

SERIES 28A

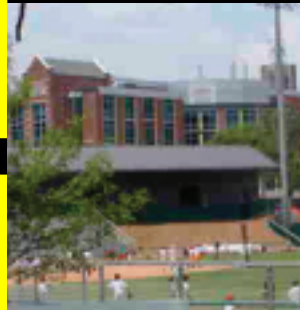
Smith

Boilers

series 28A

Boilers

**Smith**  
CAST IRON BOILERS



LIGHT OIL, GAS OR COMBINATION  
GAS/LIGHT OIL PRESSURIZED,  
WET BASE BOILER/BURNER

**THE HEATING Pros**



# series 28A

## STANDARD EQUIPMENT

### All Boilers

- Cast iron wet-base sections
- Insulated metal jacket
- Cast iron smokehood with integral damper
- Burner mounting plate with insulation block
- Front and rear flame observation ports
- Steel angle floor rails
- Ceramic fiber rope seal between sections
- Graphite port connectors
- Flue brush

### Water Boilers

- 80 psi working pressure sections
- ASME relief valve, 40 psi
- Theraltimeter
- Manual reset, Hi-Limit control (Boiler/Burner units only)
- Operating control (Boiler/Burner units only)

### Steam Boilers

- ASME side outlet safety valve, 15 psi
- Steam gauge
- Gauge glass with gauge cocks and guards
- Manual reset, Hi-Limit control (Boiler/ Burner units only)
- Operating control (Boiler/Burner units only)

Designed to provide the highest efficiencies possible with forced draft firing, this line of Smith cast iron boilers is available in fifteen basic sizes, with gross output ratings from 900 to 4,269 MBH. Series 28A boilers may be used in either water or steam systems, and may be fired with light oil, gas or gas/light oil.



## High Performance Commercial Boiler

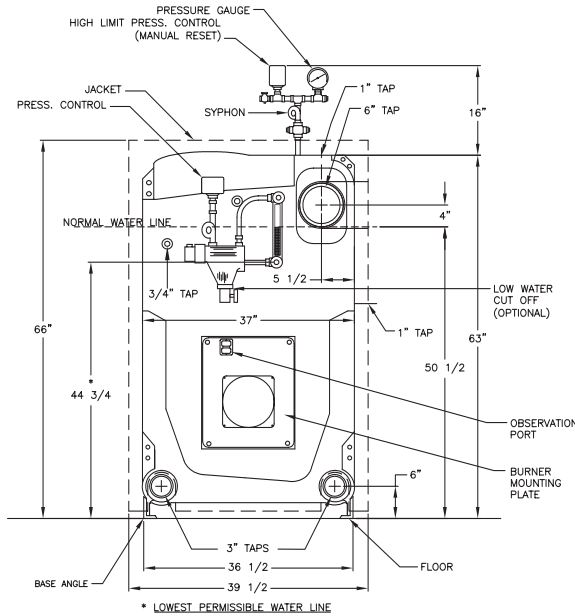
Specify the field-proven, Smith 28A boiler...an efficient, rugged boiler designed specifically for apartments, schools, offices and other commercial and institutional buildings.



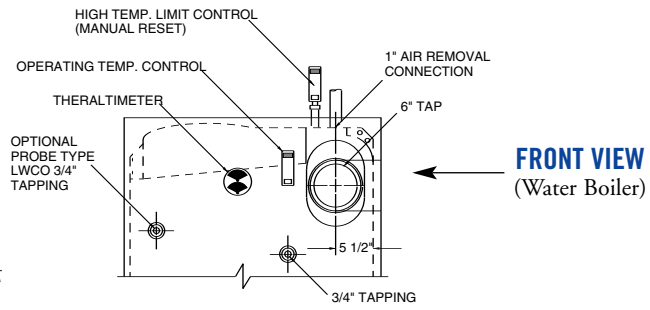
# PRESSURIZED WET-BASE BOILER BURNER UNITS

