

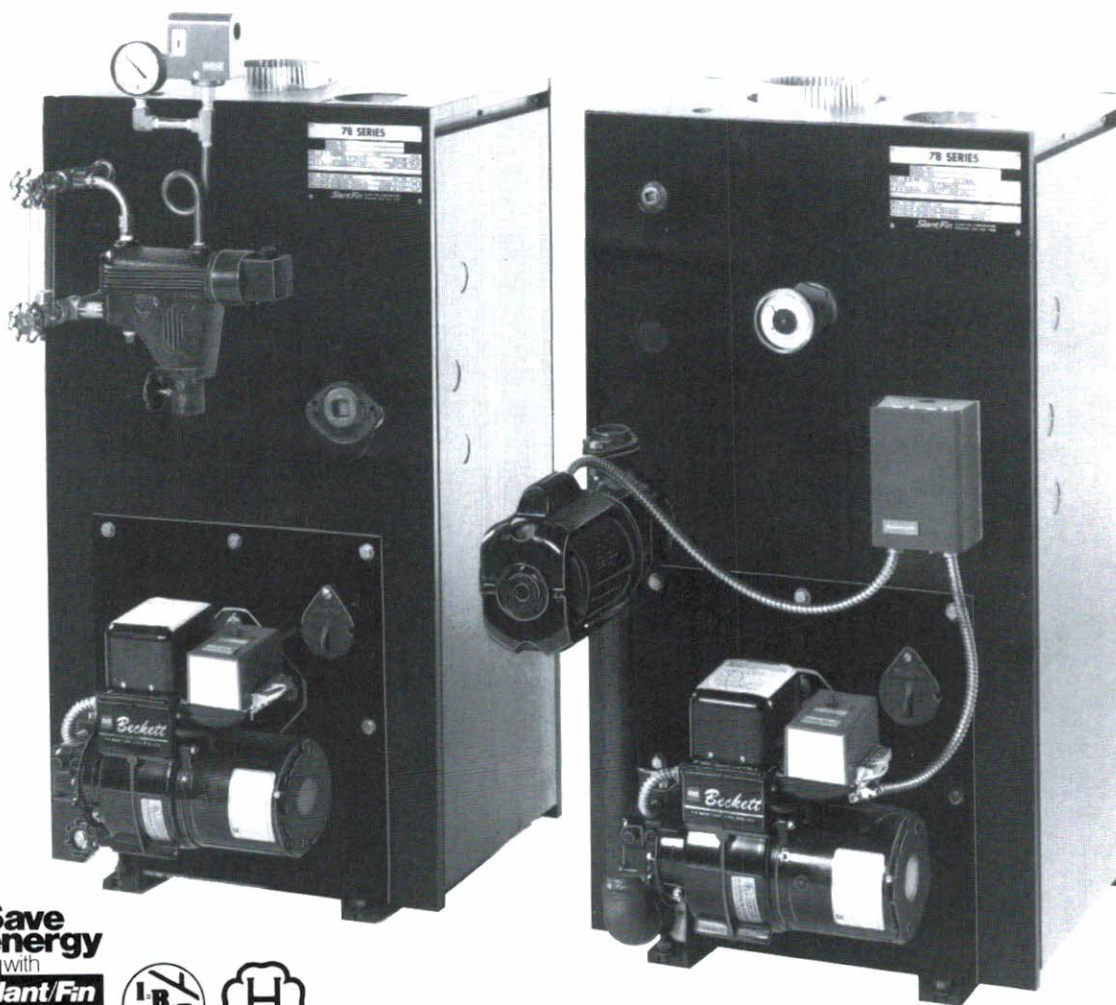
78 series

WET BASE, OIL-FIRED CAST IRON BOILERS

Hot Water and Steam Models

10 Sizes: 1.05 GPH to 4.4 GPH No. 2 Oil Input

Available packaged or knocked down with optional tankless heater.



