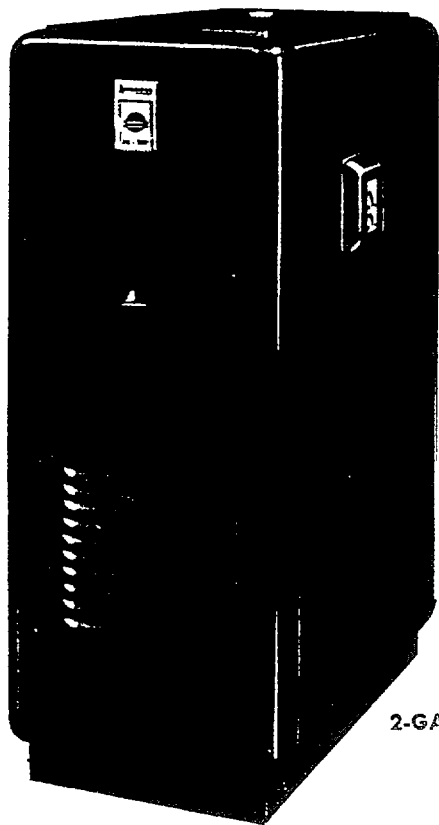


The 1-GA-E, 2-GA-E and 4-GA-E

EMPIRE BOILERS

by
AMERICAN-Standard



2-GA-E

PLAINTIFF'S
EXHIBIT

ASI-589

09020

EXCLUSIVELY FOR *Gas*

CAST IRON CONSTRUCTION

AMERICAN-Standard

First in heating ... first in plumbing

OR AUTOMATIC HEATING WITH ALL TYPES OF GAS!

CONSTRUCTION FEATURES

DRAFT HOOD—Prevents either excessive drafts or down-drafts from affecting proper combustion.

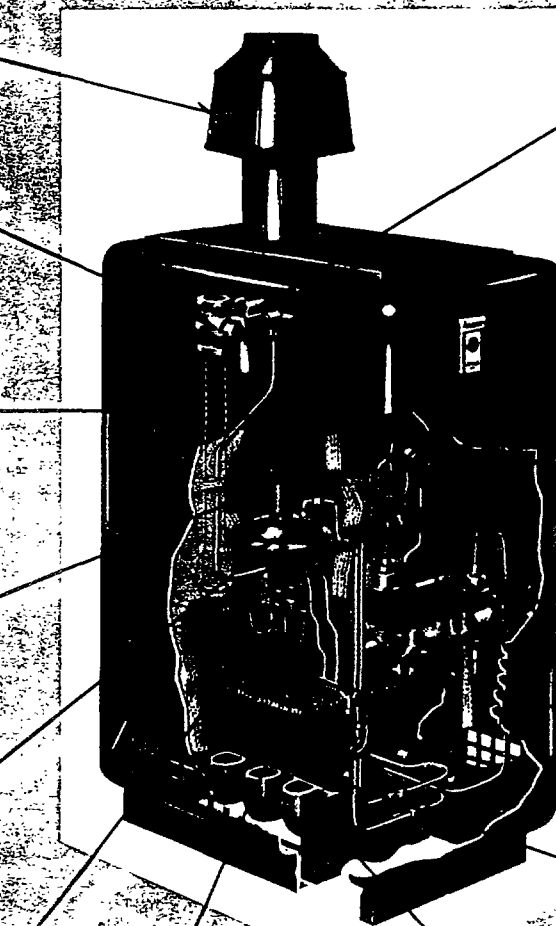
MANUAL SHUT-OFF VALVE—Furnished with sufficient pilot tubing to be installed 5' above finished floor line.

JACKET—Encloses principal controls, offers a striking combination of modern design and easy-to-clean hammer finish in pleasing Forge Red. Thick insulation effectively prevents excessive heat loss.

CLEANOUTS—Removable cover plates provide easy access for cleaning flue surfaces of sections.

GAS PRESSURE REGULATOR—Maintains uniform gas pressure. Equipped with venting device which is firmly attached to the pilot burner. Regulator not furnished for LP-gas.

