



15 PSI Low Pressure Steam Boilers Atmospheric / Natural Gas Fired

PRODUCT DESCRIPTION

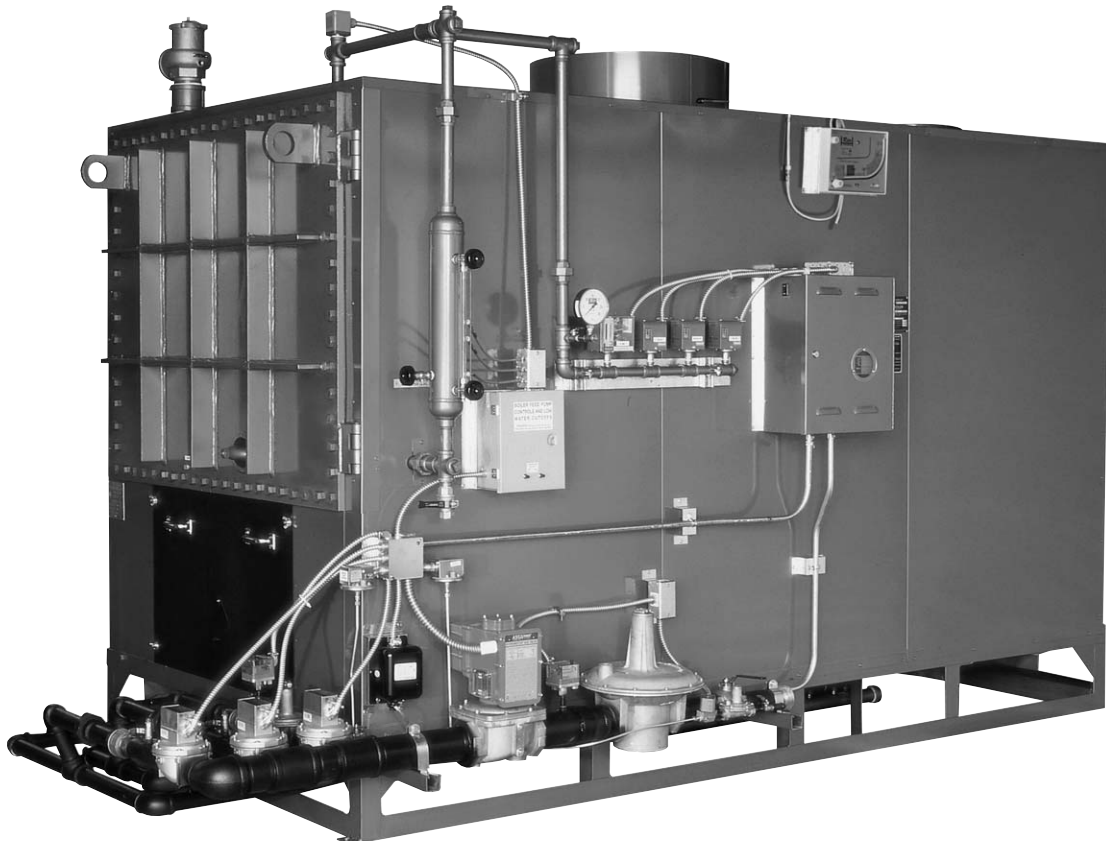
Rite Atmospheric Natural Gas Fired Low Pressure Steam Boilers have been providing our valued customers with high quality steam safely and reliably for over forty years. From autoclaves to humidifiers, bakeries to breweries - these heavy duty watertube steamers are available in 47 different models, ranging from 480 - 12,499 MBH input (11 - 300 Boiler Horsepower) for the widest selection possible.

So simple to maintain and operate, Rite Steam 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-to-steam efficiency and lower operating cost over the life of your boiler investment**. Consider a few of our other standard features: • Rite's floating heads that eliminate pressure vessel cracks and broken welds caused by thermal stress cycling (backed by our **25 Year Thermal Shock Warranty**) • Rite's "superheated" drying tubes that regularly boost steam quality at the nozzle into the 99%+ range • 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 steam 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.





Low Pressure Steam Boilers / Atmospheric 15 PSI 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 120/60/1 8 amp supply is required to boiler-burner circuit.
- Separate electrical supply may be required to operate boiler feed pump.

