



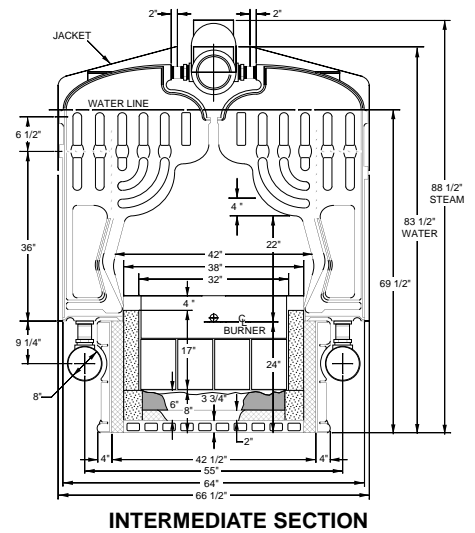
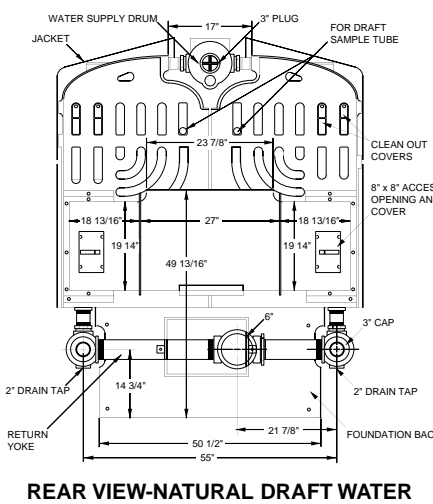
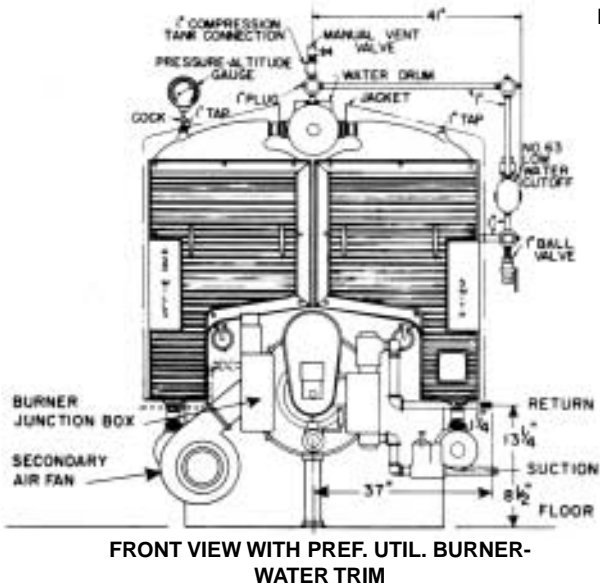
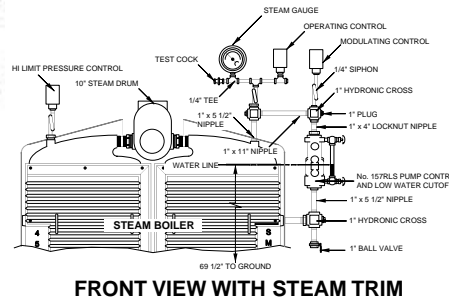
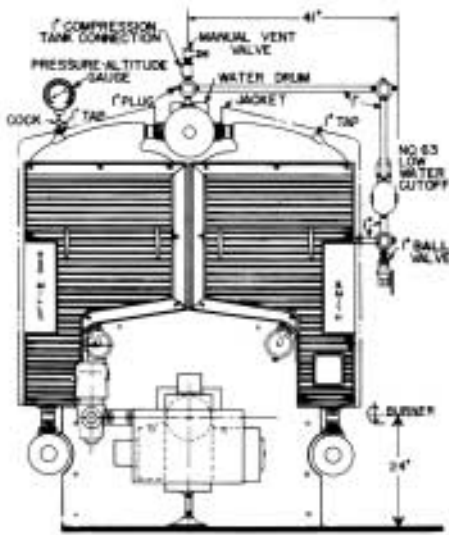
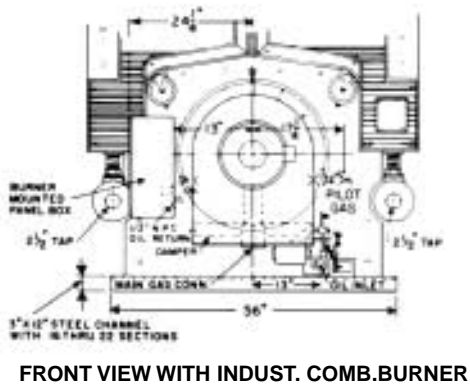
**Smith**  
CAST IRON



