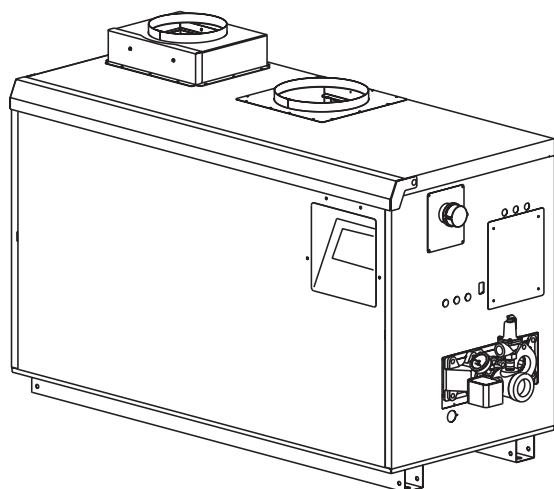


PENNANT®



Boiler

PNCH Hydronic Heater

Indoor/Outdoor Sizes 500-2000



Date:

Project #:

Engineer:

Prepared By:

Bid Date:

Submittal Data

Project Name:

Location:

Contractor:

Standard Equipment

- ASME 160 psi working pressure heat exchanger
- ASME "H" stamp
- Electronic staging & ignition control with LCD touchscreen
- Cascades up to 8 boilers with redundancy options
- Multiple pump control (system, boiler and indirect water heater), each with time delay
- BACnet MSTP and Modbus (optional BACnet IP, Metasys, or LonWorks)
- Accepts external 0-10VDC or 4-20mA for remote control of temperature or stages
- Displays messages in clear text form
- Complete diagnostics for analog and digital inputs
- Password protected parameters
- Quick start configuration
- Hot surface ignition
- 24V control system
- On/off toggle switch
- 115/24VAC transformer
- Boiler, system, DHW, and outdoor temperature sensors
- Manual reset high limit
- Automatic reset high limit
- Dry run and alarm contacts
- Anti-frost mode
- Anti-short-cycle mode
- Flanged water connections
- Glass-lined headers
- External header gaskets
- 75 psi (517 kPa) ASME rated pressure relief valve
- Water flow switch
- Temperature/pressure gauge
- Multiple operating gas valve/pressure regulators
- Manual "A" gas valve
- Multiple removable burner trays
- Stainless steel burners
- Built-in draft fan for Category I or III vent systems
- Intake air filter
- Air pressure switch
- Burner site glass

Boiler Data

Number of Units:

Fuel

- ☐ Natural
☐ Propane

Heat Exchanger

- ☐ Copper (Std)
☐ Cupro-Nickel
☐ Copper, Reversed
☐ Cupro-Nickel, Reversed

Water Trim

- ☐ Glass-Lined Cast Iron (Std)
☐ Bronze Trim

Options

- ☐ CSD-1 (LWCO Not Included)
☐ Low Water Cutoff
☐ Additional manual reset high limit
☐ Additional automatic reset high limit
☐ Alternate display orientation for top unit in stacked system.



Sizing Data

	Size	Input ¹ BTU/hr.	Input ¹ kW	Output ¹ BTU/hr.	Output ¹ kW	Gas Conn. Size inches ²	Water Conn Size inches ²	Shipping Weight lbs kg	
	500	500,000	147	425,000	125	1¼	2	640	290
	750	750,000	220	638,000	187	1¼	2	735	333
	1000	1,000,000	293	850,000	249	1½	2½	830	376
	1250	1,250,000	366	1,065,000	312	2	2½	925	420
	1500	1,500,000	440	1,278,000	374	2	2½	1020	463
	1750	1,750,000	513	1,491,000	439	2	2½	1115	506
	2000	2,000,000	586	1,704,000	499	2	2½	1210	549

AHRI Certified Ratings			
Size	Combustion Efficiency%	Thermal Efficiency%	
500	85.0	85.0	
750	85.0	85.0	
1000	85.0	85.0	
1250	85.1	85.2	
1500	85.1	85.2	
1750	85.1	85.2	
2000	85.1	85.2	

- NOTES:**
1. Input and output must be derated 4% per 1000 feet above sea level when installed above 2000 feet altitude.
 2. Dimensions are nominal.
 3. Shipping weight is approximate based on previous units shipped and can be effected by several variables including the green or dry wood used in the crate.