## LIGHT OIL, GAS, OR GAS/LIGHT OIL

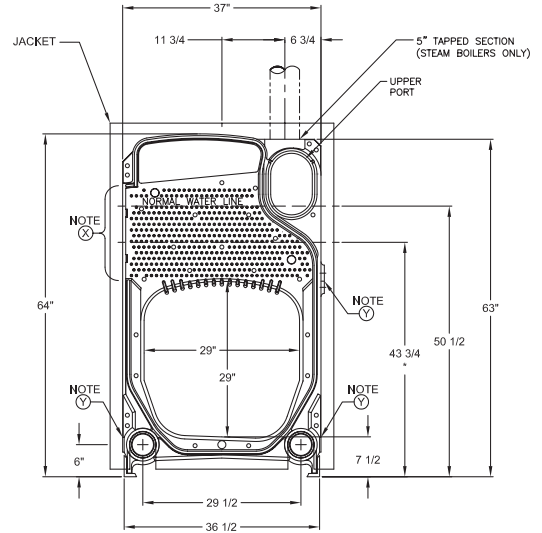
I=B=R Ratings – Gross Output 900 to 4,629 MBH



**FRONT VIEW**  
(Steam Boiler)



**FRONT VIEW**  
(Water Boiler)



### INTERMEDIATE SECTION

Note X – Flue cleanout opening. Allow 36" clear work space for using flue brush.

Note Y – 1-1/2" inspection tappings when ordered.



MEA #273-89-E

## I = B = R Ratings, a

Designed and Tested According to the A.S.M.E. Boiler and Pressure Vessel Code

Boiler Number (Note 1)	Boiler Horsepower	I=B=R Gross Output (MBH)	Net I=B=R Ratings (Note 2)					Heating Surface (Sq. Ft.)	Furnace Volume (Cu. Ft.)	Water Contents (Gals.)		Water Working Weight (Lbs.)	Overall Length – (Note 8)		
			Steam		Water	I=B=R Burner Capacity				Steam	Water		Carlin	Beckett	Power Flame
			Sq. Ft.	MBH	MBH	Oil GPH (Note 3)	Gas MBH (Note 4)								
†28A-Δ-4	27	900	2813	675	783	8.0	1154	81.2	12.04	103.8	123.4	4,215	62¼	64	71¾
†28A-Δ-5	35	1166	3646	875	1014	10.4	1491	105.3	16.14	125.8	150.3	5,038	70¼	72	83¾
†28A-Δ-6	43	1433	4538	1089	1246	12.6	1827	129.4	20.24	147.8	177.2	5,861	80¾	80¼	91¾
†28A-Δ-7	51	1699	5458	1310	1477	15.0	2163	153.5	24.34	169.8	204.1	6,684	88¾	88¾	99¾
†28A-Δ-8	59	1965	6358	1526	1709	17.4	2499	177.6	28.44	191.8	231.0	7,507	96¾	96¼	107¾
†28A-Δ-9	67	2232	7221	1733	1941	19.6	2836	201.7	32.54	213.8	257.9	8,331	108¾	104¾	115¾
†28A-Δ-10	75	2498	8079	1939	2172	22.0	3172	225.8	36.64	235.8	284.8	9,169	116¾	116¾	128
†28A-Δ-11	83	2764	8942	2146	2403	24.5	3508	249.9	40.74	257.8	311.7	9,992	125¾	124¾	137¾
†28A-Δ-12	91	3031	9804	2353	2636	26.5	3844	274.0	44.84	279.8	338.6	10,815	133¾	132½	145¾
†28A-Δ-13	98	3297	10667	2560	2867	29.0	4180	289.1	48.94	301.8	365.5	11,649	141¾	—	153¾
†28A-Δ-14	106	3563	11525	2766	3098	31.5	4517	322.2	53.04	323.8	392.4	12,467	149¾	—	161¾
†28A-Δ-15	114	3830	12392	2974	3330	33.5	4853	346.3	57.14	345.8	419.3	13,511	—	—	169¾
†28A-Δ-16	122	4096	13250	3180	3562	36.0	5189	370.4	61.24	367.8	446.2	14,375	—	—	177¾
†28A-Δ-17	130	4362	14113	3387	3793	38.5	5525	394.5	65.34	389.8	473.1	15,239	—	—	191¾
†28A-Δ-18	138	4629	14975	3594	4025	40.5	5862	418.6	69.44	411.8	500.0	16,103	—	—	199¾

(Note 1) Important Ordering information

(†) Add Prefix for type of fuel to be burned. "LO" for light oil, "G" for Gas or "GO" for gas/oil.