# Mills 4500A

OIL, GAS OR COMBINATION GAS/OIL  
COMMERCIAL BOILER/BURNER



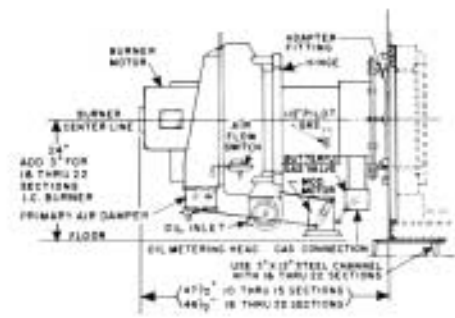


### I=B=R Ratings, Burner Capacities, Draft and Chimney Data

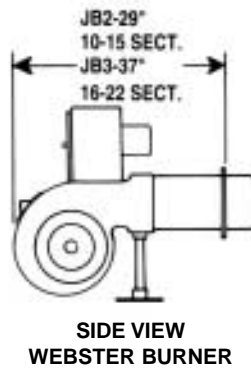
BOILER MODEL NUMBER	Boiler Horse-power	I = B = R Gross Output (MBH)	NET I=B=R RATINGS			I=B=R Burner Capacity		I=B=R Combustion Efficiency (%)		Draft Requirements (Inches, W.C.)			Natural Draft Chimney		Outlet Adapters (Inches)			Induced Draft Fan Capacity (Auburn Axial & Auburn) (Note 7)
			Steam		Water	Oil	Gas	Oil	Gas	Draft Over Fire	Draft Loss	Draft Total	Size (Inches)	Height (Feet)	N	O	P	
			Sq. Ft.	MBH (Note 2)	MBH (Note 3)	Oil	Gas	GPH (Note 4)	Gas MBH	Oil	Gas	Oil	Gas					
†4500A-▲-10	92.0	3080	9963	2391	2678	27.0	3920	84.6	82.1	.10	.18	.28	20x24	37	19	19	4 1/2	1440
†4500A-▲-11	103.6	3467	11217	2692	3015	30.5	4404	84.3	81.8	.10	.22	.32	24x24	46	19	19	4 1/2	1626
†4500A-▲-12	115.1	3853	12463	2991	3350	34.0	4888	84.1	81.6	.10	.26	.36	24x24	56	19	19	4 1/2	1812
†4500A-▲-13	126.7	4240	13717	3292	3687	37.0	5372	83.9	81.4	.10	.30	.40	24x28	63	-	-	-	1972
†4500A-▲-14	138.2	4627	14967	3592	4023	40.5	5856	83.8	81.3	.10	.34	.44	24x28	72	-	-	-	2159
†4500A-▲-15	149.8	5014	16221	3893	4360	44.0	6341	83.7	81.1	.10	.38	.48	24x28	82	-	-	-	2345
†4500A-▲-16	161.3	5400	17471	4193	4696	47.5	6825	83.5	81.0	.10	.42	.52	28x28	91	24	24	14	2532
†4500A-▲-17	172.9	5787	18721	4493	5032	51.0	7309	83.5	80.9	.10	.46	.56	28x28	98	24	24	14	2718
†4500A-▲-18	184.4	6174	19971	4793	5369	54.0	7793	83.4	80.9	.10	.50	.60	28x28	106	24	24	14	2878
†4500A-▲-19	196.0	6560	21221	5093	5704	57.0	8277	83.3	80.8	.10	.54	.64	30x30	115	24	24	14	3038
†4500A-▲-20	207.5	6947	22475	5394	6041	61.0	8761	83.2	80.7	.10	.58	.68	30x30	123	24	24	14	3251
†4500A-▲-21	219.1	7334	23725	5694	6377	64.0	9246	83.2	80.7	.10	.63	.73	30x36	134	24	24	14	3411
†4500A-▲-22	230.6	7720	24975	5994	6713	67.0	9730	83.2	80.6	.10	.67	.77	30x36	140	24	24	14	3571

