

PRODUCT DATA

PD28HE-3

Smith Steam Boilers [28HE Series] High Efficiency Pressurized Wet Base Boiler/Burner Unit

Smith

CAST IRON BOILERS

Designed to provide the highest efficiencies possible with forced draft firing. This new product line of Smith cast iron boilers is available in fifteen basic sizes, with gross output ratings from 931 to 4,622 MBH. Series 28HE boilers may be used in steam systems, and may be fired with light oil, gas or gas/light oil.

STANDARD FEATURES

- Up to 85.8% thermal efficiencies
- Cast iron wet base sections tested for 80 psi working pressure, 15 psi steam working pressure
- Insulated metal jacket (R11.7)
- 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
- Manual reset hi-limit
- Operating control

ADDITIONAL FEATURES FOR STEAM BOILERS

- A.S.M.E. side outlet safety valve, 15 psi
- Gauge glass with cocks and guards

I B R Ratings, Burner Capacities

Designed and tested to the A.S.M.E. boiler and pressure vessel code, section IV for maximum allowable working pressure, steam 15 PSIG.

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.)	Prox. Working Weight (Lbs.)	Thermal Efficiency		Combustion Efficiency	
			Steam		I=B=R Burner Capacity						Oil	Gas	Oil	Gas
			Sq. Ft.	MBH	Oil GPH (Note 3)	Gas MBH (Note 4)			Steam					
†28HE-S-4	27	931	2908	698	7.9	1143	81.2	12.04	103.8	4215	83.9	81.4	86.2	83.6
†28HE-S-5	35	1194	3733	896	10.2	1458	105.3	16.14	125.8	5038	84.4	81.9	86.2	83.6
†28HE-S-6	43	1458	4625	1110	12.2	1773	129.4	20.24	147.8	5861	84.8	82.2	86.1	83.5
†28HE-S-7	51	1722	5542	1330	14.4	2088	153.5	24.34	169.8	6684	85.0	82.5	86.1	83.5
†28HE-S-8	59	1985	6421	1541	16.6	2403	177.6	28.44	191.8	7507	85.2	82.6	86.1	83.5
†28HE-S-9	67	2249	7275	1746	18.8	2718	201.7	32.54	213.8	8331	85.3	82.7	86.1	83.5
†28HE-S-10	75	2513	8129	1951	21.0	3033	225.8	36.64	235.8	9169	85.4	82.8	86.1	83.5
†28HE-S-11	83	2776	8979	2155	23.0	3348	249.9	40.74	257.8	9992	85.5	82.9	86.0	83.5
†28HE-S-12	91	3040	9833	2360	25.5	3663	274.0	44.84	279.8	10,815	85.6	83.0	86.0	83.5
†28HE-S-13	98	3304	10,688	2565	27.5	3978	289.1	48.94	301.8	11,649	85.6	83.0	86.0	83.5
†28HE-S-14	106	3567	11,538	2769	29.5	4293	322.2	53.04	323.8	12,467	85.7	83.1	86.0	83.5
†28HE-S-15	114	3831	12,392	2974	32.0	4608	346.3	57.14	345.8	13,511	85.7	83.1	86.0	83.4
†28HE-S-16	122	4095	13,246	3179	34.0	4923	370.4	61.24	367.8	14,375	85.7	83.2	86.0	83.4
†28HE-S-17	130	4358	14,100	3384	36.5	5238	394.5	65.34	389.8	15,239	85.8	83.2	86.0	83.4
†28HE-S-18	138	4622	14,954	3589	38.5	5553	418.6	69.44	411.8	16,103	85.8	83.2	86.0	83.4

(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.

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

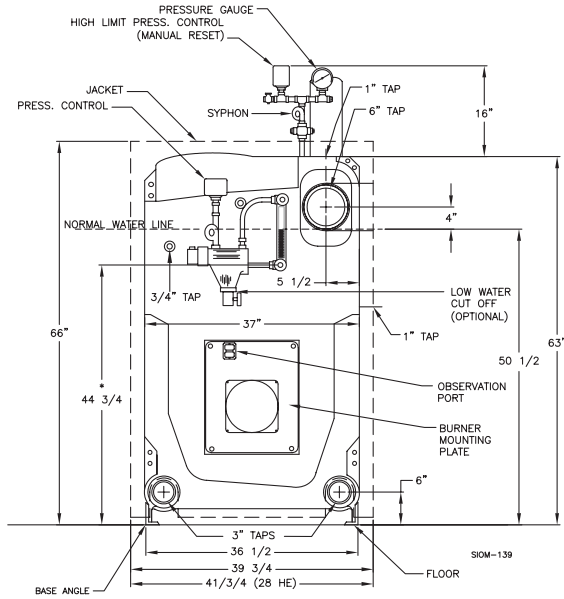
(Note 2) Net I=B=R Ratings for steam boilers are based on piping and pick-up factor as follows:

