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G-4C

gas fired boilers
hot water or steam



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EXHIBIT

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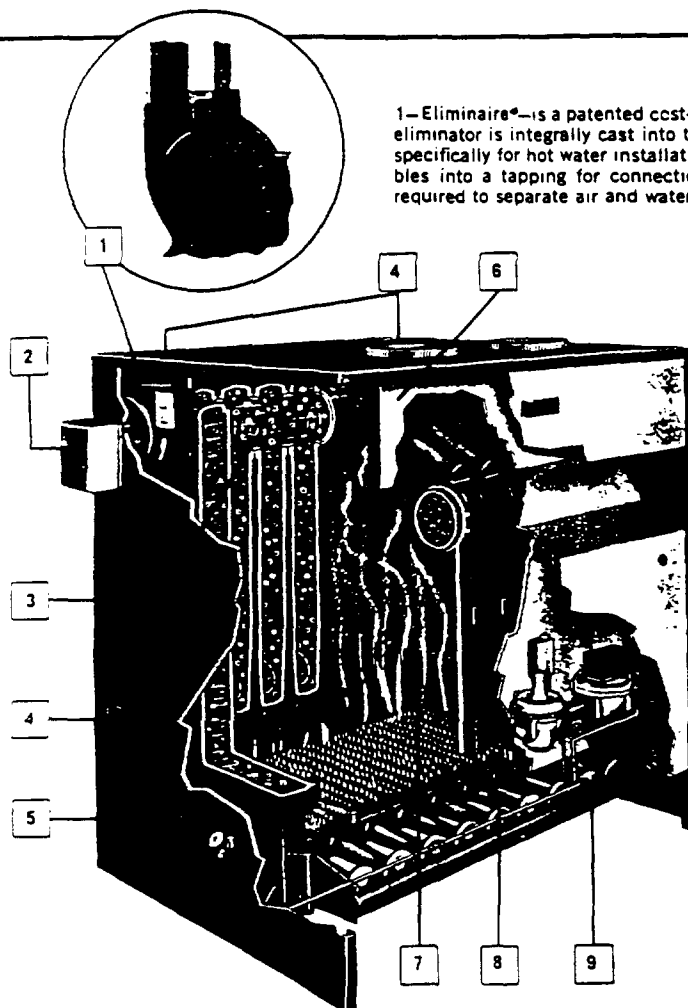
new G-40 gas boiler—reduces costs and installation time

The new G-40 gas boiler by American-Standard is suitable for installation in larger residences and small apartment and commercial buildings. Designed for both hot water and steam installations, it can be furnished with a tankless type, internal, domestic water heater for either application. An attractive two-tone boiler jacket gives the G-40 a clean, streamlined appearance.

Ruggedly constructed of durable cast iron, the new G-40 is available in 3 to 14 section sizes with A.G.A. design certified outputs from 120,000 to 780,000 btu/hr. All sections are tested for 50 psi water working pressure. On-site assembling time can be decreased by ordering

up to 14 sections pre-assembled, with or without factory-installed tankless heater. An exclusive built-in air eliminator—the ELIMINAIRE—is furnished on all boilers, specifically for hot water installations, saving the additional expense of an external device.

The G-40 is provided with two 3" top flow tapplings and two 3" return flow tapplings to allow flexibility in designing system piping when the G-40 is installed in confined areas. For further convenience, complete manifold and all controls are shipped factory assembled. Self-energizing controls and electronic controls are available as options.



1—Eliminaire®—is a patented cost-saving feature of the G-40. This unique built-in air eliminator is integrally cast into the left hand end section. Furnished in all boilers, specifically for hot water installations, the ELIMINAIRE baffle diverts rising air bubbles into a tapping for connection to the expansion tank. No external device is required to separate air and water—thus reducing both costs and installation time.

2—controls—mounted on front and left side of boiler for easy adjustment and maintenance. Optional electronic controls and self-energizing controls available.

3—water heater—large, finned copper coil tankless type available for steam or water installations. Inserted where hottest water is in contact with heater coil.

4—tapplings—two 3" supply (top) and two 3" return tapplings (side) simplify piping hook-up.

5—jacket—sturdy steel with smart beige and brown finish, modern square corners. Inner surfaces protected with heavy glass fiber insulation—prevents wasteful heat loss, keeps jacket cool.

6—built-in draft hood—completely enclosed in jacket; eliminates unsightly protrusion in rear of boiler.

7—cast iron sections—multiple pin-like projections for maximum heat extraction. Tested for 50 psi water working pressure. End sections designed with extended legs to eliminate need for separate base.

8—burners—precision made and factory tested to assure quiet, efficient operation with all gases. Cast iron, drilled port burners supplied for natural gas. Cleanable ribbon burners standard for propane gas.