† Insert "LO" for Light Oil, "G" for Gas, "GLO" for Gas-Light Oil Combination, GHO for Gas-Heavy Oil Combination.  
 ▲ Insert "S" for Steam, "W" for Water. Example: HO4500A-S-10 is a 10 section Mills boiler for steam, using heavy oil.  
 Note 2 Net I=B=R Steam ratings shown are based on piping and pick-up allowances of 1.288  
 Note 3 Net I=B=R Water Ratings shown are based on an allowance of 1.15.  
 Note 4 Light Oil having a heat content of 140,000 Btu/Gal.

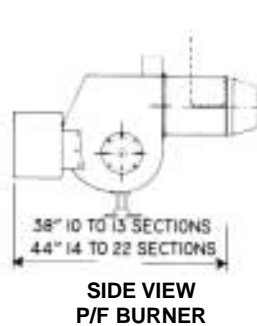
# MILLS 4500A BOILER-BURNER UNIT



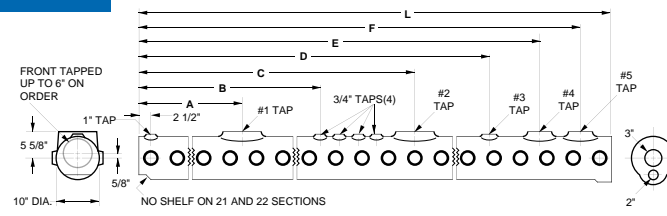
**SIDE VIEW WITH INDUST. COMBUSTION BURNER**



