

Multiple gas-fired boilers

FEATURES AND APPLICATIONS

 AMERICAN
STANDARD

SOME FACTS

DESIGNED TO FIT ANY NEED

The American-Standard GWM and GW boilers developed specifically for forced water circulation, provide cast iron, gas-fired, boilers for use in multiple-unit installations, in lieu of one large boiler.

Multiple combinations start with a 528,000 Btu/Hr. input, and increase in 66,000 Btu/Hr. increments up to a virtually unlimited capacity. The major benefit of 66,000 increments is that there is no need to over-buy capacity of a boiler.

This manual summarizes the application information on which a system and equipment can be selected.

There are six different sizes of boilers designed to offer the flexibility needed to meet any heating requirement.

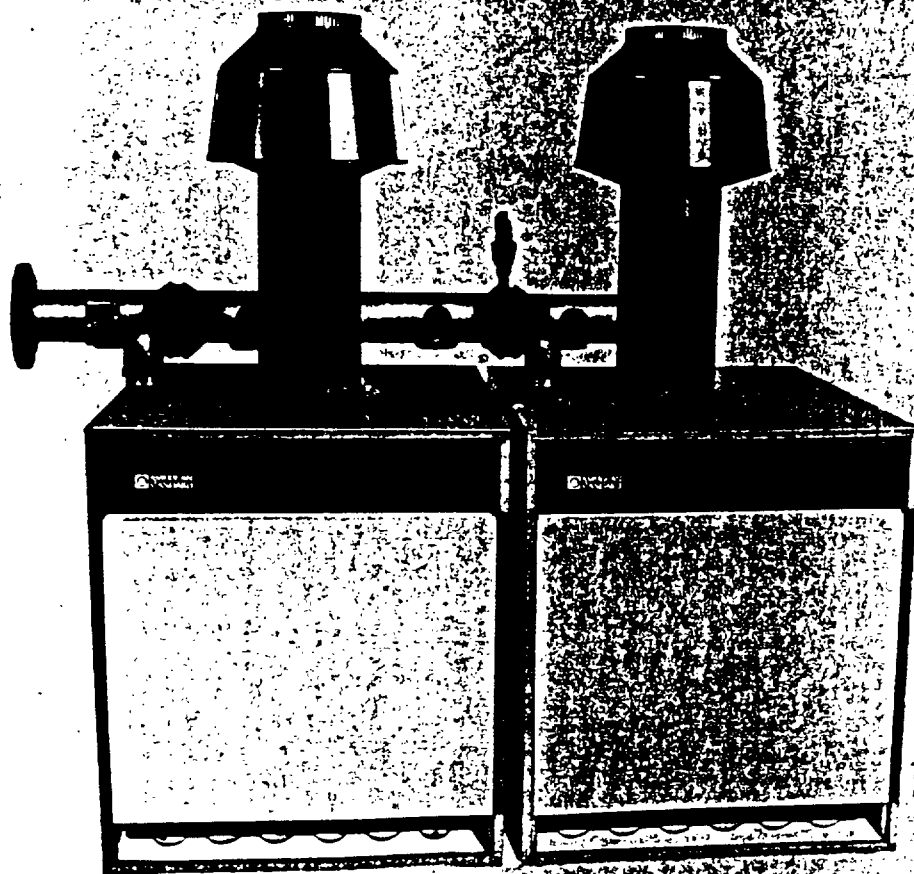
Complete flexibility to attain the required input is accomplished by combining available modules. Model

GWM comes in 5-, 6- and 7-section units. This unit consists of assembled sections with burners in place. Their

size and weight are suitable for easy handling. Model GW units are pre-

assembled 8-, 9- and 10-section modules. Jackets and burners are packaged separately. Combinations of

