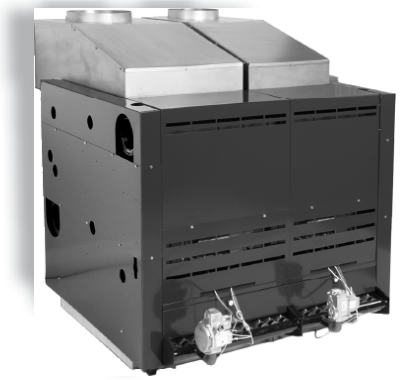
D-248 Cast Iron Commercial Hot Water Boiler

P/N# 240010110, Rev. A [04/2013]

Dunkirk
America's Hottest Boiler Value!

SPECIFICATIONS AND PERFORMANCE



AVAILABLE HEATING INPUTS OF:

300 MBH (87.99 kw) through 3000MBH (879.89 kw)

PRODUCT DESCRIPTION

Application – Natural Gas fired hot water or steam boilers are available with heating inputs of 300 MBH (87.99 kw) through 3000 MBH (879.89 kw). The 28 sizes meet the heating needs for schools, churches, office buildings, factories, etc.

Benefits:
- Units may be grouped to make any size from 300 to 3,000 Btu.
- Stage firing optional control for individual bases in water application for improved efficiency and reliability.

Approvals – Manufactured and tested in accordance with American Society of Mechanical Engineers (ASME) standards. The boiler is certified by the Canadian Service Approval (CSA) in the US. The I=B=R ratings are certified in accordance the Gas Appliance Manufacturers Association (GAMA) material and Equipment Acceptance number for the City of New York is MEA 205-89-E.

Boilers with (Optional) CSD-1 Controls – from 500 MBH (87.99 kw) to 2500 MBH (732.49 kw) input may be ordered with additional combustion and water or steam controls to meet our interpretation of CSD-1. The controls and the installation may be subject to approval by local inspectors. Additional parts or equipment may be required. Consult local authorities having jurisdiction before the installation of the boiler.

Warranty – The cast iron boiler has a ten year limited warranty on the individual sections. All other components have a limited warranty for one year unless the component manufacturer extends their warranty.

STANDARD FEATURES

Cabinet:
- Constructed of heavy gauge steel with an enamel paint finish.
- Fully insulated with fiberglass insulation, keeping surface temperatures low.
- Supply and return connections are furnished on both sides of the cabinet.
- Burner access panel is easily removed for servicing.

Cast Iron Boiler Assembly – Long life cast iron boilers are field assembled using tie rods and cast iron push nipples. When the boiler is heated, sections and push nipples expand and contract in the same proportion because they are constructed of like material, providing a positive water tight seal. A combination of burner modules are set to meet specific capacity requirements.

Benefits:
- Individually shipped boiler sections for ease of handling & easy passage through conventional doors.
- Boiler flueways easily accessible for cleaning & servicing.

Electronic Ignition: Solid-state electronic spark igniters provide for positive ignition of the pilot burners on each operating cycle. Pilot gas is ignited and burns during each running cycle of the boiler. Main burners and pilot gas are extinguished during the off cycle. Ignition system permits the main gas valve to open only when the pilot burner is proven to be lit. Pilot operation is fully automatic on demand for heat. Should loss of flame occur, the main valve closes, shutting down the individual base. Other bases can remain lit.

Automatic Gas Control – The compact 24 Volt redundant combination gas control valve combines:
- Automatic safety pilot
- Manual shut off (On-Off)
- Pilot filtration
- Automatic electric valve (dual)
- Gas pressure regulation

Dual valve design provides double assurance of 100% shut off of gas to the pilot and main burners on each off cycle.

Aluminized Steel Burners – Each lanced port burner provides quiet and clean combustion.

Drain Valve (Brass) – 3/4" (19mm) is furnished as standard equipment for field installation on the side of the boiler. See dimensional drawing for location.

STANDARD WATER TRIM LIST

Aquastat – Immersion type high limit control with well for controlling maximum water temperature.

Relief Valve – The field installed valve provides for pressure relief of the heating system in case of abnormal operating conditions. The valve opens at 30 psig (210 kPa) and is rated by ASME. A 50 psig (345 kPa) valve is also available.

