

# The benefits of owning a Portage & Main Ultimizer

The Ultimizer Series uses its revolutionary design to eliminate the problems associated with the outdoor wood boiler industry.

Problems such as low burning temperatures, caused by water that completely surrounds the fire chamber, occur in nearly all outdoor wood boilers. Low burning temperatures, burning unseasoned wood and burning in mild weather conditions such as early fall and spring, cause excessive moisture and creosote to develop within the fire chamber. Excessive moisture combined with wood ash and creosote create a corrosive environment, which can lead to premature boiler failure.

Other major issues are low return water temperatures (less than 140° – condensate point) and normal operating temperatures of 180°-190° which is high for water temperatures but not high enough for proper combustion. This causes poor combustion and ash build up against the burn chamber walls which are unable to dry starting the corrosion process. Hotter burn temperatures and residual heat due to the pre-cast firebrick in the Ultimizer Series eliminate these problems and ensure a longer lasting, corrosion free, dry fire chamber.

By far the most efficient boilers in the business, Portage and Main furnaces burn 1/3 to 1/2 less wood than other conventional boilers. We took the best design features of our

original ML series, including a water cooled baffle in the fire chamber and our highly efficient reverse turn heat exchanger and combined them with the pre-cast refractory and firebrick of the Ultimizer to bring you the best built, longest lasting and most efficient boiler in the industry. The Ultimizer's efficient design will save you time, labor and thousands of dollars in wood over the years, giving you the ultimate wood-burning experience!

Portage & Main designers have always strived to engineer the most efficient and long lasting furnaces possible. Example: double welding both the water jacket and the burn chamber (an exclusive to Portage & Main Outdoor Water Furnaces). We use ¼ inch thick cold rolled, carbon steel – the best application for outdoor water furnaces/boilers.

In models without ashpans/scoop and grate systems, ashes are usually not removed often enough. Some operators leave ashes in as an attempt to get a hotter burn. This results in unintended corrosion. Ashes in the Ultimizer Series are easily removed because of the ash grate and ash scoop systems, no need to experience the unpleasant task of trying to separate the ash from the coals and trying to remove the ashes through the fill door.

## THREE MODELS TO CHOOSE FROM:

PORTAGE & MAIN ULTIMIZER	BL 2840	BL 3444	BL 4044
Maximum Furnace Output (BTU/hour)	225,000	370,000	Up to 500,000
Heating Area (sq. ft.)	4,000 plus	Up to 8,000	Up to 12,000
Size Total L x W x H	63" x 42" x 72"	68" x 50" x 82"	72" x 57" x 92"
Shipping Weight (lbs)	2,300	2,800	3,500
Chimney Size	6"	8"	8"
Door Size W x H	19" x 15"	20" x 18"	20" x 20"
Fire Chamber L x W x H	40" x 28" x 35"	44" x 34" x 44"	47" x 38" x 48"
Surround Fire Brick Height	12"	14"	16"
Water Capacity (US gallons)*	90	120	160
HORIZONTAL Flat Tube Heat Exchanger	6" x 10" x 7'	6" x 11" x 8'	6" x 12" x 9'
Heat Exchanger	Multi-Pass Reverse Turn	Multi-Pass Reverse Turn	Multi-Pass Reverse Turn
Maximum Log Length	40"	44"	47"
Split Wood or Suggested Log Diameter	Will burn wood as large as you want to handle**		
Electrical Requirement	120 Volt	120 Volt	120 Volt
Power Draft Motor	Yes	Yes	Yes
Limited Warranty	20 Year	20 Year	20 Year

\* Extra water volume is usually a by product of a large firebox because of inefficient design. Think of which pot boils faster— a big one or a smaller one? Consider the extra cost of treating larger volumes of water or propylene glycol if required. \*\* Splitting logs will facilitate faster seasoning of the wood. Manufacturers reserve the right to make changes or modifications to products. Brochures are updated regularly, however for the most current information please see the website [www.portageandmainfurnaces.com](http://www.portageandmainfurnaces.com)

- Portage & Main Ultimizer Series Quick Recovery: Water temperature will get from 50 degrees to 180 degrees in less than one hour. Fastest recovery time in the industry!!
- All systems come with a cleanout tool, certified boiler treatment, standard stainless steel chimney and an easy to use ash scoop.

