



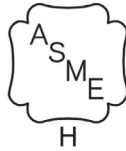
## D250 Series Cast Iron Commercial Natural Gas Steam & Water Boiler Submittal/Specifications

Engineer: \_\_\_\_\_

Project Name: \_\_\_\_\_

Project Location: \_\_\_\_\_

Contractor: \_\_\_\_\_



### APPLICATION:

Modular Gas Fired Steam and Water heating boiler for indoor installations. Available from 360 MBH to 1,350 MBH input. For use with natural gas only. All boiler bases are factory assembled with gas train, controls and wiring and test fired to ensure dependable performance.

### CERTIFICATION AND APPROVALS:

The Cast Iron heat exchanger is manufactured and tested in accordance with American Society of Mechanical Engineers Standards (ASME) and certified by Canadian Standards Association (CSA) in the US. The cast iron heat exchanger is tested for a maximum allowable working pressure of 15 PSIG (pounds per square inch gauge) for steam boilers and 100 PSIG for water boilers in accordance with ASME boiler and pressure vessel code, section IV, rules for construction of heating boilers. A 15 PSIG safety relief valve is shipped standard on steam boilers, and a 30 PSIG safety relief valve is shipped standard on water boilers.

### 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. Individually shipped boiler sections for ease of handling & easy passage through conventional doors.

### BOILERS WITH (OPTIONAL) CSD-1 CONTROLS

From 360 MBH to 1500 MBH 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.

### 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.

### 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.

**ECR** international

### Manufactured by:

ECR International Inc.  
2260 Dwyer Avenue, Utica, NY 13501  
Tel. 800 253 7900  
[www.ecrinternational.com](http://www.ecrinternational.com)  
PN 240011949 REV. C [12/06/2024]

## 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.



## STANDARD STEAM TRIM LIST:

- Low Water Cut Off (LWCO) – Mounted externally, is furnished with the boiler and will automatically shut off gas to the burners if the water level drops below minimum safe levels. Includes Blow Off Valve.
- Pressuretrol – Adjustable steam pressure operating control automatically shuts off gas to the burners if steam pressure reaches cut-off set point.
- 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 ASME.
- Siphon Loop

## STANDARD WATER TRIM LIST:

- High Limit - The field installed high limit provides over heating protection.
- Temperature & Pressure Gauge - The field installed T&P gauge provides a means to monitor the status of the boiler and heating system, required by regulatory agencies.
- Safety Relief Valve - The field installed valve provides pressure relief of the heating system in case of abnormal conditions. Valve opens at 30 psig (206.84 kPa) and is rated by ASME.

## OPTIONS:

The optional CSD-1 controls modify the standard D250 boiler on both the fuel train and steam/water trim as follows:

### Steam Boiler with Boiler Feed Pump Return system:

- Add SF-500 Hydrolevel safeguard Manual Reset LWCO
- Add 150S-B-MK LWCO and Pump Control
- Delete 67D-1 LWCO
- Add L404L Manual Reset Pressure Control

### Steam Boiler with Gravity or Condensate Pump Return System:

- Add SF-500 Hydrolevel safeguard Manual Reset LWCO
- Add L404L Manual Reset Pressure Control

### Water Boiler:

- Add SF-500 Hydrolevel Safeguard Manual Reset LWCO
- Add L4006 Manual Reset High Limit
- Add Temperature/Pressure Gage

The SF-500LWCO is the secondary LWCO to the 67D-1 LWCO furnished standard with the boiler.

### Fuel Train:

Substitute CSD-1 fuel train(s) for standard which includes (per base): Intermittent Pilot Module (PT#1140007) control Stop with alarm 1003-612A and (PI1140008) Control CSD-1 Lockout Board DB1145-2 with manual reset: Independent Pilot Gas Line (Manual shut-off valve, Pressure regulator, Safety shut-off valve); Main Gas Line (Gas Valve, Two leak test cocks, Manual shut-off downstream of the main gas valve).

