PLAINTIFF'S EXHIBIT

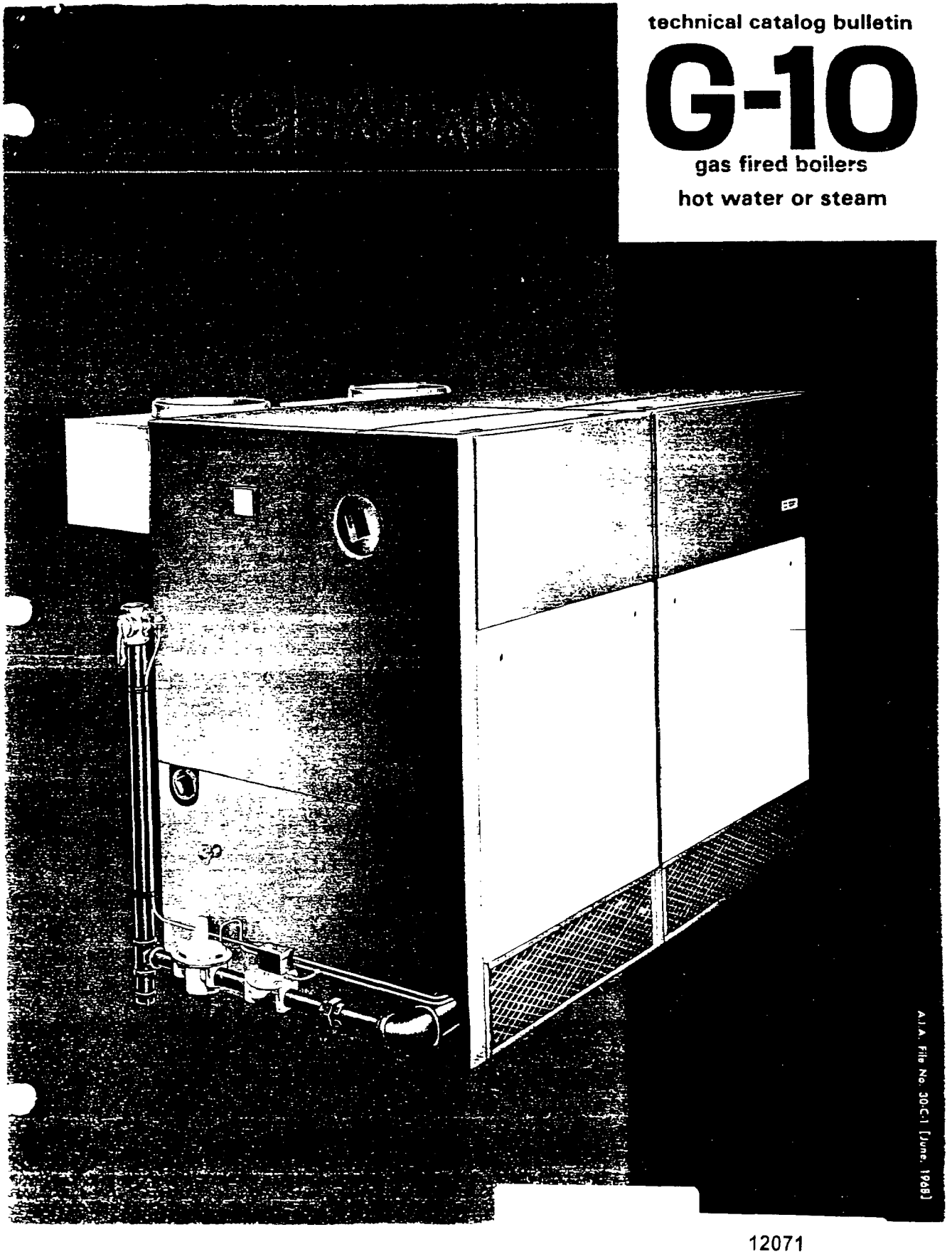
ASI-1107

technical catalog bulletin

G-10

gas fired boilers

hot water or steam



A.I.A. File No. 30-C-1 [June, 1968]

12071

new G-10 gas boiler—big flexibility for the "big boiler" market

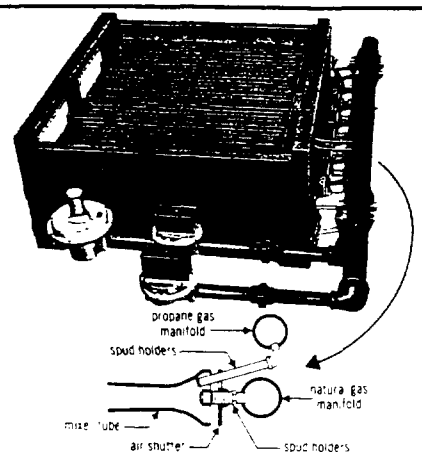
Flexibility in selection, design and assembly for exact output requirements, sections cast in durable, one-piece cast iron with no weak welds, the new G-10 meets the challenging requirements of today's commercial and industrial markets...efficiently and economically. It is especially ideal for the variety of applications found in schools, apartments and office buildings.

The G-10 is available in 27 sizes for steam and water applications—in output increments of 160,000 Btu's. This allows engineers and architects to select the output they need, rather than settle for costly oversizing. For additional flexibility in selection, water boilers can be equipped with tankless heaters. Universal burners have been provided for the use of any gas—natural, mixed or LP—without any sacrifice in efficiency!