Water Flow Requirements

Size	TEMPERATURE RISE IN DEGREES															
	20°F		11°C		25°F		14°C		30°F		17°C		35°F		19°C	
	Flow gpm	H/L feet	Flow lpm	H/L m	Flow gpm	H/L feet	Flow lpm	H/L m	Flow gpm	H/L feet	Flow lpm	H/L m	Flow gpm	H/L feet	Flow lpm	H/L m
500	43	1.7	161	0.5	34	1.1	129	0.3	28	0.9	107	0.3	24	0.7	92	0.2
750	64	3.3	241	1.0	51	2.3	193	0.7	43	1.7	161	0.5	36	1.2	138	0.4
1000	85	5.0	321	1.5	68	3.6	257	1.1	57	3.1	214	0.9	49	2.2	184	0.7
1250	106	8.1	401	2.5	85	6.1	322	1.9	71	4.7	269	1.4	61	3.4	231	1.0
1500	128	10.0	483	3.0	102	7.2	386	2.2	85	5.5	322	1.7	73	4.2	276	1.3
1750	N/R	N/R	N/R	N/R	119	10.5	451	3.2	99	8.4	375	2.6	85	5.8	322	1.8
2000	N/R	N/R	N/R	N/R	136	12.5	515	3.8	113	10.4	429	3.2	97	8.3	368	2.5

NOTE: Headloss shown is for the heat exchanger only.

Clearances

Appliance Surface	Required Clearance From Combustible Material		Suggested Service Access Clearances	
Left Side	1	2.5	24	61
Right Side	1	2.5	24	61
Top	1	2.5	12	30
Back*	1	2.5	12	30
Front	1	2.5	36	91
Vent	Per venting system supplier's instructions			

Dimensions in **inches** *cm*

*When vent and/or air is connected to the back, 36" (91cm) is suggested.

Electrical Data

Size	Boiler Circuit			Pump Contacts		
	Voltage	Phase	Overcurrent Protection Rating	Voltage	Phase	Overcurrent Protection Rating
500	120 VAC	Single	15 Amps	120 VAC	Single	15 Amps
750	120 VAC	Single	15 Amps	120 VAC	Single	15 Amps
1000	120 VAC	Single	20 Amps	120 VAC	Single	15 Amps
1250	120 VAC	Single	25 Amps	120 VAC	Single	15 Amps
1500	120 VAC	Single	25 Amps	120 VAC	Single	15 Amps
1750	120 VAC	Single	25 Amps	120 VAC	Single	15 Amps
2000	120 VAC	Single	25 Amps	120 VAC	Single	20 Amps

