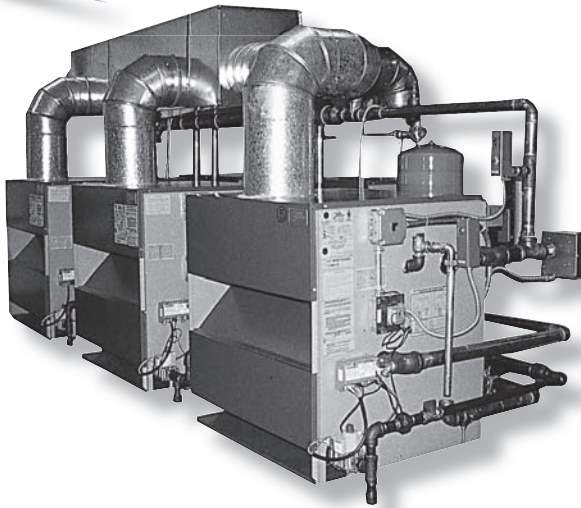




MAGB Series Gas-Fired Modu-Pac Multiple Commercial Boiler System

P/N# 240005910, Rev. 1.0 [12/05]



Available Heating Inputs of:
500,000 Btuh through 2,400,000 Btuh

▲ **Application** – MAGB gas-fired Modu-Pack boiler is available in inputs 500,000 Btuh through 2,400,000 Btuh and is an ideal replacement or new construction choice for today's commercial buildings requiring hot water heat. Composed of two or more modules the Modu-Pack has the flexibility to be adapted to a variety of applications while providing outstanding performance, cost efficiency and reliability. This multi-modal system allows the option to step-fire individual boilers with an outdoor reset control. By utilizing this type of control, only the modules necessary to meet the heating demand of the day are fired thus saving on fuel. In addition the Modu-Pack has the efficiency of smaller low-mass boilers, making it the perfect heating solution for commercial use.

Benefits:

- Outdoor reset control step-fires only the only the modules necessary to meet the heating demand.
- High efficiency performance and low operating cost.

▲ **Approvals** – The cast iron boiler assembly is manufactured and tested in accordance with American Society of Mechanical Engineers (ASME) standards, and certified by International approval Services (IAS) in the US and Canada. The Annual Fuel Utilization Efficiencies (AFUE) and heating capacity are based on US DOE test procedures and FTC labeling regulations. AFUE and I=B=R ratings are certified in accordance with standards set by The Hydronics Institute Division of the Gas Appliance Manufacturers Association (GAMA). The Material and Equipment Acceptance number for the City of New York is MEA, 19-79 Vol. II.



▲ **Warranty** – Utica Boilers backs its commercial boiler, cast iron heat exchanger with a Limited One Year Warranty. This Warranty is meant to protect your investment, but is also offered to illustrate our commitment to customer satisfaction.

FEATURES AND BENEFITS

▲ **Cast Iron Boiler Assembly** – Boiler sections and push nipples are constructed of long life cast iron. When the boiler is heated, sections and push nipples expand and contract in the same proportion because they are constructed of like material, providing a positive watertight seal.

Benefit: Cast iron provides efficient heat transfer, reliability and strength, the cast iron push nipples insure a watertight seal.

▲ **Cabinet** – Constructed of heavy gauge steel with a baked-on enamel finish, the cabinet is insulated, keeping cabinet surface temperatures low. The pilot assembly is located on the orifice side of the burner, out of the main combustion area making it easily accessible for maintenance and servicing. An integrated flue collector and draft hood allows for easier installation

Benefit: Pilot assembly is easily accessible for cleaning and servicing.

▲ **Electronic Aquastat Control** – Combine high limit protection with switching the relay control of the burner and circulator motor with a sensor remote mounted in an immersion well.