North American Portage & Main Outdoor Water Furnace Distributor



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# PORTAGE & MAIN

Since 1973

41 Years of Efficiency, Excellence, Reliability & Long Lasting Outdoor Water Furnaces

## OUTDOOR WATER FURNACE ULTIMIZER SERIES

### Conventional Wood Burning Outdoor Water Furnace with Refractory Brick Lining...

*The most important major innovation in conventional outdoor boiler design to date. The reinforced 2 1/2 inch thick refractory cement surrounding the fire provides:*

- Much hotter temperatures for proper combustion.
- Hotter temperatures allow for the most complete combustion within any conventional outdoor boiler.
- More complete combustion means a cleaner and more efficient burn.
- Hotter combustion temperatures eliminate creosote, moisture and their damaging effects.
- Hotter combustion temperatures equal a dryer, longer-lasting outdoor wood boiler.
- Clean burning efficiency without the extra cost Of EPA wood gasification boilers!

*We all know that for proper combustion, three key ingredients are required: fuel, oxygen and HEAT!*



QUALITY & VALUE MEET TO GIVE YOU THE INDUSTRY'S BEST WARRANTY!

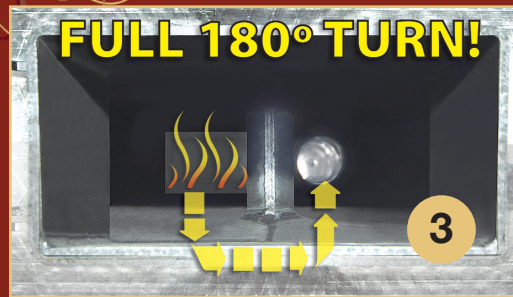
20 Year Limited Warranty

1 Year Warranty on Electrical Components

CALL US FOR FULL DETAILS!



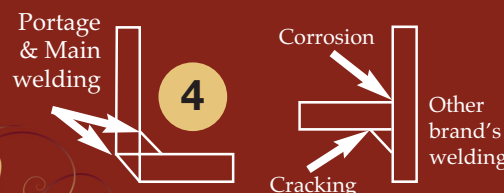
## NOT A BOX WITH A STACK AND DEFINITELY NOT YOUR REGULAR STRAIGHT SHOT DESIGN!



Air over the fire



Air under the fire



Portage and Main Outdoor Water Furnaces has taken the best design in the outdoor wood boiler industry and made it better with our revolutionary new series. Proper combustion in an outdoor wood boiler requires heat, fuel and oxygen. To provide the heat, Portage and Main outdoor water furnaces have incorporated the use of refractory cement and fire brick. 2 1/2 inches of stainless- steel fiber reinforced, precast refractory cement, line the bottom at least 12 inches of the fire chamber on all four sides. The ash removal grates in the bottom of the fire chamber are constructed of standard cast refractory brick 4 inches thick.