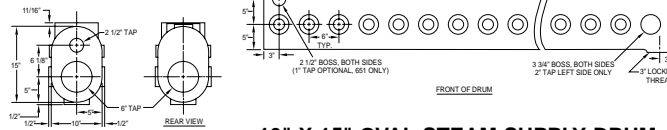
**SIDE VIEW WEBSTER BURNER**



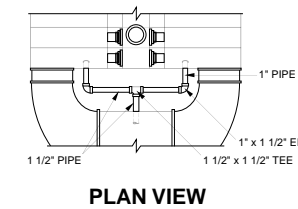
**SIDE VIEW P/F BURNER**



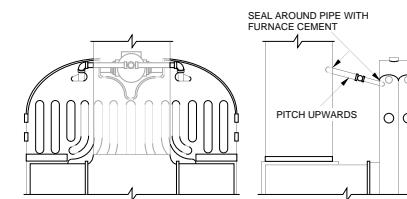
**WATER SUPPLY DRUM**



**10" X 15" OVAL STEAM SUPPLY DRUM**

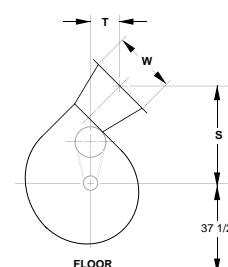


**PLAN VIEW**

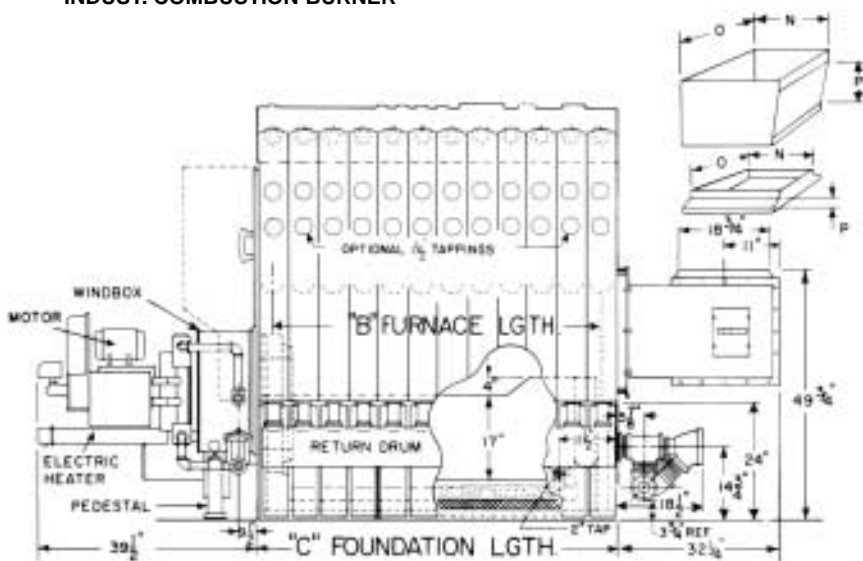


**REAR VIEW**

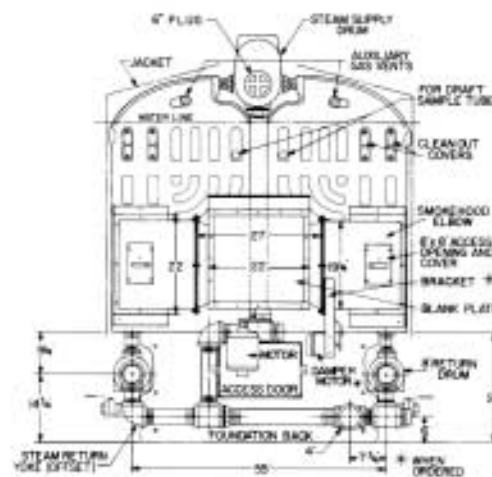
**AUXILIARY FLUE GAS VENT FOR GAS FIRED BOILERS**



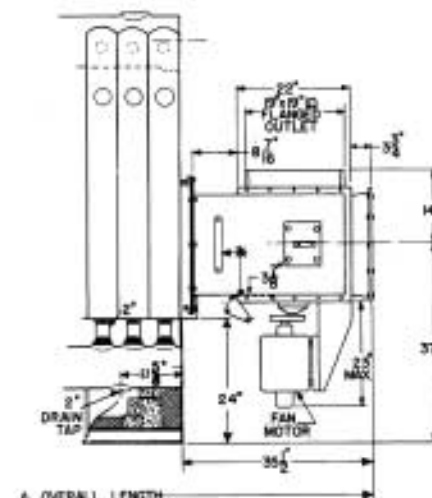
**TOP VERTICAL DISCHARGE**  
**Clockwise Rotation**  
View from back of boiler  
(Opposite hand from view above for counter clockwise rotation)  
**OPTIONAL DISCHARGE POSITIONS AUBURN FAN**



