125 PSI Hot Water Boilers
Power Burner Fired

PRODUCT DESCRIPTION

Rite Power Burner Fired Watertube Boilers are found at the heart of better engineered closed-loop heating systems all over North America. From conventional space heating to low temperature return systems to industrial process loads, Rite offers 47 basic models, ranging from 480 - 12,499 MBH input (11 - 300 Boiler Horsepower). These heavy duty, long lasting boilers have been providing heat to schools, commercial buildings, airports, dairies and the automotive industry (to name a few) – **Safely and reliably for nearly fifty years**.

So simple to maintain and operate, Rite Boilers feature **complete waterside access** so that virtually all scale and mud deposits can be seen and mechanically cleaned during a single scheduled maintenance shutdown. The result – **Better fuel efficiency and lower operating cost *over the life* of your boiler investment**. Consider a few of our other standard features: • Floating heads that eliminate pressure vessel cracks and broken welds caused by thermal stress cycling (backed by **Rite's 25 year Thermal Shock Warranty**). • Top supply and return water connections. • Rugged Heat Exchangers with minimal pressure drop at normal flow rates can also handle the boiler firing under no flow conditions. • Rite's bolted/gasketed headplates that virtually eliminate any possibility of hydraulic explosion in the event that safety devices fail – and you have a better boiler by design.

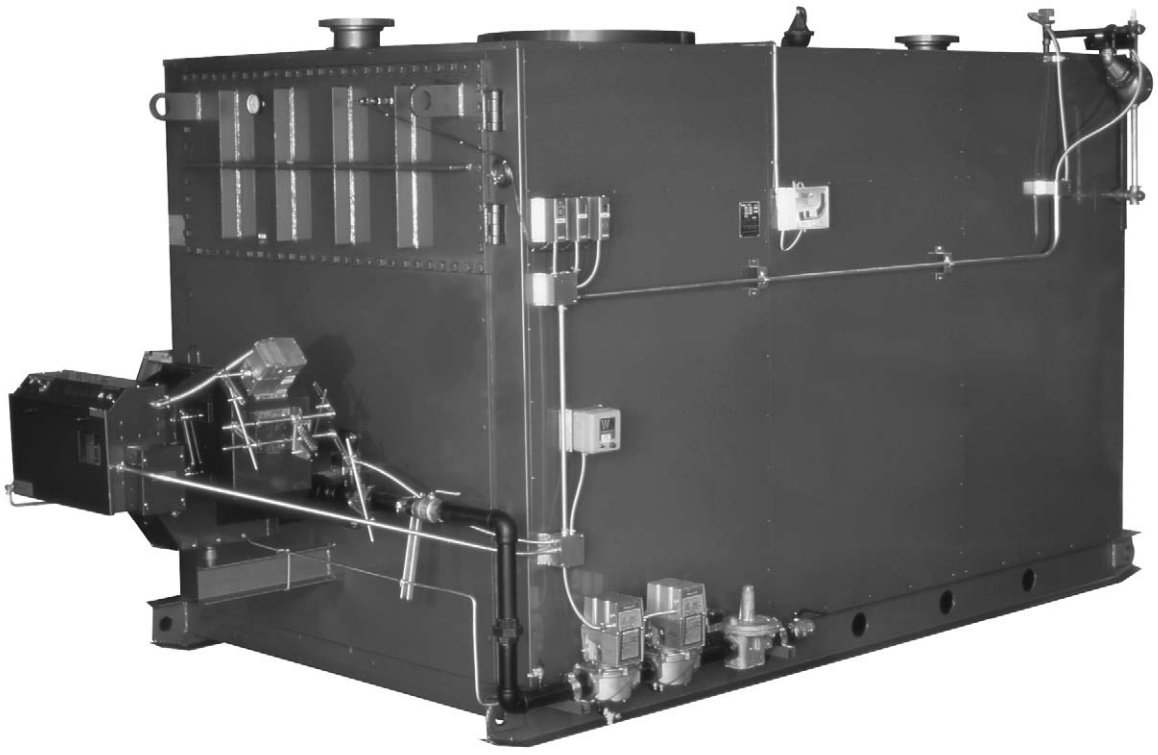
RITE POWER BURNER FEATURES

Rite Power Burner Fired Low Pressure Water Boilers must be specified when Low NOx emissions are required or fuels other than natural gas will be used. While Power Burners are more expensive and use more electrical power than atmospherics, they do have one advantage: by controlling the amount of air they use for combustion, Power Burners achieve higher combustion efficiencies than atmospherics – especially at less than full fire rate.