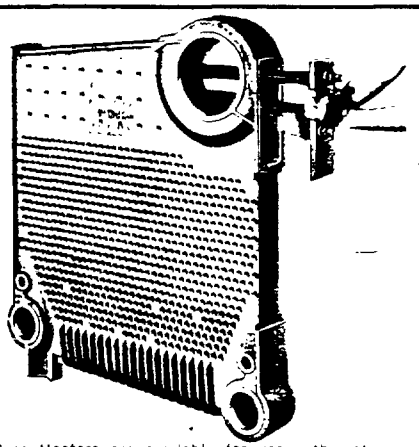
The G-10 boiler easily adapts to most installation conditions, even those considered "hard-to-fit". Flexibility in design allows choice of the most convenient piping and flue arrangement. Both a rear and top drafthood are offered, as well as provisions for steam trim at either side, return tapping at either end, and auxiliary control tappings, if necessary.

Fast, economical assembly is obtained through flexibility in parts, and use of special American-Standard tools. Both side and end base panels have been made completely interchangeable. Sections feature precision ground joints and 3-nipple design to assure flat, even draw-up. The American-Standard assembly tool uses hydraulic pressure to press the complete assembly together—up to 31 sections at once. An attractive two-tone steel jacket, with modular panel design, is then easily assembled on the boiler after all piping is in place.

New G-10 boilers can be equipped with electronic controls for automatic supervision of burners. Each model is A.G.A. design certified and is available with F.M. and F.I.A. equipment, when specified.

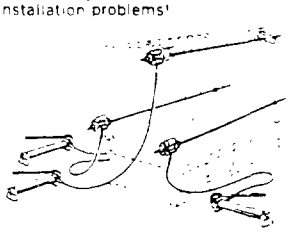


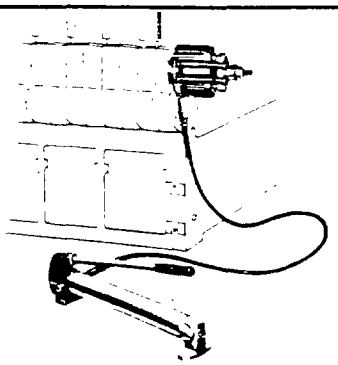
Special Dual Gas Equipment with manifold design as illustrated above. Includes two distinct sets of controls for propane and natural gas. Furnished with one set of ribbon burners—that burn either fuel efficiently—to eliminate the need of changing spuds or burners when changeover is desired. Also available with outdoor adjustable thermostatic changeover control.



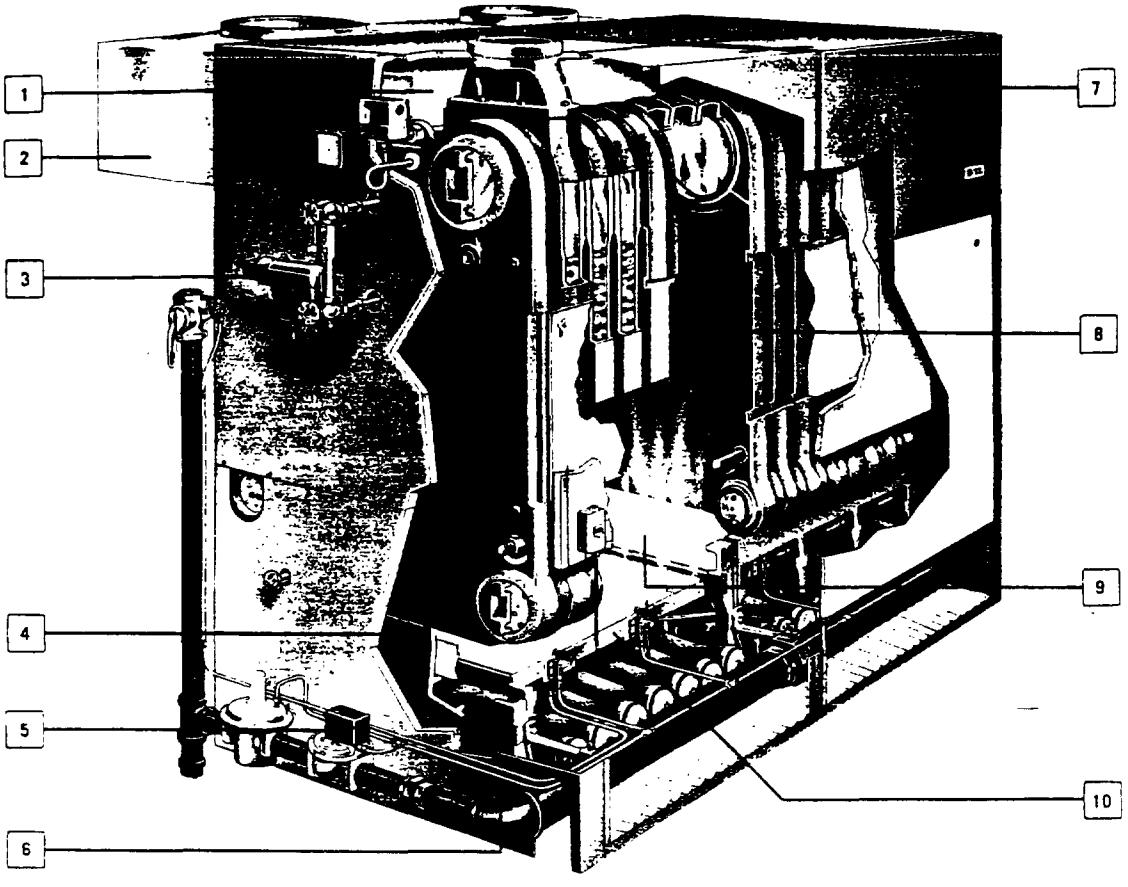
Tankless Heaters are available for use with water boilers . . . minimizing utilization of valuable space. A special center section with a tankless heater opening is supplied for each heater ordered. Tankless heaters are available for single or multiple installations with ratings from 4¾ gpm with a single heater to 12¾ gpm with 4 heaters installed.