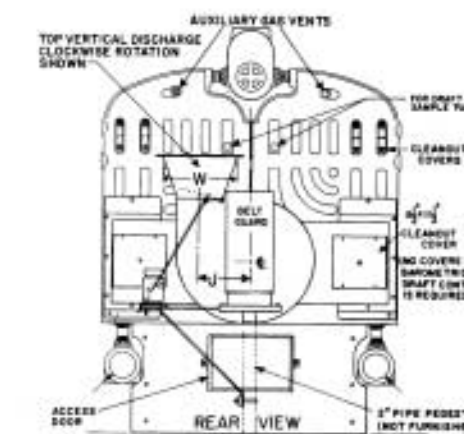
**SIDE VIEW- NATURAL DRAFT-WATER WITH PREF. UTIL. BURNER**



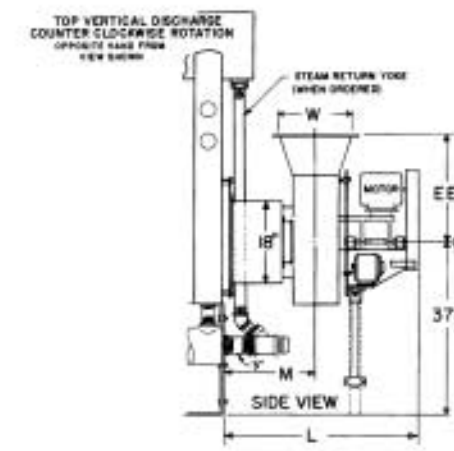
**REAR VIEW AUBURN AXIAL FAN**



**SIDE VIEW AUBURN AXIAL FAN**



**REAR VIEW AUBURN FAN-STEAM**



**SIDE VIEW AUBURN FAN**

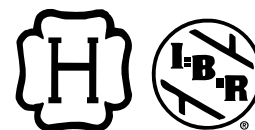
Dimensions in Inches							
Boiler No.	J	L	M	S	T	W	EE
4500A-10 - 13	11 3/8	42	20	22 7/8	7	16	21
4500A-14 - 22	13 1/4	46 1/4	21	27	8 3/8	18	25

Designed and tested according to the A.S.M.E. boiler and pressure vessel code. Section IV for maximum allowable working pressure. Steam 15 lbs. Water 40 lbs. For 80 psi working pressure consult Smith.

Induced Draft Fan Catalog Number (Note 5)		Induced Draft Chimney, Inside Dimensions			Heating Surface (Sq. Ft.)	Furnace Volume (Cu. Ft.) (Note 6)	Water Content (Gallons)	
		Metal Flue Pipe or Smooth Lined Masonry (In.)					Steam	Water
		Round (I.D.)	Rectangular					
Auburn Axial Fan to Fit Smokehood	Auburn Fan and Smokehood to Fit Boiler	Minimum	Optimum					
45B-75	16B50	17-20	16x15	18x18	411.1	46.11	149 1/2	225 1/2
45B-100	16B75	18-21	17x16	19x19	454.4	51.87	162 1/2	246 1/2
45B-100	16B75	19-22	17x17	20x20	497.0	57.62	175 1/2	266 1/2
45B-150	16B75	19-23	18x17	22x20	540.3	63.38	188 1/2	286 1/2
45B-150	18B1.0	20-24	19x18	22x22	581.9	69.14	201 1/2	306 1/2
45B-200	18B1.0	21-25	19x19	24x22	626.1	74.89	214 1/2	326 1/2
45B-200	18B1.0	21-25	20x19	24x22	668.7	80.65	227 1/2	347 1/2
45B-300	18B1.5	22-26	22x19	24x24	712.0	86.41	240 1/2	368 1/2
NA	18B1.5	22-26	22x19	24x24	754.6	92.17	253 1/2	388 1/2
NA	18B2.0	23-27	22x20	26x24	797.2	97.92	266 1/2	408 1/2
NA	18B2.0	23-28	22x21	28x24	839.8	103.68	279 1/2	429 1/2
NA	18B3.0	24-28	22x22	28x24	883.1	109.44	292 1/2	449 1/2
NA	18B3.0	24-29	22x22	30x24	926.4	115.19	305 1/2	469 1/2

Note 5 The induced draft fan selections listed are based on a chimney capable of offsetting the friction in the fan discharge connection.  
 Note 6 Including combustion chamber.  
 Note 7 Light Oil figures shown based on multiplier of 53.3 CFM/GPH. For Heavy Oil, use a multiplier of 60x firing rate. For natural gas firing use a multiplier of .472 CFM/MBH input.