Water Temperature/Pressure Gauge – Furnished as standard for field installation on the boiler. The temperature and the pressure of the water are shown on the gauge.

STANDARD STEAM TRIM LIST

Low Water Cut Off (LWCO) – is furnished with the boiler and will automatically shut off gas to the burners if the water level drops below minimum safe levels.

Pressuretrol – Adjustable steam pressure operating control automatically shuts off gas to the burners if steam pressure reaches cut-off setpoint.

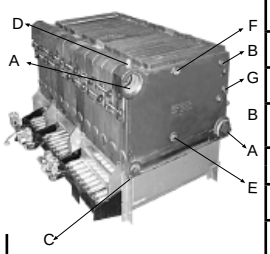
Water Level Gauge – Allows for a visual inspection of the water level in the boiler.

Safety Relief Valve – The field installed valve provides pressure relief of the heating system in case of abnormal conditions. Valve opens at 15 psig (103 kPa) and is rated by AHRI.

D-248 CAST IRON COMMERCIAL HOT WATER BOILER

Model	Input (Mbh) [1]	Gross Output (Mbh)	Net AHRI Ratings Water (Mbh) [2]	Base Size & Flue Outlet			Chimney Size [4]	Vent Connector Size to Chimney [4]	Therm. Eff.	Comb Eff	Pressure Drop Thru Water Boiler	
				300 (8")	400 (10")	500 (12")	I.D. x Ht.				GPM	In. Water
D248-300	300	241	210	1	0	0	8" x 20'	8	77.5	80.4	18.9	0.10
											37.8	0.50
D248-400	400	322	280	0	1	0	10" x 20'	10	77.5	80.5	25.2	0.27
											50.4	0.86
D248-500	500	403	350	0	0	1	12" x 20'	12	77.5	80.5	31.5	0.40
											63.0	1.20
D248-600	600	482	419	2	0	0	12" x 20'	12	77.5	80.4	37.8	0.50
											75.6	1.70
D248-700	700	563	490	1	1	0	12" x 20'	12	77.5	80.5	44.1	0.70
											88.2	2.50
D248-800	800	644	560	0	2	0	14" x 20'	14	77.5	80.5	50.4	0.88
											100.8	2.90
D248-900	900	725	630	0	1	1	14" x 20'	14	77.5	80.5	56.7	1.10
											113.4	3.80
D248-1000	1000	805	700	0	0	2	14" x 20'	14	77.5	80.5	63.0	1.30
											126.0	4.00
D248-1100	1100	884	769	1	2	0	16" x 20'	16	77.5	80.5	69.3	1.50
											138.6	5.00
D248-1200	1200	966	840	0	3	0	16" x 20'	16	77.5	80.5	75.6	1.80
											151.2	6.00
D248-1300	1300	1045	909	1	0	2	16" x 20'	16	77.5	80.5	81.9	2.00
											163.8	5.60
D248-1400	1400	1127	980	0	1	2	18" x 20'	18	77.5	80.5	88.2	2.40
											176.4	7.00
D248-1500	1500	1208	1050	0	0	3	18" x 20'	18	77.5	80.5	94.5	2.60
											189.0	8.30
D248-1600	1600	1288	1120	0	4	0	18" x 20'	18	77.5	80.5	100.8	2.80
											201.0	9.60
D248-1700	1700	1367	1189	1	1	2	18" x 20'	18	77.5	80.5	107.1	3.15
											214.2	10.30
D248-1800	1800	1449	1260	0	2	2	20" x 20'	20	77.5	80.5	113.4	3.50
											226.8	11.00
D248-1900	1900	1530	1330	0	1	3	20" x 20'	20	77.5	80.5	119.7	4.00
											239.4	12.50
D248-2000	2000	1610	1400	0	0	4	20" x 20'	20	77.5	80.5	126.0	4.50
											252.0	14.00
D248-2100	2100	1688	1468	2	0	3	20" x 20'	20	77.5	80.5	132.3	4.95
											264.6	16.00
D248-2200	2200	1771	1540	0	3	2	22" x 20'	22	77.5	80.5	138.6	5.40
											277.2	18.00
D248-2300	2300	1852	1610	0	2	3	22" x 20'	22	77.5	80.5	144.9	5.70
											289.8	17.00
D248-2400	2400	1932	1680	0	1	4	22" x 20'	22	77.5	80.5	151.2	8.00
											302.4	19.00
D248-2500	2500	2013	1750	0	0	5	22" x 20'	22	77.5	80.5	157.5	8.00
											315.0	20.50
D248-2600	2600	2090	1817	2	0	4	22" x 20'	22	77.5	80.5	163.8	7.00
											327.6	24.00
D248-2700	2700	2171	1888	1	1	4	24" x 20'	24	77.5	80.5	170.1	7.50
											340.2	24.00
D248-2800	2800	2254	1960	0	2	4	24" x 20'	24	77.5	80.5	176.4	8.00
											352.8	26.00
D248-2900	2900	2335	2030	0	1	5	24" x 20'	24	77.5	80.5	182.8	8.50
											365.5	27.50
D248-3000	3000	2415	2100	0	0	6	24" x 20'	24	77.5	80.5	189.1	9.00
											378.2	29.00