▲ **Electronic Ignition** – Solid-state electronic spark igniter provides positive ignition of pilot burner on each operating cycle. Pilot gas is ignited and burns during each running cycle of the boiler. Main burners and pilot gas are extinguished during the off cycle. Ignition system permits main gas valve to open only when the pilot burner is proven to be lit. Pilot operation is fully automatic on demand for heat. Should a loss of flame occur, the main valve closes, shutting down the unit (optional).

Benefit: Pilot is lit automatically and stays lit only when needed, eliminating fuel waste.

MAGB GAS-FIRED MULTILE COMMERCIAL BOILER SYSTEM

FEATURES AND BENEFITS *Continued*

▲ **Standing Pilot Ignition** – Permanently lit standing pilot with thermocouple provides dependable and safe burner ignition.

▲ **Automatic Gas Control** – Silent operating control provides 100% safety shut off. A 24 Volt redundant combination gas control valve combines automatic safety pilot, manual shut off (On-Off), pilot filtration, automatic electric valve (dual) and gas pressure regulation into a compact combination control. Dual valve design provides double assurance of 100% shut off of gas to the pilot and main burners on each off cycle.

▲ **Stainless Steel Burners** – Corrosion resistant atmospheric stainless burners are incorporated into each boiler delivering uniform flame patterns that optimize combustion efficiency and quiet operation.

Benefit: Stainless Steel burners resist corrosion and provide uniform flame patterns for optimum efficiency.

▲ **Circulating Pump** – The maintenance free water lubricated pump is shipped in a box with a 5' wire harness attached. Shipping the pump un-mounted allows for the pump to be installed on the supply or return. (Available without circulating pump upon request when ordering.)

▲ **Relief Valve** – Furnished as standard for field installation on top of the boiler. Valve provides for pressure relief of heating system in case of abnormal operating conditions. Valve opens at 30 psig (210 kPa) and is ASME stamped.

BOILER CLEARANCES		
Unit	Minimum Clearance to Combustible	Vent Pipe Minimum Clearance
Top	18"	18"
Front	Alcove*	
Flue Connector	6"	
Rear	4"	
Control Side	9"	
Other Side	3"	

*Alcove - boiler may be installed in an area inclosed on 3 sides (U shaped) with the front open.

Notes:

- This unit must be set on a concrete or other noncombustible material base or floor. **IT MUST NOT BE INSTALLED ON CARPETING.**
- Allow for greater clearance on access side for servicing.

MAGB SERIES STANDARD EQUIPMENT		OPTIONAL EQUIPMENT
Insulated jacket	Supply tapping 1 ½"	Electronic low water cut-off now available to meet the latest codes requirements
Boiler, assembled, wired and tested	Return tapping 1 ½"	
Cast iron section and push nipples	Circulator (field mounted)	Incorporated electronic ignition Pilot system
Hi-limit aquastat control	Combination 24-Volt gas control includes: <ul style="list-style-type: none"> • Automatic gas valve • Gas pressure regulator • Automatic pilot • Safety shutoff • Pilot flow adjustment • Pilot filter 	Stack damper (s)
Theraltimer gauge		Boiler sequencing and reset control
Stainless steel main gas burners		CSD-1 control package
30 lb. A.M.S.E. valve		Combustible floor kit
Drain cock		

MAGB PIPE SIZES IN INCHES FOR NATURAL GAS MAIN								
Model Number	Run Length in Feet							
	20'	30'	40'	50'	60'	80'	100'	125'
500	1.25"	1.25"	1.50"	1.50"	2.00"	2.00"	2.00"	2.00"
600	1.25"	1.25"	1.50"	1.50"	2.00"	2.00"	2.00"	2.00"
750	1.25"	1.50"	1.50"	2.00"	2.00"	2.00"	2.00"	2.00"
900	1.50"	2.00"	2.00"	2.00"	2.00"	2.00"	2.50"	2.50"
1000	1.50"	2.00"	2.00"	2.00"	2.00"	2.50"	2.50"	2.50"
1200	2.00"	2.00"	2.00"	2.00"	2.50"	2.50"	2.50"	2.50"
1500	2.00"	2.00"	2.50"	2.50"	2.50"	2.50"	3.00"	3.00"
1800	2.00"	2.00"	2.50"	2.50"	2.50"	3.00"	3.00"	3.00"
2100	2.50"	2.50"	2.50"	3.00"	3.00"	3.00"	3.00"	4.00"
2400	2.50"	2.50"	3.00"	3.00"	3.00"	3.00"	3.00"	4.00"