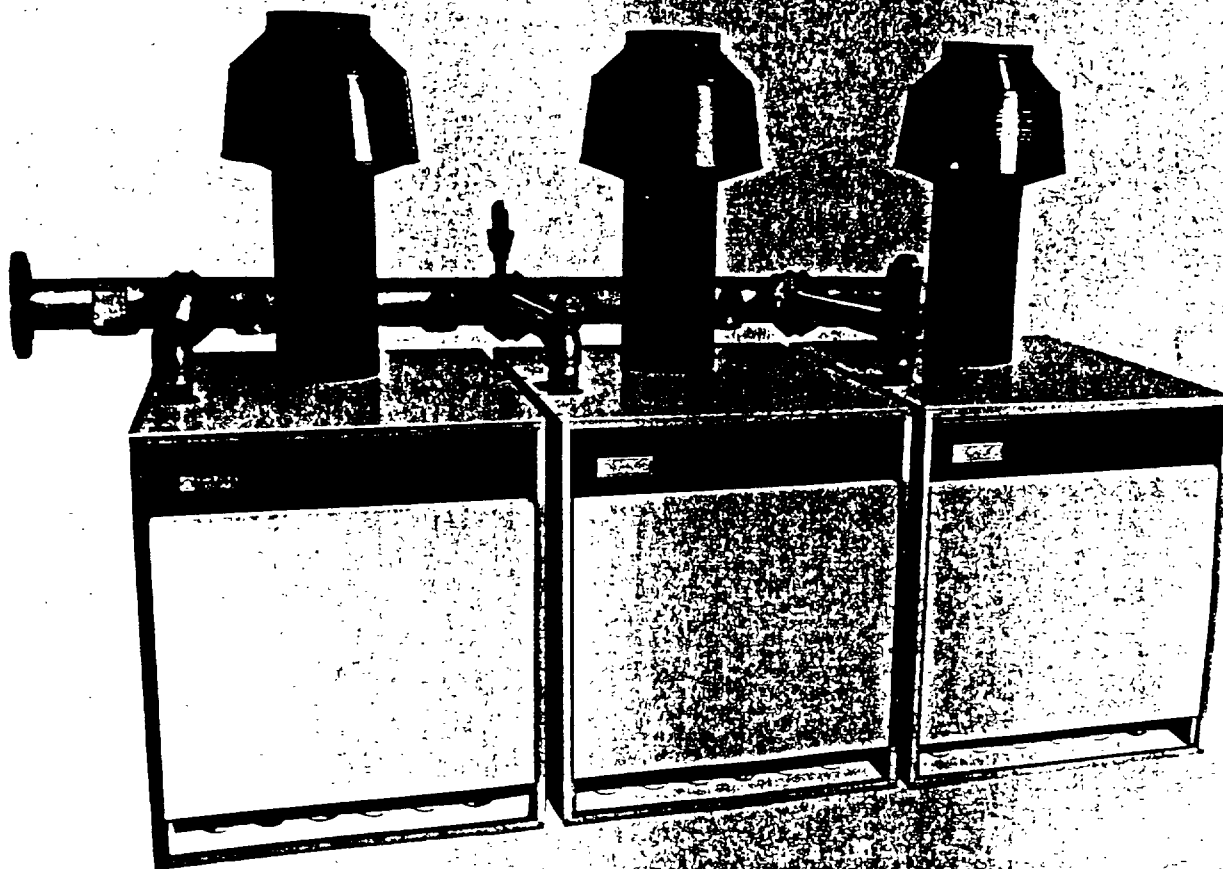
each model can be arranged in batteries, which, in turn, can be arranged as multiple batteries.



The versatility of the GWM-GW boiler line minimizes installation cost.

528	2	0	0	—	—	—
594	1	1	0	—	—	—
660	0	2	0	—	—	—
726	0	1	1	—	—	—
792	0	0	2	—	—	—
858	2	1	0	—	—	—
924	1	2	0	2	0	—
990	0	3	0	1	1	—
1056	0	2	1	0	2	—
1122	0	1	2	0	1	—
1188	0	0	3	0	0	—
1254	1	3	0	NA	NA	NA
1320	0	4	0	NA	NA	NA
1386	0	3	1	3	0	—
1452	0	2	2	2	1	—
1518	0	1	3	1	2	—
1584	0	0	4	0	3	—
1650	0	5	0	0	2	—
1716	0	4	1	0	1	—
1782	0	3	2	0	0	—
1848	0	2	3	4	0	—
1914	0	1	4	3	1	—
1980	0	0	5	2	2	—
2046 and upward	0	5	1	1	3	—

In an array of multiple boilers, controls are utilized to fire only enough boilers to satisfy a particular heating load demand, providing the economy of modulated input. Continuous firing, or at least long-cycle firing, gives greater overall operating efficiency. Periods of stack loss without fire, that drain from the overall output of the system, are reduced.



THE BIG DIFFERENCE

CONSTRUCTION

BOILER AND BURNERS

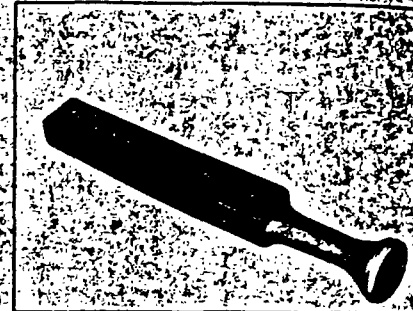
GWM and GW boilers provide a natural draft, with parallel vertical flues. Draft requirements are the same for every section whether there are 5 or 50. GWM boilers permit a selection of piping arrangements for multiple boiler systems which meets particular needs and preferences. A piping package suitable for primary-secondary hookup including the necessary boiler tapings, supply piping and header is available. An alternate package includes a return header and is suited to parallel flow hookup. The GW boiler will function well under either of these arrangements but the piping must be customized in the field.