(Δ) Insert "S" for steam, "W" for water.

Example: LO-28A-S-6 is the model no. for a six section steam boiler firing light oil.

(Note 2) Net I=B=R Water Ratings are based on an allowance of 1.15. Net I=B=R Ratings for steam boilers are based on piping and pick-up factor as follows: 4 and 5 section = 1.333, 6 section = 1.305, 8 section and larger = 1.288.

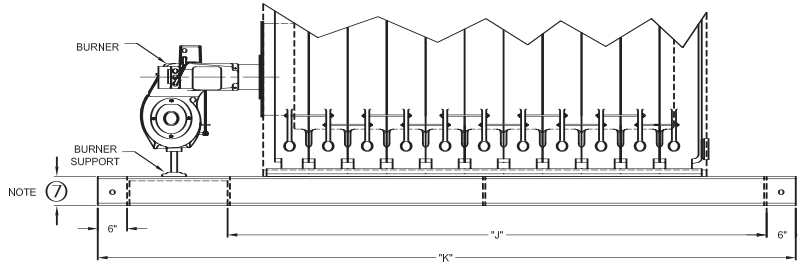
(Note 3) Light oil having a heat content of 140,000 BTU/Gal.

(Note 4) Gas having a heat content of 1,000 BTU/Cu. Ft., 0.60 specific gravity

(Note 5) Burner operation: Low-fire start, high-fire run, two position air.

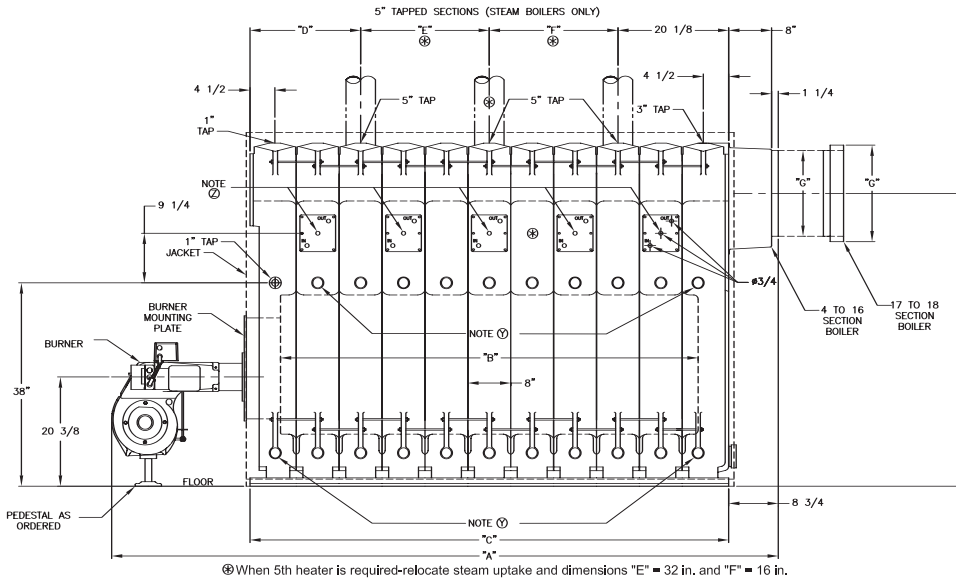
(Note 6) Burner operation: On-off, (4 sect.); Low-fire start, high-fire run, two position air (5-14 sect.).

\* When 5th heater is required—relocate steam uptake and dimensions "E" = 32 in. and "F" = 16 in.