Hydraulic Assembly Tool is an easy-to-use tool which allows the assembler to cut as much as two-thirds off the normal section assembly time! It replaces the installer's arm and wrench with ten tons of hydraulic pressure upon each end of the three full length draw-up rods. Up to 31 sections are pressed together tightly and evenly, practically eliminating the chance of cocked nipples—the major cause of installation problems!





G-10
gas-fired boilers



1—Flue Canopy—Forms a gas tight connection between flue passages and drafthood. It is completely enclosed by boiler jacket.

2—Drafthoods—Locations for maximum flue flexibility. A conventional overhang rear drafthood for low over-all height—and an optional top outlet drafthood.

3—Low Water Cut-Off (Steam Boilers)—Located outside jacket. Electrically shuts off main gas valve if boiler water falls to low point.

4—Base Frame—Consists of cast iron panels that are completely interchangeable for assembly flexibility.

5—Automatic Gas Valve—A.G.A. design certified, automatic diaphragm type.

6—Manifold and Controls—Designed for use with all gases. Special manifolds available for dual gas equipment and F.M. and F.I.A. installations.

7—Jacket—Sturdy steel with distinctive brown and beige finish. Includes front cleanout door for easy access and expanded metal air inlet opening for combustion. Lined with glass fiber insulation to prevent heat loss and keep jacket temperature down. Jacket covers both canopy and manifold for streamlined, "packaged" appearance.

8—Cast Iron Sections—Modular design with precision ground joints for flat, even draw-up. Multiple pin flue surface for higher sectional output. The 8½" offset nipple provides excellent sectional communication for smooth flow and preferred steam quality. Special tankless coil center sections available. Tested for 50 psi (80 psi when specified) water working pressure.

9—"Uni-Chamber" Design—A unique base construction has made possible the design of a single combustion chamber for the complete boiler, reducing the number of supervised pilot burners.

10—Cast Iron Burners—With stainless steel ribbon inserts. Feature smooth ignition and extinction, resistance to flashback and easy flame adjustment for all gases—natural, mixed and LP. Only one burner per flue needed.

AMERICAN STANDARD
PLUMBING & HEATING DIVISION

G-10 ratings (all gases)