RITE POWER BURNER FIRED BOILERS vs. "FORCED DRAFT BOILERS"

Both use Power Burners to combust the fuel, but the similarities end there. Forced draft boilers require larger fan motors to "push" the products of combustion out a sealed combustion chamber and into a positive pressure stack. Should a leak develop in the combustion chamber or stack of a forced draft boiler – potentially toxic flue gasses could escape into the boiler room.

Rite Power Burner Fired Boilers use smaller fan motors to combust the fuel only. All Rite Boilers are designed to operate with negative pressure combustion chambers and stacks, which means flue gasses are ***safely*** under negative draft conditions from the time the fuel is burned until they exit the stack.



RITE **ENGINEERING & MFG. CORP. DOWNEY, CALIFORNIA 90242 PHONE 562-862-2135** FAX (562)861-9821
website: www.riteboiler.com
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125 PSI Water Heating Boilers
Models & Ratings/Power Burner Fired

STACK / DRAFT REQUIREMENTS

- UL listed for use with Type B Vent when power burner is for natural or L.P. gas fired only.
- Type 304 stainless steel lined stack is required when equipped with #2 oil or combination gas & #2 oil burner.
- Minimum stack height for natural or L.P. gas fired burners is 10 feet.
- Minimum height for #2 oil or combination gas & #2 oil fired boilers is 15 ft.
- The stack should be supported independently of the boiler and an adjustable length section of stack should be installed after the barometric damper to allow for future separation. All Rite Boilers have internal stack supports to handle the weight of the stack during installation.
- Power Burner fired boilers are supplied with a barometric damper (shipped loose) and a draft gauge (installed) to help set and maintain a draft between -.05" to -.09" W.C. for all fuels and firing rates.

AIR REQUIREMENTS

Adequate Combustion/Ventilation Air is vital for safe, efficient operation. Refer to the latest edition of the Uniform Mechanical Code or consult your local Building and Safety Department for specific requirements. **Warning: Do not install in a room that will develop negative pressure without utilizing a properly sized induced draft fan.**

ELECTRICAL REQUIREMENTS

- A single point 1 or 3 phase supply is required to the burner panel. See separate Burner Price Lists for standard electrical power requirements.

NATURAL GAS SUPPLY REQUIREMENTS

See Burner Data Sheets.

#2 OIL SUPPLY REQUIREMENT

- Supply to oil pump: minimum gravity flow to maximum 3 psi.

WATER TEMPERATURES & PRESSURE DROPS

- Minimum return water temperature is 135°F (after start-up). Lower temperature return factory options available.
- Maximum practical supply water temperature is 235°F. Higher temperature/pressure Rite Boilers are available (Section I Boilers).
- Pressure drop for all models is less than 3 feet of total head.

ELEVATION DERATION

Ratings given below are for elevations up to 2000 feet. Ratings should be reduced at the rate of 4% for every 1000 feet above 2000 feet.

B.T.U. FORMULA

- BTU Output @ 0-2000' elevation = 60 x 8.3 x △T x G.P.M.