NATURAL GAS SUPPLY REQUIREMENTS

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

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.

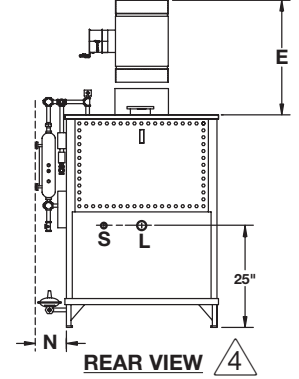
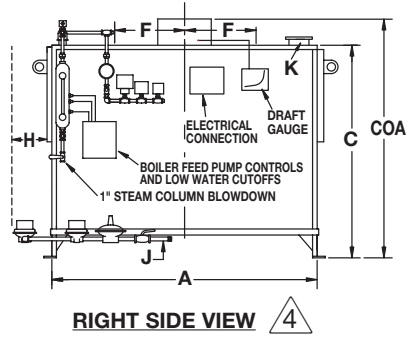
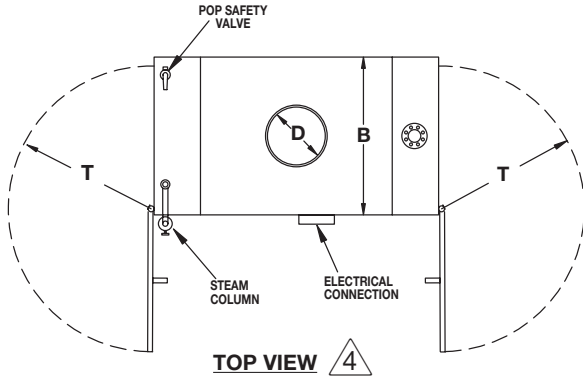
FEEDWATER SYSTEMS & BLOWDOWN TANKS

Rite manufactures a complete line of Condensate Return Feedwater Tanks and Blowdown Tanks for our Steam Boilers shown below.

BOILER MODEL	Input MBH	Nominal Output		Heating Surface Sq. Ft.	Flooded Water Content Gallons	Normal Water Level Content Gallons	Pounds of Steam per Hour @ 212°F	Nominal Shipping Weight (lbs)
		MBH	Boiler Horsepower					
48 S	480	384	11	49	35	25	395	1460
55 S	550	440	13	56	40	27	453	1520
63 S	630	506	15	63	45	29	519	1580
76 S	760	608	18	75	54	32	626	1650
85 S	850	680	20	88	61	49	700	2000
90 S	900	720	21	88	64	49	742	2000
105 S	1050	840	25	101	76	52	865	2200
120 S	1200	960	28	115	85	55	989	2400
135 S	1350	1080	32	131	97	58	1113	2600
150 S	1500	1200	35	145	105	60	1236	2800
165 S	1650	1320	39	159	118	64	1360	3000
180 S	1800	1440	43	174	130	68	1484	3200
200 S	2000	1600	47	192	140	74	1649	3400
A150 S	1500	1200	35	160	120	74	1236	2800
A165 S	1650	1320	39	168	128	78	1360	3000
A180 S	1800	1440	43	190	140	81	1484	3200
A200 S	2000	1600	47	205	150	84	1649	3400
225 S	2250	1800	53	230	162	87	1855	3600
250 S	2500	2000	59	252	180	92	2061	3850
275 S	2750	2200	65	273	196	96	2267	4100
300 S	3000	2400	71	295	215	100	2473	4350
325 S	3250	2600	77	318	234	105	2679	4600
350 S	3500	2800	83	340	251	110	2885	4850
375 S	3750	3000	89	362	268	115	3091	5100
400 S	4000	3200	95	383	287	125	3297	5400
425 S	4250	3400	101	405	304	129	3504	5700
450 S	4500	3600	107	428	322	132	3710	6000
475 S	4750	3800	113	450	337	135	3916	6300
500 S	5000	4000	119	473	352	140	4122	6600
550 S	5500	4400	131	526	370	147	4534	7200
600 S	6000	4800	143	574	387	158	4946	7800
A650 S	6500	5200	155	622	405	166	5359	8300
A700 S	7000	5600	167	670	430	174	5731	8850
A750 S	7500	6000	180	722	455	179	6183	9300
A400 S	4000	3200	95	390	300	165	3297	6500
A450 S	4500	3600	107	440	325	174	3710	7100
A500 S	5000	4000	119	486	345	183	4122	7700
A550 S	5500	4400	131	535	380	199	4534	8400
A600 S	6000	4800	143	584	405	207	4946	9000
650 S	6500	5200	155	632	425	215	5359	9600
700 S	7000	5600	167	680	450	223	5771	10200
750 S	7500	6000	180	730	470	232	6183	10800
840 S	8400	6700	200	800	490	399	6935	12000
940 S	9400	7500	225	900	515	419	7250	12700
1050 S	10500	8400	250	1000	540	439	8657	13300
1150 S	11500	9200	275	1100	565	459	9481	14200
1250 S	12499	9999	300	1200	590	480	10300	15000