Right & Left End Tappings Data



Opening	Size	Water
A	4"	Supply and Return
B	1/2"	Plugged
C	3/4"	Drain, Left End
C	3/4"	Drain, Right End
D	1/2"	Limit Control
E	1"	Accessories
*F	1"	Relief Valve
G	3/4"	Plugged

1. Ratings are at sea level to 2,000 feet. For altitudes above 2,000 feet, reduce all ratings 4% for each 1,000 feet above sea level.
2. Net AHRI water ratings based on a piping and pickup allowance of 1.15. Contact Technical Support before selecting
boiler for installations having unusual piping and pick-up factors, such as intermittent system operations, extensive piping systems, etc.
3. Pressure drop based on given flow from single outlet and returning to single inlet at the opposite end of the boiler.
4. Chimney sizes shown are one option based on a typical venting system as shown in Figure 6 of the Installation Manual, and sized according to the National Fuel Gas Code, assuming Type B double wall vent and vent connectors, other venting system designs are acceptable as shown on Flue Connection And Venting section of the installation manual. For further chimney design and sizing information, consult the National Fuel Gas Code, ANSI Z223.1/NFPA 54-latest revision, or ASHRAE HVAC Systems and Equipment Handbook, Chimney, Gas Vent, and Fireplace Systems, or the Standard for Chimneys, Fireplaces, Vents, and Solid Fuel Burning Appliances. NFPA 211. Follow standard engineering practice.

Certifications

AHRI CERTIFIED® www.ahridirectory.org

DESIGN CERTIFIED

ASME H

*If opening F is to be used for something other than the Safety Valve or Pressure Relief Valve, or the Safety/Relief Valve is larger than 1", the Safety/Relief Valve must be installed in the Header Piping as near to the boiler as possible.

All ratings and specifications subject to change.

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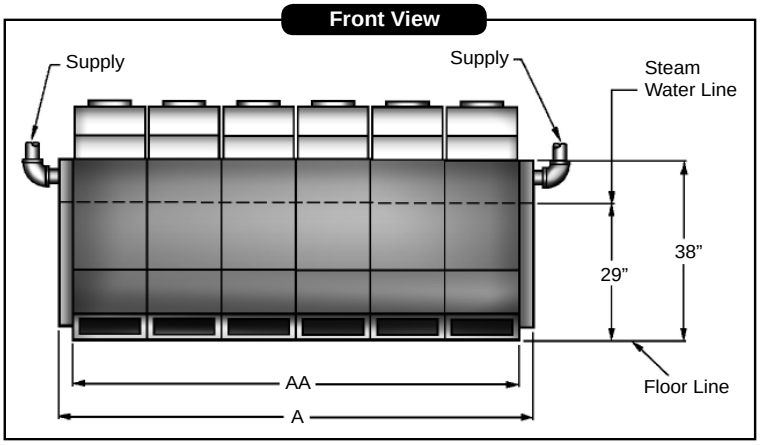
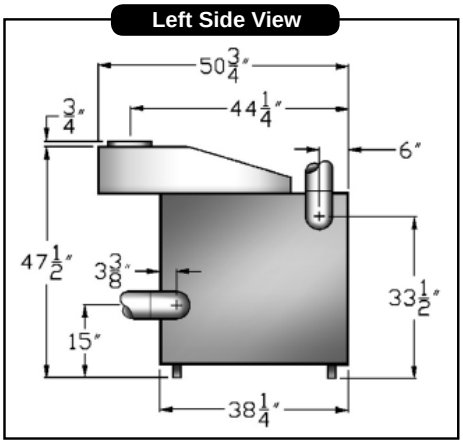
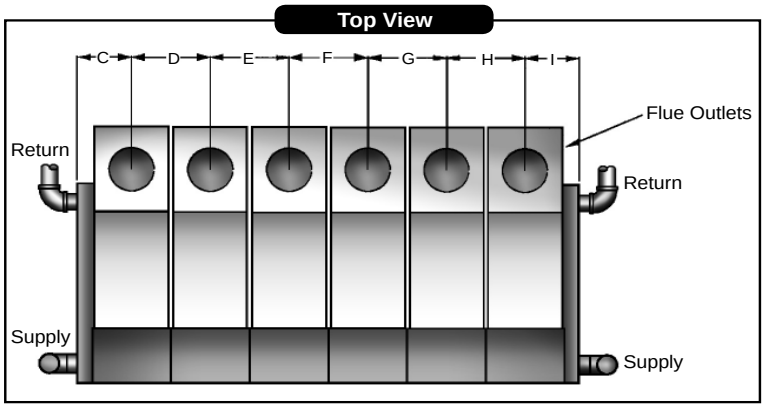