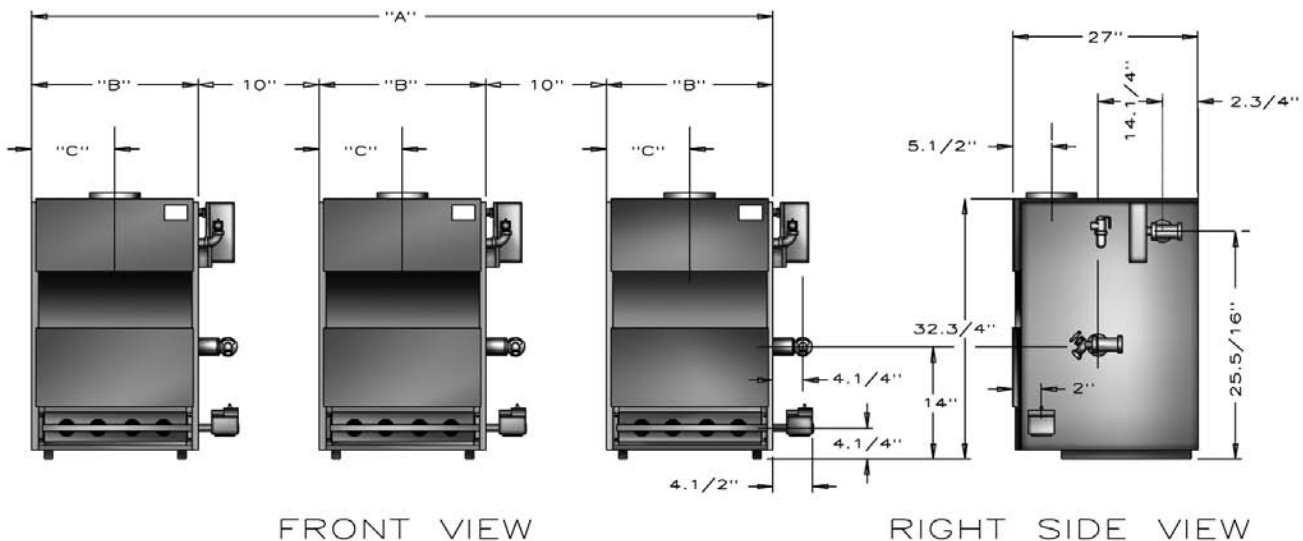
BOILER RATINGS & CAPACITIES

SERIES MAGB GAS FIRED BOILERS								
ENGINEERING DIMENSIONAL DATA								
Model Number MAGB	AGA Input Btuh	AGA Output Btuh	Net I=B=R Water Ratings		Flue Outlet Dia. & No.		Common Vent Dia.	Chimney Diameter & Height
			Btuh**	SQ. FT.	8"	9"		
500	500,000	*410,000	356,500	2,377	2		10"	12" X 15'
600	600,000	480,000	423,000	2,817		2	12"	14" X 15'
750	750,000	*615,000	533,000	3,553	3		12"	14" X 20'
900	900,000	720,000	634,000	4,226		3	14"	16" X 20'
1000	1,000,000	*820,000	713,000	4,753	4		14"	16" X 20'
1200	1,200,000	960,000	845,000	5,635		4	16"	18" X 20'
1500	1,500,000	1,200,000	1,057,000	7,043		5	16"	20" X 20'
1800	1,800,000	1,440,000	1,268,000	8,452		6	18"	20" X 30'
2100	2,100,000	1,680,000	1,479,000	9,861		7	20"	22" X 30'
2400	2,400,000	1,920,000	1,690,000	11,289		8	22"	24" X 30'