4 and 5 section = 1.333 6 section = 1.305 8 section and larger = 1.288

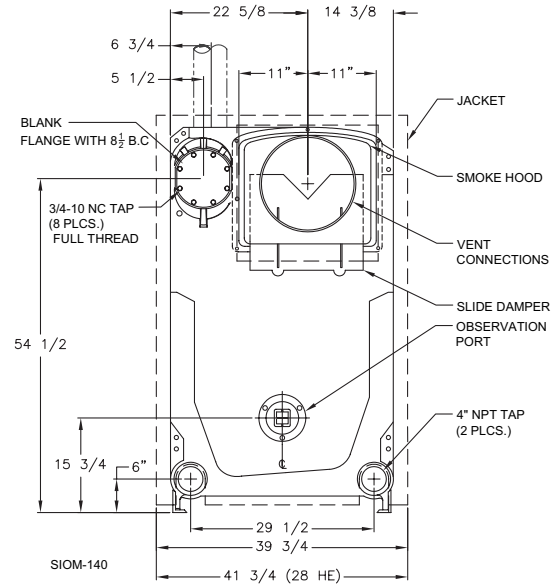
(Note 3) Light oil having a heat content of 140,000 BTU/Gal.

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

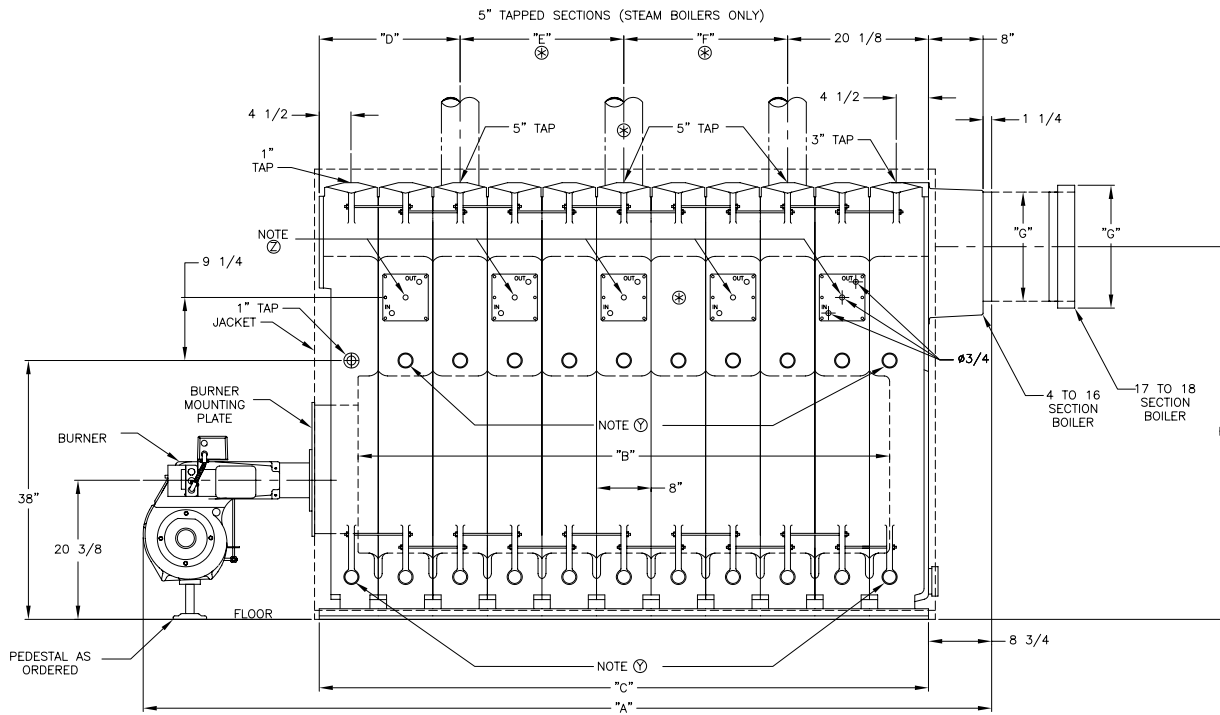
28HE Series



FRONT VIEW (Steam Boiler)



REAR VIEW



⊗ When 5th heater is required-relocate steam uptake and dimensions "E" = 32 in. and "F" = 16 in.

