

COMMERCIAL HYDRONIC HEAT PRESSURIZED, WET BASE OIL, GAS OR COMBINATION

Burnham[®]
AMERICA'S BOILER COMPANY

V9 SERIES   

Heating Capacities:
311 to 1445 MBH



V9 SERIES HOT WATER OR STEAM BOILER

Maximum Water Working Pressure: 70 PSI Water, 15 PSI Steam

The commercial boiler that fits the job.

The Burnham® V9 Series cast iron boiler represents one of the finest designs in commercial boilers.

The V9 is quality through and through. It is a wet base, forced draft design which means there is no need for a special base and combustion chamber or mechanical equipment to artificially induce proper draft. Because the boiler is a forced draft unit, it provides optimum draft for controlled combustion, thus eliminating the need for high chimneys. And with a rear smoke outlet, the V9 requires only six and one half feet of vertical clearance from floor to ceiling.

The sectional construction of the V9 boiler makes it ideal for use in installations where the boiler room is not easily accessible.

In addition to being shipped as individual sections the boiler is available with factory-assembled sections or as a completely packaged unit. The packaged unit is fastened to a steel skid to facilitate lifting with a fork truck or crane and will fit through a standard 36 x 80 inch doorway. The skid can serve as the boiler foundation, replacing the need for a concrete pad. A factory fire-test is available on all packaged units.

All regular maintenance access areas are located on the left side allowing the V9 boiler to be installed 9" from the right sidewall. The tankless hot water heaters provide ratings of 6.0 to 28.5 GPM and are also accessed from the left side of the boiler.

Available in ten sizes with gross output ratings from 311 to 1445 MBH, the V9 Series fires gas, oil or combination gas/oil and can be

equipped with either steam or water trim and controls. The product is energy efficient with a combustion efficiency of up to 84%. All sizes exceed the efficiency requirements of ASHRAE 90.1.

The bond that makes the difference.

Each V9 boiler section is hydrostatically tested at two and one half times rated working pressure to make sure that the section is flawless. Factory-assembled sections are tested at one and one half times the rated working pressure. The sections are surface ground to insure smooth surface mating, and sealed gas-tight with an elastic sealing compound. This sealant is used on all section joints to guarantee a completely sealed and gas-tight assembly required for forced draft operation. The sealant is easily applied and takes less time than applying conventional gasket materials and lasts many times longer.

Each section is then joined with quality cast iron nipples which will



increase the longevity of the boiler by resisting petroleum based chemicals, including antifreeze

which can deteriorate the gaskets used in some competitors' boilers. Time-proven cast iron nipples last the life of the boiler. They expand and contract along with the sections they join ensuring the integrity of the entire section assembly.

Added safety and system longevity are achieved with the addition of a pressure relief door as standard equipment. This will reduce potential damage to the breeching or heat

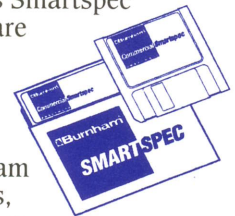
exchanger in the event of an inadvertent delayed ignition of the burner.

CAD/CAE speeds, verifies boiler design

The V9 is the first of its kind because it was designed completely on computers to optimize efficiency and minimize space requirements. CAD/CAE perfects the design while improving quality.

By modeling the boiler on computers, Burnham engineers were quickly able to see the effects of every design decision from exact configuration of the heat transfer surface to the location of combustion passageways. Such simulations permit design optimization without costly testing and re-testing of different prototypes.

