



125 PSI Hot Water Boilers Atmospheric / Natural Gas Fired

PRODUCT DESCRIPTION

Rite Atmospheric Natural Gas Fired Watertube Boilers are found at the heart of better engineered closed-loop heating systems all over North America. From conventional space heating systems to heat pumps to industrial process loads, Rite offers 47 basic models, ranging from 480 to 12,499 MBH Input (11 - 300 Boiler Horsepower). These heavy duty, long lasting boilers have been providing heat to schools, churches, commercial buildings, metal finishers and silicone chip makers (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**). • Single Stacks on models to 7,500,000 BTUH input. • 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 eliminate any possibility of hydraulic explosion in the event that safety devices fail – and you have a better boiler by design.

RITE ATMOSPHERIC BURNER FEATURES

Rite Atmospheric Boilers are an excellent choice when: Low NOx emissions are not required, natural gas will be the only fuel used, the installation is indoors (See our line of weatherproof models for outdoor applications), and when lower combustion efficiencies at less than full firing rate are acceptable.

Atmospheric burners are far less expensive than power burners, so when the above criteria is met, then Atmospherics are a strong economical alternative to Rite's outstanding line of power burner fired water boilers. Other factors favoring Atmospherics are: • Extremely low electrical power consumption (no energy hogging fan motors) • Rapid start-up on demand (No pre-purge blower fan) • Lighter weight • Lower height • Whisper-quiet burner operation.





125 PSI Water Heating Boilers / Atmospheric Models & Ratings / Natural Gas Fired

STACK / DRAFT REQUIREMENTS

- UL listed for use with Type B Vent.
- Minimum stack height including Draft Control is 10 feet.
- The stack should be supported independently of the boiler and an adjustable length section of stack should be installed after the draft control to allow for future separation. All Rite Boilers have internal stack supports to handle the weight of the stack during installation.
- Boilers with barometric damper draft control should draft between -.05" to -.09" W.C. when firing. Boilers with draft diverters will draft between -.02" to -.04" W.C.
- A draft gauge is installed on all boilers equipped with barometric dampers to help set and maintain the draft.

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 120/60/1 8 AMP supply to the electrical panel.

NATURAL GAS SUPPLY REQUIREMENTS

- Models 48 W - 400 W 7" w.c. min. to 14" w.c. max. at flow.
- Models 425 W - 750 W 14" w.c. min. to 28" w.c. max. at flow.
- Models 840 W - 1250 W 28" w.c. min. to 10 psi max. at flow.
- For other gas pressures, consult your Rite Representative.

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 available.
- 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. Above 2000 feet, ratings should be reduced at the rate of 4% for every 1000 feet above sea level.

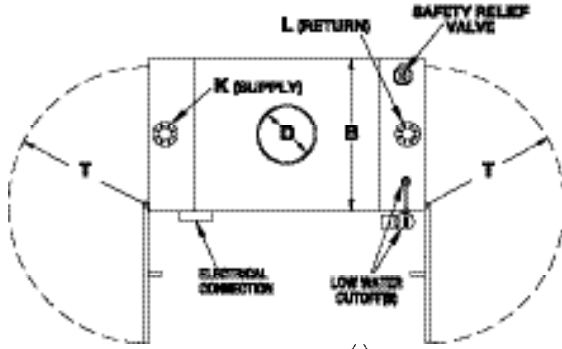
B.T.U. FORMULA

- BTU Output @ 0-2000' elevation = 60 x 8.3 x ΔT x G.P.M.