SIDE VIEW

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

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

Dimensions (inches)

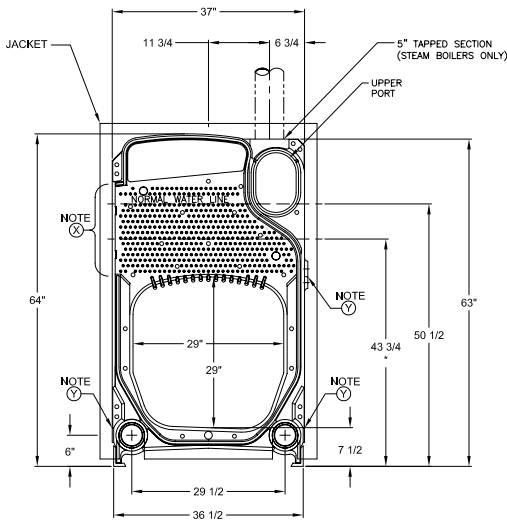
Boiler Number (Note 1)	Overall Length — "A"			Opt. Packaged Base Dimensions		Furnace Length "B"	Boiler Length "C"	Steam Uptake Locations (Note 9)			Draft Loss Ins. W.C.	Firebox Press Ins. W.C.††	Dia. Vent Conn. "G"	(Note 7) Height Vent Conn. "H"
	(Note 8)			Carlin & Beckett	Power Flame			"D"	"E"	"F"				
	Carlin	Beckett	Power Flame	"K"	"K"									
†28HE-Δ-4	62¼	64	71¾	83¼	91¼	23½	33	12½	—	—	.40	.50	10	57%
†28HE-Δ-5	70¼	72	83¾	91¼	104¼	31½	41	20½	—	—	.42	.52	10	57%
†28HE-Δ-6	80¾	80¼	91¾	99¾	112¾	39¾	49	12½	16	—	.44	.54	10	56%
†28HE-Δ-7	88¾	88¾	99¾	107¾	120¾	47¾	57	12½	24	—	.46	.56	12	56%
†28HE-Δ-8	96¾	96¾	107¾	115¾	128¾	55¾	65	12½	32	—	.48	.58	12	55%
†28HE-Δ-9	108¾	104¾	115¾	123¾	136¾	63¾	73	12½	40	—	.52	.62	14	55%
†28HE-Δ-10	116¾	116¾	128	135¾	144¾	71¾	81	20½	40	—	.53	.63	14	55%
†28HE-Δ-11	125¾	124¾	137¾	143¾	157¾	79¾	89	20½	24	24	.55	.65	14	55%
†28HE-Δ-12	133¾	132¾	145¾	151¾	165¾	87¾	97	20½	24	32	.57	.67	14	54%
†28HE-Δ-13	141¾	140¾	153¾	159¾	173¾	95¾	105	20½	32	32	.59	.69	14	54%
†28HE-Δ-14	—	—	161¾	—	181¾	103¾	113	20½	32	40	.61	.71	16	54%
†28HE-Δ-15	—	—	169¾	—	189¾	111¾	121	20½	40	40	.63	.73	16	54%
†28HE-Δ-16	—	—	177¾	—	198	119¾	129	20½	48	40	.66	.76	16	54%
†28HE-Δ-17	—	—	191¾	—	206	127¾	137	20½	48	48	.69	.79	18	54%
†28HE-Δ-18	—	—	199¾	—	214¾	135¾	145	20½	56	48	.70	.80	18	54%

(Note 7) When unit is assembled or packaged, add 6" to heights for 4-14 sect., 8" to heights for 15-18 sect.

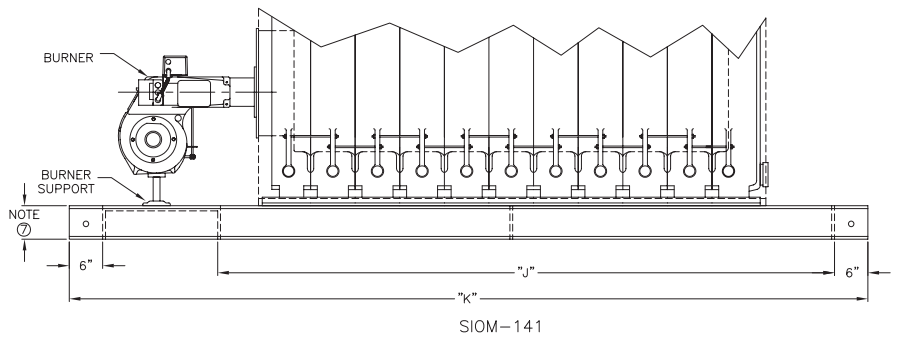
(Note 8) Add 2-3/4" to sect. 14 thru 18 for smoke hood adaptor.

