PRODUCT DATA

PD28HE-6

28HE Series **Steam Boilers**
High Efficiency Pressurized Wet Base Boiler/Burner Unit

Designed to provide the highest efficiencies possible with forced draft firing. This product line of 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
- Heat Transfer Rods
- 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
- Stack Thermometer

ADDITIONAL FEATURES FOR STEAM BOILERS

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

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 Horse-power	Gross Output (MBH)	Net Ratings (Note 2)				Heating Surface (Sq. Ft.)	Furnace Volume (Cu. Ft.)	Water Contents (Gals.)	Prox. Working Weight (Lbs.)	Thermal Efficiency		Combustion Efficiency	
			Steam		Burner Capacity									
			Sq. Ft.	MBH	Oil GPH (Note 3)	Gas MBH (Note 4)			Steam		Oil	Gas	Oil	Gas
†28HE-S-4	27	931	2908	698	7.9	1143	81.2	12.04	102.8	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	398.8	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.

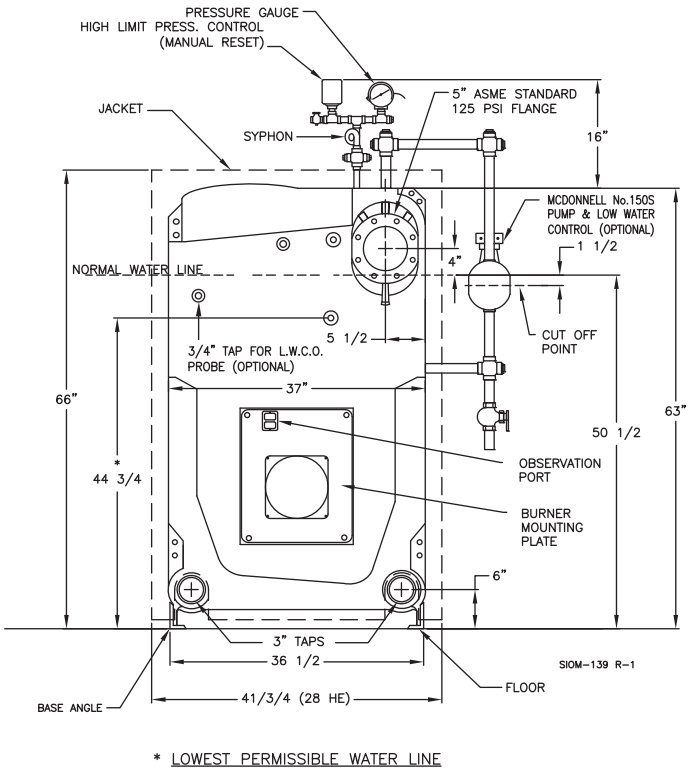
(Note 2) Net Ratings for steam boilers are based on piping and pick-up factor as follows:
4 and 5 section = 1.333 6 section = 1.305 8 section and larger = 1.288

(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.