Cast-iron surfaces of the boiler afford long, trouble-free service while providing optimum compactness. This lightweight design requires no separate base or combustion chamber.

Each boiler supports its own jacket instead of a common jacket.

The smaller boilers, GWM, have burners, manifold, and pilots factory installed. Also return tapings are located on the back of the end section to conserve floor space.

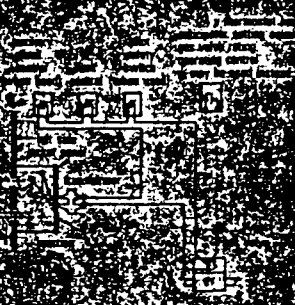
The larger boilers, GW, are shipped with separate burner and manifold boxes but are designed for easy assembly on the job.



Relatively small water content and specially designed gas-fired burners and controls permit close temperature control of boiler water. This design is ideally suited for modulated water temperature and, therefore, the boiler is not equipped for domestic hot water supply.

Boilers are available with a standard working pressure of 50 psi, with 100 psi working pressure as an option.

BASIC WIRING DIAGRAM



DIMENSIONS AND TAPPINGS



Boiler No.	Number of Sections	Number of Burners	Number of Tappings
GWP-5	5	5	20
GWP-6	6	6	23
GWP-7	7	7	27
GWM-5	5	5	20
GWM-6	6	6	23
GWM-7	7	7	27
GW-8	8	8	31
GW-9	9	9	35
GW-10	10	10	39

GWM BOILER RATINGS - for Natural and Propane Gas

Boiler Number	Input (MBH)	Output (MBH)	Rating (MBH)
GWM-5	126	211	183
GWM-6	130	225	190
GWM-7	138	237	200

GWM BOILER RATINGS - for Natural and Propane Gas

Boiler Number	Input (MBH)	Output (MBH)	Rating (MBH)
GWM-8	142	237	200
GWM-9	152	242	206
GWM-10	154	247	210

GWM-MODULAR BOILER HOOKUP

Unit Number	Input (MBH)	Output (MBH)	Rating (MBH)
GWM-528	528	922	793
GWM-594	594	1017	873
GWM-660	660	1112	953
GWM-726	726	1207	1033
GWM-792	792	1302	1113
GWM-858	858	1397	1193
GWM-924	924	1492	1273
GWM-990	990	1587	1353
GWM-1056	1056	1682	1433
GWM-1122	1122	1777	1513
GWM-1188	1188	1872	1593
GWM-1254	1254	1967	1673
GWM-1320	1320	2062	1753
GWM-1386	1386	2157	1833
GWM-1452	1452	2252	1913
GWM-1518	1518	2347	2003
GWM-1584	1584	2442	2083
GWM-1650	1650	2537	2163
GWM-1716	1716	2632	2243
GWM-1782	1782	2727	2323
GWM-1848	1848	2822	2403
GWM-1914	1914	2917	2483
GWM-1980	1980	3012	2563
GWM-2046	2046	3107	2643

*Modular boiler arrangements are made up of a combination of GWM

GW-MODULAR BOILER HOOKUP

Unit Number	Input (MBH)	Output (MBH)	Rating (MBH)
GW-924	924	1739	1493
GW-990	990	1834	1573
GW-1056	1056	1929	1653
GW-1122	1122	2024	1733
GW-1188	1188	2119	1813
GW-1254	1254	2214	1893
GW-1320	1320	2309	1973
GW-1386	1386	2404	2053
GW-1452	1452	2499	2133
GW-1518	1518	2594	2213
GW-1584	1584	2689	2293
GW-1650	1650	2784	2373
GW-1716	1716	2879	2453
GW-1782	1782	2974	2533
GW-1848	1848	3069	2613
GW-1914	1914	3164	2693
GW-1980	1980	3259	2773
GW-2046	2046	3354	2853