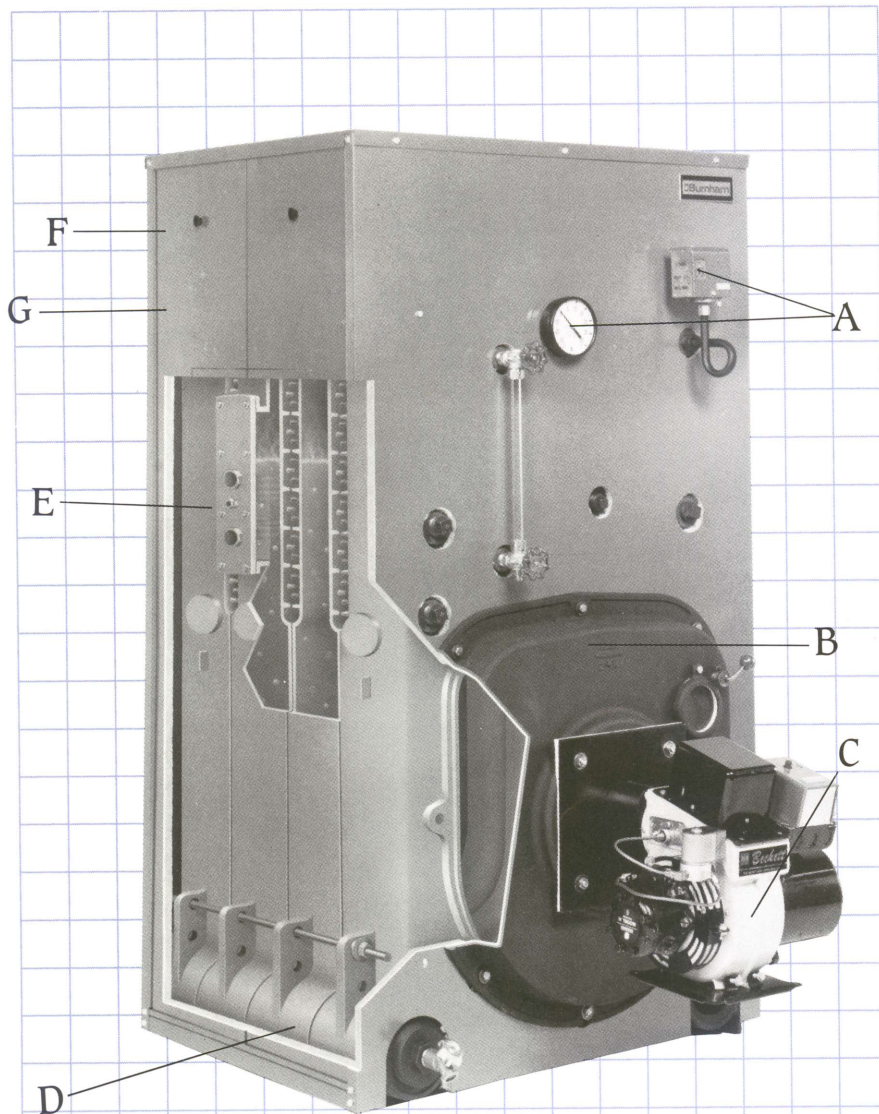
Specifying a heating system in CSI (Construction Specifications Institute) format is made easy with Burnham's Smartspec computer software program. Use the program menu to specify atmospheric or forced draft; steam or hot water; gas, oil, or combination fuels; single or lead-lag; knockdown or packaged; and output ratings in gross, net or square feet of steam. Optional equipment menu and built-in editing features let you create a customized CSI specification. Consult your local Burnham sales representative for details.



Commitment to quality

For all your boiler needs look to Burnham. Burnham has over 100 years experience producing residential and commercial boilers. Our continuing commitment to quality and excellence has made us America's Boiler Company.

V9 FEATURES AND STANDARD EQUIPMENT



V9 Series Features

- A. Front mounted controls for easier adjustment and maintenance
- B. Burner mounting plate with flame observation port
- C. Five burner options to best fit your needs
- D. Wet base construction for maximum heat transfer
- E. Tankless heaters for optimum domestic hot water
- F. Rear flue outlet design for space saving installation
- G. Removable jacket panels on both sides

Standard equipment

ALL BOILERS - Sections unassembled, stamped and tested for 70 PSI working pressure • Deluxe insulated jacket • Burner mounting plate (priced and shipped separately) • Pressure relief door • Flue outlet damper assembly • Flue canopy • Trim • Miscellaneous plugs, bushings and fittings.

STEAM TRIM - 15 PSI ASME safety valve • PA-404A Pressuretrol • Gauge glass assembly • Boiler drain cock • 3 1/2" Steam gauge.

WATER TRIM - 50 PSI ASME Safety relief valve • L-4006A High Limit • 3 1/2" Pressure temperature gauge • Boiler drain cock.

OIL BOILERS - Flange mounted flame retention oil burner furnished with cad cell primary control, 2 stage fuel unit and dual oil valves.