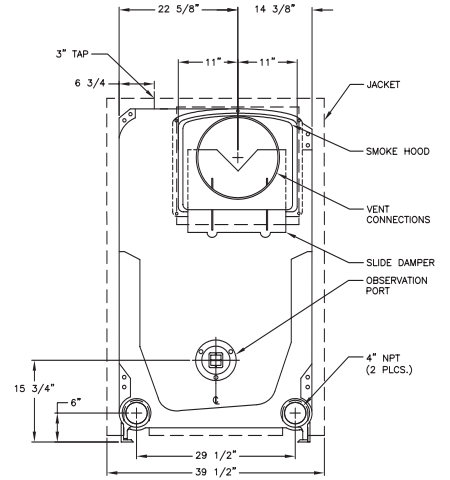
**OPTIONAL ASSEMBLED SECTION AND PACKAGED BASE**

Caution: Add 6" to all vertical measurements on 4-14 section boilers and 8" on 15-18 sections



**SIDE VIEW**

Note Z – Tankless heater sections when ordered.  
Allow 36" clear space for heater withdrawal.



**REAR VIEW**

**Dimensions (inches)**

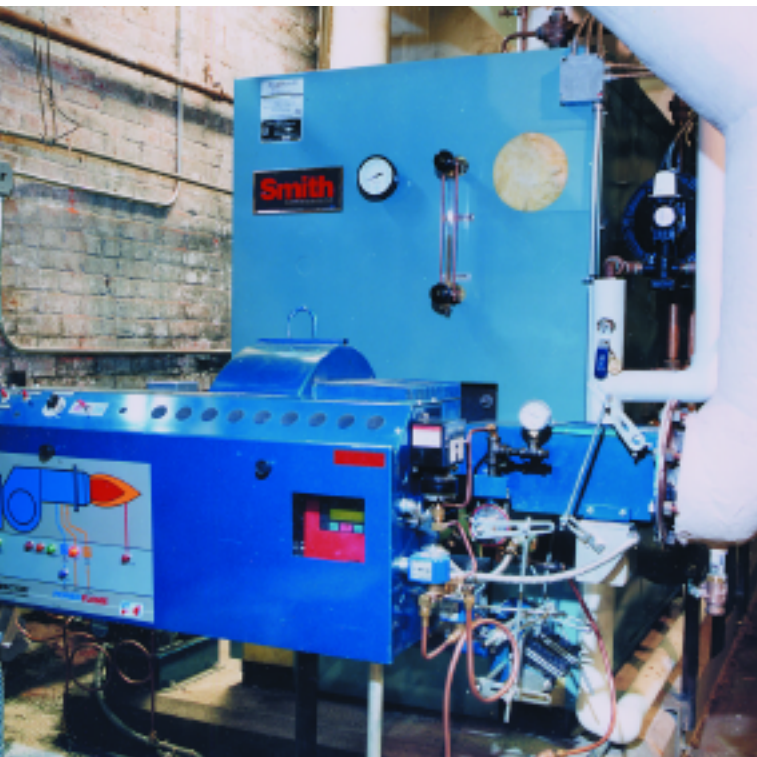
See Section IV for maximum allowable working pressure, steam 15 psig, water 80 psig.