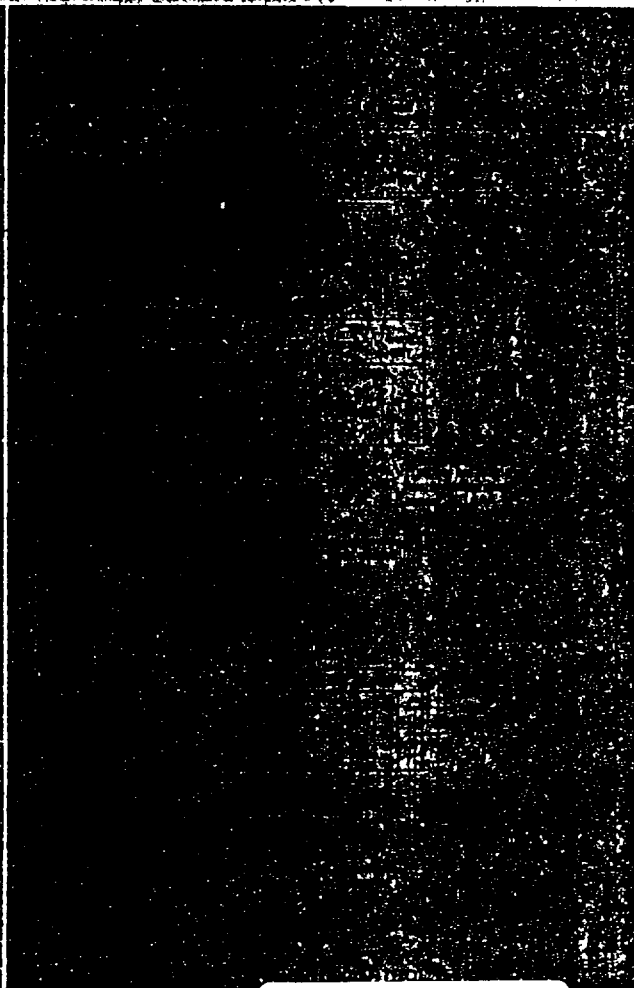
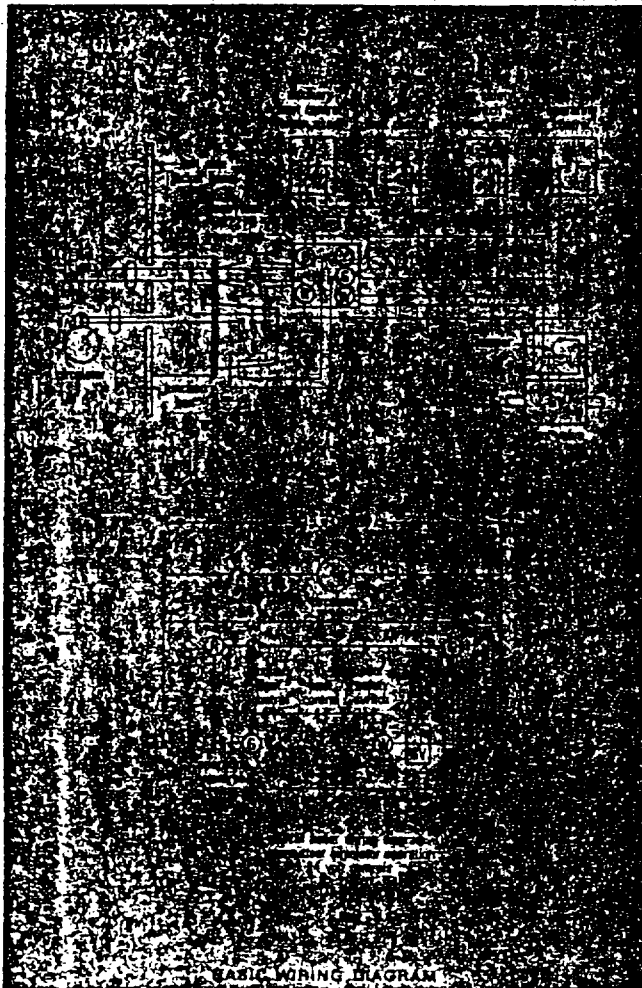
*Modular boiler arrangements are made up of a combination of GW

CONTROLS

Each boiler is equipped with a safety limit temperature control which overrides all other controls. Also, each boiler is equipped with 24-volt safety combustion controls.

Controls are designed to modulate system input to match the immediate heating load demands. This is accomplished by step firing the modules of the multiple boiler installation. Various degrees of sophistication are employed to accomplish this function and the corresponding controls are available.

1. The basic level of control consists of monitoring the return water temperature with immersion control(s) which sense the temperature drop of the system. Return temperature of the water is an indication of the heating load placed on the system. By setting the control(s), sensing return water, at slightly lower steps for each consecutive module, additional modules will fire as the load becomes greater (water temperature lower).
2. The next level of control is outdoor temperature, and sequence reset. Here, an outdoor sensor is used to reset the return water control point for each module. This gives modulated boiler and system water temperatures switching functions, so the boilers, if but requires outdoor bulb installation, more than eight, must be grouped to a limit of eight modules.
3. The third control system uses one outdoor sensor and a sequencing control which modulates boiler and system water temperature, as directed by outdoor temperature, and sequence reset. Here, an outdoor sensor is used to reset the return water control point for each module. This gives modulated boiler and system water temperatures switching functions, so the boilers, if but requires outdoor bulb installation, more than eight, must be grouped to a limit of eight modules.