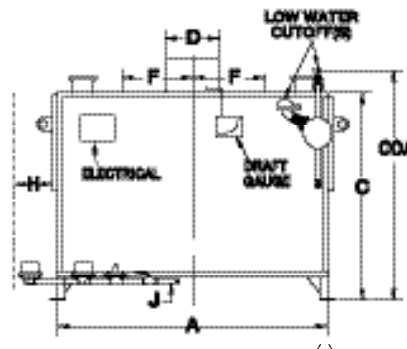
BOILER MODEL	Input MBH	Nominal Output		Heating Surface Sq. Ft.	Water Content Gallons	G.P.M. 20°F Rise	G.P.H. 100°F Rise	Nominal Shipping Weight (lbs)
		MBH	Boiler Horsepower					
48 W	480	384	11	49	21	38	465	1080
55 W	550	440	13	56	23	44	535	1285
63 W	630	506	15	63	24	51	615	1390
76 W	760	608	18	75	27	61	740	1530
A90 W	900	720	21	89	31	72	875	1700
85 W	850	680	20	88	40	69	830	1735
90 W	900	720	21	88	40	72	875	1735
105 W	1050	840	25	101	43	84	1015	1865
120 W	1200	960	28	115	47	97	1165	2000
135 W	1350	1080	32	131	50	110	1315	2140
150 W	1500	1200	35	145	54	120	1460	2265
165 W	1650	1320	39	159	57	135	1600	2400
180 W	1800	1440	43	174	61	145	1750	2510
200 W	2000	1600	47	192	66	160	1950	2700
A150 W	1500	1290	35	160	71	120	1460	2430
A165 W	1650	1320	39	168	75	135	1600	2550
A180 W	1800	1440	43	190	79	145	1750	2735
A200 W	2000	1600	47	205	83	160	1950	2960
225 W	2250	1800	53	230	89	180	2190	3160
250 W	2500	2000	59	252	94	200	2430	3365
275 W	2750	2200	65	273	100	220	2670	3590
300 W	3000	2400	71	295	105	240	2920	3815
325 W	3250	2600	77	318	111	265	3160	4040
350 W	3500	2800	83	340	116	285	3400	4265
375 W	3750	3000	89	362	122	305	3650	4490
400 W	4000	3200	95	383	127	325	3900	4715
425 W	4250	3400	101	405	133	345	4140	4940
450 W	4500	3600	107	428	139	365	4380	5160
475 W	4750	3800	113	450	145	385	4630	5385
500 W	5000	4000	119	473	151	405	4870	5610
550 W	5500	4400	131	526	190	445	5370	6120
600 W	6000	4800	143	574	213	485	5850	6630
A650 W	6500	5200	155	622	240	520	6250	7040
A700 W	7000	5600	167	670	255	560	6720	7550
A750 W	7500	6000	180	722	270	600	7200	8060
A400 W	4000	3200	95	390	160	325	3900	4900
A450 W	4500	3600	107	440	180	365	4380	5360
A500 W	5000	4000	119	486	195	405	4870	5815
A550 W	5500	4400	131	535	215	445	5370	6275
A600 W	6000	4800	143	584	235	485	5850	6760
650 W	6500	5200	155	632	250	520	6250	7245
700 W	7000	5600	167	680	275	560	6720	7750
750 W	7500	6000	180	730	290	600	7200	8240
840 W	8400	6700	200	800	320	650	7800	8670
940 W	9400	7500	225	900	345	770	9270	9280
1050 W	10500	8400	250	1000	370	810	9740	9945
1150 W	11500	9200	275	1100	395	925	11000	10500
1250 W	12499	9999	300	1200	420	1005	12100	11220



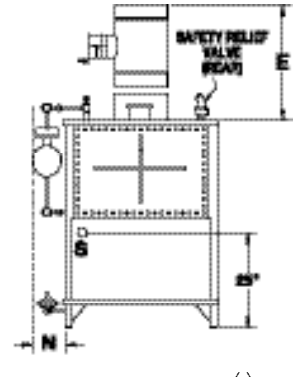
125 PSI Water Heating Boilers / Atmospheric Models & Dimensions / Natural Gas Fired



TOP VIEW \triangle



RIGHT SIDE VIEW \triangle



REAR VIEW \triangle

- 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.