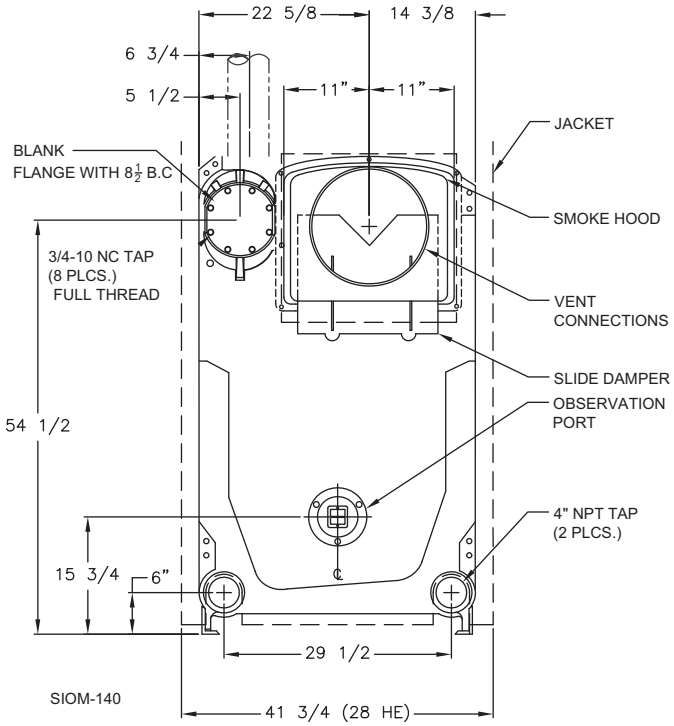
MADE IN THE USA

28HE Series

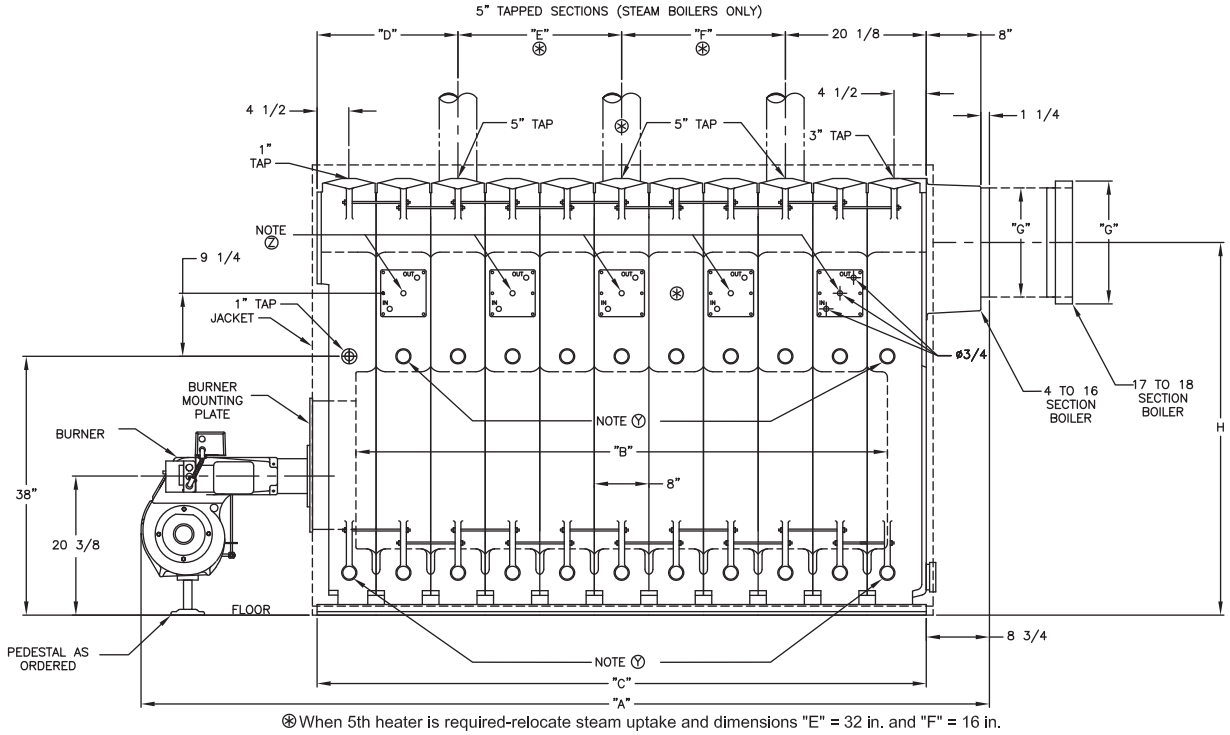


* LOWEST PERMISSIBLE WATER LINE

FRONT VIEW (Steam Boiler)