GAS BOILERS - Flange mounted gas burner with standard controls meeting the latest UL requirements • Dual gas valves • Electric ignition with proven gas pilot • Flame detector - flame rod on JR burner; ultra-violet on others • Electronic programming controls and components are factory wired in a burner mounted control cabinet (except JR - cabinet available as an option; S4.2 - remote cabinet only available as an option).

GAS/OIL BOILERS - Flange mounted combination gas/oil burner with standard controls meeting latest UL requirements • Manually operated fuel transfer switch for dual fuel changeover • Dual gas valves and oil valves • Electric ignition with proven gas pilot on the gas side; direct spark ignition on the oil side (S4.2 is gas pilot for both fuels) • Ultra-violet flame detector • Electronic programming controls and components are factory wired in a burner mounted control cabinet (except S4.2-remote cabinet only available as an option).

Optional equipment

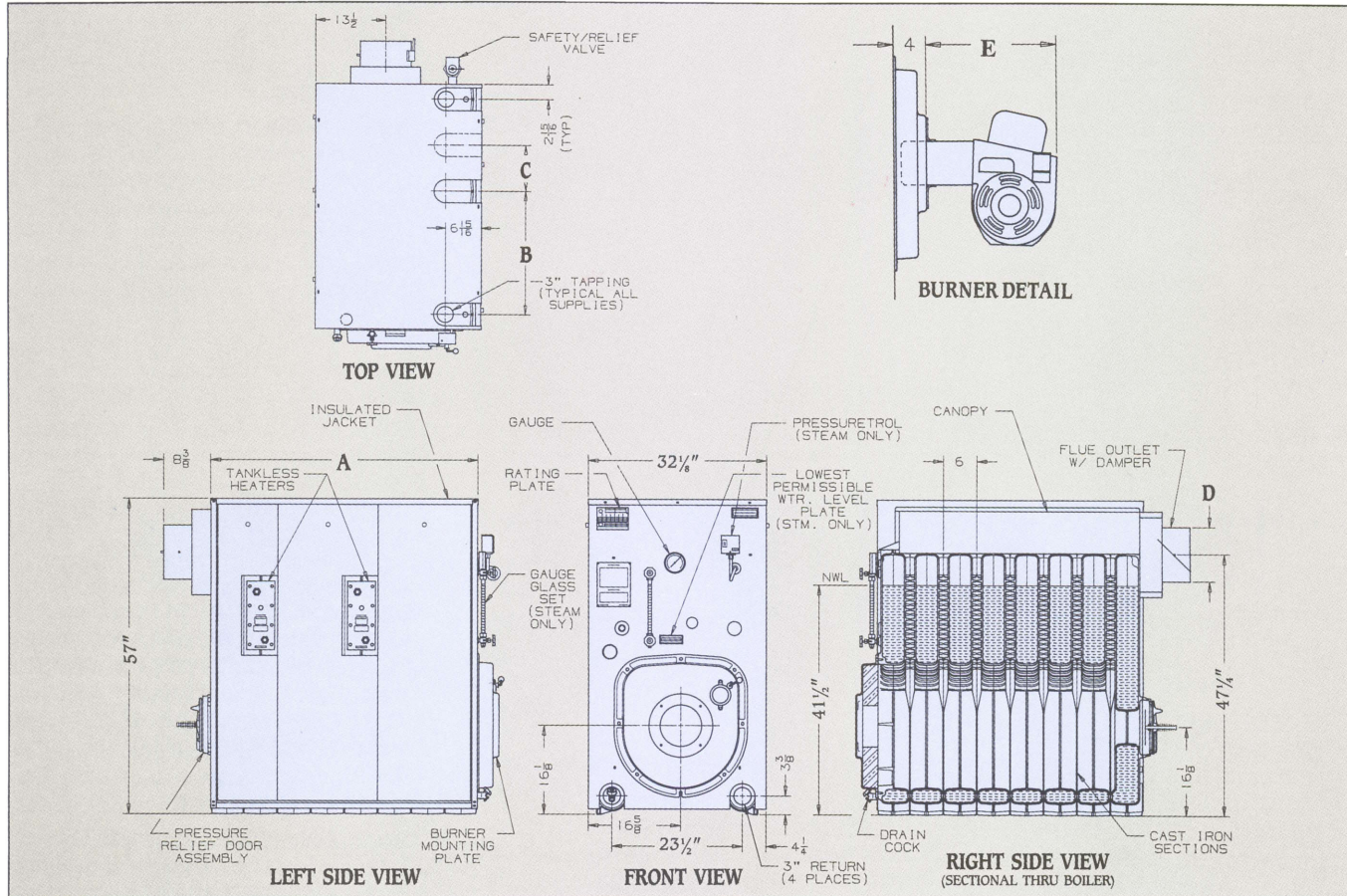
Assembled sections • Completely packaged (includes high limit with manual reset and a probe low water cutoff) • Packaged and fire-tested • Tankless heaters • 30 PSI and 70 PSI ASME safety relief valves • Side inspection tappings • Combustion and hydronic controls to meet special applications including F.M., I.R.I. and ASME CSD-1.