1. P&M's extremely efficient and unique multi-pass heat exchanger, keeps the heat in the exchanger allowing maximum heat transfer to the water.
2. Starting with the water-cooled baffle near the back of the fire chamber, which provides the first two passes of heat exchanger and recovery, by trapping hot gases to extract more heat.
3. Industry-leading reverse turn heat exchanger with 180° turn for maximum efficiency is surrounded by water, the multi-pass heat exchanger has maximum heat extraction. Maximum useable heat is extracted into the water as exhaust gases travel horizontally, through a water-cooled, trough-design, heat exchanger above the fire chamber, before exiting the chimney with a low stack temperature. (Without a heat exchanger one cannot achieve high efficiency which is indicated by lower stack temperatures. The Ultimizer achieves both therefore burns 1/3 to 1/2 less wood fuel than other industry boilers).
4. Double welded boiler style joints – exclusive to Portage & Main Outdoor Water Furnaces! All parts are laser cut for precision fitting which allows the bevel to be double welded for total penetration welds. Welding inside and outside takes more time but is worth it as it helps prevent weld corrosion, cracking and pin holes.
5. Fire chamber and heat exchanger are made of 1/4" W44 cold rolled mild steel which eliminates the problems associated with other metals.
6. Rounded fire chamber top requires less welds.
7. Inside water jacket is made of 1/4" cold rolled steel. Outer side of water jacket is made of 3/16" cold rolled steel.
8. The grates are constructed of standard pre-cast brick - four inches thick to provide even more heat and allow preheated oxygen to be introduced under the fire. Think of a campfire and how much better it burns with air introduced under the fire. The common 4"x 2-1/2"x 9" brick grate allows for easy adjustment of grate opening size for convenient ash removal and keeping the coals in the burn chamber where they belong.
9. Air introduced from under the fire is Wood Burning Technology 101. Preheated under fire air results from the blower drawing air from the furnace cabinet and blowing the air up through the hot fire brick that forms the grate system in the bottom of the burn chamber. This makes a much hotter fire than when air is introduced directly from outdoors (high humidity-raining snowing or just cold direct outside temperature).
10. We also add air above the fire which is very beneficial for complete combustion. As a bed of coals is developed more air is introduced above the fire, which is now in stage two combustion, achieving a cleaner and more efficient complete stage two burn of the smoke and flue gasses.
11. 2 1/2 inches of stainless- steel fiber reinforced, precast refractory cement, line the bottom at least 12 inches of the fire chamber on all four sides.
12. Reliable, digital Johnson Controls regulate temperature and are, programmable to within one degree.
13. High-limit safety aquastat, in the unlikely failure of Johnson Controls; the furnace can be controlled with this manual aquastat.
14. Two supply ports and two return ports. Upper connections for supply water and lower connections for return water.
15. Blower motor, aquastats, electrical connections, circulators, air box with built in damper and flexible ducting are kept warm and dry in the rear cabinet easily accessed through the hinged, large lockable door.
16. Convenient float (easy to see water level with no sight glass or tube to discolor) breather tube and filler pipe's unique design reduces evaporation.
17. Handy transport and install hook. Tie-down hooks in front under the door.
18. No chimney through the roof prevents roof leaking. Chimney comes out the back of the furnace below the water level. This prevents stack corrosion. Powder coated roof finish on the one piece roof which has no trims to rust or deteriorate. Top quality mirror like paint on the rest of the furnace. Portage & Main is proudly stamped on all of our furnaces.
19. Doors are sealed with top quality industrial core gaskets with an outer layer of hi-temp silicone built onto it. Double point adjustable latch provide positive pressure seal on the fire chamber door. Fire chamber door handle makes door opening a single hand task.
20. Furnaces are very well insulated using time tested R20 fiberglass around the water jacket and Roxull quality insulation (2200 degree) in the burn chamber door and behind pre-cast refractory brick. Fiberglass insulation is superior to spray foam insulation because fiberglass will not off-gas or trap condensation moisture on the outside of the water jacket, which can start the corrosion process. Roxull will not break down, crack, separate or burn.
21. Easy to use ash scoop means you don't need to put out the fire or work with messy ashes and hot coals. No more putting off ash removal – it's a five second job and helps prevent bottom corrosion. No more breathing in ash dust.
22. Insulated outer cabinet door prevents cooling effect on fire chamber door, heat exchanger door and door jams eliminating condensation which is one of the main causes of corrosion. The insulated cabinet door gives the same insulating effect to the furnace as a storm door does on a home.
23. The Ultimizer Series with legs can be installed on a gravel pad or on heavy concrete blocks such as topping blocks, patio bricks or silo staves. One heavy concrete block under each leg is adequate, a concrete pad is not required allowing for installation in any season. The furnace legs give extra height for a more convenient fill level. Legs keep furnace off the ground to reduce underside corrosion.
24. The Ultimizer Series is designed as a component furnace a bolt together design. The bottom refractory brick chamber is flanged and bolted to the upper water jacket chamber, making it easily removable for full accessibility in the unlikely event that repairs are ever needed.