9—factory assembled manifold and controls—only requires attachment to boiler. Completely enclosed by jacket.

ELIMINAIRE® is a trademark of AMERICAN STANDARD Inc.



G-40 ratings (natural and propane gases)

boiler number	no. of sections	no. of burners	for installations from sea level to 2000 ft. ±					chimney	
			A.G.A. ratings		net I = B = R ratings Δ				
			input (Btu/hr)	output (Btu/hr)	water (Btu/hr)	steam (sq. ft.)	steam (Btu/hr)	diameter (inches)	height (feet)
G-403	3	2	150,000	120,000	104,300	375	90,000	8	15
G-404	4	3	225,000	180,000	156,500	563	135,000	8	15
G-405	5	4	300,000	240,000	208,700	750	180,000	8	15
G-406	6	5	375,000	300,000	260,900	938	225,100	10	15
G-407	7	6	450,000	360,000	313,000	1125	270,100	10	15
G-408	8	7	525,000	420,000	365,200	1313	315,100	10	15
G-409	9	8	600,000	480,000	417,400	1500	360,100	10	15
G-4010	10	9	675,000	540,000	469,600	1688	405,100	12	15
G-4011	11	10	750,000	600,000	521,800	1875	450,000	12	15
G-4012	12	11	825,000	660,000	574,000	2063	495,200	12	15
G-4013	13	12	900,000	720,000	626,200	2250	540,000	12	15
G-4014	14	13	975,000	780,000	678,400	2438	585,100	15	15

■ For altitudes above 2000 ft., ratings should be reduced at the rate of 4% for each 1000 ft. above sea level.

Δ Net I = B = R ratings are based on a piping and pick up allowance of 1.333 for steam and 1.15 for water. American-Standard should be consulted before selecting a boiler for installations having unusual piping and pick up requirements.

G-40 tankless heater ratings

boiler number	100°F rise in temperature with 200°F boiler water temperature (gallons per minute)											
	heater no. 218		heater no. 222		heater no. 226		heater no. 232		heater no. 448		heater no. 480	
	water	steam	water	steam	water	steam	water	steam	water	steam	water	steam
G-403	4	3	—	—	—	—	—	—	—	—	—	—
G-404	4	3½	4½	4	—	—	—	—	—	—	—	—
G-405	4	—	4½	4	6	5½	—	—	—	—	—	—
G-406	4	—	4½	—	6	5½	—	—	—	—	—	—
G-407	4	—	4½	—	6½	—	7½	7	—	—	—	—
G-408	4	—	4½	—	6½	—	8	7½	9	8½	—	—
G-409	4	—	4½	—	6½	—	8	—	9	8½	—	—
G-4010	4	—	4½	—	6½	—	8	—	9	—	—	—
G-4011	4	—	4½	—	6½	—	8	—	9	—	12	11
G-4012	4	—	4½	—	6½	—	8	—	9	—	13	12
G-4013	4	—	4½	—	6½	—	8	—	9	—	14½	—
G-4014	4	—	4½	—	6½	—	8	—	9	—	15½	—

NOTE: For Steam boiler-heater combinations shown shaded, extra aquastat in right end section is recommended.

G-40 gas boilers by American-Standard have ratings approved by the Institute of Boiler and Radiator Manufacturers. The boilers are constructed to the specifications of the American Society of Mechanical Engineers and are design certified by the American Gas Association. The G-40 bears the I=B=R, A.S.M.E. and A.G.A. symbols. All sizes of the G-40 are available in models for forced and gravity hot water, and steam systems.

sample specification for G-40

Contractor shall furnish and install, as indicated on plans,gas fired boiler(s), having an input of.....Btu/h and a gross output of.....Btu/h when fired with.....gas. Boiler(s) shall be constructed of cast iron in accordance with A.S.M.E. requirements for low pressure heating boilers and bear the A.S.M.E. symbol. Boiler(s) shall be A.G.A. design certified and have I=B=R approved ratings. Boiler(s) shall be furnished with an air elimination device integrally cast into the left hand end supply tapping. Boiler(s) shall be composed of cast iron sections with vertical flues and furnished with one atmospheric drill port

or removable ribbon burner per flueway. Boiler(s) shall be supplied by manufacturer with one main automatic diaphragm gas valve, safety pilot with thermocouple and additional lighting pilots as required, one gas pressure regulator (except for propane gas), high limit control, and integral canopy and drafthood. Water or steam trim as required.

