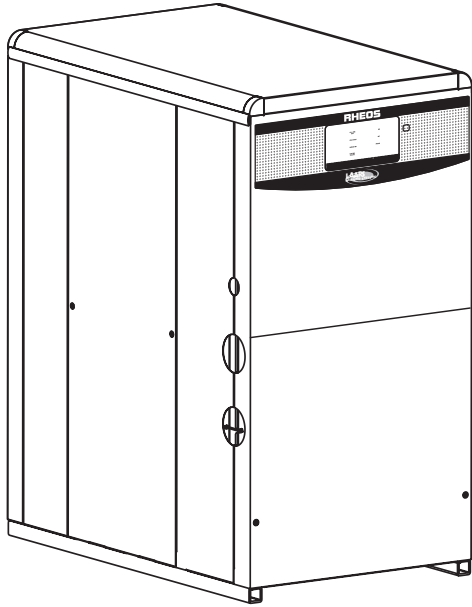


RHEOS®



Pump-Mounted Boiler & Water Heater

Date:

Project #:

Engineer:

Prepared By:

Bid Date:

RHCH Hydronic Boiler

RHCV Volume Water Heater

Indoor/Outdoor Sizes 1200-2400

Submital Data **LAARS**
Heating Systems Company

Project Name:

Location:

Contractor:

Standard Equipment

- Water flow switch
- Low water cutoff with test light and manual reset button
- Manual reset high limit
- ASME CSD-1
- Manual firing valve
- Leak test valve
- High gas pressure switch
- Low gas pressure switch
- Air pressure switch
- ASME 160 lb. w.p. heat exchanger
- ASME "H" stamp
- Less than 10ppm NOx
- Modulation capabilities down to 50% of full fire
- Mounted pump
- Pump time delay (adjustable 0.1 to 10 min.)
- Low-fire start time delay
- 75 psi pressure relief valve (RHCH)
- 125 psi pressure relief valve (RHCV)
- Temperature and pressure gauge
- Indicator/status lights for: Power On; Call for Heat; Pre-Purge; Burner On; Ignition Failure
- Ignition lockout alarm (dry contact)
- Selector switch for internal or external (0-10VDC) control

Boiler Data

Model:

- Boiler RHCH
 Water Heater RHCV

Fuel

- Natural
 Propane

Pump

- Normal Water
 Hard Water (RHCV only)

Number of Units:

Heat Exchanger

- Copper
 Cupro-Nickel

Control Pack Options

(CSD-1, FM, CA and IL codes come standard)

- Control Pack A** - adds 4" alarm bell (instead of dry contacts) and normally open vent valve to the standard unit.
- Control Pack B** - adds 4" alarm bell (instead of dry contacts), normally open vent valve, motorized safety valve with proof of closure, and solenoid safety valve to the standard unit.
- Control Pack C** - is the same as the standard unit, but with low temp controls (200°F max) (RHCH only).
- Control Pack D** - is the same as control pack A, but with low temp controls (200°F max) (RHCH only).
- Control Pack E** - is the same as control pack B, but with low temp controls (200°F max) (RHCH only).
- Control Pack F** - is the same as the standard unit, but with a non-CSD-1 ignition control (3 tries for ignition).
- Control Pack G** - is the same as control pack F, but with low temp. controls (200°F max). (RHCH only).
- 25% minimum firing rate** - order KM002501 with 1200 units, order KM002502 with 1600/2000/2400 units.



Sizing Data*

RHCH Boiler Size	Input, Hi-Fire BTU/h	Output, Hi-Fire BTU/h	Input, Lo-Fire BTU/h	Output, Lo-Fire BTU/h	Input, Hi-Fire kW	Output, Hi-Fire kW	Input, Lo-Fire kW	Output, Lo-Fire kW
1200	1,200,000	1,032,000	600,000	516,000	352	302	176	151
1600	1,600,000	1,376,000	800,000	688,000	469	403	234	202
2000	1,999,000	1,719,000	999,500	859,500	586	504	293	252
2400	2,400,000	2,064,000	1,200,000	1,032,000	703	605	352	302