"A"		Opt. Packaged Base Dimensions				Furnace Length "B"	Boiler Length "C"	Steam Uptake Locations (Note 9)			Draft Loss Ins. W.C.	Firebox Press Ins. W.C.††	Dia. Vent Conn. "G"	(Note 7) Height Vent Conn. "H"	Boiler Number (Note 1)
		Carlin & Beckett		Power Flame, Webster and Gordon Platt				"D"	"E"	"F"					
Webster	Gordon Platt	"J"	"K"	"J"	"K"										
66 3/8	70 7/8	54 1/4	83 1/4	54 1/4	91 1/4	23 3/8	33	12 1/2	—	—	.24	.34	10	57 7/8	†28A-Δ-4
74 3/8	81 1/8	62 1/4	91 1/4	62 1/4	104 1/4	31 1/8	41	20 1/2	—	—	.25	.35	10	57 7/8	†28A-Δ-5
82 3/8	89 7/8	70 3/8	99 7/8	70 3/8	112 7/8	39 3/8	49	12 1/2	16	—	.26	.36	10	56 3/8	†28A-Δ-6
90 3/8	97 7/8	78 3/8	107 7/8	78 3/8	120 3/8	47 3/8	57	12 1/2	24	—	.27	.37	12	56 3/8	†28A-Δ-7
98 3/8	105 7/8	86 1/2	115 1/4	86 1/2	128 1/2	55 3/8	65	12 1/2	32	—	.28	.38	12	55 3/8	†28A-Δ-8
110 3/8	113 3/8	96 1/2	123 1/4	94 1/2	136 1/2	63 3/8	73	12 1/2	40	—	.29	.39	14	55 3/8	†28A-Δ-9
118 3/8	121 3/8	102 3/8	135 1/4	102 3/8	144 3/8	71 3/8	81	20 1/2	40	—	.30	.40	14	55 3/8	†28A-Δ-10
126 3/8	129 3/8	110 3/8	143 1/4	110 3/8	157 3/8	79 3/8	89	20 1/2	24	24	.31	.41	14	55 3/8	†28A-Δ-11
134 3/8	137 3/8	118 3/4	151 1/4	118 3/4	165 3/4	87 3/8	97	20 1/2	24	32	.33	.43	14	54 3/8	†28A-Δ-12
142 3/8	145 3/8	126 3/4	159 1/4	126 3/4	173 3/4	95 3/8	105	20 1/2	32	32	.34	.44	14	54 3/8	†28A-Δ-13
150 3/8	154 3/8	134 3/8	167 3/8	134 3/8	181 3/8	103 3/8	113	20 1/2	32	40	.35	.45	16	54 3/8	†28A-Δ-14
158 3/8	162 3/8	—	—	142 3/8	189 3/8	111 3/8	121	20 1/2	40	40	.36	.46	16	54 3/8	†28A-Δ-15
166 3/8	170 3/8	—	—	150 3/8	198	119 3/8	129	20 1/2	48	40	.37	.47	16	54 3/8	†28A-Δ-16
183 3/8	178 3/8	—	—	159	206	127 3/8	137	20 1/2	48	48	.38	.48	18	54 3/8	†28A-Δ-17
191 3/8	186 3/8	—	—	167 3/8	214 3/8	135 3/8	145	20 1/2	56	48	.39	.49	18	54 3/8	†28A-Δ-18

(Note 7) When unit is assembled or packaged, add 6" to heights for 4-14 sect., 8" to heights for 15-18 sect.  
(Note 8) Add 2-3/4" to sect. 14 thru 18 for smoke hood adaptor.  
†† Based on 0.10 ins. W.C. pressure at boiler outlet. If vent sizing results in a back pressure greater than 0.10 ins. W.C., consult Smith.

The Smith representative should be consulted before selecting boilers for installation having unusual piping and pick-up requirements, such as intermittent system operation, extensive piping systems, etc. The boiler ratings have been determined under previous governing forced draft units.  
**NOTE: Dimensions are approximate. Should not be used to "rough-in" equipment.**





### Series 28A Boilers Include:

- Rugged cast iron construction
- Integral flue gas collector
- Cast-in heat extraction pins for increased performance
- Wet-base design for top performance
- Graphite port connectors provide the installation ease of a gasket and the long life of a push nipple
- Short, individual section draw rods to simplify assembly, reduce stress
- Front and rear observation ports
- Aluminized steel breeching damper can be easily adjusted and locked in position
- Easy access side cleaning
- Obround shaped upper port for improved internal circulation and dry steam
- Wide variety of tankless heater options

### OPTIONAL EQUIPMENT

- Combination low water cutoff and feeder
- Tankless heaters
- Tankless heater sections, with cover plate
- Assembled sections
- Inspection tappings, 1-1/2", 3 per section
- Factory start-up
- Return yoke: grooved or threaded – (steam/water)
- Barometric damper  
10 inch for 4 – 6 sections  
12 inch for 7 and 8 sections  
14 inch for 9 – 13 sections  
16 inch for 14 – 16 sections  
18 inch for 17 – 18 sections
- Packaged