Accessories

☐ Side-wall vent terminal for indoor unit with horizontal venting

☐ Vent terminal for outdoor unit

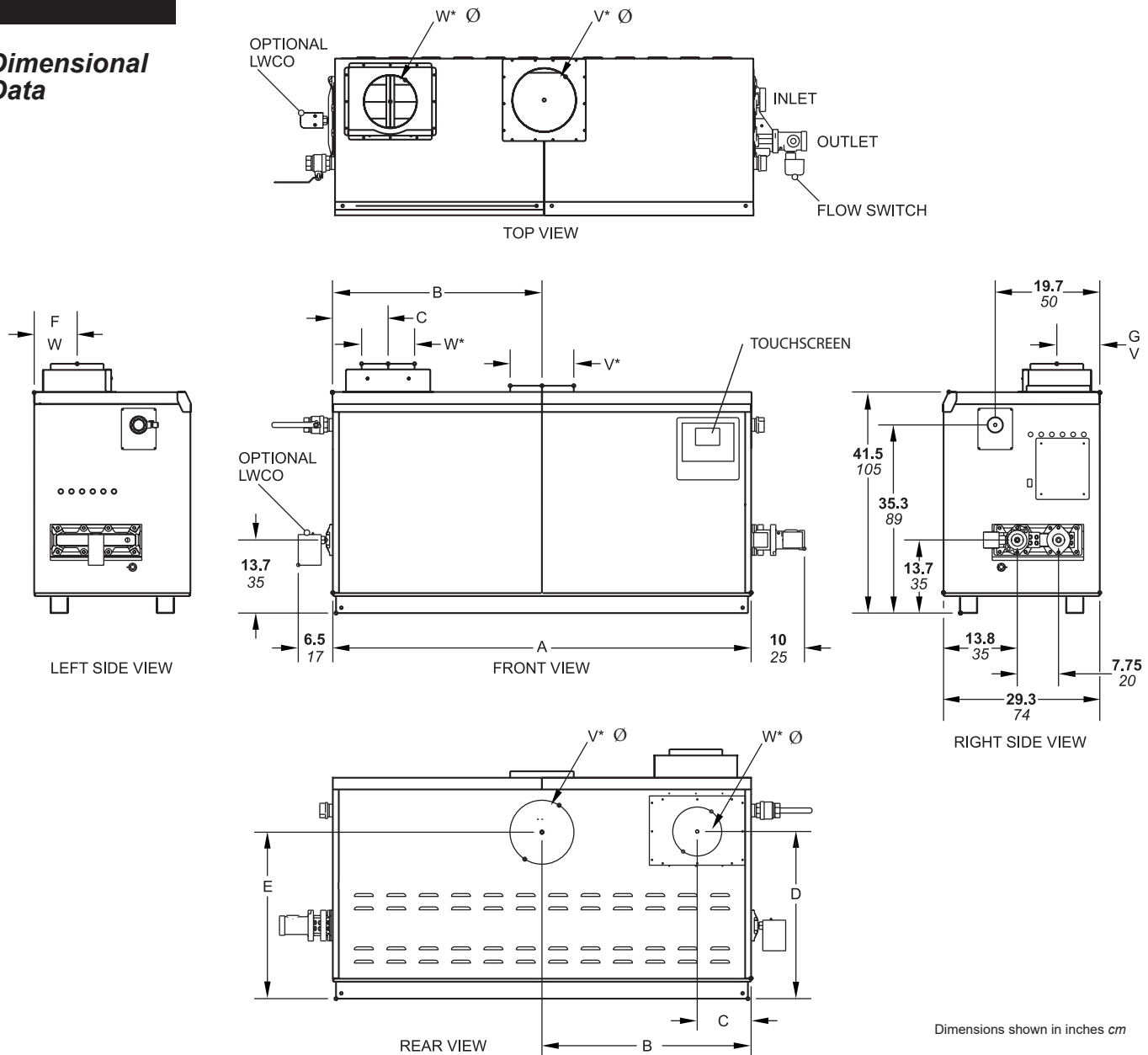
☐ Side-wall combustion air terminal for indoor unit with horizontal ducted air

☐ Air terminal for outdoor unit

☐ Propane conversion kit

☐ Natural gas conversion kit

Dimensional Data



Size	A		B		C		D		E		F		G		H		Air Conn. W*		Vent Conn. V*		Horiz. Vent Pipe	
500	33½	85	15¾	40	5¾	15	29¾	76	33¾	86	7¾	20	8¾	22	46	117	6	15	8	20	6	15
750	45½	116	21¾	55	5¾	15	29¾	76	33¾	86	7¾	20	8¾	22	58	147	8	20	10	25	8	20
1000	57½	146	28¾	73	5¾	15	29¾	76	33¾	86	7¾	20	7	18	70	178	8	20	10	25	8	20
1250	68	172	34	86	10⅞	26	30¾	78	31⅞	79	8¾	22	8¾	22	80	203	12	30	12	30	10	25
1500	78½	199	39¾	101	10⅞	26	30¾	78	31⅞	79	8¾	22	8¾	22	91	231	12	30	12	30	10	25
1750	89	226	44½	113	10⅞	26	30¾	78	31⅞	79	8¾	22	8¾	22	101	256	12	30	14	36	12	30
2000	99½	253	49¾	126	10⅞	26	30¾	78	31⅞	79	8¾	22	8¾	22	112	284	12	30	14	36	12	30

*Air and vent connections may be on top or back, and are field convertible.

Dimensions in inches cm

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