boiler number	for installations from sea level to 2000 ft ■ A.G.A. ratings input Btu/hr	A.G.A. ratings output Btu/hr	net I=B=R ratings▲ water Mbh	piping & pick-up factor	steam Mbh	piping & pick-up factor	steam (sq. ft.)	chimney inside dia. (inches)	chimney height (feet)	breeching size (inches)
natural and mixed gases										
G-105	800,000	640,000	556.5	1.15	480.1	1.333	2,000	14	20	14
G-106	1,000,000	800,000	695.7	1.15	600.1	1.333	2,501	14	20	14
G-107	1,200,000	960,000	834.8	1.15	720.2	1.333	3,001	14	20	14
G-108	1,400,000	1,120,000	973.9	1.15	840.2	1.333	3,501	16	20	16
G-109	1,600,000	1,280,000	1113.0	1.15	962.4	1.330	4,010	16	20	16
G-1010	1,800,000	1,440,000	1252.2	1.15	1095.1	1.315	4,563	18	20	20
G-1011	2,000,000	1,600,000	1391.3	1.15	1227.9	1.303	5,116	18	20	20
G-1012	2,200,000	1,760,000	1530 4	1.15	1361.2	1.293	5,672	20	20	20
G-1013	2,400,000	1,920,000	1669 6	1.15	1489.5	1.289	6,206	20	20	20
G-1014	2,600,000	2,080,000	1808.7	1.15	1614.9	1.288	6,729	22	20	24
G-1015	2,800,000	2,240,000	1947.8	1.15	1739.1	1.288	7,246	22	20	24
G-1016	3,000,000	2,400,000	2087.0	1.15	1863.4	1.288	7,764	22	30	24
G-1017	3,200,000	2,560,000	2226.1	1.15	1987 6	1.288	8,282	22	30	24
G-1018	3,400,000	2,720,000	2365.2	1.15	2111.8	1.288	8,799	24	30	24
G-1019	3,600,000	2,880,000	2504.3	1.15	2236.0	1.288	9,317	24	30	24
G-1020	3,800,000	3,040,000	2643.5	1.15	2360.2	1.288	9,834	24	30	28
G-1021	4,000,000	3,200,000	2782.6	1.15	2484 5	1.288	10,352	26	30	28
G-1022	4,200,000	3,360,000	2921.7	1.15	2608.7	1.288	10,870	26	30	28
G-1023	4,400,000	3,520,000	3060.9	1.15	2732.9	1.288	11,387	26	30	28
G-1024	4,600,000	3,680,000	3200.0	1.15	2857.1	1.288	11,905	26	30	28
G-1025	4,800,000	3,840,000	3339.1	1.15	2981 4	1.288	12,422	28	30	28
G-1026	5,000,000	4,000,000	3478.3	1.15	3105.6	1.288	12,940	28	30	32
G-1027	5,200,000	4,160,000	3617.4	1.15	3229.8	1.288	13,458	28	30	32
G-1028	5,400,000	4,320,000	3756.5	1.15	3354.0	1.288	13,975	28	30	32
G-1029	5,600,000	4,480,000	3895.7	1.15	3478 3	1.288	14,493	30	30	32
G-1030	5,800,000	4,640,000	4034.8	1.15	3602 5	1.288	15,010	30	30	32
G-1031	6,000,000	4,800,000	4173.9	1.15	3726.7	1.288	15,528	30	30	32
butane, propane and dual (nat. & L.P.) gases										
G-105	720,000	576,000	500.9	1.15	432 1	1 333	1,800	14	20	14
G-106	900,000	720,000	626.1	1 15	540.1	1 333	2,251	14	20	14
G-107	1,080,000	864,000	751.3	1.15	648.2	1 333	2,701	14	20	14
G-108	1,260,000	1,008,000	876.5	1.15	756.2	1.333	3,151	16	20	16
G-109	1,440,000	1,152,000	1001.7	1.15	864.2	1.333	3,601	16	20	16
G 1010	1,620,000	1,296,000	1127.0	1.15	975.2	1.329	4,063	18	20	20
G-1011	1,800,000	1,440,000	1252.2	1.15	1095.1	1.315	4,563	18	20	20
G-1012	1,980,000	1,584,000	1377 4	1.15	1214.7	1 304	5,061	20	20	20
G-1013	2 160,000	1,728,000	1502.6	1.15	1335.4	1.294	5,564	20	20	20
G-1014	2,340,000	1,872,000	1627.8	1.15	1452.3	1.289	6,051	22	20	24
G-1015	2,520,000	2,016,000	1753.0	1.15	1565.2	1.288	6,522	22	20	24
G-1016	2,700,000	2,160,000	1878.3	1.15	1677.0	1 288	6,988	22	30	24
G-1017	2,880,000	2,304,000	2003.5	1.15	1788.8	1.288	7,453	22	30	24
G-1018	3,060,000	2,448,000	2128.7	1.15	1900.6	1 288	7,919	24	30	24
G-1019	3,240,000	2,592,000	2253.9	1.15	2012 4	1 288	8,385	24	30	24
G-1020	3,420,000	2,736,000	2379.1	1.15	2124 2	1.288	8,851	24	30	28
G 1021	3,600,000	2,880,000	2504.3	1.15	2236 0	1 288	9,317	26	30	28
G-1022	3,780,000	3,024,000	2629.6	1.15	2347 8	1.288	9,783	26	30	28
G-1023	3,960,000	3,168,000	2756.5	1.15	2461.2	1.288	10,255	26	30	28
G-1024	4,140,000	3,312,000	2878.3	1.15	2569 9	1 288	10,708	26	30	28
G-1025	4,320,000	3,456,000	3008.7	1.15	2686.3	1.288	11,193	28	30	28
G-1026	4,500,000	3,600,000	3130.4	1.15	2795 0	1.288	11,646	28	30	32
G-1027	4,680,000	3,744,000	3252.2	1.15	2903 7	1.288	12,099	28	30	32
G-1028	4,860,000	3,888,000	3382.6	1.15	3020.2	1.288	12,584	28	30	32
G-1029	5,040,000	4,032,000	3504.3	1 15	3128.9	1.288	13,037	30	30	32
G-1030	5,220,000	4,176,000	3634.8	1.15	3245 3	1.288	13,522	30	30	32
G-1031	5,400,000	4,320,000	3756.5	1 15	3354 0	1.288	13,975	30	30	32

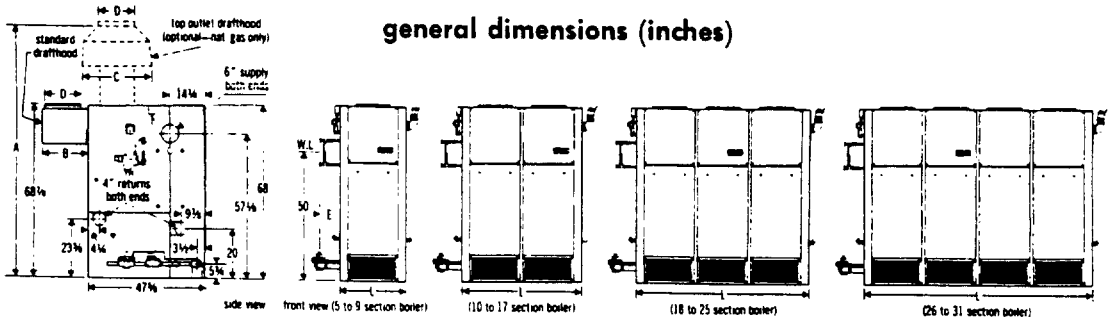
■ For altitudes above 2000 ft., ratings should be reduced at the rate of 4% for each 1000 ft above sea level

▲ The net I=B=R ratings shown are based on piping and pick-up allowances listed in the column next to the ratings American-Standard should be consulted before selecting a boiler for installations having unusual piping and pick-up requirements

G-10 gas boilers 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 for all gases. The G-10 bears the I=B=R A.S.M.E and A.G.A. symbols. All sizes of the G-10 are available in models for forced and gravity hot water and steam systems.