### Burner Specifications

Boiler Number	Burners - Light Oil								Burners - Gas				Burners - Gas/Oil			
	Carlin (Note 5)		Beckett (Note 5)		Power Flame (Note 6)		Webster (Note 6)		Power Flame (Note 6)		Webster (Note 6)		Power Flame (Note 6)		Webster (Note 6)	
	Model No.	H.P.	Model No.	H.P.	Model No.	H.P.	Model No.	H.P.	Model No.	H.P.	Model No.	H.P.	Model No.	H.P.	Model No.	H.P.
†28A-Δ-4	702CRD	½	CF1400	½	C1-0	½	JB10-03	⅓	J30A-12	⅓	JB1G-03	⅓	C1-G0-12	½	JB1C-03	⅓
†28A-Δ-5	702CRD	½	CF1400	½	C1-0	½	JB10-03	⅓	J50A-15	⅓	JB1G-03	⅓	C1-G0-12	½	JB1C-03	⅓
†28A-Δ-6	801CRD	¾	CF2300	¾	C2-0A	¾	JB10-07	⅓	J50A-15	⅓	JB1G-05	⅓	C2-G0-15	¾	JB1C-03	⅓
†28A-Δ-7	801CRD	¾	CF2300	¾	C2-0A	¾	JB10-07	¾	J50A-15	⅓	JB1G-05	½	C2-G0-15	¾	JB1C-07	¾
†28A-Δ-8	801CRD	¾	CF2300	¾	C2-0B	1	JB10-07	¾	C2-G-20A	¾	JB1G-05	½	C2-G0-20A	1	JB1C-07	¾
†28A-Δ-9	1050FFD	1	CF2300	¾	C2-0B1	1½	JB20-10	1	C2-G-20B1	1	JB2G-10	1	C2-G0-20B1	1½	JB2C-10	1
†28A-Δ-10	1050FFD	1	CF2500	2	C2-0B1	1½	JB20-10	1	C2-G-20B1	1	JB2G-10	1	C2-G0-20B1	1½	JB2C-10	1
†28A-Δ-11	1150FFD	1½	CF2500	2	C3-0	2	JB20-10	1	C3-G-20	1½	JB2G-10	1	C3-G0-20	2	JB2C-10	1
†28A-Δ-12	1150FFD	1½	CF3500A	2	C3-0	2	JB20-20	2	C3-G-25	1½	JB2G-15	1½	C3-G0-25	2	JB2C-20	2
†28A-Δ-13	1150FFD	1½	CF3500A	2	C3-0	2	JB20-20	2	C3-G-25	1½	JB2G-15	1½	C3-G0-25	2	JB2C-20	2
†28A-Δ-14	—	—	—	—	C3-0	2	JB20-20	2	C3-G-25	1½	JB2G-15	1½	C3-G0-25	2	JB2C-20	2
†28A-Δ-15	—	—	—	—	C3-0B	3	JB20-30	3	C3-G-25B	3	JB2G-30	3	C3-G0-25B	3	JB2C-30	3
†28A-Δ-16	—	—	—	—	C3-0B	3	JB20-30	3	C3-G-25B	3	JB2G-30	3	C3-G0-25B	3	JB2C-30	3
†28A-Δ-17	—	—	—	—	C4-0A	5	JB30-30	3	C4-G-25	3	JB3G-30	3	C4-G0-25	5	JB3C-30	3
†28A-Δ-18	—	—	—	—	C4-0A	5	JB30-30	3	C4-G-25	3	JB3G-30	3	C4-G0-25	5	JB3C-30	3

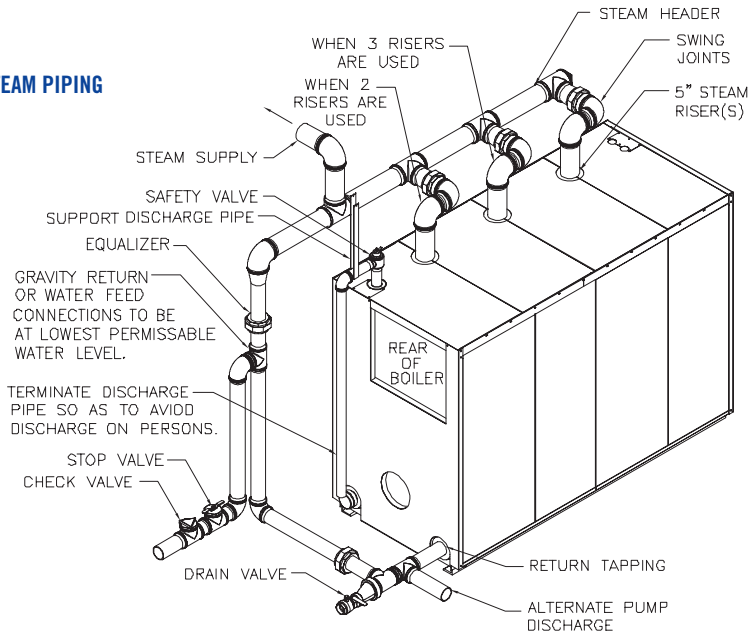
Note: Low-High-Low or Modulation Firing consult Smith.