DIMENSIONS (in inches)

REPRESENTATIVE BURNER ILLUSTRATIONS

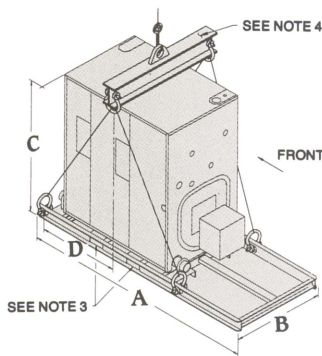
BOILER MODEL	NUMBER OF SECTIONS	'A'	'B'	'C'	FLUE OUTLET DIAMETER 'D'	BURNER DIMENSION 'E'							APPROX. ASSEMBLED SECTION WEIGHT LBS.	APPROX. SHIPPING WEIGHT LBS.*
						BECKETT	CARLIN	G-P	POWERFLAME			WEBSTER		
									C OIL	JR	C GAS/OIL			
V-903	3	18	—	—	8	12	10	24	—	20	—	—	848	950
V-904	4	24	—	—	8	12	16	24	24	20	30	25	1,113	1,233
V-905	5	30	—	—	8	12	16	24	24	20	30	25	1,378	1,516
V-906	6	36	—	—	10	12	16	28	24	20	30	25	1,648	1,803
V-907	7	42	—	—	10	21	20	28	24	20	30	25	1,912	2,085
V-908	8	48	24	—	10	21	20	28	24	20	30	25	2,177	2,368
V-909	9	54	18	—	12	21	20	28	24	23	30	25	2,448	2,655
V-910	10	60	24	—	12	21	20	28	24	23	30	25	2,713	2,938
V-911	11	66	24	18	12	22	20	30	29	23	35	25	2,978	3,220
V-912	12	72	18	30	12	22	21	30	29	23	35	25	3,248	3,518

*Does not include burner mounting plate. Add 45 lbs. for mounting plate (shipped separately).



PACKAGED BOILERS LIFTING INSTRUCTIONS

SLING LIFTING ARRANGEMENT



NOTES:

1. This boiler can be lifted by fork truck. Do not truck from front.
2. When lifting from rear, forks must extend beyond center of gravity and second skid cross bar.
3. When lifting from side, forks must extend to opposite skid rail and straddle center of gravity.
4. Cable spreader is to prevent jacket damage. Spreader should be B (width of skid) + 12". Adjust cable lengths to lift at approx. center of gravity per chart.

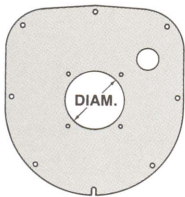
DIMENSIONS (in inches)

BOILER MODEL	NUMBER OF SECTIONS	LENGTH A	WIDTH B*	HEIGHT C	APPROXIMATE CENTER OF GRAVITY **D	APPROX. SHIPPING WT. (LBS) **
V-903	3	635/8	34½	61	17½	1235
V-904	4	69⅝	34½	61	20½	1533
V-905	5	75⅝	34½	61	23½	1831
V-906	6	81⅝	34½	61	27½	2133
V-907	7	87⅝	34½	61	30½	2435
V-908	8	93⅝	34½	61	33½	2733
V-909	9	105⅝	34½	61	37½	3100
V-910	10	111⅝	34½	61	40½	3418
V-911	11	117⅝	34½	61	43½	3715
V-912	12	123⅝	34½	61	46½	4028

*The width can vary with gas train configuration. If product must pass through a 36" doorway please specify.