BOILER MODEL	Input MBH	Nominal Output		Heating Surface Sq. Ft.	Water Content Gallons	G.P.M. 20°F Rise	G.P.H. 100°F Rise	Nominal Shipping Weight (lbs)
		MBH	Boiler Horsepower					
48 W*	480	384	11	49	21	38	465	1785
55 W*	550	440	13	56	23	44	535	2090
63 W*	630	506	15	63	24	51	615	2295
76 W*	760	608	18	75	27	61	740	2550
85 W*	850	680	20	88	40	69	830	2960
90 W*	900	720	21	88	40	72	875	2960
105 W*	1050	840	25	101	43	84	1015	3315
120 W*	1200	960	28	115	47	97	1165	3570
135 W*	1350	1080	32	131	50	110	1315	3825
150 W*	1500	1200	35	145	54	120	1460	4080
165 W*	1650	1320	39	159	57	135	1600	4335
180 W*	1800	1440	43	174	61	145	1750	4590
200 W*	2000	1600	47	192	66	160	1950	5100
A150 W*	1500	1200	35	160	71	120	1460	4080
A165 W*	1650	1320	39	168	75	135	1600	4335
A180 W*	1800	1440	43	190	79	145	1750	4590
A200 W*	2000	1600	47	205	83	160	1950	5100
225 W*	2250	1800	53	230	89	180	2190	5510
250 W*	2500	2000	59	252	94	200	2430	6020
275 W*	2750	2200	65	273	100	220	2670	6425
300 W*	3000	2400	71	295	105	240	2920	6835
325 W*	3250	2600	77	318	111	265	3160	7240
350 W*	3500	2800	83	340	116	285	3400	7650
375 W*	3750	3000	89	362	122	305	3650	8060
400 W*	4000	3200	95	383	127	325	3900	8670
425 W*	4250	3400	101	405	133	345	4140	9080
450 W*	4500	3600	107	428	139	365	4380	9490
475 W*	4750	3800	113	450	145	385	4630	9895
500 W*	5000	4000	119	473	151	405	4870	10405
550 W*	5500	4400	131	526	190	445	5370	11220
600 W*	6000	4800	143	574	213	485	5850	12040
A650 W*	6500	5200	155	622	240	520	6250	13000
A700 W*	7000	5600	167	670	255	560	6720	14580
A750 W*	7500	6000	180	722	270	600	7200	15350
A400 W*	4000	3200	95	390	160	325	3900	9180
A450 W*	4500	3600	107	440	180	365	4380	10000
A500 W*	5000	4000	119	486	195	405	4870	10810
A550 W*	5500	4400	131	535	215	445	5370	11620
A600 W*	6000	4800	143	584	235	485	5850	12440
650 W*	6500	5200	155	632	250	520	6250	13260
700 W*	7000	5600	167	680	275	560	6720	14070
750 W*	7500	6000	180	730	290	600	7200	14890
840 W*	8400	6700	200	800	320	650	7800	19890
940 W*	9400	7500	225	900	345	770	9270	20780
1050 W*	10500	8400	250	1000	370	810	9740	21420
1150 W*	11500	9200	275	1100	395	925	11000	22800
1250 W*	12499	9999	300	1200	420	1005	12100	24480

* Add **G** for natural gas or propane, **O** for #2 oil or **GO** for combination gas & #2 oil.

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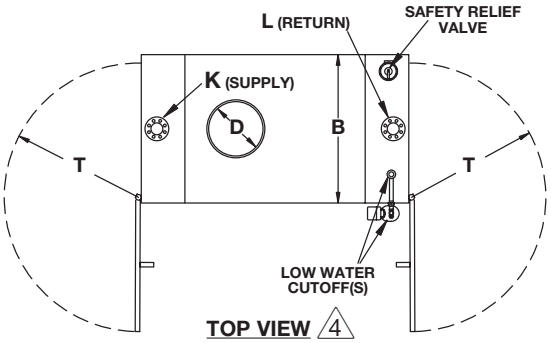
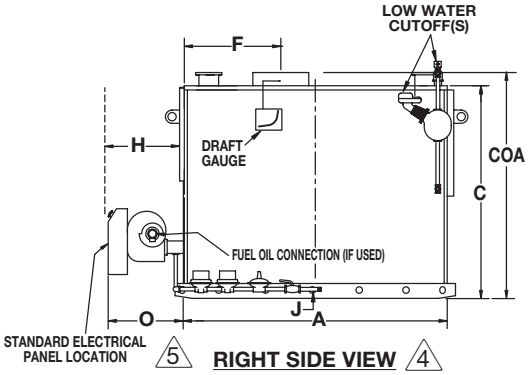
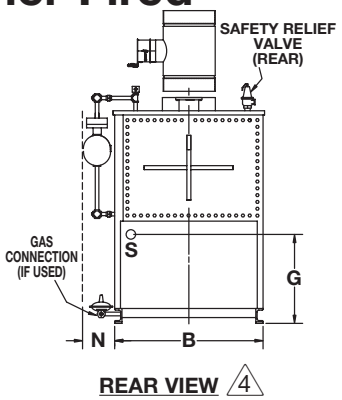
125 PSI Water Heating Boilers
Models & Dimensions/Power Burner Fired