Save
energy
with
Slant/Fin
heating



Slant/Fin

PUBLICATION NO. 78-10

78 SERIES STEAM MODEL

ratings †

Model Number*	I=B=R	D.O.E. Capacity Btuh	I=B=R Net Rating‡		I=B=R Chimney Size In.xIn.xFt.	Tankless Heater GPM§	CO ₂ %
	Firing Rate GPH		Steam Btuh	Steam Sq. Ft.			
78-105	1.05	118,000	88,500	369	8x8x15	3.0	13'
78-120	1.20	135,000	101,300	422	8x8x15	3.5	13
78-135	1.35	152,000	114,000	475	8x8x15	3.5	13
78-155	1.55	175,000	131,300	547	8x8x15	4.0	13
78-175	1.75	198,000	148,500	619	8x8x15	4.5	13
78-225	2.25	241,000**	180,800	753	8x12x15	5.0	12 1/4
78-280	2.80	298,000**	223,600	931	8x12x15	5.5	12 1/4
78-330	3.30	355,000**	266,300	1110	8x12x15	5.5	12 1/4
78-385	3.85	412,000**	309,100	1288	12x12x15	6.0	12 1/4
78-440	4.40	470,000**	352,600	1469	12x12x15	6.0	12 1/4

*ADD SUFFIX:

- PZ —Packaged less tankless heater
- PZT —Packaged with tankless heater
- SU —Knocked down model—with burner
- SKD—Knocked down model—basic
- ** —I=B=R gross output (Btuh)

‡ The Net I = B = R ratings shown are based on a piping and pick-up allowance of 1.333. For installations having unusual piping and pick-up requirements, additional allowance should be made before selecting the boiler.

The Net ratings in square feet based on heat emission rate of 240 Btuh/sq.ft. Maximum steam working pressure 15 PSI.

† Ratings apply to the use of light oil of 140,000 Btu per gallon, and a .02" draft (negative pressure) over the fire.

§ Tankless heater rating based on intermittent draw.

NOTE: All boilers under 300,000 Btuh input (Models 78-105 through 78-175) are tested and rated for Capacity under the U.S. Department of Energy (D.O.E.) Test Procedures for Boilers.

equipment

Equipment included in "PZ" and "PZT" models:

- Boiler section assembly
- Jacket with insulation
- Combustion chamber (2-parts)
- Flame retention oil burner with nozzle, primary relay and cadmium sulfide flame detector
- Draft regulator (in carton)
- Pressure relief valve (ASME) (in carton)
- Pressuretrol with siphon (in carton)
- Drain cock (in carton)
- Low water cutoff
- Steam gauge (in carton)
- Flue brush (in carton)
- Gauge glass set
- 24 volt thermostat (78-105 through 78-280)

"PZ" additional equipment for models without tankless heater:

- Heater opening cover plate and gasket

"PZT" additional equipment for models with tankless heater

- Low limit control
- Tankless water heater

Equipment included in "SKD" models:

- Boiler section assembly arranged for tankless heater
- Heater opening cover plate and gasket except with tankless heater
- Jacket with insulation
- Combustion chamber (2-parts)
- Pressure relief valve (ASME)
- Steam gauge, glass gauge and trimmings (in carton)
- Flue brush (in carton)

Equipment included in "SU" models:

- Boiler section assembly arranged for tankless heater
- Heater opening cover plate and gasket except with tankless heater (models 78-105 through 78-280)
- 24 volt thermostat (78-105 through 78-280)

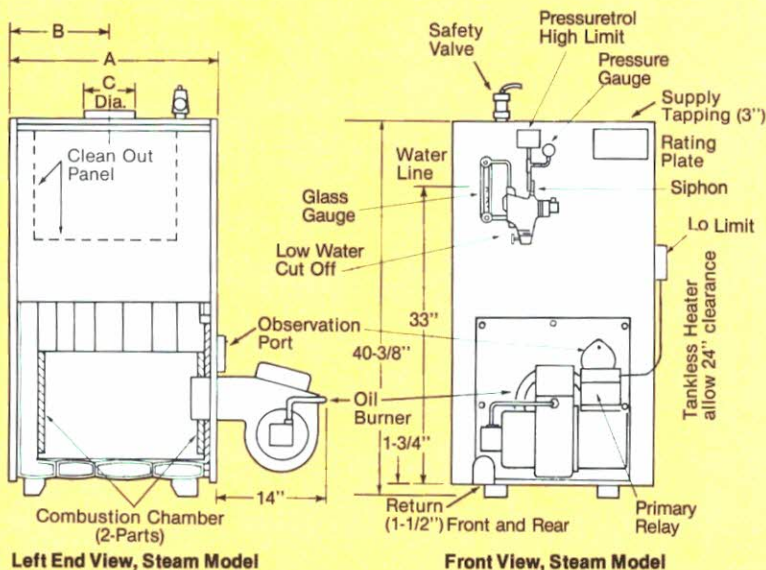
- Jacket with insulation
- Combustion chamber (2-parts)
- Flame retention oil burner with nozzle, primary relay and cadmium sulfide flame detector
- Pressuretrol with siphon
- Draft regulator
- Pressure relief valve (ASME)
- Steam gauge, glass gauge, and trimmings
- Flue brush (in carton)