G-10
gas-fired boilers

general dimensions (inches)



boiler number	no. of sections	no. of burners	A	B	C	D	E (approx.)	L	number and size gas connection		
									natural	mixed	LP
G-105	5	4	99⅜	18¾	27¾	14	8	26¾	1¼	1¼	1¼
G-106	6	5	99⅜	18¾	27¾	14	8	32¼	1¼	1¼	1¼
G-107	7	6	99⅜	18¾	27¾	14	8	37¾	1¼	1½	1¼
G-108	8	7	102⅞	20¾	31¾	16	8	43¼	1½	2	1¼
G-109	9	8	102⅞	20¾	31¾	16	8	48¾	1½	2	1¼
G-1010	10	9	99⅜	18¾	27¾	(2)-14	9¼	54¼	2	2	1¼
G-1011	11	10	99⅜	18¾	27¾	(2)-14	9¼	59¾	2	2	1¼
G-1012	12	11	99⅜	18¾	27¾	(2)-14	9¼	65¼	2	2½	1¼
G-1013	13	12	99⅜	18¾	27¾	(2)-14	9¼	70¾	2	2½	1¼
G-1014	14	13	102⅞	20¾	31¾	(2)-16	9¼	76¼	2	2½	1¼
G-1015	15	14	102⅞	20¾	31¾	(2)-16	9⅝	81¾	2½	2½	1½
G-1016	16	15	102⅞	20¾	31¾	(2)-16	9⅝	87¼	2½	3	1½
G-1017	17	16	102⅞	20¾	31¾	(2)-16	9⅝	92¾	2½	3	1½
G-1018	18	17	99⅜	18¾	27¾	(3)-14	9⅝	98¼	2½	3	1½
G-1019	19	18	99⅜	18¾	27¾	(3)-14	9¼	103¾	(2)-2	(2)-2½	(2)-1¼
G-1020	20	19	102⅞	20¾	31¾	(3)-16	9¼	109¼	(2)-2	(2)-2½	(2)-1¼
G-1021	21	20	102⅞	20¾	31¾	(3)-16	9¼	114¾	(2)-2	(2)-2½	(2)-1¼
G-1022	22	21	102⅞	20¾	31¾	(3)-16	9¼	120¼	(2)-2	(2)-2½	(2)-1¼
G-1023	23	22	102⅞	20¾	31¾	(3)-16	9¼	125¾	(2)-2	(2)-2½	(2)-1¼
G-1024	24	23	102⅞	20¾	31¾	(3)-16	9¼	131¼	(2)-2	(2)-2½	(2)-1¼
G-1025	25	24	102⅞	20¾	31¾	(3)-16	9¼	136¾	(2)-2	(2)-2½	(2)-1¼
G-1026	26	25	102⅞	20¾	31¾	(4)-16	9⅝	142¼	(2)-2½	(2)-2½	(2)-1½
G-1027	27	26	102⅞	20¾	31¾	(4)-16	9⅝	147¾	(2)-2½	(2)-3	(2)-1½
G-1028	28	27	102⅞	20¾	31¾	(4)-16	9⅝	153¼	(2)-2½	(2)-3	(2)-1½
G-1029	29	28	102⅞	20¾	31¾	(4)-16	9⅝	158¾	(2)-2½	(2)-3	(2)-1½
G-1030	30	29	102⅞	20¾	31¾	(4)-16	9⅝	164¼	(2)-2½	(2)-3	(2)-1½
G-1031	31	30	102⅞	20¾	31¾	(4)-16	9⅝	169¾	(2)-2½	(2)-3	(2)-1½

assemblage of sections

boiler number	arrangement of sections from left side to right side of boiler																											
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
G-105	LE	C	C	C	RE	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
G-106	LE	C	C	C	C	RE	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
G-107	LE	C	C	C	C	C	RE	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
G 108	LE	C	C	C	C	C	C	RE	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
G-109	LE	C	C	C	C	C	C	C	RE	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
G-1010	LE	C	C	C	C	C	C	C	C	RE	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
G-1011	LE	CX	C	C	C	C	C	C	C	CX	RE	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
G-1012	LE	CX	C	C	C	C	C	C	C	C	CX	RE	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
G-1013	LE	CX	C	C	C	C	C	C	C	C	C	CX	RE	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
G-1014	LE	CX	C	C	C	C	C	C	C	C	C	C	CX	RE	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
G-1015	LE	CX	C	C	C	C	C	C	C	C	C	C	C	CX	RE	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
G-1016	LE	CX	C	C	C	C	C	C	C	C	C	C	C	C	CX	RE	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
G-1017	LE	CX	C	C	C	C	C	C	C	C	C	C	C	C	C	CX	RE	—	—	—	—	—	—	—	—	—	—	—	—	—	—
G-1018	LE	C	C	C	CX	C	C	C	C	C	C	C	CX	C	C	C	C	RE	—	—	—	—	—	—	—	—	—	—	—	—	—
G-1019	LE	C	C	C	C	CX	C	C	C	C	C	C	C	CX	C	C	C	C	RE	—	—	—	—	—	—	—	—	—	—	—	—
G-1020	LE	CX	C	C	C	C	C	C	C	C	C	CX	C	C	C	C	C	C	C	CX	RE	—	—	—	—	—	—	—	—	—	—
G-1021	LE	CX	C	C	C	C	C	C	C	C	C	C	CX	C	C	C	C	C	C	C	CX	RE	—	—	—	—	—	—	—	—	—
G-1022	LE	CX	C	C	C	C	C	C	C	C	C	C	C	CX	C	C	C	C	C	C	C	CX	RE	—	—	—	—	—	—	—	—
G-1023	LE	CX	C	C	C	C	C	C	CX	C	C	C	C	C	CX	C	C	C	C	C	C	C	C	RE	—	—	—	—	—	—	—
G-1024	LE	CX	C	C	C	C	C	C	CX	C	C	C	C	C	C	CX	C	C	C	C	C	C	C	C	RE	—	—	—	—	—	—
G-1025	LE	CX	C	C	C	C	C	C	C	CX	C	C	C	C	C	C	C	CX	C	C	C	C	C	C	C	RE	—	—	—	—	—
G-1026	LE	C	C	C	C	CX	C	C	C	C	C	CX	C	C	C	C	C	C	C	C	C	C	C	C	C	C	RE	—	—	—	—
G-1027	LE	C	C	C	C	CX	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	RE	—	—	—
G-1028	LE	C	C	C	C	CX	C	C	C	C	C	C	CX	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	RE	—	—
G-1029	LE	C	C	C	C	C	CX	C	C	C	C	C	C	C	C	CX	C	C	C	C	C	C	C	CX	C	C	C	C	C	RE	—
G-1030	LE	CX	C	C	C	C	C	C	CX	C	C	C	C	C	C	CX	C	C	C	C	C	C	C	CX	C	C	C	C	C	C	RE
G-1031	LE	CX	C	C	C	C	C	C	CX	C	C	C	C	C	C	CX	C	C	C	C	C	C	C	C	CX	C	C	C	C	C	RE