Low Pressure Steam Boilers / Atmospheric 15 PSI Models & Dimensions / Natural Gas Fired



- 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.
- ⚠ Draft Diverters are supplied standard on Models 48S -120S 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.
- ⚠ 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.
- ⚠ Flanges are ANSI 150 lb SA-105 flat face.
- ⚠ Standard right hand construction shown illustrated above. Left hand construction available at no extra charge.

BOILER MODEL	A	B	C	COA	D	E ⚠	F	H	J ⚠	K ⚠	L	N	S	T
	Length Jacket	Width Jacket	Height Flush	Height Overall	Stack Dia.	Draft Control (Space Req'd.)	Twin Stacks	Tube Maint.	Gas Conn.	Steam Supply	Feed Water	Side Space	Blow Down	Head Swing
48 S	47	26	57	66	9	9 D.D. (33)	-	40	3/4	3 FL	1 1/4	10	1	20
55 S	52	26	57	66	10	10 D.D. (34)	-	45	1	3 FL	1 1/4	10	1	20
63 S	56	26	57	66	10	10 D.D. (34)	-	49	1	3 FL	1 1/4	10	1	20
76 S	64	26	57	66	12	12 D.D. (36)	-	57	1	3 FL	1 1/4	10	1	20
85 S	59	32	63	72	12	12 D.D. (36)	-	47	1	4 FL	1 1/2	12	1 1/4	26
90 S	59	32	63	72	12	12 D.D. (36)	-	47	1	4 FL	1 1/2	12	1 1/4	26
105 S	65	32	63	72	14	14 D.D. (38)	-	53	1	4 FL	1 1/2	12	1 1/4	26
120 S	71	32	63	72	14	14 D.D. (38)	-	59	1 1/4	4 FL	1 1/2	12	1 1/4	26
135 S	77	32	63	72	14	12 BARO	-	65	1 1/4	4 FL	1 1/2	12	1 1/4	26
150 S	83	32	63	72	14	12 BARO	-	71	1 1/4	4 FL	1 1/2	12	1 1/4	26
165 S	89	32	63	72	14	12 BARO	-	77	1 1/4	4 FL	1 1/2	12	1 1/4	26
180 S	96	32	63	72	16	14 BARO	-	84	1 1/4	4 FL	1 1/2	12	1 1/4	26
200 S	103	32	63	72	16	14 BARO	-	91	1 1/2	4 FL	1 1/2	12	1 1/4	26
A150 S	69	42	69	78	14	12 BARO	-	53	1 1/4	5 FL	2	14	1 1/2	34
A165 S	73	42	69	78	14	12 BARO	-	57	1 1/4	5 FL	2	14	1 1/2	34
A180 S	79	42	69	78	16	14 BARO	-	63	1 1/2	5 FL	2	14	1 1/2	34
A200 S	83	42	69	78	16	14 BARO	-	67	1 1/2	5 FL	2	14	1 1/2	34
225 S	87	42	69	78	18	16 BARO	-	71	1 1/2	5 FL	2	16	1 1/2	34
250 S	93	42	69	78	18	16 BARO	-	77	2	5 FL	2	16	1 1/2	34
275 S	99	42	69	78	18	16 BARO	-	83	2	5 FL	2	16	1 1/2	34
300 S	105	42	69	78	20	18 BARO	-	89	2	5 FL	2	16	1 1/2	34
325 S	111	42	69	78	20	18 BARO	-	95	2	5 FL	2	16	1 1/2	34
350 S	117	42	69	78	20	18 BARO	-	101	2	5 FL	2	16	1 1/2	34
375 S	123	42	69	78	20	18 BARO	-	107	2	5 FL	2	16	1 1/2	34
400 S	98	51	79	88	22	20 BARO	-	80	2	8 FL	2	16	2	45
425 S	103	51	79	88	22	20 BARO	-	85	2	8 FL	2	16	2	45
450 S	107	51	79	88	22	20 BARO	-	89	2	8 FL	2	16	2	45
475 S	111	51	79	88	24	20 BARO	-	93	2 1/2	8 FL	2	16	2	45
500 S	116	51	79	88	24	20 BARO	-	98	2 1/2	8 FL	2	16	2	45
550 S	125	51	79	88	26	24 BARO	-	107	2 1/2	8 FL	2	16	2	45
600 S	139	51	79	88	26	24 BARO	-	117	2 1/2	8 FL	2	16	2	45
A650 S	149	51	79	88	28	24 BARO	-	127	2 1/2	8 FL	2	16	2	45
A700 S	158	51	79	88	28	24 BARO	-	136	2 1/2	8 FL	2	16	2	45
A750 S	167	51	79	88	30	28 BARO	-	147	2 1/2	8 FL	2	16	2	45
A400 S	89	63	79	88	22	20 BARO	-	72	2	8 FL	2	16	2	56
A450 S	97	63	79	88	22	20 BARO	-	80	2	8 FL	2	16	2	56
A500 S	105	63	79	88	24	20 BARO	-	88	2 1/2	8 FL	2	16	2	56
A550 S	119	63	79	88	26	24 BARO	-	102	2 1/2	8 FL	2	16	2	56
A600 S	126	63	79	88	26	24 BARO	-	109	2 1/2	8 FL	2	16	2	56
650 S	134	63	79	88	28	24 BARO	-	117	2 1/2	8 FL	2	16	2	56
700 S	141	63	79	88	28	24 BARO	-	124	2 1/2	8 FL	2	16	2	56
750 S	149	63	79	88	30	28 BARO	-	132	2 1/2	8 FL	2	16	2	56
840 S	138	77	79	88	(2) 24	(2) 20 BARO	23	116	2 1/2	10 FL	2	18	2	69
940 S	150	77	79	88	(2) 24	(2) 20 BARO	26	128	2 1/2	10 FL	2	18	2	69
1050 S	162	77	79	88	(2) 26	(2) 24 BARO	29	140	2 1/2	12 FL	2	18	2	69
1150 S	174	77	79	88	(2) 26	(2) 24 BARO	32	152	2 1/2	12 FL	2	18	2	69
1250 S	186	77	79	88	(2) 26	(2) 24 BARO	35	164	2 1/2	12 FL	2	18	2	69