RHCV Water Heater Size	Input, Hi-Fire BTU/h	Output, Hi-Fire BTU/h	Input, Lo-Fire BTU/h	Output, Lo-Fire BTU/h	Input, Hi-Fire kW	Output, Hi-Fire kW	Input, Lo-Fire kW	Output, Lo-Fire kW
1200	1,200,000	1,020,000	600,000	510,000	352	299	176	149
1600	1,600,000	1,360,000	800,000	680,000	469	398	234	199
2000	1,999,000	1,700,000	999,500	850,000	586	498	293	249
2400	2,400,000	2,040,000	1,200,000	1,020,000	703	598	352	299

Important Note: output shown is based on certification test standards. The efficiency of this unit will increase with lower return water temperature and/or lower modulation point, which will alter the output of the Rheos+.

Size	Cat. IV Vent Size inches	Comb. Air Size inches	Shipping Weight lbs.	Cat. IV Vent Size cm	Comb. Air Size cm	Shipping Weight kg
1200	6	6	1370	15	15	622
1600	6	8	1415	15	20	642
2000	7	8	1445	18	20	656
2400	10	8	1500	25	20	681

Accessories

- Side-wall vent terminal for indoor unit with horizontal venting
- Side-wall combustion air terminal for indoor unit with horizontal ducted air
- Vent terminal for outdoor unit (required for outdoor installation)
- Appliance adapter for outdoor unit (required for outdoor installation)
- Valve heater kit (required in installations that may see less than 15°F ambient. Control packs B and E require 2)

Electrical Data

Model	Boiler / Heater			Pump			Blower
	Volts	Phase	Circuit	Volts	Phase	Circuit	
RHCH, RHCV Pump mounted 1200-2400	120	Single	20A	230	Single	20A	Included in Rheos connection

Water Flow Data

RHCH (Boiler)

Temperature Rise in Degrees

Size	20°F	11°C	25°F	14°C	30°F	17°C
	Flow gpm	Flow lpm	Flow gpm	Flow lpm	Flow gpm	Flow lpm
1200	103	391	83	313	69	260
1600	138	521	110	417	92	347
2000	172	651	138	521	115	434
2400	206	781	165	625	138	521

RHCV (Water Heater)

Size	Hard Water				Normal Water				Soft Water			
	Flow gpm	Temp Rise °F	Flow lpm	Temp Rise °C	Flow gpm	Temp Rise °F	Flow lpm	Temp Rise °C	Flow gpm	Temp Rise °F	Flow lpm	Temp Rise °C
1200	104	20	395	11	84	25	316	14	70	30	264	17
1600	164	17	620	9	133	21	502	12	90	31	340	17
2000	183	19	693	11	151	23	573	13	99	35	376	19
2400	209	20	791	11	167	25	632	14	139	30	527	17

NOTE: Soft water: 1 to 7.5 grains per gallon.
 Normal water: 7.6 to 17 grains per gallon.
 Hard water: More than 17 grains per gallon.

Recovery Data*

GPH Delivered

Size	REQUIRED WATER TEMPERATURE RISE								
	40°F GPH	50°F GPH	60°F GPH	70°F GPH	80°F GPH	90°F GPH	100°F GPH	120°F GPH	140°F GPH
1200	3061	2449	2041	1749	1531	1361	1224	1020	875
1600	4082	3265	2721	2332	2041	1814	1633	1361	1166
2000	5102	4082	3401	2915	2551	2268	2041	1701	1458
2400	6122	4898	4082	3499	3061	2721	2449	2041	1749