**Varies slightly with burner and gas train configuration.

BURNER MOUNTING PLATES



Beckett

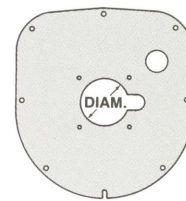
BOILER NO.	DIAM.
V-903-906	4¾"
V-907-910	6⅝"
V-911-912	7½"

Webster

BOILER NO.	DIAM.
V-904-912	7½"

Power Flame

BOILER/BURNER	DIAM.
V-904-910/C1	7½"
V-911-912/C2	9"
V-903-908/JR	6⅝"
V-909-912/JR	8⅝"



Gordon-Piatt

BOILER NO.	DIAM.
V-906-908	6½"
V-909-912	8½"

Carlin

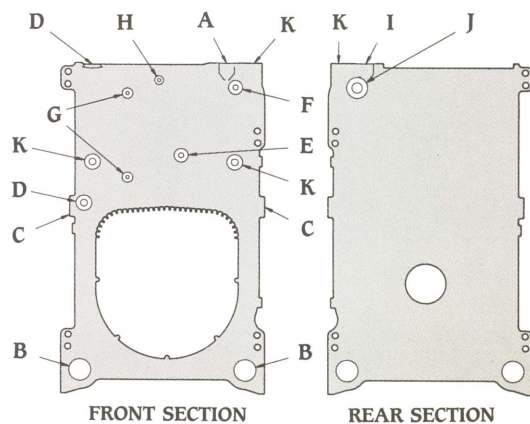
BOILER NO.	DIAM.
V-903-906	4¾"
V-907-912	6⅝"

Gordon-Piatt

BOILER NO.	DIAM.
V-903-905	4¾"

CONTROL TAPPINGS

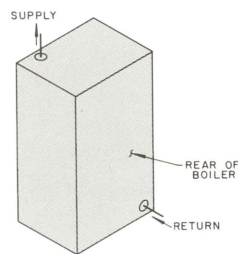
TAPPING LOCATION	SIZE (INCHES)	STEAM BOILER	WATER BOILER
A	3	Supply	Supply
B	3	Return	Return
C	1½	Crown Inspection/Washout (special order only)	Crown Inspection/Washout (special order only)
D	1	Float L.W.C.O.	Float L.W.C.O.
E	¾	Probe L.W.C.O.	Probe L.W.C.O.
F	¾	Press. Limit Ctrl.	Temp. Limit Ctrl.
G	½	Gauge Glass	Not Used
H	½	Steam Gauge (Bushed to ¼")	Temperature/Pressure Gauge
I	3	Supply	Supply
J	1½	Safety Valve	Relief Valve
K	1	Auxiliary Tappings	Auxiliary Tappings



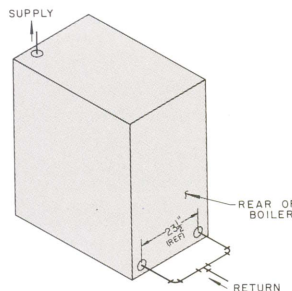
MINIMUM PIPING RECOMMENDATIONS

Water Boiler

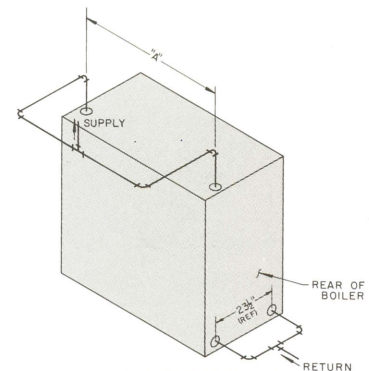
BOILER MODEL	SUPPLY AND RETURN*	RISER SPACING "A"
V-903	2"	—
V-904	2½"	—
V-905	2½"	—
V-906	2½"	—
V-907	2½"	—
V-908	3"	—
V-909	3"	—
V-910	3"	54"
V-911	3"	60"
V-912	3"	66"