- \triangle Draft Diverters are supplied standard on Models 48W-120W only. Barometric Dampers 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.
- \triangle May vary - sizes shown are for UL gas trains at standard supply pressures. Gas connections are male NPT pipe thread. All other threaded connections are female NPT except where noted.
- \triangle Flanges are ANSI 150 lb SA-105 raised face.
- \triangle Standard right hand construction shown illustrated above. Left hand construction available at no extra charge.

BOILER MODEL	A	B	C	COA	D	E \triangle	F	H	J \triangle	K \triangle	L \triangle	N	S	T
	Length Jacket	Width Jacket	Height Flush	Height Overall	Stack Dia.	Draft Control (Space Req'd.)	Twin Stacks	Tube Maint.	Gas Conn.	Water Supply	Water Return	Side Space	Drain	Head Swing
48 W	40	26	48	57	9	9 D.D. (33)	-	40	3/4	2 MNPT	2 MNPT	10	1	20
55 W	45	26	48	57	10	10 D.D. (34)	-	45	1	2 MNPT	2 MNPT	10	1	20
63 W	50	26	48	57	10	10 D.D. (34)	-	50	1	2 MNPT	2 MNPT	10	1	20
76 W	58	26	48	57	12	12 D.D. (36)	-	58	1	2 MNPT	2 MNPT	10	1	20
A90 W	68	26	48	57	12	12 D.D. (36)	-	68	1	2 MNPT	2 MNPT	10	1	20
85 W	46	32	52	61	12	12 D.D. (36)	-	46	1	3 FL	3 FL	12	1 1/4	26
90 W	46	32	52	61	12	12 D.D. (36)	-	46	1	3 FL	3 FL	12	1 1/4	26
105 W	52	32	52	61	14	14 D.D. (38)	-	52	1	3 FL	3 FL	12	1 1/4	26
120 W	58	32	52	61	14	14 D.D. (38)	-	58	1 1/4	3 FL	3 FL	12	1 1/4	26
135 W	64	32	52	61	14	12 BARO	-	64	1 1/4	3 FL	3 FL	12	1 1/4	26
150 W	70	32	52	61	14	12 BARO	-	70	1 1/4	3 FL	3 FL	12	1 1/4	26
165 W	76	32	52	61	14	12 BARO	-	76	1 1/4	3 FL	3 FL	12	1 1/4	26
180 W	82	32	52	61	16	14 BARO	-	82	1 1/4	3 FL	3 FL	12	1 1/4	26
200 W	90	32	52	61	16	14 BARO	-	90	1 1/2	3 FL	3 FL	12	1 1/4	26
A150 W	55	42	57	66	14	12 BARO	-	55	1 1/4	4 FL	4 FL	14	1 1/2	34
A165 W	59	42	57	66	14	12 BARO	-	59	1 1/2	4 FL	4 FL	14	1 1/2	34
A180 W	65	42	57	66	16	14 BARO	-	65	1 1/2	4 FL	4 FL	14	1 1/2	34
A200 W	69	42	57	66	16	14 BARO	-	69	1 1/2	4 FL	4 FL	14	1 1/2	34
225 W	73	42	57	66	18	16 BARO	-	73	1 1/2	4 FL	4 FL	16	1 1/2	34
250 W	79	42	57	66	18	16 BARO	-	79	2	4 FL	4 FL	16	1 1/2	34
275 W	85	42	57	66	18	16 BARO	-	85	2	4 FL	4 FL	16	1 1/2	34
300 W	91	42	57	66	20	18 BARO	-	91	2	4 FL	4 FL	16	1 1/2	34
325 W	97	42	57	66	20	18 BARO	-	97	2	4 FL	4 FL	16	1 1/2	34
350 W	103	42	57	66	20	18 BARO	-	103	2	4 FL	4 FL	16	1 1/2	34
375 W	109	42	57	66	20	18 BARO	-	109	2	4 FL	4 FL	16	1 1/2	34
400 W	115	42	57	66	22	20 BARO	-	115	2	4 FL	4 FL	16	1 1/2	34
425 W	121	42	57	66	22	20 BARO	-	121	2	4 FL	4 FL	16	1 1/2	34
450 W	127	42	59	68	22	20 BARO	-	127	2	4 FL	4 FL	16	1 1/2	34
475 W	133	42	59	68	24	20 BARO	-	133	2	4 FL	4 FL	16	1 1/2	34
500 W	139	42	59	68	24	20 BARO	-	139	2	4 FL	4 FL	16	1 1/2	34
550 W	109	51	64	73	26	24 BARO	-	109	2 1/2	4 FL	4 FL	16	2	44
600 W	118	51	64	73	26	24 BARO	-	118	2 1/2	4 FL	4 FL	16	2	44
A650 W	129	51	64	73	28	24 BARO	-	129	2 1/2	5 FL	5 FL	16	2	44
A700 W	138	51	64	73	28	24 BARO	-	138	2 1/2	5 FL	5 FL	16	2	44
A750 W	147	51	64	73	30	28 BARO	-	147	2 1/2	5 FL	5 FL	16	2	44
A400 W	79	63	63	72	22	20 BARO	-	79	2	4 FL	4 FL	16	2	56
A450 W	87	63	63	72	22	20 BARO	-	87	2	4 FL	4 FL	16	2	56
A500 W	95	63	63	72	24	20 BARO	-	95	2	4 FL	4 FL	16	2	56
A550 W	102	63	63	72	26	24 BARO	-	102	2 1/2	4 FL	4 FL	16	2	56
A600 W	109	63	63	72	26	24 BARO	-	109	2 1/2	4 FL	4 FL	16	2	56
650 W	117	63	63	72	28	24 BARO	-	117	2 1/2	5 FL	5 FL	16	2	56
700 W	124	63	63	72	28	24 BARO	-	124	2 1/2	5 FL	5 FL	16	2	56
750 W	132	63	63	72	30	28 BARO	-	132	2 1/2	5 FL	5 FL	16	2	56
840 W	115	77	63	72	(2) 24	(2) 20 BARO	23	115	2 1/2	6 FL	6 FL	18	2	69
940 W	128	77	63	72	(2) 24	(2) 20 BARO	26	128	2 1/2	6 FL	6 FL	18	2	69
1050 W	140	77	63	72	(2) 26	(2) 24 BARO	29	140	2 1/2	6 FL	6 FL	18	2	69
1150 W	152	77	63	72	(2) 26	(2) 24 BARO	32	152	2 1/2	6 FL	6 FL	18	2	69
1250 W	164	77	63	72	(2) 26	(2) 24 BARO	35	164	2 1/2	6 FL	6 FL	18	2	69