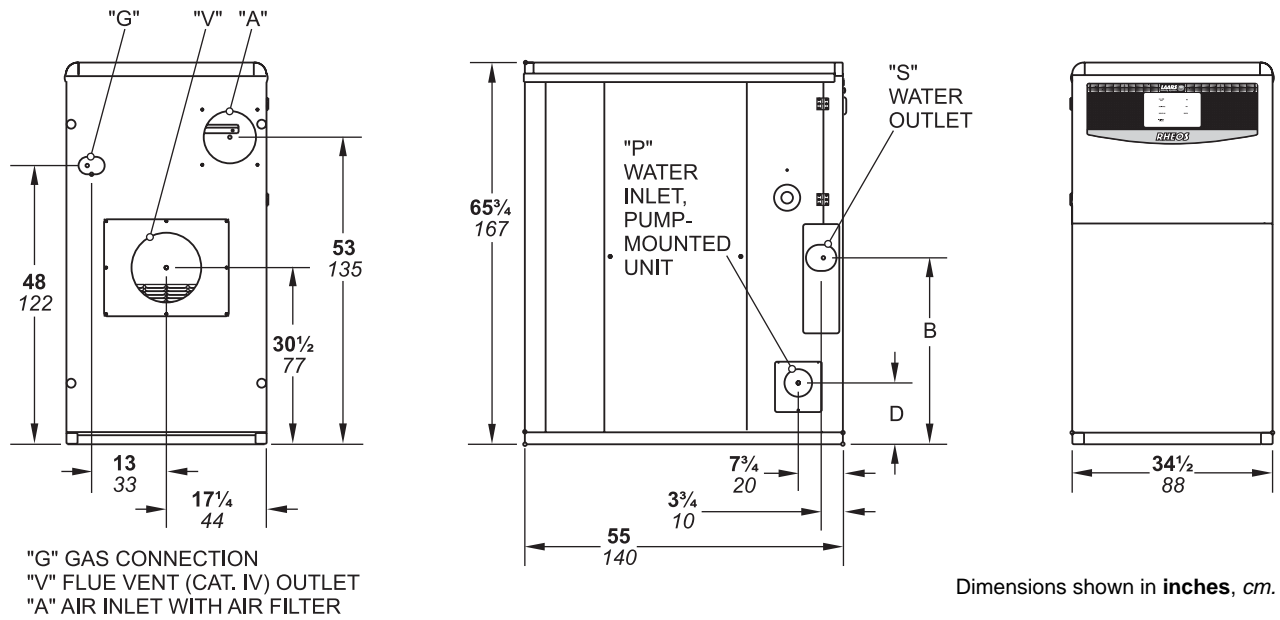
L/h Delivered

Size	REQUIRED WATER TEMPERATURE RISE								
	22°C L/h	28°C L/h	33°C L/h	39°C L/h	44°C L/h	50°C L/h	56°C L/h	67°C L/h	78°C L/h
1200	11,571	9257	7714	6612	5786	5143	4629	3857	3306
1600	15,429	12,343	10,286	8816	7714	6857	6171	5143	4408
2000	19,286	15,429	12,857	11,020	9643	8571	7714	6429	5510
2400	23,143	18,514	15,429	13,224	11,571	10,286	9257	7714	6612

Clearances

Appliance Surface	Required Clearance From Combustible Material		Suggested Service Access Clearances	
Piping Side	1"	2.5 cm	24"	61 cm
Opposite Side	1"	2.5 cm	24"	61 cm
Top	1"	2.5 cm	24"	61 cm
Back	1"	2.5 cm	36"	91 cm
Front	1"	2.5 cm	36"	91 cm
Vent	Per UL1738 venting system supplier's instructions			

Dimensional Data



Size	V Vent Connection		A Air Inlet Connection		P Inlet Water Conn. NPT	S Outlet Water Conn. NPT	B		D		G - Gas Connections		
	in	cm	in	cm			in	cm	in	cm	Std & Control Packs A,C,D,F,G		
											Control Packs B&E		
Nat / LP NPT			Nat NPT			Control Packs B&E LP NPT							
1200	6	15	6	15	2½"	2½"	34¼	87	9¾	25	1"	1½"	1½"
1600	6	15	8	20	3"	2½"	34¼	87	10½	27	1½"	2"	2"
2000	7	18	8	20	2½"	3"	34¼	87	9¾	25	1½"	2"	2"
2400	10	25	8	20	3"	3"	32	81	10½	27	1½"	2"	2"

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