* DOE HEATING CAPACITY

**For elevations above 2000 feet ratings should be reduced at a rate of 4% for each 1000 feet above sea level.

**For equivalent square feet of radiation, divide I=B=R output by 150.



SERIES MAGB GAS FIRED BOILERS						
ENGINEERING DIMENSIONAL DATA						
MODEL NUMBER MAGB	NUMBER OF MODULES	SHIPPING WEIGHT (LBS.)	WATER CONTENT (GALLONS)	A INCHES	B INCHES	C INCHES
500	2	945	17.6	62.250"	26.625"	13.313"
600	2	1065	20.8	70.000"	30.500"	15.250"
750	3	1400	26.4	97.875"	26.625"	13.313"
900	3	1600	31.2	109.500"	30.500"	15.250"
1000	4	1890	35.2	133.500"	26.625"	13.313"
1200	4	2135	41.6	149.000"	30.500"	15.250"
1500	5	2665	52.0	188.000"	30.500"	15.250"
1800	6	3200	62.4	228.000"	30.500"	15.250"
2100	7	3730	72.8	267.500"	30.500"	15.250"
2400	8	4265	83.2	307.000"	30.500"	15.250"

MAGB GAS-FIRED MULTILE COMMERCIAL BOILER SYSTEM

COMBUSTION AIR REQUIREMENTS (Minimum Opening In Square Inches)

Model Number MAGB	Number Of Modules	*UNCONFINED AREA		**CONFINED AREA OUTSIDE COMBUSTION AIR	
		Outside Combustion Air 1 Sq. In. /4000 Btuh (See Fig. 2)	Outside Combustion Air 1 Sq. In. /1000 Btuh (See Fig. 1)	Vert. Ducts 1 Sq. In. /4000 Btuh	Horz. Ducts 1 Sq. In. /2000 Btuh
500	2	125	500	125	250
600	2	150	600	150	300
750	3	188	750	188	375
900	3	225	900	225	450
1000	4	250	1000	250	500
1200	4	300	1200	300	600
1500	5	375	1500	375	750
1800	6	450	1800	450	900
2100	7	525	2100	525	1050
2400	8	600	2400	600	1200

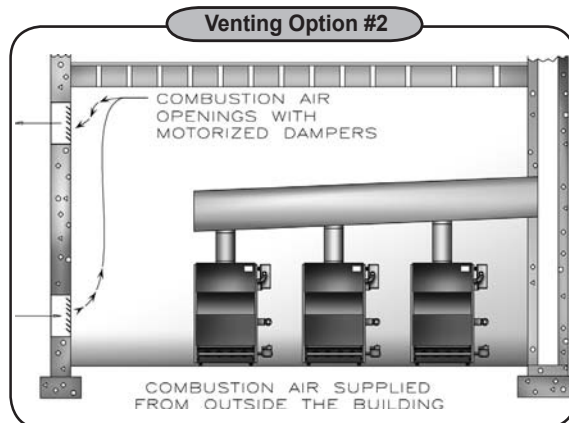
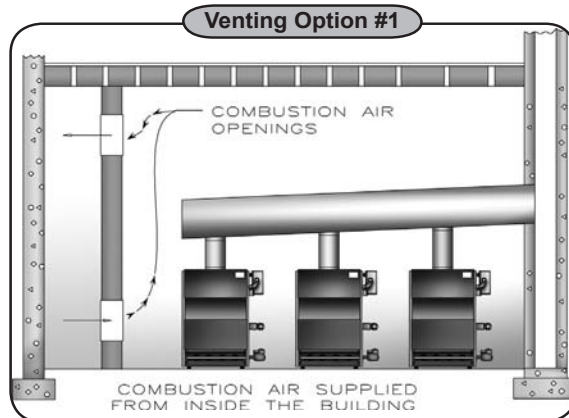
* Unconfined area: A space whose volume is not less than 50 cubic feet per 1000 Btu per hour of all appliances installed in that space (Cubic feet of space = height x width x length).

