080	28.8	5.2	19.3	2.6	14.4	1.6	11.4	1.1	9.5	0.8
105	37.9	7.1	25.4	3.4	18.9	2.0	15.1	1.4	12.5	1.0
150	54.1	7.3	36.0	3.6	26.9	2.2	21.6	1.5	18.2	1.1
210	75.7	4.8	50.7	2.1	37.5	1.1	30.3	0.7	25.4	0.5
285	102.2	5.8	68.1	3.1	49.2	1.9	40.9	1.4	34.1	1.1

Note that pumps supplied with boilers are meant for primary-secondary piping systems, and are sized to serve the boiler and 30 feet of boiler loop piping with a typical number of fittings, for approximately 25-30°F temp rise across the boiler.

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