TOP VIEW 4



5 RIGHT SIDE VIEW 4



REAR VIEW 4

- **DIMENSIONS ARE IN INCHES - SUBJECT TO PRODUCTION TOLERANCES AND CHANGE WITHOUT NOTICE. CERTIFIED DIMENSIONS AVAILABLE UPON REQUEST.**
- **BOILERS APPROVED FOR INSTALLATION ON NON - COMBUSTIBLE FLOORS ONLY.**

1 Barometric Damper will be shipped one size smaller than **D** dimension for stacks up to 25 feet of vertical height (as shown below in column **E**), full size (same as **D** dimension) for stacks 25 to 50 feet tall and one size larger for stacks over 50 feet tall. Barometric Damper Tee by others.

2 May vary-sizes shown are for UL gas trains at standard supply pressures. Gas connections can be male or female NPT. All other threaded connections are female NPT. except where noted.

3 Flanges are ANSI 150 lb. SA-105 raised face.

4 Standard right hand construction shown illustrated above. Left hand construction available at no extra charge.

5 Models 48-375 have **hinged burner doors** - **Do Not** stub electrical conduit up in front of door or run rigid conduit direct to the panel as this will prevent access to the combustion chamber.

BOILER MODEL	A	B	C	COA	D	E 1	F	G	H	J 2	K 3	L 3	N	O	S	T
	Length Jacket	Width Jacket	Height Flush	Height Overall	Stack Dia.	Draft Control	Stack Conn.		Tube Maint.	Gas Conn.	Water Supply	Water Return	Side Space	Power Burner	Drain	Head Swing
48 W *	40	33	54	58	10	9 BARO	15	32	40	3/4	2 MNPT	2 MNPT	10	26	1	20
55 W *	45	33	54	58	10	9 BARO	16	32	45	1	2 MNPT	2 MNPT	10	26	1	20
63 W *	50	33	54	58	10	9 BARO	18	32	50	1	2 MNPT	2 MNPT	10	26	1	20
76 W *	58	33	54	58	12	10 BARO	20	32	58	1	2 MNPT	2 MNPT	10	26	1	20
85 W *	46	39	68	72	12	10 BARO	18	39	46	1	3 FL	3 FL	12	26	1 1/4	26
90 W *	46	39	68	72	12	10 BARO	18	39	46	1	3 FL	3 FL	12	26	1 1/4	26
105 W *	52	39	68	72	12	10 BARO	20	39	52	1	3 FL	3 FL	12	26	1 1/4	26
120 W *	58	39	68	72	14	12 BARO	22	39	58	1 1/4	3 FL	3 FL	12	31	1 1/4	26
135 W *	64	39	68	72	14	12 BARO	24	39	64	1 1/4	3 FL	3 FL	12	31	1 1/4	26
150 W *	70	39	68	72	16	14 BARO	26	39	70	1 1/4	3 FL	3 FL	12	31	1 1/4	26
165 W *	76	39	68	72	16	14 BARO	28	39	76	1 1/4	3 FL	3 FL	12	31	1 1/4	26
180 W *	82	39	68	72	16	14 BARO	30	39	82	1 1/4	3 FL	3 FL	12	31	1 1/4	26
200 W *	90	39	68	72	18	16 BARO	33	39	90	1 1/2	3 FL	3 FL	12	31	1 1/4	26
A150 W *	55	46	72	76	16	14 BARO	20	40	55	1 1/4	4 FL	4 FL	14	31	1 1/2	34
A165 W *	59	46	72	76	16	14 BARO	21	40	59	1 1/2	4 FL	4 FL	14	31	1 1/2	34
A180 W *	65	46	72	76	16	14 BARO	22	40	65	1 1/2	4 FL	4 FL	14	31	1 1/2	34