PINTYPE SECTIONS—Of durable cast iron. Flue surfaces are studded with projections which absorb maximum heat from the burning gases, transferring this heat to boiler water. Machine-ground gas-tight surfaces require no cement or putty where sections are joined.



2-GA-E

BURNERS—Offer quiet, safe, economical operation with each type of gas. Raised rib, drilled port burners regularly furnished; ribbon burners for manufactured gas optional.

WET BASE—Provides extra heating surface, prevents excess heat loss permitting installation on combustible flooring, in utility rooms, or in closets. Radiators can be installed on same floor as boiler.

PILOT GAS FILTER—Prevents dirt, gum, or other foreign matter from clogging pilot tube or pilot.

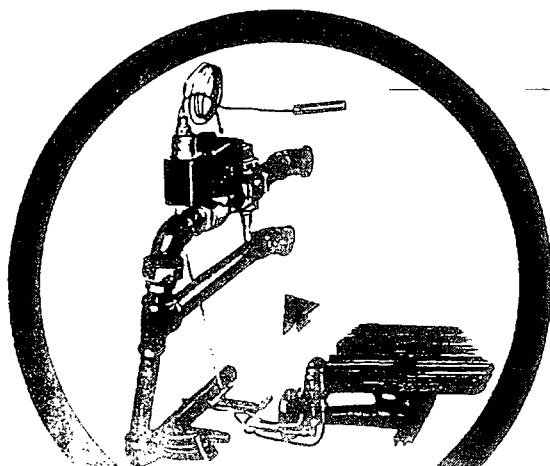
AUTOMATIC GAS VALVE—Operated by room thermostat, A.C. listed, electrically actuated Detroit No. V-574, step-acting automatic gas valve controls flow of gas and maintains desired room temperature. Has mechanical limit control, manual operating, and fully recycling features. Electric ignition optional at small extra cost. Special gas valve furnished for LP-gas.

AUTOMATIC PILOT VALVE—Prevents flow of gas to main burners if pilot goes out. Thermocouple-operated type, and is arranged for 100% shut-off for LP-gas and butane-air gas (525 Btu, 1.16 sp gr).

ACCESS PANEL—Permits easy inspection of controls, and gives access to combustion chamber. Carefully fitted to close flush with jacket front.

VENTURI MIXER TUBE—Induces proper velocity to gas and primary air, and assures correct mixture of gas and air.

CANOPY—Ssealed into putty-filled groove to form gas tight connection between boiler flue passages and draft hood. (Not shown)



SUB-ASSEMBLIES

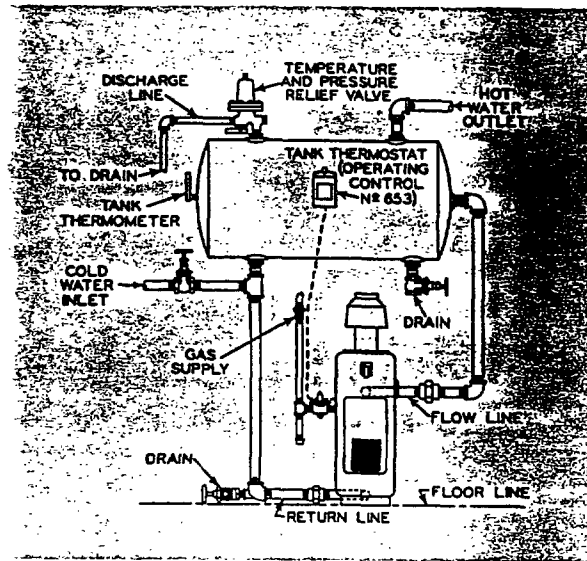
EMPIRE gas fired cast iron sectional boilers are scientifically engineered and precision-machined to facilitate quick and easy assembly. For time and labor saving installation, controls, valves, and control piping are factory-assembled as far as practicable. Such assemblies vary with different boilers due to size, number of burners, etc. The illustration shows a 4-GA-E control and piping sub-assembly, consisting of twenty-four separate items of control equipment—all of which have been accurately pre-assembled at the factory and are ready for attachment to the unit.