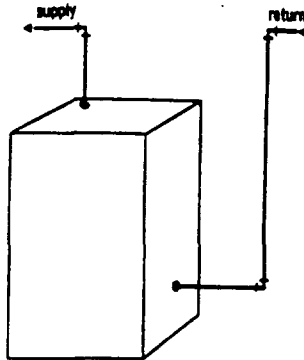
Boiler(s) shall be supplied with internal type tankless heater capable of supplying.....gallons per minute at a 100°F rise in temperature.

G-40

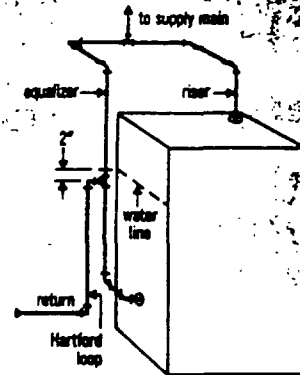
gas fired boilers

minimum piping recommendations

hot water



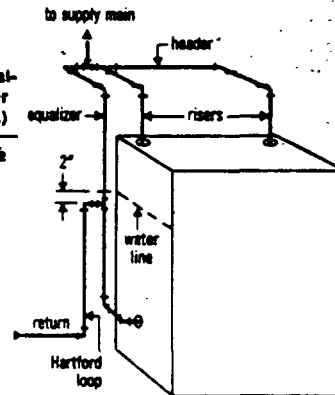
steam



boiler number	gravity		forced	
	supply (in.)	return (in.)	supply (in.)	return (in.)
G-403	2	2	1 1/4	1 1/4
G-404	2	2	1 1/4	1 1/2
G-405	2 1/2	2 1/2	2	2
G-406	(2)-2	(2)-2	2	2
G-407	(2)-2	(2)-2	2	2
G-408	(2)-2	(2)-2	2 1/2	2 1/2
G-409	(2)-2 1/2	(2)-2 1/2	2 1/2	2 1/2
G-4010	(2)-2 1/2	(2)-2 1/2	2 1/2	2 1/2
G-4011	(2)-3	(2)-2 1/2	3	3
G-4012	(2)-3	(2)-2 1/2	3	3
G-4013	(2)-3	(2)-2 1/2	3	3
G-4014	(2)-3	(2)-2 1/2	3	3

NOTE: Left hand supply connection featuring the ELIMINAIRE is used on water boilers. Limit control should also be placed in the left hand section. Where both outlets and return are used on gravity systems, make respective supply and return connection at opposite ends of the boiler.

boiler number	riser (in.)	return (in.)	header (in.)	equalizer (in.)
G-408	(2)-2	1 1/2	4	1 1/2
G-409	(2)-2	1 1/2	4	2
G-4010	(2)-3	1 1/2	4	2
G-4011	(2)-3	1 1/2	4	2
G-4012	(2)-3	1 1/2	4	2
G-4013	(2)-3	1 1/2	4	2
G-4014	(2)-3	1 1/2	4	2



gas control and connection sizes; pertinent data

boiler number	water content (pounds)		appex. weight (pounds)	size of manifold (inches)	pressure regulator (inches)	automatic gas valve, gas connections and manual shutoff valve sizes (inches)	
	water	steam		nat. & propane gases	nat.	nat.	propane
G-403	220.8	164.4	858	1 1/4	1/2	1/2	1/2
G-404	281.0	209.9	1027	1 1/4	3/4	3/4	1/2
G-405	341.2	258.4	1195	1 1/4	1	1	1/2
G-406	401.4	300.9	1370	1 1/4	1	1	3/4
G-407	461.6	346.4	1544	1 1/4	1	1	3/4
G-408	521.8	391.9	1713	1 1/4	1	1	3/4
G-409	582.0	437.4	1890	1 1/4	1 1/4	1 1/4	1
G-4010	642.2	482.9	2050	1 1/4	1 1/4	1 1/4	1
G-4011	722.4	528.4	2219	1 1/2	1 1/4	1 1/4	1
G-4012	782.6	573.9	2388	1 1/2	1 1/4	1 1/4	1
G-4013	842.8	619.4	2557	1 1/2	1 1/4	1 1/4	1
G-4014	903.0	664.9	2726	1 1/2	1 1/4	1 1/4	1