Legend

LE— left hand end sections

CX— center connecting section (with top opening) **Note:** with transition piece for steam boiler, blind flange for water boiler

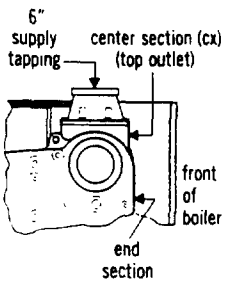
C— center section **Note:** sections may be ordered with opening for tankless heater as "CT" sections

RE— right hand end section

AMERICAN STANDARD
PLUMBING & HEATING DIVISION

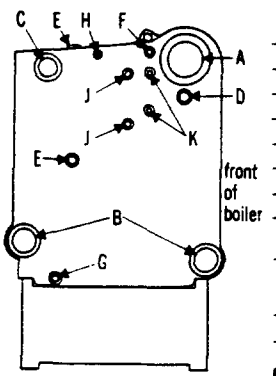
12075

top outlet for steam



top outlet
for steam boiler

control tappings (end sections)



layout of tappings
(left end shown)

location on boiler	size (inches)	steam boilers	water boilers
A	6	supply	supply
B	4	return	return
C	3	safety valve	relief valve
D	1¼	blow-off	not required
E	1	water feeder	not required
F	¾	pressure limit	temperature limit
G	¾	drain	drain
H	½	pressure gauge	temperature and altitude gauge
J	½	gauge glass and low water cut-off	not required
K ■	⅜	try-cocks	not required

■ left end tappings on special order only.

gas control and connection sizes; pertinent data

boiler number	water content (gallons)		approx. boiler shipping weight (pounds)	boiler H.P.	size of burner manifold (inches)		pressure regulator ■ (inches)		size of control manifold, manual shut-off and main gas valve (inches)				
	water boiler	steam boiler			natural, mixed & LP gases	dual gas (propane only)	natural gas	mixed gas	nat. gas	mxd. gas	LP gas	dual gas	
												natural	propane
G-105	98 8	72.7	2706	19.1	2	2	1¼	1¼	1¼	1¼	1¼	1¼	1
G-106	119 1	87.6	3153	23.9	2	2	1¼	1¼	1¼	1¼	1¼	1¼	1
G-107	139.5	102.5	3627	28.7	2	2	1¼	1½	1¼	1½	1¼	1¼	1
G-108	159 8	117.4	4107	33.4	2	2	1½	2	1½	2	1¼	1½	1
G-109	180 1	132.3	4584	38.2	2	2	1½	2	1½	2	1¼	1½	1¼
G-1010	200.5	147.2	5077	43.0	2½	2	2	2	2	2	1¼	2	1¼
G-1011	220.8	162.1	5568	47.8	2½	2	2	2	2	2	1¼	2	1¼
G-1012	241.1	177.0	6146	52.5	2½	2	2	2½	2	2½	1¼	2	1¼
G-1013	261.5	191.9	6659	57.3	2½	2	2	2½	2	2½	1¼	2	1¼
G-1014	281.8	206.8	7179	62.0	2½	2	2	2½	2	2½	1¼	2	1¼
G-1015	302.1	221.7	7752	66.8	3	2	2½	2½	2½	2½	1½	2½	1½
G-1016	322 4	236.6	8248	71.6	3	2	2½	3	2½	3	1½	2½	1½
G-1017	342.8	251.5	8744	76.4	3	2	2½	3	2½	3	1½	2½	1½
G-1018	363 1	266.4	9253	81.1	3	2	2½	3	2½	3	1½	2½	1½
G-1019	383 4	281.3	9765	85.9	(2)-2½	(2)-2	(2)-2	(2)-2½	(2)-2	(2)-2½	(2)-1¼	(2)-2	2
G-1020	403.8	296.2	10301	90.7	(2)-2½	(2)-2	(2)-2	(2)-2½	(2)-2	(2)-2½	(2)-1¼	(2)-2	2
G 1021	424.1	311.1	10778	95.6	(2)-2½	(2)-2	(2)-2	(2)-2½	(2)-2	(2)-2½	(2)-1¼	(2)-2	2
G-1022	444 4	326.0	11341	100.9	(2)-2½	(2)-2	(2)-2	(2)-2½	(2)-2	(2)-2½	(2)-1¼	(2)-2	2
G-1023	464 8	340 9	11851	105.1	(2)-2½	(2)-2	(2)-2	(2)-2½	(2)-2	(2)-2½	(2)-1¼	(2)-2	2
G-1024	485.1	355.8	12360	109.9	(2)-2½	(2)-2	(2)-2	(2)-2½	(2)-2	(2)-2½	(2)-1¼	(2)-2	2
G-1025	505 4	370 7	12891	114.6	(2)-2½	(2)-2	(2)-2	(2)-2½	(2)-2	(2)-2½	(2)-1¼	(2)*2	2
G-1026	525.7	385 6	13384	119.4	(2)-3	(2)-2	(2)-2½	(2)-2½	(2)-2½	(2)-2½	(2)-1½	(2)-2½	2
G-1027	546 1	400.5	13876	124.2	(2)-3	(2)-2	(2)-2½	(2)-3	(2)-2½	(2)-3	(2)-1½	(2)-2½	2
G-1028	566 4	415 5	14374	129.0	(2)-3	(2)-2	(2)-2½	(2)-3	(2)-2½	(2)-3	(2)-1½	(2)-2½	2½
G-1029	586 7	430.3	14878	133.7	(2)-3	(2)-2	(2)-2½	(2)-3	(2)-2½	(2)-3	(2)-1½	(2)-2½	2½
G-1030	607.1	445.2	15368	138.5	(2)-3	(2)-2	(2)-2½	(2)-3	(2)-2½	(2)-3	(2)-1½	(2)-2½	2½
G-1031	627.4	460.1	15891	143.3	(2)-3	(2)-2	(2)-2½	(2)-3	(2)-2½	(2)-3	(2)-1½	(2)-2½	3