V-903 THRU V-907



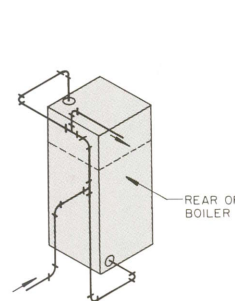
V-908 AND V-909



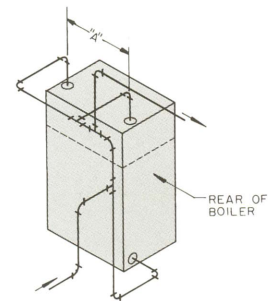
V-910 THRU V-912

Steam Boiler

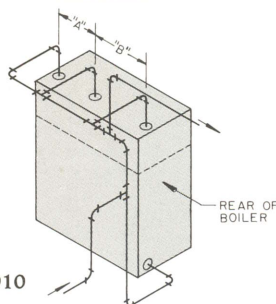
BOILER MODEL	PIPE SIZE				RISER SPACING		
	RISER*	RETURN*	HEADER	EQUALIZER	"A"	"B"	"C"
V-903	(1) 2½"	1"	3"	1½"	—	—	—
V-904	(1) 3"	2"	4"	2½"	—	—	—
V-905	(2) 3"	2½"	4"	2½"	24"	—	—
V-906	(2) 3"	2½"	4"	2½"	30"	—	—
V-907	(2) 3"	2½"	4"	2½"	36"	—	—
V-908	(3) 3"	2½"	6"	2½"	24"	18"	—
V-909	(3) 3"	3"	6"	3"	18"	30"	—
V-910	(3) 3"	3"	6"	3"	24"	30"	—
V-911	(4) 3"	3"	6"	3"	24"	18"	18"
V-912	(4) 3"	3"	6"	3"	18"	30"	18"



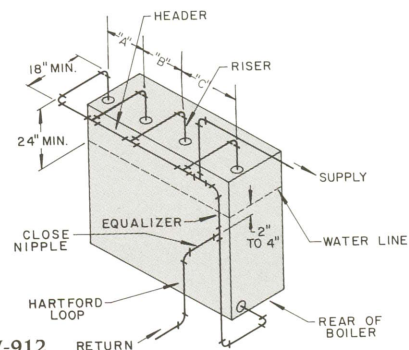
V-903 AND V-904



V-905 THRU V-907



V-908 THRU V-910



V-911 AND V-912

* All supply tappings are 3 inch and all return tappings are 3 inch. They may be bushed down in the field according to the minimum recommendations.

BURNER SCHEDULES

OIL BURNERS

BOILER NUMBER	BECKETT		CARLIN		GORDON-PIATT		POWER FLAME		WEBSTER	
	BURNER MODEL	H.P.	BURNER MODEL	H.P.	BURNER MODEL	H.P.	BURNER MODEL	H.P.	BURNER MODEL	H.P.
V-903	CF500	1/3	102CRD	1/6	—	—	—	—	—	—
V-904	CF500	1/3	301CRD	1/4	—	—	C1-OS	1/3	JB10-02	1/4
V-905	CF800	1/3	301CRD	1/4	—	—	C1-OS	1/3	JB10-02	1/4
V-906	CF800	1/3	301CRD	1/4	R6.2-O-05	1/2	C1-OS	1/3	JB10-03	1/3
V-907	CF1400	1/2	702CRD	1/2	R6.3-O-05	1/2	C1-OS	1/2	JB10-03	1/3
V-908	CF1400	1/2	702CRD	1/2	R8-O-05	1/2	C1-OS	1/2	JB10-03	1/3
V-909	CF1400	1/2	702CRD	1/2	R8.1-O-07	3/4	C1-OS	1/2	JB10-03	1/3
V-910	CF1400	1/2	702CRD	1/2	R8.1-O-07	3/4	C1-OS	1/2	JB10-03	1/3
V-911	CF2300	3/4	702CRD	1/2	R8.2-O-07	3/4	C2-OAS	3/4	JB10-03	1/3
V-912	CF2300	3/4	801CRD	3/4	R8.2-O-07	3/4	C2-OAS	3/4	JB10-07	3/4