**I=B=R Ratings: Gross Output**  
**3,080 to 7,720 MBH**



## Dimensions, Electrical Requirements - Boiler-Burner Model 4500A

Furnace Lgth. (In.)	Foundation Lgth. (In.)	Water Supply Drum																Steam Supply Drum								I.C. Electrical Requirements				Perf. Electrical Requirements			Power Flame Elect. Require.		Webster Electrical Requirements				Induced Draft Fan Motor (HP)	
		Tapping Size (Inches)				Tapping Location (Inches)				Tapping Size (Inches)				Tapping Location (Inches)				Burner Model	Horsepower		Aux. Oil Heater	Burner Model	Horsepower		Burner Model	Net H.P.	Burner Model	Horsepower		Burner Model	Pump Motor	Comp. Motor	Oil Heater	Auburn Axial	Auburn					
B	C	1	2	3	4	5	A	B	C	D	E	F	L	A	B	C	D		E	F			G	L				Blower Motor	Metering Pump							Air Comp.	Burner Model	Burner Motor	Second. Air Fan	Burner Model
54	60	-	5	-	-	3	-	18 1/2	38 1/2	-	-	52 1/2	59 1/2	-	-	-	-	30 1/2	-	67 1/2	D-42	3	1/2	2	3	X*-26	2	1 1/2	2	C-3	2	JB2-15	1.5	1/2	1	4	3/4	1/2		
60	66	-	6	-	-	4	-	24 1/2	44 1/2	-	-	56 1/2	65 1/2	-	-	-	-	36 1/2	-	73 1/2	D-42	3	1/2	2	3	X*-29	2	1 1/2	2	C-3	2	JB2-20	2.0	1/2	2	4	1	3/4		
66	72	-	6	-	-	4	-	24 1/2	44 1/2	-	-	62 1/2	71 1/2	-	-	-	-	42 1/2	-	79 1/2	D-54	3	1/2	2	3	X*-32	2	1 1/2	2	C-3	2	JB2-30	3.0	1/2	2	4	1	3/4		
72	78	-	6	2	-	4	-	30 1/2	50 1/2	59 1/2	-	68 1/2	77 1/2	-	-	-	-	42 1/2	-	85 1/2	D-54	3	1/2	2	3	X*-35	2	1 1/2	2	C-4	3 1/2	JB2-30	3.0	1/2	2	4	1 1/2	3/4		
78	84	-	6	2	2	4	-	24 1/2	44 1/2	56 1/2	65 1/2	74 1/2	83 1/2	6	-	-	24	-	48 1/2	-	91 1/2	D-63	5	1/2	3	3	X*-38	3	1 1/2	3	C-4	3 1/2	JB2-30	3.0	1/2	2	5	1 1/2	1	
84	90	6	6	2	2	4	23 1/2	30 1/2	50 1/2	62 1/2	71 1/2	80 1/2	89 1/2	6	-	-	24	-	54 1/2	-	97 1/2	D-63	5	1/2	3	3	X*-41	3	2	3	C-4	3 1/2	JB2-50	5.0	1/2	2	5	2	1	
90	96	6	6	2	4	2	32 1/2	42 1/2	62 1/2	71 1/2	80 1/2	89 1/2	95 1/2	6	-	-	24	-	54 1/2	-	103 1/2	D-84	5	1/2	3	3	X*-44	3	2	3	C-4	3 1/2	JB2-50	5.0	1/2	2	5	2	1	
96	102	6	6	2	4	2	32 1/2	48 1/2	68 1/2	77 1/2	86 1/2	95 1/2	101 1/2	6	-	-	24	-	60 1/2	-	109 1/2	D-84	5	1/2	3	5	X*-47	3	2	3	C-5	5 1/2	JB2-50	5.0	1/2	2	5	3	1 1/2	
102	108	6	6	2	4	2	32 1/2	48 1/2	68 1/2	80 1/2	92 1/2	101 1/2	107 1/2	6	6	-	24	48	66 1/2	-	115 1/2	D-84	5	1/2	3	5	X*-50	3	2	4	C-5	5 1/2	JB2-50	5.0	1/2	2	5	-	1 1/2	
108	114	6	6	2	4	2	32 1/2	54 1/2	74 1/2	86 1/2	98 1/2	107 1/2	13 1/2	6	6	2	24	48	67 1/2	79 1/2	121 1/2	D-84	5	1/2	3	5	X*-53	3	2	4	C-5	5 1/2	JB2-50	5.0	1/2	2	5	-	2	
114	120	6	6	2	4	3	32 1/2	54 1/2	74 1/2	91 1/2	103 1/2	112 1/2	119 1/2	6	6	2	24	48	73 1/2	85 1/2	127 1/2	D-84	5	1/2	3	5	X*-56	5	5	4	C-5	5 1/2	JB3-75	7.5	1/2	2	6	-	2	
120	126	6	6	2	4	3	50 1/2	60 1/2	80 1/2	97 1/2	109 1/2	118 1/2	125 1/2	6	6	2	24	48	79 1/2	91 1/2	133 1/2	D-405	7 1/2	1/2	3	5	X*-59	5	5	4	C-5	5 1/2	JB3-75	7.5	1/2	2	6	-	3	
126	132	6	6	2	4	3	56 1/2	66 1/2	80 1/2	103 1/2	115 1/2	124 1/2	131 1/2	6	6	2	24	48	85 1/2	97 1/2	139 1/2	D-405	7 1/2	1/2	3	5	X*-62	5	5	4	C-5	5 1/2	JB3-75	7.5	1/2	2	6	-	3	