†† 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

(Note 9) These measurements are approximate. 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.



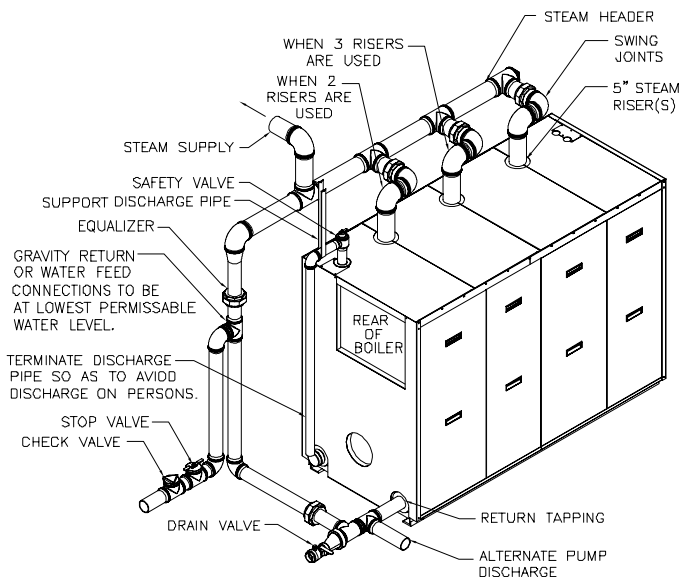
INTERMEDIATE VIEW



ASSEMBLY – SIDE VIEW

(NOTE X) Flue cleanout opening. Allow 36" clear work space for using flue brush, and for the removal of the heat transfer rods.

Recommended Steam Piping Diagram



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

Burner Specifications

Boiler Number	Burners - Light Oil				Burners - Gas		Burners - Gas/Oil			
	Carlin (Note 5)		Beckett (Note 5)		Power Flame (Note 6)		Power Flame (Note 6)			
	Model No.	H.P.	Model No.	H.P.	Model No.	H.P.	Model No.	H.P.		
†28HE-Δ-4	702CRD	1/2	CF1400	1/2	C1-0	1/2	J50A-15	1/3	C1-G0-12	1/2
†28HE-Δ-5	702CRD	1/2	CF2300	3/4	C1-0	1/2	J50A-15	1/3	C1-G0-12	1/2
†28HE-Δ-6	801CRD	3/4	CF2300	3/4	C2-0A	3/4	J50A-15	1/3	C2-G0-15	3/4
†28HE-Δ-7	801CRD	3/4	CF2300	3/4	C2-0A	3/4	J50A-15	1/3	C2-G0-15	3/4
†28HE-Δ-8	801CRD	3/4	CF2500	2	C2-0A	3/4	C2-G-20A	3/4	C2-G0-20A	1
†28HE-Δ-9	1050FFD	1	CF2500	2	C2-0B	1 1/2	C2-G-20B	1	C2-G0-20B	1 1/2
†28HE-Δ-10	1050FFD	1	CF2500	2	C2-0B	1 1/2	C2-G-20B	1	C2-G0-20B	1 1/2
†28HE-Δ-11	1150FFD	1 1/2	CF3500	2	C3-0	2	C3-G-20	1 1/2	C3-G0-20	2
†28HE-Δ-12	1150FFD	1 1/2	CF3500	2	C3-0	2	C3-G-25	1 1/2	C3-G0-25	2
†28HE-Δ-13	1150FFD	1 1/2	CF3500	2	C3-0	2	C3-G-25	1 1/2	C3-G0-25	2
†28HE-Δ-14	—	—	—	—	C3-0	2	C3-G-25	1 1/2	C3-G0-25	2
†28HE-Δ-15	—	—	—	—	C3-0B	3	C3-G-25B	3	C3-G0-25B	3
†28HE-Δ-16	—	—	—	—	C3-0B	3	C3-G-25B	3	C3-G0-25B	3
†28HE-Δ-17	—	—	—	—	C4-0	5	C4-G-25	3	C4-G0-25	5
†28HE-Δ-18	—	—	—	—	C4-0	5	C4-G-25	3	C4-G0-25	5

(Note 5) Burner operation: Low-High-Low (4-13 sect.).

(Note 6) Burner operation: Low-High-Low, (4-9 sect.); Modulation (10-18 sect.).

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