Optional equipment for "PZ", "PZT", "SKD", and "SU" models:

- Two-stage fuel pump
- Deluxe thermostat
- Tankless heater T-731 with operating control
- Tankless heater T-732 with operating control
- Steam separator

dimensions

MODEL NO.	A	B	C
78-105	15 1/2"	7 1/2"	6"
78-120	15 1/2"	7 1/2"	6"
78-135	17 1/2"	8 1/2"	6"
78-155	19 1/2"	9 1/2"	7"
78-175	19 1/2"	9 1/2"	7"
78-225	23 1/2"	11 1/2"	7"
78-280	27 1/2"	13 1/2"	8"
78-330	31 1/2"	15 1/2"	8"
78-385	35 1/2"	17 1/2"	10"
78-440	39 1/2"	19 1/2"	10"



78 SERIES WATER MODEL

ratings †

Model Number *	I=B=R Firing Rate GPH	D.O.E. Capacity (Btuh)	I=B=R Net Rating‡ Water Btuh	Water Sq. Ft.	I=B=R Chimney Size In.xIn.xFt.	Tankless Heater GPM§	CO ₂ %
78-105	1.05	118,000	100,900	675	8x8x15	3.0	13
78-120	1.20	135,000	117,400	785	8x8x15	3.5	13
78-135	1.35	152,000	132,200	880	8x8x15	3.5	13
78-155	1.55	175,000	152,200	1015	8x8x15	4.0	13
78-175	1.75	198,000	172,200	1150	8x8x15	4.5	13
78-225	2.25	241,000**	209,600	1395	8x12x15	5.0	12 ¼
78-280	2.80	298,000**	259,100	1725	8x12x15	6.0	12 ¼
78-330#	3.30	355,000**	308,700	2060	8x12x15	6.5	12 ¼
78-385#	3.85	412,000**	358,300	2390	12x12x15	7.0	12 ¼
78-440#	4.40	470,000**	408,700	2725	12x12x15	7.0	12 ¼

*ADD SUFFIX:

P —Packaged less tankless heater
 PT —Packaged with tankless heater
 WU —Knocked down model—with burner
 WKD—Knocked down model—basic
 ** —I=B=R gross output (Btuh)

‡ The Net I=B=R ratings shown are based on a piping and pick-up allowance of 1.15. For installations having unusual piping and pick-up requirements, additional allowance should be made before selecting the boiler.

The Net ratings in square feet based on heat emission rate of 150 Btuh/sq.ft. Maximum steam working pressure 30 PSI.

† Ratings apply to the use of light oil of 140,000 Btu per gallon, and a .02" draft (negative pressure) over the fire.

§ Tankless heater rating based on intermittent draw.

No circulator supplied for larger sizes

NOTE: All boilers under 300,000 Btuh input (Models 78-105 through 78-175) are tested and rated for Capacity under the U.S. Department of Energy (D.O.E.) Test Procedures for Boilers.

equipment

Equipment included in "P" and "PT" models:

- Assembled sections
- Jacket with insulation
- Combustion chamber (2-parts)
- Pressure and temperature gauge
- Pressure relief valve (ASME) (in carton)
- Flame retention oil burner with nozzle, primary relay and cadmium sulfide flame detector
- 1 ¼" circulator (78-105 through 78-175)
- 1 ½" circulator (78-225 through 78-280), no circulator supplied for larger sizes
- Draft regulator (in carton)
- Drain cock
- Automatic air vent (in carton)
- Flue brush (in carton)
- 24 volt thermostat (78-105 through 78-280)