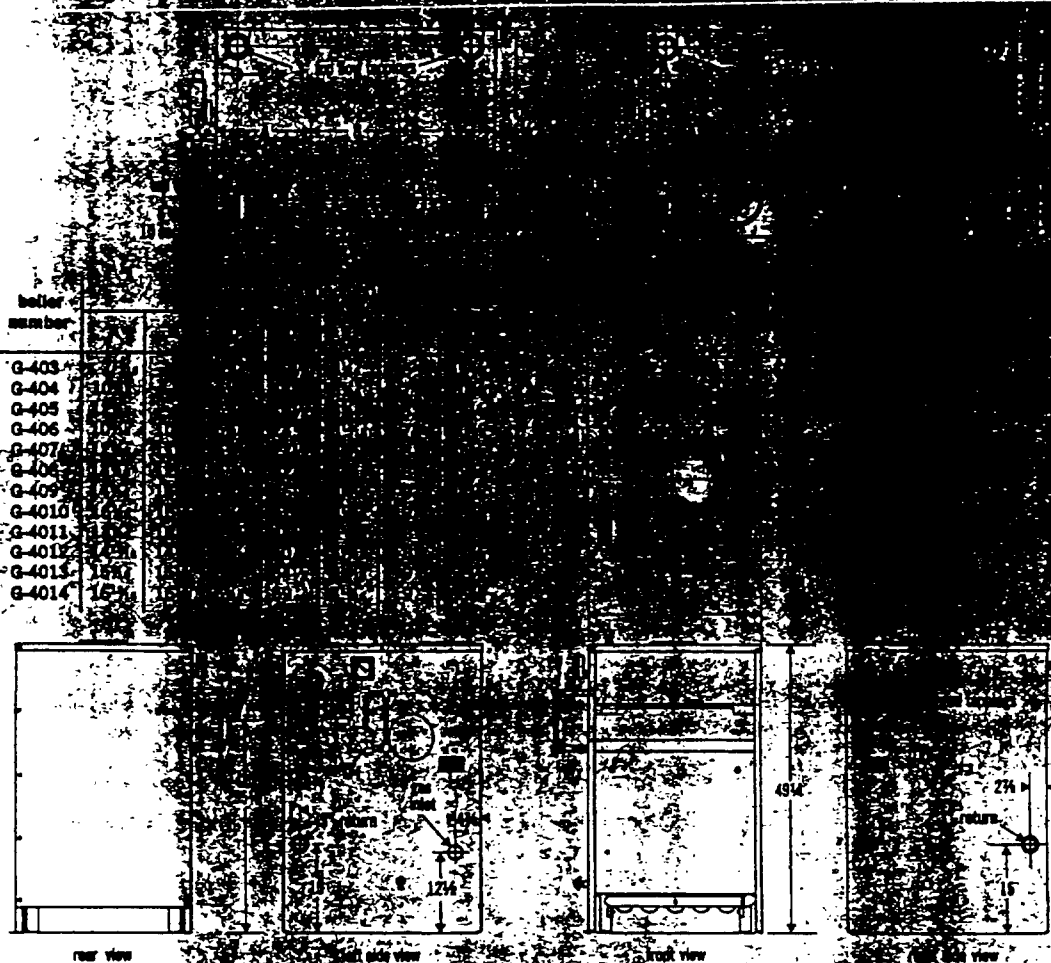
■ Pressure regulator not furnished for Propane gas.

AMERICAN STANDARD

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gas fired boilers

dimensions for all models



orifice drill sizes—main burner spuds (at sea level)

input per burner (Btu/h)	specific gravity of gas	natural gas					sewage gases					propane gas	
		800 Btu cu. ft.	800 Btu cu. ft.	1000 Btu cu. ft.	1100 Btu cu. ft.	1200 Btu cu. ft.	800 Btu cu. ft.	850 Btu cu. ft.	700 Btu cu. ft.	750 Btu cu. ft.	800 Btu cu. ft.	2500 Btu cu. ft.	
75,000	0.60	16	19	21	24	—	—	—	—	—	—	—	
75,000	0.65	11	15	18	20	—	—	—	—	—	—	—	
75,000	0.70	10	14	17	19	21	A	2	3	4	7	—	
75,000	0.80	—	—	—	—	—	C	1	2	3	4	—	
75,000	0.90	—	—	—	—	—	D	8	1	2	3	—	
75,000	1.53	—	—	—	—	—	—	—	—	—	—	41	

NOTE: Sea level ratings are to be used for elevations between 0 and 2,000 ft. For altitudes above 2,000 ft., sea level ratings should be reduced at the rate of 4% for each 1,000 ft. above sea level.

manifold pressure table

gas	manifold pressure (in. H ₂ O)
natural gas	3.5
propane	11.0
sewage gas	3.0

heating value of gas at sea level (60°F and 30 in. Hg.)

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gas fired boilers

Control Tappings



location	size of tapping (in.)	control used	location	size of tapping (in.)	control used
A	1/2	pressure gauge	F	1/2	pressure gauge
B	1 1/4	blow-off	G	1/2	pressure gauge
C	1/2	tankless heater control	H	1/2	pressure gauge
D	1	safety valve	I	1/2	pressure gauge
E	1/2	gauge glass and low water cut-off	J	1/2	pressure gauge

When required, auxiliary pressure limit control is to be installed in blow-off piping.



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PLUMBING / HEATING

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