A200 W *	69	46	72	76	18	16 BARO	23	40	69	1 1/2	4 FL	4 FL	14	31	1 1/2	34
225 W *	73	46	72	76	18	16 BARO	25	40	73	1 1/2	4 FL	4 FL	16	31	1 1/2	34
250 W *	79	46	72	76	20	18 BARO	27	40	79	2	4 FL	4 FL	16	35	1 1/2	34
275 W *	85	46	72	76	20	18 BARO	29	40	85	2	4 FL	4 FL	16	35	1 1/2	34
300 W *	91	46	72	76	20	18 BARO	31	40	91	2	4 FL	4 FL	16	35	1 1/2	34
325 W *	97	46	72	76	22	20 BARO	33	40	97	2	4 FL	4 FL	16	35	1 1/2	34
350 W *	103	46	72	76	22	20 BARO	35	40	103	2	4 FL	4 FL	16	35	1 1/2	34
375 W *	109	46	72	76	22	20 BARO	35	40	109	2	4 FL	4 FL	16	35	1 1/2	34
400 W *	82	57	83	87	24	20 BARO	28	46	82	2	4 FL	4 FL	16	35	2	44
425 W *	87	57	83	87	24	20 BARO	28	46	87	2	4 FL	4 FL	16	35	2	44
450 W *	91	57	83	87	26	24 BARO	31	46	91	2	4 FL	4 FL	16	35	2	44
475 W *	95	57	83	87	26	24 BARO	31	46	95	2	4 FL	4 FL	16	35	2	44
500 W *	100	57	83	87	26	24 BARO	34	46	100	2	4 FL	4 FL	16	35	2	44
550 W *	109	57	83	87	28	24 BARO	37	46	109	2 1/2	4 FL	4 FL	16	35	2	44
600 W *	118	57	83	87	28	24 BARO	40	46	118	2 1/2	4 FL	4 FL	16	35	2	44
A650 W *	129	57	83	87	28	24 BARO	45	46	129	2 1/2	5 FL	5 FL	16	35	2	44
A700 W *	138	57	83	87	28	24 BARO	48	46	138	2 1/2	5 FL	5 FL	16	35	2	44
A750 W *	147	57	83	87	30	28 BARO	51	46	147	2 1/2	5 FL	5 FL	16	35	2	44
A400 W *	79	67	83	87	22	20 BARO	29	46	79	2	4 FL	4 FL	16	35	2	56
A450 W *	87	67	83	87	24	20 BARO	32	46	87	2	4 FL	4 FL	16	35	2	56
A500 W *	95	67	83	87	26	24 BARO	34	46	95	2	4 FL	4 FL	16	35	2	56
A550 W *	102	67	83	87	26	24 BARO	37	46	102	2 1/2	4 FL	4 FL	16	35	2	56
A600 W *	109	67	83	87	28	24 BARO	39	46	109	2 1/2	4 FL	4 FL	16	35	2	56
650 W *	117	67	83	87	28	24 BARO	42	46	117	2 1/2	5 FL	5 FL	16	35	2	56
700 W *	124	67	83	87	28	24 BARO	44	46	124	2 1/2	5 FL	5 FL	16	35	2	56
750 W *	132	67	83	87	30	28 BARO	47	46	132	2 1/2	5 FL	5 FL	16	35	2	56
840 W *	116	82	91	95	30	28 BARO	43	54	116	2 1/2	6 FL	6 FL	18	42	2	69
940 W *	128	82	91	95	32	28 BARO	47	54	128	2 1/2	6 FL	6 FL	18	42	2	69
1050 W *	140	82	91	95	34	28 BARO	51	54	140	2 1/2	6 FL	6 FL	18	42	2	69
1150 W *	152	82	91	95	36	28 BARO	55	54	152	2 1/2	6 FL	6 FL	18	42	2	69
1250 W *	164	82	91	95	36	28 BARO	59	54	164	2 1/2	6 FL	6 FL	18	42	2	69

* Add **G** for natural gas or propane, **O** for #2 oil or **GO** for combination gas & #2 oil.

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125 PSI HOT WATER BOILERS /POWER BURNER FIRED
SPECIFICATION & ORDER FORM

Boiler Capacity
The Boiler shall be a Rite Model _____ Hot Water boiler with a capacity of _____ MBH input and a nominal output of _____MBH (_____Boiler Horsepower).