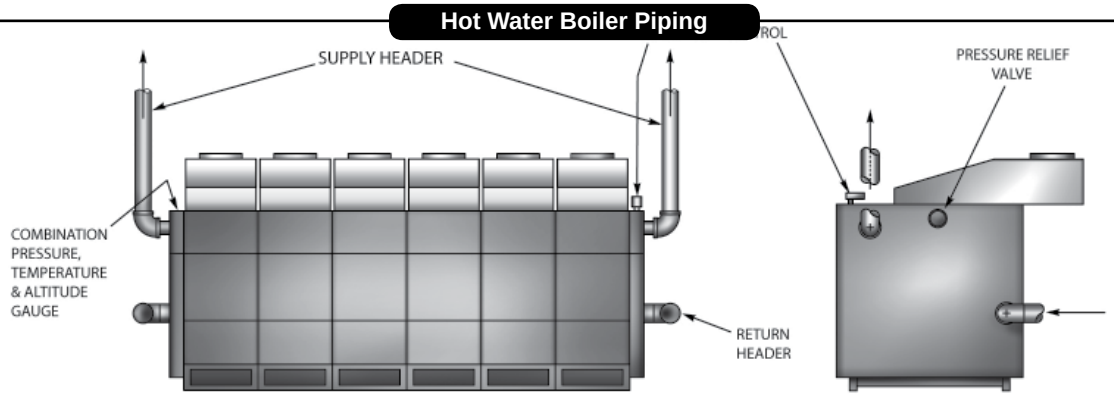


ALL SUPPLY AND RETURN CONNECTIONS ARE 4 INCH

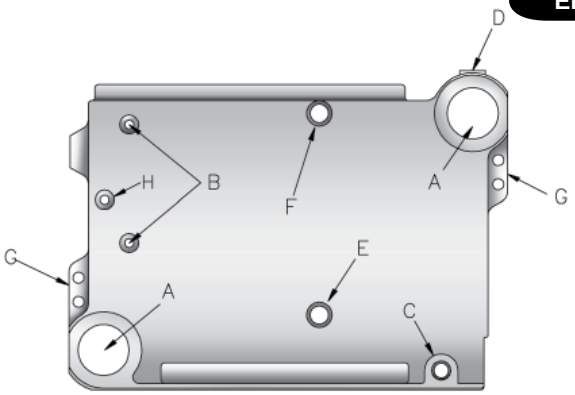
Boiler Model No.	Water Content in Gallons		Shipping Weight Lbs.	A Jacket Width L to R	AA Base & Battery Length	C	D	E	F	G	H	I
	Steam	Water										
D-248 300	20	26	922	18 3/4	16 3/4	9 3/8	–	–	–	–	–	9 3/8
D-248 400	25	33	1133	23	21	11 1/2	–	–	–	–	–	11 1/2
D-248 500	30	40	1344	27 1/4	25 1/4	13 5/8	–	–	–	–	–	13 5/8
D-248 600	35	46	1555	31 1/2	29 1/2	9 3/8	12 3/4	–	–	–	–	9 3/8
D-248 700	40	52	1766	35 3/4	34 3/4	9 3/8	14 7/8	–	–	–	–	11 1/2
D-248 800	45	58	1977	40	38	11 1/2	17	–	–	–	–	11 1/2
D-248 900	50	65	2188	44 1/4	42 1/4	11 1/2	19 1/8	–	–	–	–	13 5/8
D-248 1000	55	71	2399	48	46 1/2	13 5/8	21 1/4	–	–	–	–	13 5/8
D-248 1100	60	78	2610	52 3/4	50 3/4	9 3/8	14 7/8	17	–	–	–	11 1/2
D-248 1200	65	84	2821	57	55	11 1/2	17	17	–	–	–	11 1/2
D-248 1300	70	91	3032	61 1/4	59 1/4	9 3/8	17	21 1/4	–	–	–	13 5/8
D-248 1400	75	97	3243	65 1/2	63 1/2	11 1/2	19 1/8	21 1/4	–	–	–	13 5/8
D-248 1500	80	104	3454	69 3/4	67 3/4	13 5/8	21 1/4	21 1/4	–	–	–	13 5/8
D-248 1600	85	110	3665	74	72	11 1/2	17	17	17	–	–	11 1/2
D-248 1700	90	117	3876	78 1/4	76 1/4	9 3/8	14 7/8	19 1/8	21 1/4	–	–	13 5/8
D-248 1800	95	123	4087	82 1/2	80 1/2	11 1/2	17	19 1/8	21 1/4	–	–	13 5/8
D-248 1900	100	130	4298	86 3/4	84 3/4	11 1/2	19 1/8	21 1/4	21 1/4	–	–	13 5/8
D-248 2000	105	136	4509	91	89	13 5/8	21 1/4	21 1/4	21 1/4	–	–	13 5/8