PRIMARY-SECONDARY HOOKUP

PARALLEL HOOKUP

Primary-secondary hookup provides the most efficient and economical method of attaining the full capabilities of the modular boiler concept.

A primary pump circulates system water and secondary pumps force water through the boiler only if it is being fired. This approach eliminates sending generated heat up the stack while it passes through unfired boilers.

The parallel system, in which separate return and supply headers are used, actually does not take full advantage of the modular concept. Hot water and, therefore, flue losses are circulating through all boilers, whether fired or not.

GWM and GW ADVANTAGES
over other cast-iron boilers

Truly a modular design using step firing to meet heating load requirements.

Confines hot water only to boilers being fired... prevents unwanted stack losses. (Primary-secondary hookup manifold is recommended.)

Offers stepped input increases of only 66,000 Btu/Hr... eliminating over-buying boiler capacity.

Offers flexibility in system hookup. (Separate supply-return manifolds are optional.)

Vertical flue design provides greater efficiency and less space requirements.

Input ratings start at 528,000 Btu/Hr.

Each boiler carries its own jacket.

Entire unit can be wheeled in through a standard door and hooked up... with a minimum of skilled labor.



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Multiple combinations start with a 528,000 Btu/Hr. input, and increase in 66,000 Btu/Hr. increments up to a virtually unlimited capacity. The major benefit of 66,000 increments is that there is no need to over-buy capacity of a boiler.

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Complete flexibility to attain the required input is accomplished by combining available modules. Model

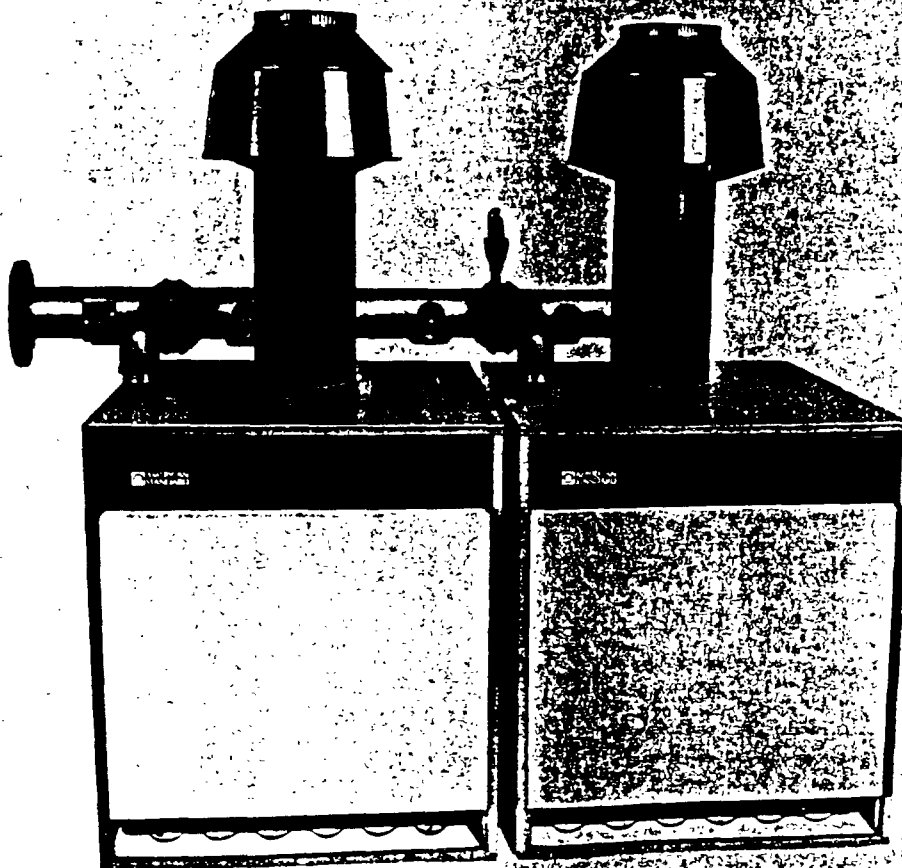
GWM comes in 5-, 6- and 7-section units. This unit consists of assembled

sections with burners in place. Their size and weight are suitable for easy handling. Model GW units are pre-