REAR VIEW



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

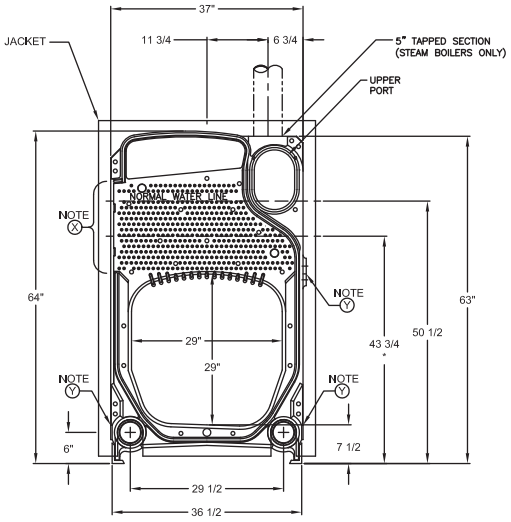
SIDE VIEW

(Note Y) 1-1/2" inspection tappings when ordered.
(Note Z) Tankless heater sections when ordered. Allow 36" clear space for heater withdrawal.

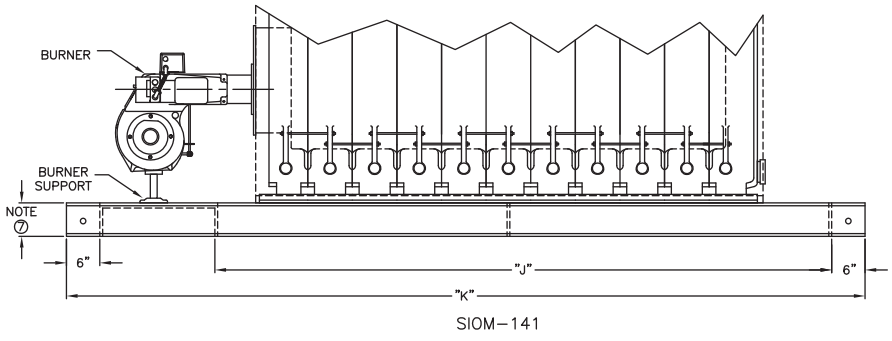
Dimensions (Inches)

Boiler Number (Note 1)	Overall Length — "A" (Note 8)			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"
				Carlin & Beckett		Power Flame										
	Carlin	Beckett	Power Flame	"J"	"K"	"J"	"K"			"D"	"E"	"F"				
†28HE-∅4	62¼	64	71⅝	54¼	83¼	54¼	91¼	23⅓	33	12½	—	—	.40	.50	10	57⅝
†28HE-∅5	70¼	72	83⅛	62¼	91¼	62¼	104¼	31⅓	41	20½	—	—	.42	.52	10	57⅝
†28HE-∅6	80⅛	80¼	91⅛	70⅜	99⅛	70⅜	112⅜	39⅓	49	12½	16	—	.44	.54	10	57⅝
†28HE-∅7	88⅛	88⅝	99⅛	78⅜	107⅛	78⅜	120⅜	47⅓	57	12½	24	—	.46	.56	12	56⅝
†28HE-∅8	96⅛	96¾	107⅛	86½	115¼	86½	128½	55⅓	65	12½	32	—	.48	.58	12	56⅝
†28HE-∅9	108⅞	104¾	115⅛	96½	123¼	94½	136½	63⅓	73	12½	40	—	.52	.62	14	55⅝
†28HE-∅10	116⅞	116⅜	128	102⅝	135¼	102⅝	144⅝	71⅓	81	20½	40	—	.53	.63	14	55⅝
†28HE-∅11	125⅞	124⅜	137⅛	110⅝	143¼	110⅝	157⅞	79⅓	89	20½	24	24	.55	.65	14	55⅝
†28HE-∅12	133⅛	132½	145⅛	118¾	151¾	118¾	165¾	87⅓	97	20½	24	32	.57	.67	14	55⅝
†28HE-∅13	141⅛	140½	153⅛	126¾	159¾	126¾	173¾	95⅓	105	20½	32	32	.59	.69	14	55⅝
†28HE-∅14	—	—	161⅛	—	—	134⅞	181⅞	103⅓	113	20½	32	40	.61	.71	16	54⅝
†28HE-∅15	—	—	169⅛	—	—	142⅞	189⅞	111⅓	121	20½	40	40	.63	.73	16	54⅝
†28HE-∅16	—	—	177⅛	—	—	150⅜	198	119⅓	129	20½	48	40	.66	.76	16	54⅝
†28HE-∅17	—	—	191⅛	—	—	159	206	127⅓	137	20½	48	48	.69	.79	18	54⅝
†28HE-∅18	—	—	199⅛	—	—	167⅛	214¾	135⅓	145	20½	56	48	.70	.80	18	54⅝