125 PSI HOT WATER BOILERS /ATMOSPHERIC NATURAL GAS 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 be UL Listed (ULC in Canada) and meet the latest requirements of CSD-1.

Stack Requirements

The boiler shall be recognized as Category 1 appliance and UL Listed for use with Type B Gas Vent. Models 48 W – 120 W shall be supplied with a draft hood. Models 135 W – 1250 W shall be supplied with barometric damper(s). Models supplied with barometric dampers shall have a draft gauge installed

near the controls with the proper draft range shown in inches water column.

Burner

The burner system shall consist of heavy-duty drilled port cast iron burners mounted on venturis and brass orifices with fixed openings. It shall have no air-fuel linkages or blower motor and only minor adjustments of the gas pressure regulator(s) shall be required for burner tune-ups. A spark ignited pilot burner using flame rectification shall light off the main burners. Access to the burner bed shall be through a removable firebox door with a built-in flame viewpoint.

Flame Safeguard

Standard Flame Safeguard shall be either Fireeye Micro M or Honeywell RM 7800 Series – both with integral E-PROM memory chip and capable of incorporating a message center. Main flame shall be supervised when inputs are over 2500 MBH.

Gas Train

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.

Electrical

A single point 120/60/1 8 AMP supply shall be required to operate the boiler.



Rite also manufactures weatherproof 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)
- _____ Factory Mutual approvals
- _____ Industrial Risk Insured approvals
- _____ Other (See corresponding Blue Price List A for more options)