assembled 8-, 9- and 10-section modules. Jackets and burners are

packaged separately. Combinations of each model can be arranged in

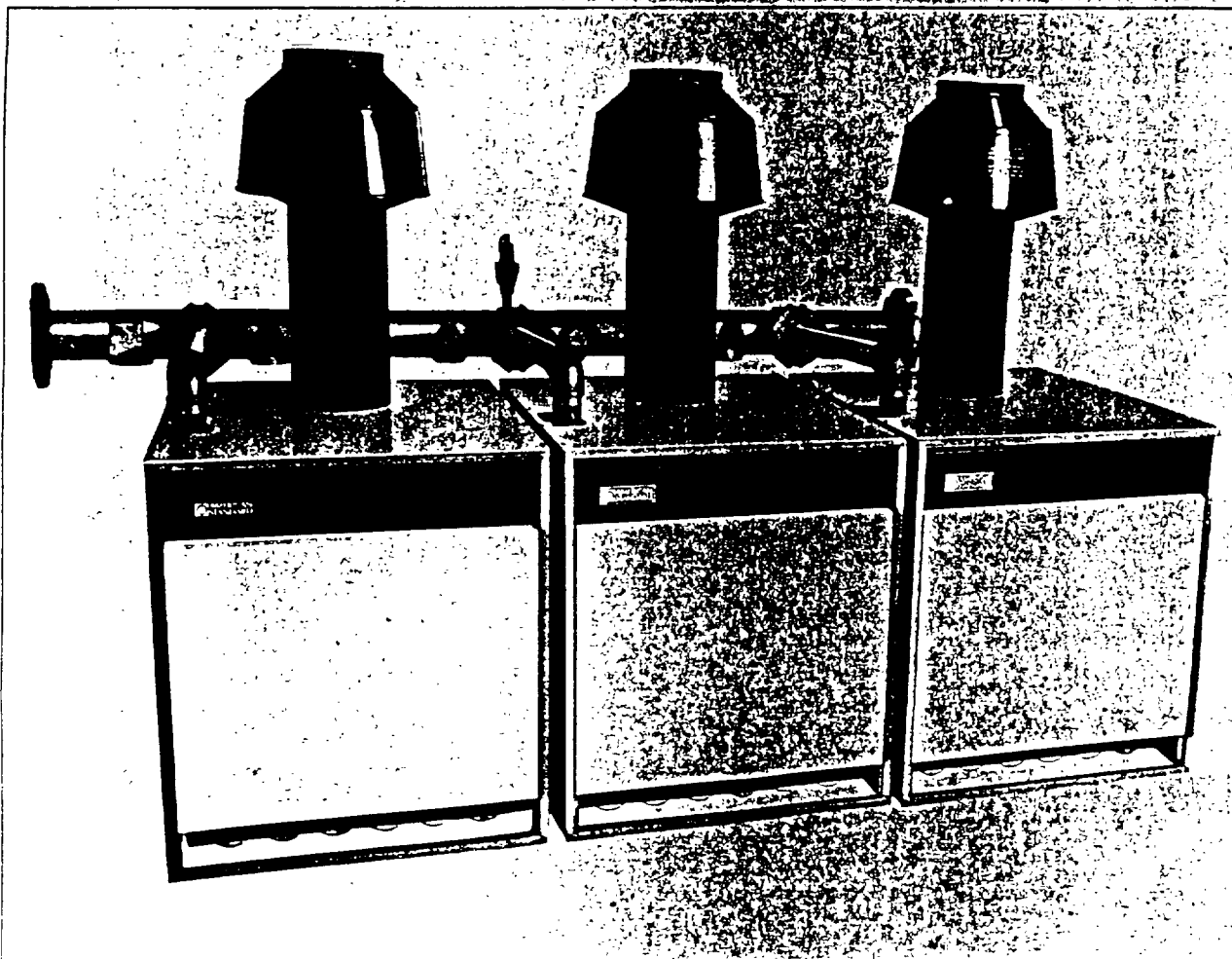
batteries, which, in turn, can be arranged as multiple batteries.



The versatility of the GWM-GW boiler line minimizes installation cost.

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594	1	1	0	—	—	—
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1980	0	0	5	2	2	—
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In an array of multiple boilers, controls are utilized to fire only enough boilers to satisfy a particular heating load demand, providing the economy of modulated input. Continuous firing, or at least long-cycle firing, gives greater overall operating efficiency. Periods of stack-loss-without-fire, that drain from the overall output of the system, are reduced.



THE BIG DIFFERENCE

CONSTRUCTION

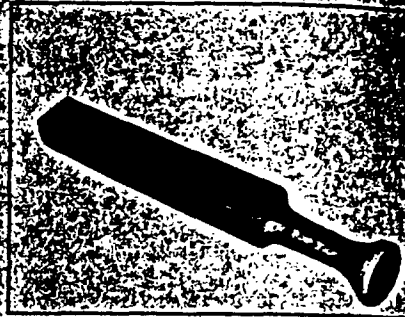
BOILER AND BURNERS

GWM and GW boilers provide a natural draft, with parallel vertical flues. Draft requirements are the same for every section whether there are 5 or 50. GWM boilers permit a selection of piping arrangements for multiple boiler systems which meets particular needs and preferences. A piping package suitable for primary-secondary hookup including the necessary boiler tap-pings, supply piping and header is available. An alternate package includes a return header and is suited to parallel flow hookup. The GW boiler will function well under either of these arrangements but the piping must be customized in the field.