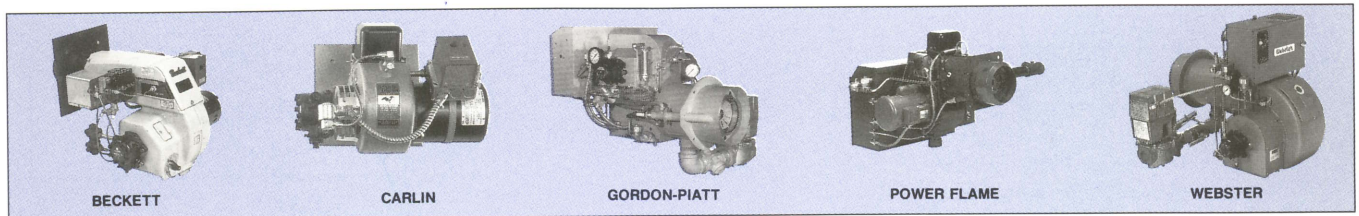
GAS BURNERS

BOILER NUMBER	GORDON-PIATT				POWER FLAME				WEBSTER			
	BURNER MODEL	H.P.	MIN. GAS PRESSURE INCHES W.C.	INLET GAS CONNECTION INCHES	BURNER MODEL	H.P.	MIN. GAS PRESSURE INCHES W.C.	INLET GAS CONNECTION INCHES	BURNER MODEL	H.P.	MIN. GAS PRESSURE INCHES W.C.	INLET GAS CONNECTION INCHES
V-903	S4.2-G-03	1/3	5.7	3/4	JR15A-10	1/4	3.8	1	—	—	—	—
V-904	S4.2-G-03	1/3	6.2	1	JR15A-10	1/4	4.5	1	JB1G-02	1/4	4.5	1-1/4
V-905	S4.2-G-03	1/3	6.3	1	JR15A-10	1/4	4.5	1	JB1G-02	1/4	4.4	1-1/4
V-906	R6.2-G-05	1/2	5.9	1-1/4	JR30A-10	1/3	5.3	1	JB1G-03	1/3	5.4	1-1/4
V-907	R6.3-G-05	1/2	6.7	1-1/4	JR30A-10	1/3	5.7	1	JB1G-03	1/3	6.4	1-1/4
V-908	R8-G-05	1/2	6.2	1-1/2	JR30A-12	1/3	6.5	1	JB1G-03	1/3	6.4	1-1/4
V-909	R8.1-G-07	3/4	7.0	1-1/4	JR50A-15	1/3	7.3	1	JB1G-03	1/3	6.1	1-1/4
V-910	R8.1-G-07	3/4	5.3	1-1/2	JR50A-15*	1/3	6.9	1-1/4	JB1G-03	1/3	5.7	1-1/2
V-911	R8.2-G-07	3/4	6.7	1-1/2	JR50A-15	1/3	6.0	1-1/4	JB1G-03	1/3	7.0	1-1/2
V-912	R8.2-G-07	3/4	6.4	1-1/2	JR50A-15	1/2	6.4	1-1/4	JB1G-05	1/2	7.4	1-1/2

GAS/OIL BURNERS

BOILER NUMBER	GORDON-PIATT				POWER FLAME				WEBSTER			
	BURNER MODEL	H.P.	MIN. GAS PRESSURE INCHES W.C.	INLET GAS CONNECTION INCHES	BURNER MODEL	H.P.	MIN. GAS PRESSURE INCHES W.C.	INLET GAS CONNECTION INCHES	BURNER MODEL	H.P.	MIN. GAS PRESSURE INCHES W.C.	INLET GAS CONNECTION INCHES
V-903	S4.2-GO-03	1/3	5.7	3/4	—	—	—	—	—	—	—	—
V-904	S4.2-GO-03	1/3	6.2	1	C1-GO-10	1/3	4.2	1	JB1C-02	1/4	4.5	1-1/4
V-905	S4.2-GO-03	1/3	6.3	1	C1-GO-10	1/3	4.6	1	JB1C-02	1/4	4.4	1-1/4
V-906	R6.2-GO-05	1/2	5.9	1-1/4	C1-GO-10	1/2	5.3	1	JB1C-03	1/3	5.4	1-1/4
V-907	R6.3-GO-05	1/2	6.7	1-1/4	C1-GO-12	1/2	5.9	1	JB1C-03	1/3	6.4	1-1/4
V-908	R8-GO-05	1/2	6.2	1-1/2	C1-GO-12	1/2	6.6	1	JB1C-03	1/3	6.4	1-1/4
V-909	R8.1-GO-07	3/4	7.0	1-1/4	C1-GO-12	1/2	5.7	1	JB1C-03	1/3	6.1	1-1/4
V-910	R8.1-GO-07	3/4	5.3	1-1/2	C1-GO-12	1/2	6.1	1	JB1C-03	1/3	5.7	1-1/2
V-911	R8.2-GO-07	3/4	6.7	1-1/2	C2-GO-15	3/4	6.6	1	JB1C-03	1/3	7.0	1-1/2
V-912	R8.2-GO-07	3/4	6.4	1-1/2	C2-GO-15	3/4	7.1	1	JB1C-07	3/4	7.4	1-1/2

REPRESENTATIVE BURNER ILLUSTRATIONS



NOTE: All burners use standard motor voltage of 120/60/1 except for Carlin Burner Model #801CRD and Power Flame C2 Burners which have standard motor voltage of 240/60/1.