D-248 2100	110	143	4720	95 1/4	93 1/4	9 3/8	12 3/4	17	21 1/4	21 1/4	–	13 5/8
D-248 2200	115	149	4931	99 1/2	97 1/2	11 1/2	17	17	19 1/8	21 1/4	–	13 5/8
D-248 2300	120	156	5142	103 3/4	101 3/4	11 1/2	17	19 1/8	21 1/4	21 1/4	–	13 5/8
D-248 2400	125	162	5353	108	106	11 1/2	19 1/8	21 1/4	21 1/4	21 1/4	–	13 5/8
D-248 2500	130	169	5564	112 1/4	110 1/4	13 5/8	21 1/4	21 1/4	21 1/4	21 1/4	–	13 5/8
D-248 2600	135	175	5775	116 1/2	114 1/2	9 3/8	12 3/4	17	21 1/4	21 1/4	21 1/4	13 5/8
D-248 2700	140	182	5986	120 3/4	118 3/4	9 3/8	14 7/8	19 1/8	21 1/4	21 1/4	21 1/4	13 5/8
D-248 2800	145	188	6197	125	123	11 1/2	17	19 1/8	21 1/4	21 1/4	21 1/4	13 5/8
D-248 2900	150	195	6408	129 1/4	127 1/4	11 1/2	19 1/8	21 1/4	21 1/4	21 1/4	21 1/4	13 5/8
D-248 3000	155	201	6619	133 1/2	131 1/2	13 5/8	21 1/4	21 1/4	21 1/4	21 1/4	21 1/4	13 5/8

D-248 CAST IRON COMMERCIAL HOT WATER BOILER
DIMENSIONS AND SPECIFICATIONS

Hot Water Boiler Piping



End Section Tappings



End Section

Tappings are the same in both Right and Left End Sections, except for the drain valve tapping which is 1 ½" Left End, and ¾" Right End.

Opening	Size	Water
A	4"	Supply and Return
B	1/2"	Plugged
C	1 1/2"	Drain, Left End
C	3/4"	Drain, Right End
D	1/2"	Limit Control
E	1"	Accessories
F	1"	Pressure Relief Valve
G	–	Tie Rod Holes
H	3/4"	Plugged

Contractor Assistance: 800.325.5479

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