Cast-iron surfaces of the boiler afford long, trouble-free service while providing optimum compactness. This lightweight design requires no separate base or combustion chamber.

Each boiler supports its own jacket, instead of a common jacket. The smaller boilers, GWM, have burners, manifold, and pilots factory installed. Also return tapings are located on the back of the end section to conserve floor space.

The larger boilers, GW, are shipped with separate burner and manifold boxes but are designed for easy assembly on the job.



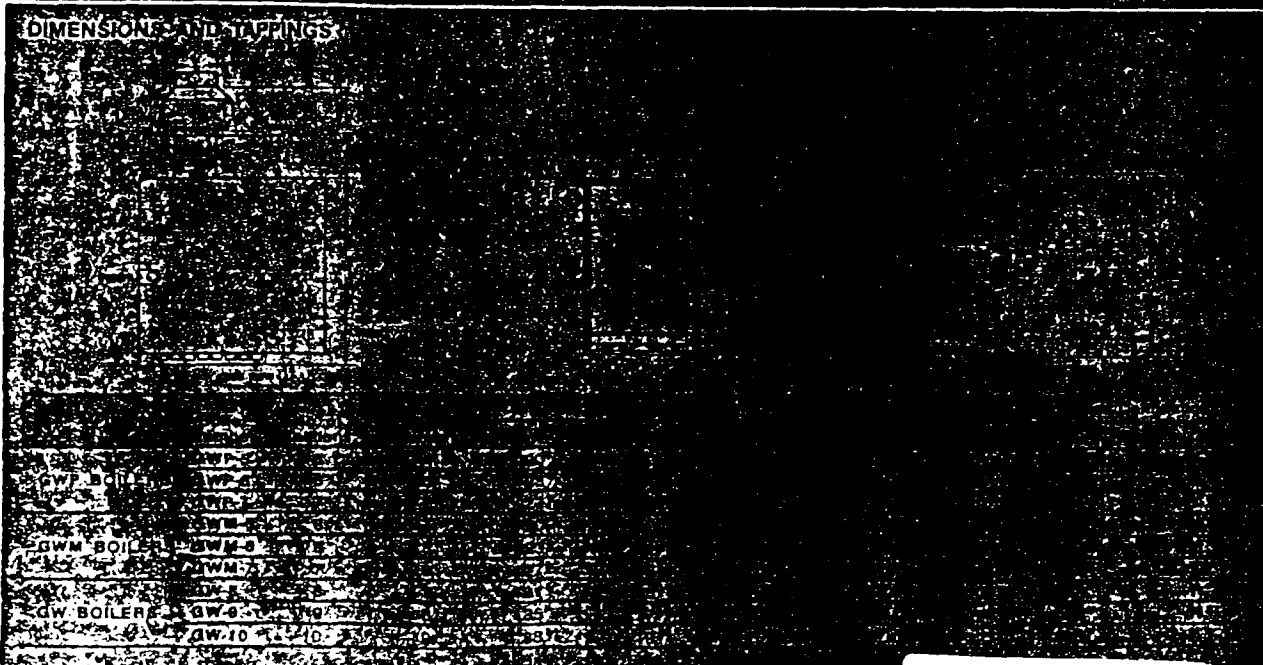
Relatively small water content and specially designed gas-fired burners and controls permit close temperature control of boiler water. This design is ideally suited for modulated water temperature and, therefore, the boiler is not equipped for domestic hot water supply.

Boilers are available with a standard working pressure of 50 psi, with 100 psi working pressure as an option.