** Confined area: A space whose volume is less than 50 cubic feet per 1000 Btu per hour of all appliances installed in that space (cubic feet of space = height x width x length).

- Ventilation of the boiler room must be adequate to provide sufficient air to properly support combustion per the latest revision of the National Fuel Gas Code, ANSI Z223.1 section 5.3.
- When a boiler is located in an unconfined space in a building or conventional construction frame, masonry or metal building, infiltration normally is adequate to provide air for combustion and ventilation. However, if the equipment is located in a building of unusually tight construction (See the national Fuel Gas Code, ANSI Z223.1 section 1.7), the boiler area should be considered as a confined space. In this case air for combustion and ventilation shall be provided according to part 5 on page 4. If there is any doubt, install air supply provisions in accordance with the latest revision of the National Fuel Gas Code.
- When a boiler is installed in an unconfined space, in a building of unusually tight construction, air for combustion and ventilation must be obtained from outdoors or from spaces freely communicating with the outdoors. A permanent opening or openings having a total free area of not less than 1 square inch per 5,000 Btu per hour of total input rating of all appliances shall be provided. Ducts may be used to convey makeup air from the outdoors and shall have the same cross-sectional area of the openings to which they are connected.
- When air for combustion and ventilation is from inside buildings, the confined space shall be provided with two permanent openings, one starting 12 inches from the top and one 12 inches from the bottom of the enclosed space. Each opening shall have a minimum free area of 1 square inch per one thousand (1000) Btu per hour of the total input rating of all appliances in the enclosed space, but must not be less than one hundred (100) square inches. These openings must freely communicate directly with other spaces of sufficient volume so that the combined volume of all spaces meets the criteria for an unconfined space. See **Venting Option #1**.

When the boiler is installed in a confined space and all air is provided from the outdoors the confined space shall be provided with one or two permanent openings according to methods **A** or **B**. When ducts are used, they shall be of the same cross sectional area as the free area of the area of the openings to which they connect. The minimum dimension of rectangular air ducts shall be not less than 3 x 3 inches or 9 square inches.

A – When installing two openings, one must commence within 12 inches from the top and the other within 12 inches from the bottom of the enclosure. The openings shall communicate directly, or by ducts, with the outdoors or spaces (crawl or attic) that freely communicate with the outdoors. One of the following methods must be used to provide adequate air for ventilation and combustion.



- When directly communicating with the outdoors, each opening shall have a minimum free area of 1 square inch per 4,000 Btu per hour of total input rating of all equipment in the enclosure. See **Venting Option #2**.
 - When communicating with the outdoors by means of vertical ducts, each opening shall have a minimum free area 1 square inch per 4,000 Btu per hour of total input rating of all appliances in the enclosed space.
 - If horizontal ducts are used, each opening and duct shall have a minimum free area 1 square inch per 2,000 Btu per hour of total input rating of all appliances in the enclosed space.
- B** – One permanent opening, commencing within 12 inches of the top of the enclosure, shall be permitted where the equipment has clearances of at least 1 inch from the sides, 1 inch from the back, and 6 inches from the front of the boiler. The opening shall directly communicate with the outdoors or shall communicate through a vertical or horizontal duct to the outdoors or spaces (crawl or attic) that freely communicate with the outdoors. The openings must have a minimum free area of 1 square inch per 3000 Btu per hour of the total input rating of all equipment located in the enclosure. The free area must be no less than the sum of the areas of all vent connectors in the confined space.

In calculating free area using louvers, grilles or screens for the above, consideration shall be given to their blocking effect. Screens used shall not be smaller than 1/4 inch mesh. If the free area through a design of louver or grill is known, it should be used in calculating the size opening required to provide the free area specified. If the design and free area is not known, it may be assumed that wood louvers will have 20-25% free area and metal louvers and grilles will have 60-75% free area. Louvers and grilles should be fixed in the open position or interlocked with the boiler so they are opened automatically during the boiler operation.



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