"P" additional equipment for models without tankless heater:

- Combination high limit control and circulator relay (78-105 through 78-280)
- Hi limit control (78-330 through 78-440)

"PT" additional equipment for models with tankless heater

- Tankless water heater
- Combination high and low limit control, circulator relay, (models 78-105 through 78-280)
- Hi and low limit (models 78-330 through 78-440)

Equipment included in "WKD" models:

- Boiler section assembly arranged for tankless heater
- Heater opening cover plate and gasket except with tankless heater
- Jacket with insulation
- Combustion chamber (2-parts)
- Pressure relief valve (ASME)
- Flue brush (in carton)

Equipment included in "WU" models:

- Boiler section assembly arranged for tankless heater
- Heater opening cover plate and gasket except with tankless heater
- 24 volt thermostat (78-105 through 78-280)

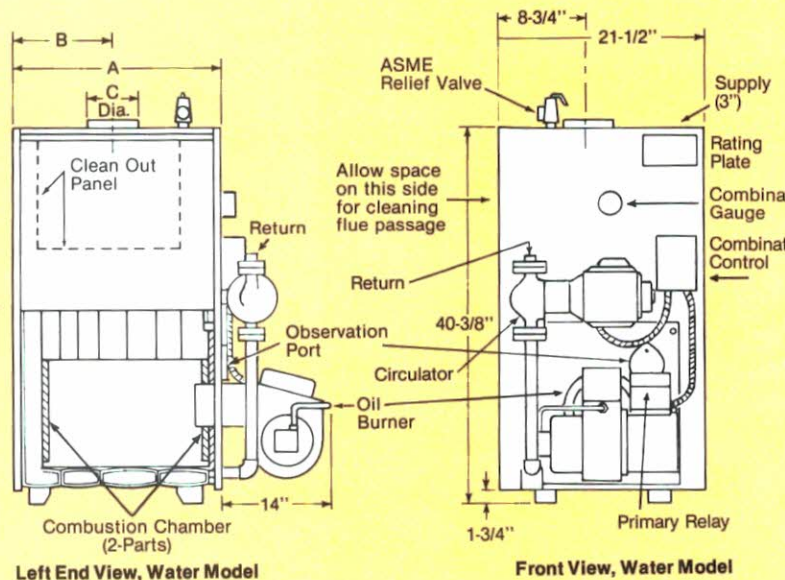
- Jacket with insulation
- Combustion chamber (2-parts)
- Flame retention oil burner with nozzle, primary relay and cadmium sulfide flame detector
- High limit control
- Draft regulator
- Pressure relief valve (ASME)
- Combination pressure-temperature gauge
- Flue brush (in carton)

Optional equipment for "P", "PT", "WKD", and "WU" models:

- Two-stage fuel pump
- Deluxe thermostat
- Tankless heater T-731 with operating control
- Tankless heater T-732 with operating control
- Air package (expansion tank automatic fill and pressure reducing valve automatic air vent)

dimensions

MODEL NO.	A	B	C
78-105	15 ½"	7 ½"	6"
78-120	15 ½"	7 ½"	6"
78-135	17 ½"	8 ½"	6"
78-155	19 ½"	9 ½"	7"
78-175	19 ½"	9 ½"	7"
78-225	23 ½"	11 ½"	7"
78-280	27 ½"	13 ½"	8"
78-330	31 ½"	15 ½"	8"
78-385	35 ½"	17 ½"	10"
78-440	39 ½"	19 ½"	10"