15 PSI LOW PRESSURE STEAM BOILERS /ATMOSPHERIC NATURAL GAS FIRED SPECIFICATION & ORDER FORM

Boiler Capacity

The Boiler shall be a Rite Model _____ Low Pressure Steam 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 15 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 (Steam 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.

Steam Quality

High steam quality - at or near 99% at the outlet nozzle - shall be attained by passing wet saturated steam through a final pass of superheated drying tubes.

Steam Trim

Standard steam trim shall include pop safety valve(s) set for 15 PSI and a separate steam column with blowdown valve, trycock, gauge glass and probes for feedwater pump control and a secondary (manual reset) low water cutoff. Controls mounted in siphon loop piping on the side of the boiler shall include a high limit, operator and a 0 - 30 PSI pressure gauge. A probe mounted into the front header drum shall function as the primary (auto reset) low water cutoff. A NEMA 1 hinged panel on the side of the boiler shall house the pump controls and both low water cutoff relays. It shall have flush mounted push buttons to test and reset the secondary low water cutoff. The panel shall be labeled and have a complete wiring diagram of its components mounted inside the cover.

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.



Rite manufactures a complete line of condensate return feedwater systems and blowdown tanks compatible with Rite Steam Boilers



Stack Requirements

The boiler shall be recognized as Category 1 appliance and UL Listed for use with Type B Gas Vent. Models 48 S - 120 S shall be supplied with a draft hood. Models 135 S - 1250 S 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 120/60/1 8 amp supply is required for boiler-burner circuit. A separate supply may be required to operate the boiler feed pump.

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 Pink Price List B for more options)