### Notes:

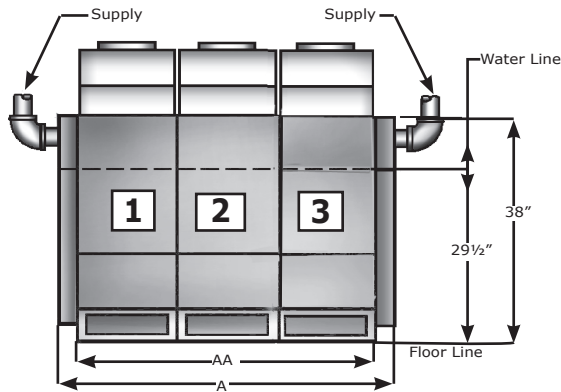
1. The D250-400S does not require fuel train modifications for CSD-1. the standard fuel train is furnished.
2. **Control equipment is included to meet Dunkirk Boilers' interpretation of CSD-1. Consult local authorities before boiler installation. Additional controls, if required can be provided at an additional price.**

## RATINGS AND CAPACITIES

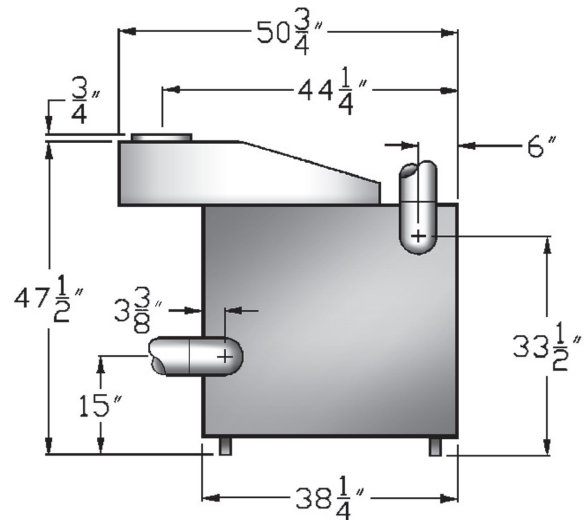
<div><div><div><div>AHRI</div><div>CERTIFIED®</div><div>www.ahridirectory.org</div></div></div><div>RATINGS AND CAPACITIES</div></div>															
Model	Input (MBH)	Output (1)		Net AHRI Ratings (2)			Flue Outlet No. & Size			Chimney Size (6)	Flue Collector Size to Chimney	Horse-power Gross Output (4)	Pressure Drop Thru Water Boiler (5)		AFUE / Thermal Efficiency (Water) (Steam)
		Gross Output Mbh		Steam (Sq Ft) (3)	Steam Mbh	Water MBH	8"	10"	12"	I.D. x Ht.			GPM	In. Water	
		Steam	Water												
400	360	288	284	889	213	250		1		10"X20'	10	8.49	25.2 50.4	0.27 0.86	80 79
500	450	360	356	1,111	267	313			1	12"X20'	12	10.61	31.5 63.0	0.40 1.20	80 79
600	540	432	427	1,333	320	376	2			12"X20'	12	12.73	37.8 75.8	0.50 1.70	80 79
700	630	504	498	1,556	373	438	1	1		12"X20'	12	14.86	44.1 88.2	0.70 2.50	80 79
800	720	576	569	1,778	427	501		2		14"X20'	14	16.98	50.4 100.8	0.88 2.90	80 79
900	810	648	640	2,000	480	563		1	1	14"X20'	14	19.10	56.7 113.4	1.10 3.80	80 79
1000	900	720	711	2,222	533	626			2	14"X20'	14	21.22	63.0 126.0	1.30 4.00	80 79
1100	990	792	782	2,445	587	689	1	2		16"X20'	16	23.35	69.3 138.6	1.50 5.00	80 79
1200	1,080	864	853	2,667	640	751		3		16"X20'	16	25.47	75.6 151.2	1.80 6.00	80 79
1300	1,170	936	924	2,889	693	814	1		2	16"X20'	16	27.59	81.9 163.8	2.00 5.60	80 79
1400	1,260	1,008	995	3,111	747	877		1	2	18"X20'	18	29.71	88.2 176.4	2.40 7.00	80 79
1500	1,350	1,080	1,067	3,334	800	939			3	18"X20'	18	31.84	94.5 189.0	2.60 8.30	80 79

- 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 steam ratings based on an allowance of 1.333 (300-1500). 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) Ratings in square feet are computed at 240 Btuh/square foot for steam boilers.
- 4) Ratings based on 33,500 Btuh per horsepower.
- 5) Pressure drop based on given flow from single outlet and returning to single inlet at the opposite end of the boiler.
- 6) Chimney sizes shown are one option based on a typical venting system, 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 this 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.