# series 28A

## TANKLESS DOMESTIC WATER HEATERS

### ACCEPTABLE BOILER PIPING

#### STEAM PIPING



#### Ratings – Tankless Heaters In Intermediate Section (steam or water boiler)

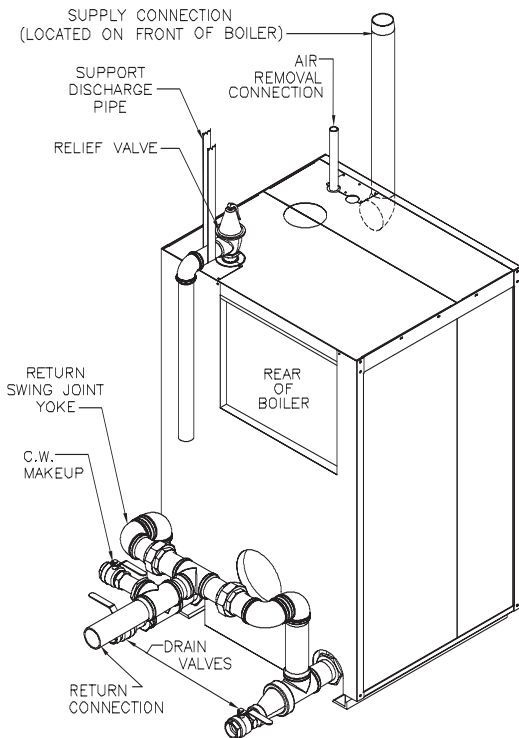
Model Number	Capacity, Gals./min. 200° boiler water †	Pressure Drop - PSI	Inlet and Outlet Tappings
SM8-28	8.0	13.0	3/4"
SM12 - 28	12.0	11.0	3/4"

† Intermittent draw 100° F average temperature rise.

#### Table of Steam Piping Sizes

Boiler Section	No. of 5" Risers	Header	Equalizer
28A-S-4 & 5	1	5"	2-1/2"
28A-S-6 & 7	2	5"	2-1/2"
28A-S-8 thru 10	2	6"	4"
28A-S-11 thru 18	3	8"	4"

#### WATER PIPING



#### Location – Tankless Heaters In Intermediate Section

Boiler Model	Max. No. of Heaters	Section Location Numbered From Front To Back																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
28A-4	1	F	T	H	B														
28A-5	2	F	H	T	H	B													
28A-6	2	F	T	H	T	H	B												
28A-7	2	F	T	H	P	T	H	B											
28A-8	3	F	T	H	P	H	T	H	B										
28A-9	3	F	T	H	P	H	P	T	H	B									
28A-10	4	F	H	T	H	P	H	P	T	H	B								
28A-11	5	F	H	T	H	P	T	P	H	T	H	B							
28A-12	5	F	H	T	H	P	T	H	P	H	T	H	B						
28A-13	6	F	H	T	H	P	H	T	H	P	H	T	H	B					
28A-14	6	F	H	T	H	P	H	T	H	P	H	P	T	H	B				
28A-15	6	F	H	T	H	P	H	P	T	H	P	H	P	T	H	B			
28A-16	7	F	H	T	H	P	H	P	H	T	H	P	H	P	T	H	B		
28A-17	8	F	H	T	H	P	H	P	H	T	H	P	H	P	H	T	H	B	
28A-18	8	F	H	T	H	P	H	P	H	P	T	H	P	H	P	T	H	B	

F = Front Section  
 T = Intermediate Section w/5" Tapping & Boss  
 H = Intermediate Section w/ Heater Opening  
 P = Intermediate Section, Plain  
 P\* = If fifth heater is required, relocate middle tapped section to this location and insert fifth heater section in its place

**Smith**  
CAST IRON BOILERS

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