Pressure Vessel
The boiler shall be ASME Section IV stamped for 125 PSIG and registered with the National Board. It shall be of the inclined water tube design with 2" non-proprietary straight steel tubes (SA 178 Grade A, 13 Gauge) rolled between two headers (steel drums). Headers shall be free to expand and contract (no stay bolts shall be used) in order to reduce stresses caused by thermal shock.

Headers (Water Drums)
Both headers shall incorporate bolted-and-gasketed removable head-plates that will completely expose all waterside surfaces for inspection and cleaning when opened. Header flanges shall have drilled and tapped smooth surfaces for easy gasket clean-up and flange maintenance. Flange welded studs shall not be used. Supply and return water connections shall be located at the top of the boiler for ease of installation and maintenance. A flow vane shall insure return water is directed to the lower radiant tubes for improved heat transfer regardless of flow rate.

Water Trim
Standard water trim shall include safety relief valve(s) set at 125 psi (or less if specified) and a float type low water cutoff (manual reset) rated for a minimum of 125 psi service. A high limit (manual reset) and operating control shall prevent the boiler water temperature from exceeding 240°F. A pressure and temperature gauge shall be provided near the hot water outlet. An air elimination fitting shall be provided. A water flow switch is not required and the boiler shall be capable of firing and brought up to temperature with the system pump off without damaging the tubes or pressure vessel.

Warranty
The boiler shall carry a Twenty-Five year thermal shock warranty and a Twenty-Five year tube erosion warranty in addition to a standard parts and workmanship warranty.

Listings/Approvals
In addition to the ASME & National Board Certifications, the boiler shall meet the requirements of CSD-1. The boiler-burner package shall be U.L. listed and labeled with Gordon Piatt burners.

Stack Requirements
If gas fired (Natural or LP) the boiler shall be recognized as a Category 1 appliance and U.L. listed for use with Type B Gas Vent. If #2 oil fired, or combination gas and #2 oil fired , the boiler shall be recognized as a Category 3 appliance and the stack inner liner shall be stainless steel. All models shall be supplied with a barometric damper (shipped loose) and a draft gauge installed near the controls with the proper draft range shown in inches water column.

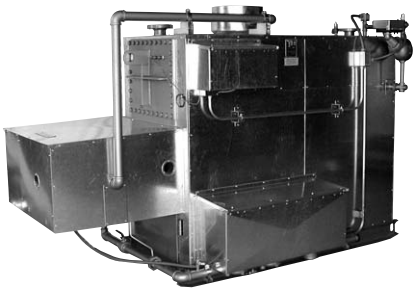
Burner
The burner shall be power type with a blower motor and have air-fuel adjustment throughout the firing range. It shall have a burner mounted panel to house all burner controls including a stepdown control transformer for all three phase burner motors and a manual potentimeter for modulating burners. The burner shall be U.L. and U.L.C. listed.

Flame Safeguard
The flame safeguard control shall incorporate E-PROM memory and be capable of incorporating a message center. Main Flame shall be supervised when inputs are over 2500 MBH.

Gas Train – if used
The gas train shall be completely piped and wired with a minimum of two main safety gas shutoff valves wired in series. It shall also include a main and pilot gas pressure regulator, each suitable to handle the specified maximum supply gas pressure. Valve leak test cocks shall be provided. High and low gas pressure switches shall be provided for inputs over 2500 MBH. A motorized main safety shutoff valve with proof of closure shall be provided for inputs over 5000 MBH.

Oil Piping – if used
The oil valve train shall consist of a minimum of two oil safety shutoff valves in series.

Electrical
The boiler/burner circuit shall require only one supply voltage and point of connection.



Rite also manufactures weatherproof power burner fired boilers (shown above).

Options
The following options shall also be required:

_____ Hinged Headplates (front & rear)
_____ Insulated Headplates (front & rear)
_____ 3 X 4 Handholes (front & rear)
_____ **F**actory **M**utual approvals
_____ **I**ndustrial **R**isk **I**nsured approvals
_____ Other (See corresponding Green Price List C for more options)

_____
_____
_____