The manufacturer should be consulted before selecting a boiler for installations having unusual piping and pick-up requirements, such as intermittent system operation, extensive piping, etc.  
 With modern fast steaming boilers, careful consideration of the provisions for make-up water must be given to insure successful operation. Consult factory representative for details.  
 †† 3/4 H.P. for remote pump set for oil and gas/oil burners only.  
 \* Insert "H" for Heavy oil. Example: XH-26  
 \*\* Compressor motor and oil heater used for 4, 5 or 6 oil units only.  
 Note: Dimensions are approximate and should not be used to "rough-in" equipment.

## STANDARD EQUIPMENT

---

### Boiler

- 4500A Mills header-type cast iron sectional boiler
- Foundation front plate, with observation ports, ready to receive burner.
- Insulated metal jacket.

### Burner

- Choice of Preferred Utilities Injectaire, Industrial Combustion Model D or Webster Model JB forced draft burners for all grades of fuel oil, gas or combination gas/oil, or Powerflame Model C pressure atomizing burners for light oil, gas or combination gas/light oil.

### Water Boilers

- 80 psi working pressure
- Manual reset high limit temperature control.
- Operating temperature control.
- Firing rate control.
- Pressure altitude gauge.
- 4 1/2" remote reading dial-thermometer.
- A.S.M.E. relief valve set at 40 psi.
- Dip tube, air removal fittings and manual vent valve.
- Low water cutoff with precut ferrous pipe and necessary fittings.
- Precast combustion chamber, precut block insulation, vent tile, and refractory pellets.
- Flexible return yoke.
- Two 1 1/2" brass ball-type drain valves.
- Programming-type flame safeguard control, motor starters, low fire start relay (oil) service switch, two pilot lights (power and main fuel), and terminal strip for easy field wiring.
- Control panel location and type varies with burner selected and components chosen.