■ pressure regulator not furnished for LP gas

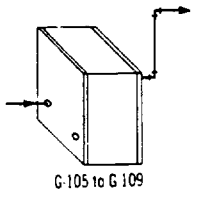
minimum piping recommendations

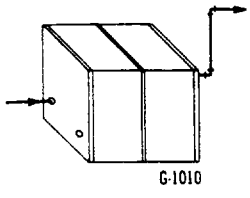
All boilers show front view

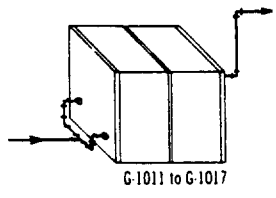
NOTE: These schematic drawings are intended solely to show recommended tapping locations and general piping arrangements. Actual piping details should be designed in accordance with standard engineering practice.

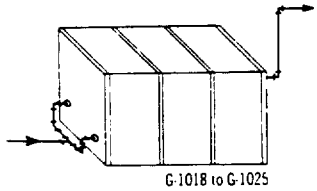
hot water boilers

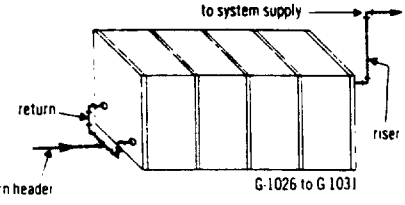
boiler number	pipe size (inches)		
	riser	return	return header
G-105	3	3	
G-106	3	3	
G-107	4	4	
G-108	4	4	
G-109	4	4	
G-1010	4	4	
G-1011	5	(2)-4	6
G-1012	5	(2)-4	6
G-1013	5	(2)-4	6
G-1014	5	(2)-4	6
G-1015	5	(2)-4	6
G-1016	5	(2)-4	6
G-1017	6	(2)-4	6
G-1018	6	(2)-4	6
G-1019	6	(2)-4	6
G-1020	6	(2)-4	6
G-1021	6	(2)-4	6
G-1022	6	(2)-4	6
G-1023	6	(2)-4	6
G-1024	6	(2)-4	6
G-1025	6	(2)-4	6
G-1026	6	(2)-4	6
G-1027	6	(2)-4	6
G-1028	6	(2)-4	6
G-1029	6	(2)-4	6
G-1030	6	(2)-4	6
G-1031	6	(2)-4	6


G-105 to G 109

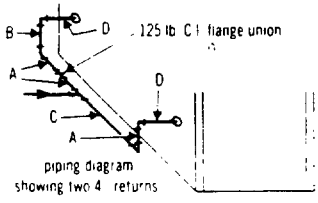

G-1010


G-1011 to G-1017


G-1018 to G-1025



G-1026 to G 1031



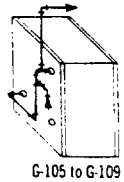
piping diagram
showing two 4" returns

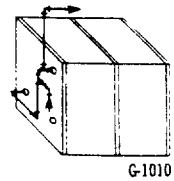
	nipple size	quantity
A	4" x 4"	3
B	4" x 7⅜"	1
C	4" x 12"	1
D	4" x optional	2