(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. 17 & 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



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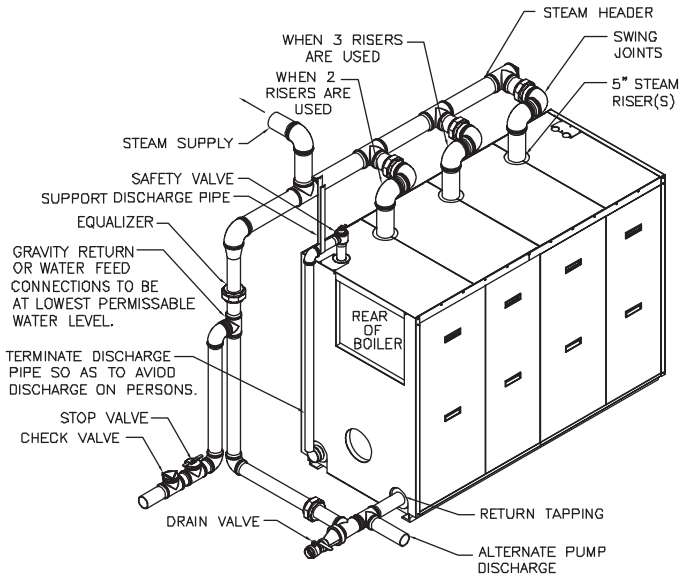
ASSEMBLY – SIDE VIEW

(Note X) Flue cleanout opening. Allow 36" clear work space for using flue brush, and for the removal of the heat transfer rods.
(Note Y) 1-1/2" inspection tappings when ordered.

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)		Power Flame (Note 6)	
	Model No.	H.P.	Model No.	H.P.	Model No.	H.P.	Model No.	H.P.	Model No.	H.P.
†28HE-Δ-4	702CRD	½	CF1400	½	C1-0	½	J50A-15	⅓	C1-G0-12	½
†28HE-Δ-5	702CRD	½	CF2300A	¾	C1-0	½	J50A-15	½	C1-G0-12	½
†28HE-Δ-6	801CRD	¾	CF2300A	¾	C2-0A	1	J50A-15	½	C2-G0-15	1
†28HE-Δ-7	801CRD	¾	CF2300A	¾	C2-0A	1	J50A-15	½	C2-G0-15	1
†28HE-Δ-8	801CRD	¾	CF2500A	¾	C2-0B	1	C2-G-20A	¾	C2-G0-20A	1
†28HE-Δ-9	1050FFD	1	CF2500A	¾	C2-0B	1½	C2-G-20B	1	C2-G0-20B	1½
†28HE-Δ-10	1050FFD	1	CF2500	2	C2-0B	1½	C2-G-20B	1	C2-G0-20B	1½
†28HE-Δ-11	1150FFD	1½	CF3500	2	C3-0	2	C3-G-20	1½	C3-G0-20	2
†28HE-Δ-12	1150FFD	1½	CF3500	2	C3-0	2	C3-G-25	1½	C3-G0-25	2
†28HE-Δ-13	1150FFD	1½	CF3500	2	C3-0	2	C3-G-25	1½	C3-G0-25	2
†28HE-Δ-14	—	—	—	—	C3-0	2	C3-G-25	1½	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	—	—	—	—	C4-0A	3	C4-G-25	3	C4-G0-25	3
†28HE-Δ-18	—	—	—	—	C4-0A	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.).