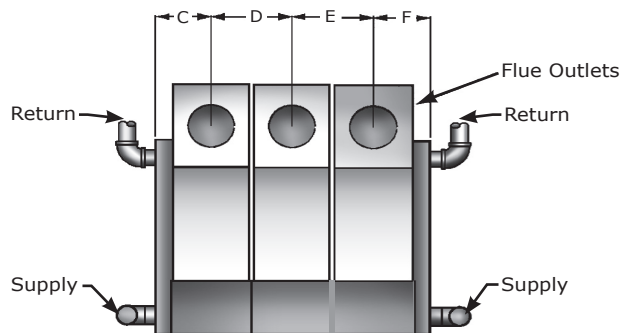
**Front View**



**Left Side View**



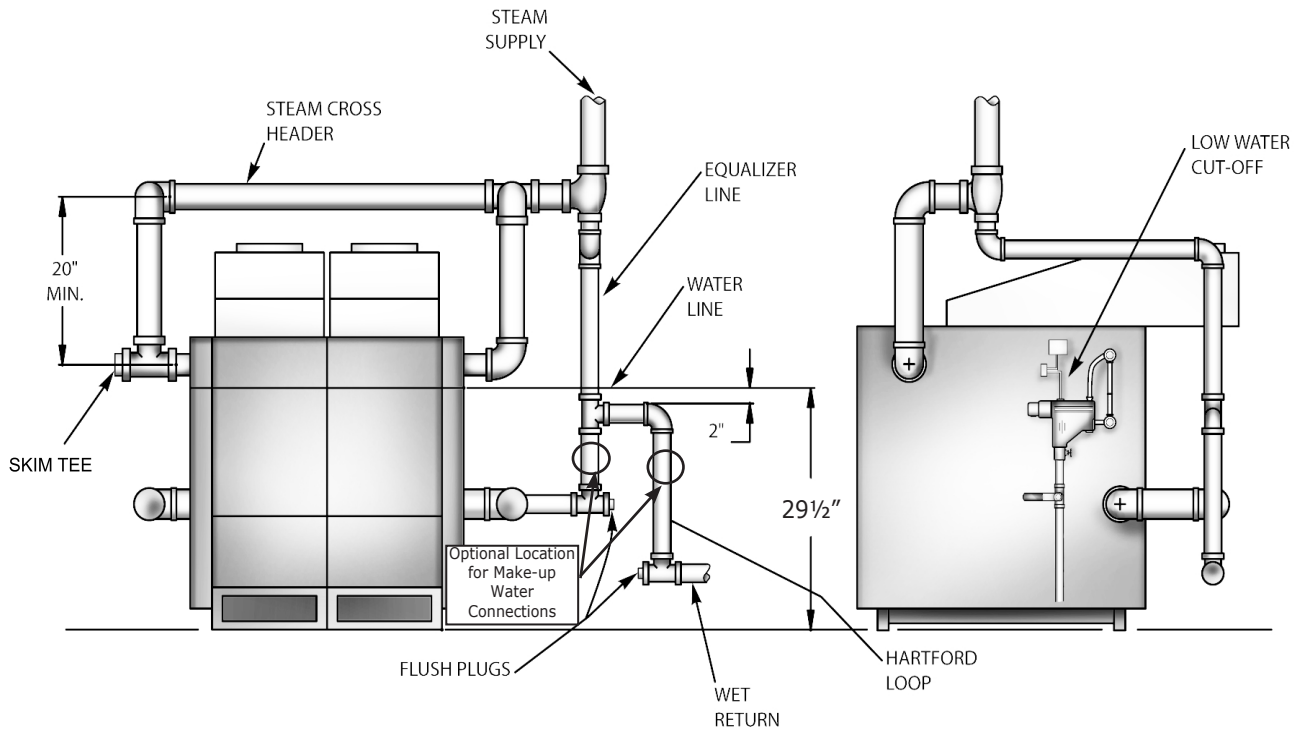
**Top View**



**ALL SUPPLY AND RETURN CONNECTIONS ARE 4 INCH**

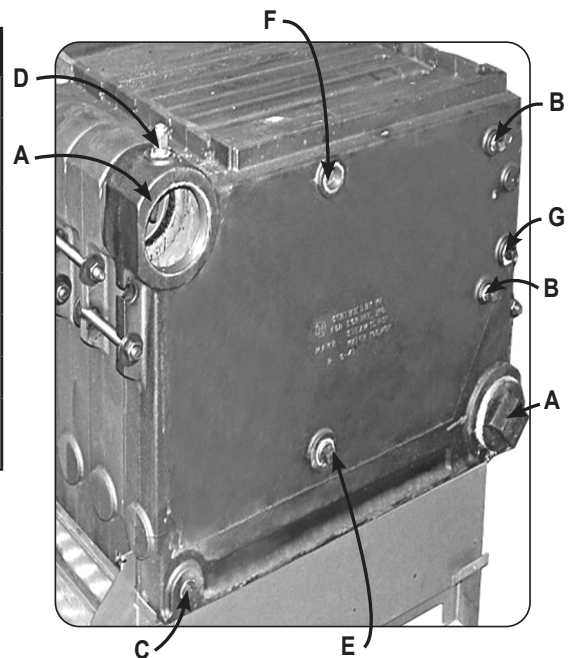
Boiler Model No.	Water Content in Gallons		Shipping Weight Lbs.	A Jacket Width L to R	AA Base & Battery Length	C	D	E	F	*Boiler Modules		
	Steam	Water								*1	*2	*3
400	25	33	1133	25	21	12 1/2	-	-	12 1/2	400	x	x
500	30	40	1344	29 1/4	25 1/4	14 5/8	-	-	14 5/8	500	x	x
600	35	46	1555	33 1/2	29 1/2	10 3/8	12 3/4	-	10 3/8	300		x
700	40	52	1766	37 3/4	34 3/4	10 3/8	14 7/8	-	12 1/2	300	300	x
800	45	58	1977	42	38	12 1/2	17	-	12 1/2	400	400	x
900	50	65	2188	46 1/2	42 1/4	12 1/2	19 1/8	-	14 5/8	400	400	x
1000	55	71	2399	50	46 1/2	14 5/8	21 1/4	-	14 5/8	500	500	x
											500	
1100	60	78	2610	54 3/4	50 3/4	10 3/8	14 7/8	17	12 1/2	300	400	400
1200	65	84	2821	59	55	12 1/2	17	17	12 1/2	400	400	400
1300	70	91	3032	63 1/4	59 1/4	10 3/8	17	21 1/4	14 5/8	300	500	500
1400	75	97	3243	67 1/2	63 1/2	12 1/2	19 1/8	21 1/4	14 5/8	400	500	500
1500	80	104	3454	71 3/4	67 3/4	14 5/8	21 1/4	21 1/4	14 5/8	500	500	500

## STEAM BOILER PIPING



OPENING	SIZE	STEAM	WATER
A	4"	Supply and Return	Supply and Return
B	1/2"	Primary LWCO and Gauge Glass Set	Plugged
C	3/4"	Drain, Left End	Drain, Left End
C	3/4"	Drain, Right End	Drain, Right End
D	1/2"	Plugged	Limit Control
E	1"	Accessories	Accessories
*F	1"	Safety Valve	Safety Valve
G	3/4"	Plugged or Electronic (Probe Type) LWCO	Plugged

**\*If using opening F** for other than Safety Valve or Safety Relief Valve, or Safety/Relief valve is larger than 1", Install Safety/Relief Valve in Header Piping as near boiler as possible.



## WATER BOILER PIPING