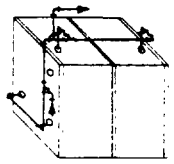
steam boilers

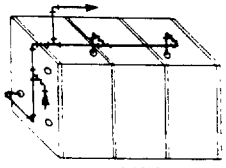
boiler number	pipe size (inches)			
	riser	return	header	equalizer
G-105	4	1½		2
G-106	5	1½		2½
G-107	5	1½		2½
G 108	6	2		2½
G-109	6	3		4
G-1010	6	3		4
G-1011	(2)-5	3	6	4
G-1012	(2)-5	4	8	4
G-1013	(2)-6	4	8	4
G-1014	(2)-6	4	8	4
G-1015	(2)-6	4	8	4
G-1016	(2)-6	4	8	4
G-1017	(2)-6	4	8	4
G-1018	(2)-6	4	8	4
G-1019	(2)-6	4	8	4
G-1020	(3)-6	4	10	4
G-1021	(3)-6	4	10	4
G-1022	(3)-6	4	10	4
G-1023	(3)-6	4	10	4
G-1024	(3)-6	4	10	4
G-1025	(3)-6	4	10	4
G-1026	(3)-6	4	10	4
G-1027	(3)-6	4	10	4
G-1028	(3)-6	4	10	4
G-1029	(3)-6	4	10	4
G-1030	(4)-6	4	10	4
G-1031	(4)-6	4	10	4

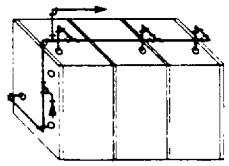
Note: Return connection to equalizer should be 2" from water line to bottom of fitting

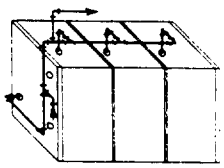

G-105 to G-109

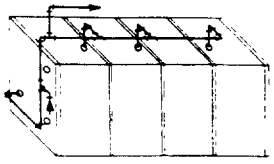

G-1010

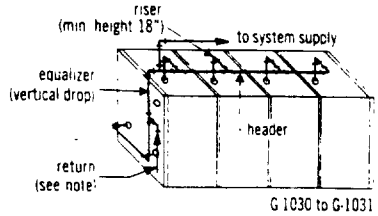

G-1011 to G-1017


G-1018 to G-1019


G-1020 to G-1022


G-1023 to G-1025


G-1026 to G 1029



G 1030 to G-1031

G-10

gas fired boilers

tankless or tank type heater for G-10 water boilers
no. 1023 heater ratings

tankless application			storage tank application					
boiler number	no. of tankless heaters	intermittent draw heater rating gpm @ 100° rise	boiler number	number of heaters	continuous draw 100° rise gpm	recovery capacity 100° rise gph	boiler output required mbh	storage tank size gals.
G-105 - G-1031	1	4¾	G-105 - G-1031	1	4	240	200	500
G-105 - G-1031	2	7½	G-105 - G-1031	2	7	420	350	500
G-106 - G-1031	3	10	G-106 - G-1031	3	10	600	500	500
G-108 - G-1031	4	12¾	G-108 - G-1031	4	13	780	650	1,000
			G-1011 - G-1031	5	16	960	800	1,000
			G-1013 - G-1031	6	19	1,140	950	1,000
			G-1014 - G-1031	7	22	1,320	1,100	1,500
			G-1016 - G-1031	8	25	1,500	1,250	1,500
			G-1018 - G-1031	9	28	1,680	1,400	1,500
			G-1020 - G-1031	10	31	1,860	1,550	2,000
			G-1022 - G-1031	11	34	2,060	1,700	2,000
			G-1024 - G-1031	12	37	2,220	1,850	2,000

The ratings table on this page shows the ratings attained if more than one heater is connected in parallel.

Copper pipe manifolds, factory assembled for multiple heater parallel hookup, shipped in boxes of 2 manifold assemblies per box, when specified with heaters, are available for 2, 3 or 4 heater arrangements.

G-10 water boilers can be provided with sections for insertion of heaters at no extra charge. When desired for water boilers, add suffix letter T to boiler number and specify the number of sections with heater openings. Cover plates to close unused water heater openings will be furnished only if specified on order.

■orifice drill sizes—main burner spuds

natural, mixed, LP and dual gases—ribbon burners

input per orifice Btuh	specific gravity of gas	800 Btu/cu. ft.	1000 Btu/cu. ft.	1100 Btu/cu. ft.	1200 Btu/cu. ft.	2500 Btu/cu. ft.	3300 Btu/cu. ft.
natural and mixed							
200,000	.60	—	I	G	D	—	—
200,000	.65	—	J	H	E	—	—
200,000	.70	O	9/32	H	F	—	—
natural (dual gas)							
180,000	.60	—	F	D	15/64	—	—
180,000	65	—	G	E	B	—	—
180,000	70	—	H	F	D	—	—
LP (dual and standard)							
180,000	1.53	—	—	—	—	23	—
180,000	2.00	—	—	—	—	—	27

■ Note: Table shows orifice sizes by either numbered, lettered or fractional drill sizes. Sea level ratings are to be used for elevations between 0 and 2000 ft. For altitudes above 2000 ft., sea level ratings should be reduced at the rate of 4% for each 1000 ft. above sea level.

manifold pressure table

gas	heating value■	manifold pressure (inches water)
nat. & mxd.	800-1200	3.5
LP	2500 & 3300	11.0

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

sample specification for G-10

Contractor shall furnish and install, as indicated on plans, ... gas fired boiler(s), having an input of..... Btuh and a gross output of..... Btuh 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 ratings. Boiler(s) shall be composed of cast iron sections with 8½" top nipple and furnished with one burner per flueway. Boiler(s) shall be supplied by manufacturer with main automatic diaphragm gas valve, safety pilot with thermocouple and additional lighting pilots as required, gas pressure regulator (except for LP gas), high limit control, and integral canopy and drafthood. Water or steam trim as required (NOTE Include specifications for dual gas, F.M. and F.I.A. equipment, and electronic control systems as required.)

AMERICAN STANDARD PLUMBING & HEATING DIVISION
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