SPECIFICATIONS



V9 RATINGS



BOILER MODEL (1)	BOILER HORSEPOWER	GROSS OUTPUT MBH	NET I=B=R RATING (2)			BURNER INPUT		HEATING SURFACE (SQ. FT.)		NET FIREBOX VOLUME (CU. FT.)	PRESSURE IN FIREBOX (INCHES WTR. COLUMN) (3)
			SQ. FT STEAM	MBH STEAM	MBH WATER	OIL (GPH)	GAS (MBH)	STEAM	WATER		
V-903	9.3	311	971	233	270	2.75	397	34	37	3.2	.28
V-904	12.1	404	1263	303	351	3.5	505	48	54	4.8	.29
V-905	16.0	534	1671	401	464	4.6	668	62	71	6.4	.20
V-906	19.8	664	2075	498	577	5.8	830	77	88	7.9	.29
V-907	23.7	794	2483	596	690	6.9	992	91	105	9.5	.26
V-908	27.6	924	2888	693	803	8.0	1155	105	122	11.0	.29
V-909	31.5	1054	3296	791	917	9.1	1317	119	139	12.6	.28
V-910	35.4	1184	3700	888	1030	10.2	1479	134	156	14.2	.28
V-911	39.3	1314	4125	990	1143	11.4	1642	148	173	15.7	.28
V-912	43.2	1445	4579	1099	1257	12.6	1804	162	190	17.3	.30

- (1) Suffix "S" indicates steam boiler, "W" indicates water boiler. Suffix "G" indicates gas-fired, "O" indicates oil-fired. "GO" indicates combination gas-oil fired.
- (2) I=B=R net ratings shown are based on piping and pickup allowances which vary from 1.333 to 1.315 for steam and 1.15 for water. Consult manufacturer for installations having unusual piping and pickup requirements, such as intermittent system operation, extensive piping systems, etc. The I=B=R burner capacity in GPH is based on oil having a heat value of 140,000 BTU per gallon.
- (3) Boiler ratings are based on 12.5% CO₂ + .10" water column pressure at boiler flue outlet. Ratings shown above apply at all altitudes up to 1000 feet on oil and 2000 feet on gas. For altitudes above those indicated, the ratings should be reduced at the rate of 4% for each 1000 feet above sea level.

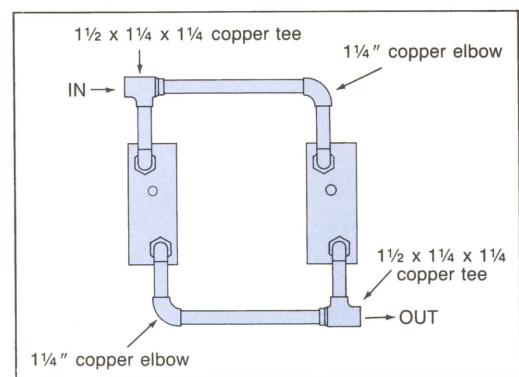
NOTE: Maximum Allowable Working Pressure—
 Steam 15 PSI
 Water (USA) 50 PSI or 70 PSI depending on relief valve setting
 Water (Canada) 45 PSI

TANKLESS HEATER RATINGS (Water & Steam)

BOILER MODEL	NUMBER OF V9-2 TANKLESS* HEATERS INSTALLED			
	1	2	3	4
V-903	6.0	—	—	—
V-904	7.5	—	—	—
V-905	7.5	—	—	—
V-906	7.5	13	—	—
V-907	7.5	15	—	—
V-908	7.5	15	—	—
V-909	7.5	15	21	—
V-910	7.5	15	22.5	—
V-911	7.5	15	22.5	—
V-912	7.5	15	22.5	28.5

*Ratings are given in gallons per minute continuous flow of water heated from 40°F to 140°F with 200°F boiler water.

Two Heater Manifold



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