ABUNDANT HOT WATER SUPPLY AT LOW COST RED

BECAUSE of their automatic, economical operation, and compact size, the 1-GA-E, 2-GA-E, and 4-GA-E Empire gas boilers are specially suited for installation in year 'round direct hot water supply systems for residential, commercial, or institutional buildings . . . wherever there is a demand for large quantities of constantly-hot water.

Small in size, the Empire Boiler can be used with a storage tank, as shown at right, for a neat and space-saving installation. And with its automatic, "fuel-guardian" controls, water in the storage tank is always maintained at the desired temperature.

Ratings of the Empire boilers for direct hot water supply systems are shown below. For information on indirect types of hot water supply systems with American-Standard gas fired boilers, consult other American-Standard literature, or ask your heating contractor.



EMPIRE water boilers for direct type ("DW") systems

DETAILS of a typical direct hot water supply installation are shown in the above drawing. The complete system is controlled by the Detroit V-574 Automatic Gas Valve, which operates in response to the temperature demands of an immersion operating control inserted in a well in the storage tank. The immersion control is electrically connected to the main gas valve, and can easily be set to the desired degree of temperature, with a range from 90° to 210°, by an adjustment on the outside of the control.

Empire gas boilers for direct hot water supply are factory tested at 200 pounds hydrostatic pressure, and are suitable for installations utilizing 80 pounds working pressure or less. For data on control equipment furnished, see American-Standard Price Book.

RATINGS FOR "DW" SYSTEMS

FOR INSTALLATIONS AT SEA LEVEL AND ELEVATIONS UP TO 2000 FT						
Empire Boiler Number	RATING—GALLONS WATER PER HOUR					
	Mfd, Natural & Mixed Gas; Butane-Air Gas (525 Btu, 1.16 sp gr)			LP-Gas		
	60° Rise	80° Rise	100° Rise	60° Rise	80° Rise	100° Rise
1-GA-4-E	63	47	38	63	47	38
1-GA-5-E	84	63	50	84	63	50
1-GA-6-E	105	79	63	105	79	63
2-GA-4-E	126	95	76	120	90	72
2-GA-5-E	168	126	101	160	120	96
2-GA-6-E	210	158	126	200	150	120
2-GA-7-E	252	189	151	240	180	144
4-GA-8-E	294	220	176	294	220	176
4-GA-9-E	336	252	201	336	252	201
4-GA-11-E	420	316	252	420	316	252

PERFECTED DESIGN MEANS ECONOMY

WHETHER Empire boilers are used for hot water supply, or for regular heating installations, their proven construction features mean unparalleled economy over long periods of service. The wet base construction, for example, not only protects floors, but adds extra heating surface to help obtain maximum heat output from a given amount of fuel. Flues for a gas fired boiler require special consideration, and the multitude of projecting pins on the flue surfaces of the Empire Boiler have been conclusively demonstrated by laboratory tests and thousands of installations to be most effective.

American-Standard maintains a continuing research program in its modern laboratories to assure products which are unsurpassed for quality, economy and durability.

FOR INSTALLATIONS AT ELEVATIONS 2000 TO 6000 FT						
Empire Boiler Number	RATING—GALLONS WATER PER HOUR					
	Mfd, Natural & Mixed Gas; Butane-Air Gas (525 Btu, 1.16 sp gr)			LP-Gas		
	60° Rise	80° Rise	100° Rise	60° Rise	80° Rise	100° Rise
1-GA-4-E	50	38	30	50	38	30
1-GA-5-E	67	50	40	67	50	40
1-GA-6-E	84	63	50	84	63	50
2-GA-4-E	112	84	67	108	81	65
2-GA-5-E	149	112	90	144	108	86
2-GA-6-E	187	140	111	180	135	108
2-GA-7-E	224	168	134	216	162	130
4-GA-8-E	235	177	141	235	177	141
4-GA-9-E	269	202	161	269	202	161
4-GA-11-E	336	252	202	336	252	202

(Jacket Encloses All Principal Controls)

Hydrostatically Tested at 200 Lbs. Working Pressure 80 Lbs. Maximum

For altitudes above 5000 ft, high altitude ratings should be reduced at the rate of 4% for each 1000 ft. above 5000 ft.