BASIC SW/BUR DIAGRAM



DIMENSIONS AND TAPPINGS



GWM-BOILER DATA

GWM-5 5000

GWM-6 6000

GWM-7 7000

GW-BOILER DATA

GW-5 5000

GW-6 6000

GW-10 10000

GWM-MODULAR BOILER HOOKUP

GWM-525

GWM-554

GWM-650

GWM-726

GWM-782

GWM-855

GWM-924

GWM-990

GWM-1058

GWM-1122

GWM-1188

GWM-1254

GWM-1320

GWM-1386

GWM-1452

GWM-1518

GWM-1584

GWM-1650

GWM-1716

GWM-1782

GWM-1848

GWM-1914

GWM-1980

GWM-2046

Modular boiler arrangements

GW-MODULAR BOILER HOOKUP

Unit

Number

Input

MBH

GW-924

GW-990

GW-1058

GW-1122

GW-1188

GW-1254

GW-1320

GW-1386

GW-1452

GW-1518

GW-1584

GW-1650

GW-1716

GW-1782

GW-1848

GW-1914

GW-1980

GW-2046

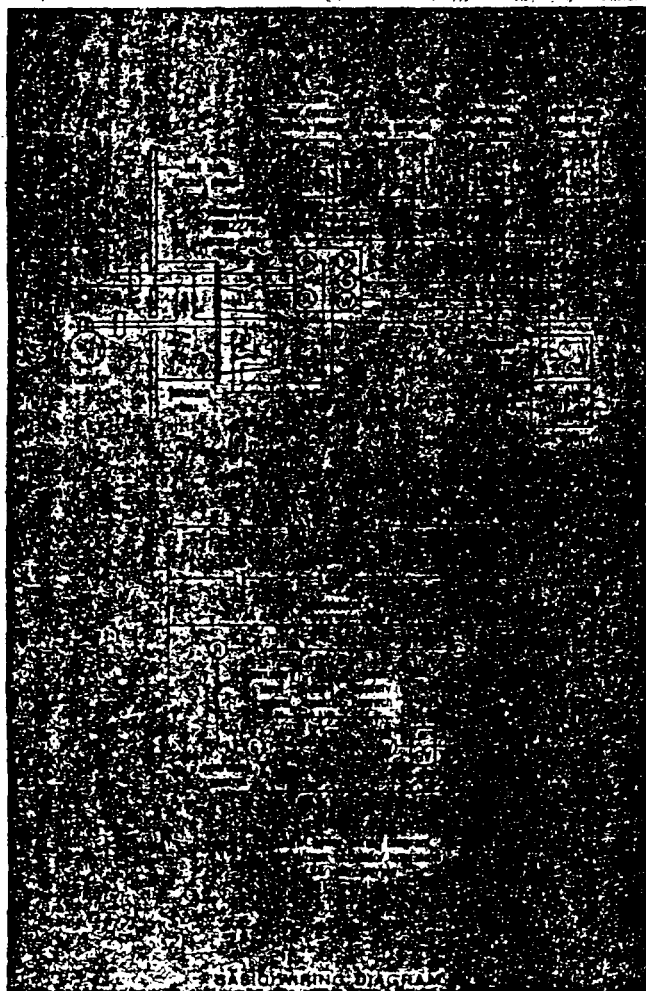
Modular boiler arrangements are made up of combinations

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1. The basic level of control consists of monitoring the return water temperature with immersion control(s) which sense the temperature drop of the system. Return temperature of the water is an indication of the heating load placed on the system. By setting the control(s), sensing return water at slightly lower steps for each consecutive module, additional modules will fire as the load becomes greater (water temperature lower). For these two control systems, it is recommended that a maximum staging be limited to four boilers, modules or units. Again, it should be remembered that eight boilers can be controlled as four sets of two boiler modules each, etc.
2. The next level of control is outdoor reset. Here, an outdoor sensor is used to reset the return water control point for each module. This gives modulated boiler and system water temperatures but requires outdoor bulb installation for each module.
3. The third control system uses one outdoor sensor and a sequencing control which modulates boiler and system water temperature, as directed by outdoor temperature, and sequences additional modules as the heating load increases. This control is limited to eight switching functions, so the boilers, more than eight, must be grouped to a limit of eight modules.



PRIMARY-SECONDARY HOOKUP FOR FUEL OIL

Primary-secondary hookup provides the most efficient and economical method of attaining the full capabilities of the modular boiler concept.

A primary pump circulates system water and secondary pumps force water through the boiler only if it is being fired. This approach eliminates sending generated heat up the stack while it passes through unfired boilers.

The parallel system in which return and supply headers actually does not take advantage of the modular concept and, therefore, incurs losses circulating through unfired or not

GWM and GWH ADVANTAGES
over other cast-iron boilers

Full modular design permits scaling
up to meet heating load
requirements.

Confines hot water only to boilers
being fired - prevents unwanted stack
losses. (Primary/secondary hookup
manifold is recommended.)

Offers stepped input increases of only
66,000 Btu/Hr. - eliminating over-
buying boiler capacity.

Offers flexibility in system hookup.
(Separate supply/return manifolds are
optional.)

Vertical flue design provides greater
efficiency and less space requirements.

Input ratings start at 528,000 Btu/Hr.

Each boiler carries its own jacket.

Entire unit can be wheeled in through
a standard door and hooked up with
a minimum of skilled labor.