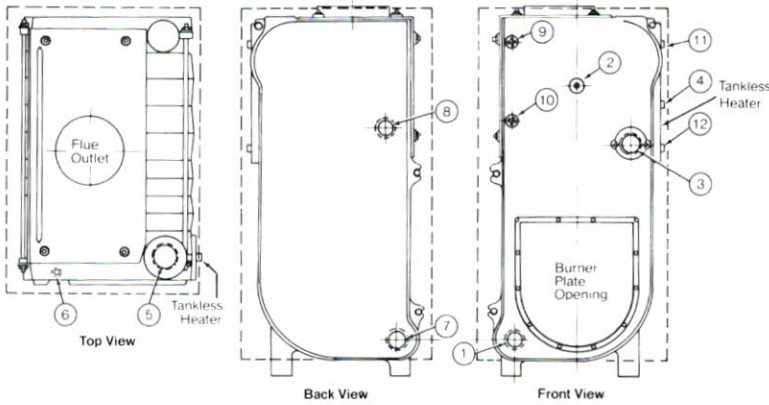


Left End View, Water Model

Front View, Water Model

78 SERIES WET-BASE, OIL-FIRED, CAST-IRON BOILERS

tappings and openings



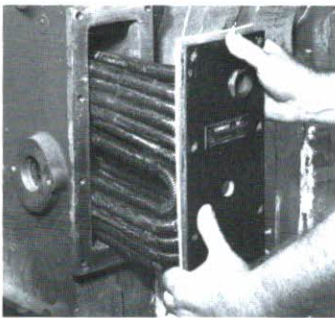
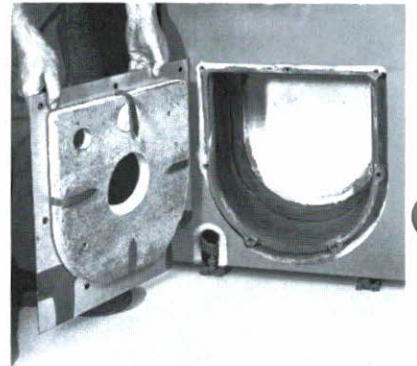
NOTE:
Dotted outline around figures indicates boiler jacket

tapping location	pipe size	for steam boiler without tankless heater	for steam boiler with tankless heater	for water boiler
1	1 1/2"	drain cock	drain cock	return
2	1 1/2"	not used	not used	pressure temperature gauge, bushed to 1/4"
3	1 1/2"	drip leg (if used)	drip leg (if used)	high lo limit or combination control for "P" & "PT" boilers, bushed to 1/2" or 3/4"
4	1/2"	not furnished	lo-limit control	not used
5	3"	supply	supply	supply
6	3/4"	steam safety valve	steam safety valve	water relief valve
7	1 1/2"	return	return	drain cock
8	1 1/2"	skimmer	skimmer	skimmer
9	1/2"	gauge glass and LWCO*	gauge glass and LWCO*	plug
10	1/2"	gauge glass and LWCO*	gauge glass and LWCO*	not used
11	3/4"	not furnished	tankless heater outlet (if used)	tankless heater outlet (if used)
12	3/4"	not furnished	tankless heater inlet	tankless heater inlet (if used)

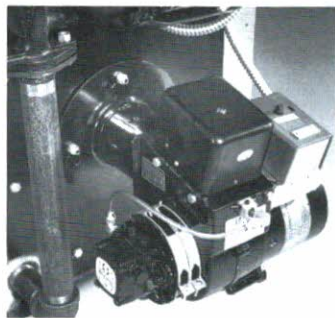
*No. 67LWCO

features

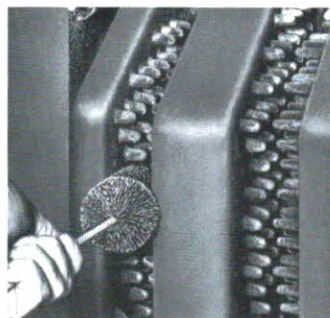
This **heftier, wet-base boiler** is preferred by more traditional heating installers. The sections of the boiler extend all around the firebox. They are greater in mass of cast iron and contain greater water volume. The sections therefore extract heat from the firebox that would normally be lost into the foundation in an ordinary boiler with insufficient insulation. The relatively greater water volume and bottom passageway of wet base boilers increase water heater performance. **Front and rear acoustic combustion chamber** assures quiet operation.



Side-mounted tankless coil is constantly immersed in hot boiler water and is easily accessible for servicing in both water and steam models.



3450-rpm retention head burner assures sufficient static pressure and air volume to obtain high efficiency firing.



Easy access to boiler sections from side for required cleanout.



Steam models offer optional dry steam separator for faster heating.

Before purchasing this appliance, read important energy cost and efficiency information available from your contractor.

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