### Steam Boilers

- Manual reset high limit pressure control.
- Operating pressure control.
- Firing rate control.
- Pipe tree with syphon for controls.
- Pressure gauge with syphon (0-15 psi).
- A.S.M.E. side outlet safety valve (15 psi).
- Combination water column-type pump controller and low water cutoff with precut ferrous piping and necessary fittings.

## OPTIONAL EQUIPMENT

---

### Induced Draft Fans

- Auburn or Auburn Axial.
- Shutter dampers for sequence draft control.
- Field Barometric draft control.

### Burner

- Comply with insurance code requirements, F.M., I.R.I., etc., state and utility codes. (See back page for details.)
- Alarm bell (4") with silencing button and relay.
- Cabinet latch with lock and key.
- Control transformer.
- Additional alarm relays.
  1. Flame failure.
  2. Low water
  3. High pressure.
  4. High temperature.
  5. Excess smoke (with test switch).
- Protruding circuit breakers.
- Lead/lag for up to 4 boiler operation.
- Automatic fuel changeover (Gas/Oil).
- Second solenoid oil valve.

### Water Boilers

- A.S.M.E. relief valve with other than 40 psi setting.
- Low water cutoff for over 50 Lbs. operation.
- Low water cutoff with line voltage alarm switch.
- Low water cutoff with manual reset.
- 6" tapping in supply header with flange for tankless heater
- Flow switch.

### Steam Boilers

- Combination low water cutoff and feeder.
- Cast iron water column in lieu of combination water column-type pump controller and low water cutoff.
- High water level cutoff with precut pipe and fittings.
- 8" pressure gauge.
- 8" compound gauge.



## Scientifically Matched Boiler Burner Unit

Every detail of the 4500A Boiler Burner unit for oil and gas is the result of years of research and development. The boiler, the burner, the draft system, the control system, and the combustion chamber are completely compatible. The 4500A offers a choice of four burners from top manufacturers, each tailored for maximum efficiency and tested and listed by I.B.R. Single source responsibility can be assured, whether your fuel choice be #2 thru #6 oil or gas. Each unit is backed by factory service technicians from a factory service force formed in 1960. A wide variety of control panel options, draft systems and I.D. fans can be tailored for most any need, no other cast iron boiler company can offer you all these features.

## Header Type Construction

Mills boilers are independent header type sectional boilers. Each section is, in reality, an individual boiler connected to supply and return headers. Should some accident, such as low water, cause a section to break, it may be disconnected in a few minutes time without interruption of service and may be replaced when convenient.

## Standard Electrical Characteristics

### **Motors**

- 3 phase, 208 volt, 60 Hz;
- 3 phase, 230 volt, 60 Hz;
- 3 phase, 460 volt, 60 Hz.

### **Control Circuit**

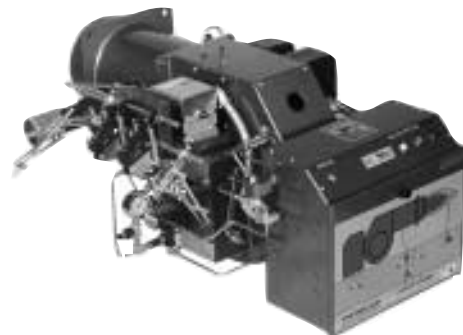
- 1 phase, 115 volt, 60 Hz

### **Oil Heater (when used)**

- 1 phase, 230 volt, 60 Hz.



**I.C. MODEL D**  
#2 - #6 Oil, Gas, or  
Combination



**POWERFLAME MODEL C**  
#2 Oil, Gas, or  
Combination

*In the interest of product improvement,  
Smith reserves the right to make changes without notice.*



Westcast, Inc. 260 North Elm Street • Westfield, MA 01085

Tel: (413) 562-9631 • FAX (413) 562-3799

[www.smithboiler.com](http://www.smithboiler.com)