PORTAGE & MAIN

EGR OPTIMIZER

Enviromentally Green Reactor

Turning Green into Heat

PORTAGE AND MAIN FURNACES.COM

20 YEAR WARRANTY

Electrical Components - 1 Year
CALL US FOR FULL DETAILS!

environmentally green heat

Portage & Main Furnaces

have provided families with comfortable heat for over forty years.

We are known as the industry leader with our time tested and proven designs.

No other manufacturer can offer you more options for your heating needs. We have a complete product range of up-draft, down-draft cord wood, wood chip, wood pellet and coal burners

Our commitment to continue our innovative development of the Portage & Main brand is reflected in the newest model of updraft gasifier – the EGR 100 and EGR 250.

The EGR looks different to and performs better than any average wood gasifier. It is a proven sectional designed, dry base furnace that puts more heat into the water and not up the chimney stack.

The more research you do into the outdoor furnaces that are available on the market today, the easier it will be to see why the Optimizer EGR is the smartest choice available. A well designed, very efficient furnace with a long life expectancy.

Here are just some of the "not so standard" features that offer you a lot more of what you really want –
more value and a lot more boiler for your hard earned money.

- More proven fire tube sets.
- Much more heat extraction surface.
- A lot more refractory for a more complete hot burn.
- More air curtains for more complete burn and a dryer fire box.
- More weight, making the EGR a true industry Heavy Weight.
- More copper winding results in a longer fan motor life.
- Efficiency is enhanced with a variable speed fan motor.
- More insulated doors to save heat and protect your water furnace.

Get more boiler for your money, burn a lot less wood, get more heat with the boiler designed to last a life time.

PORTAGE AND MAIN FURNACES.COM

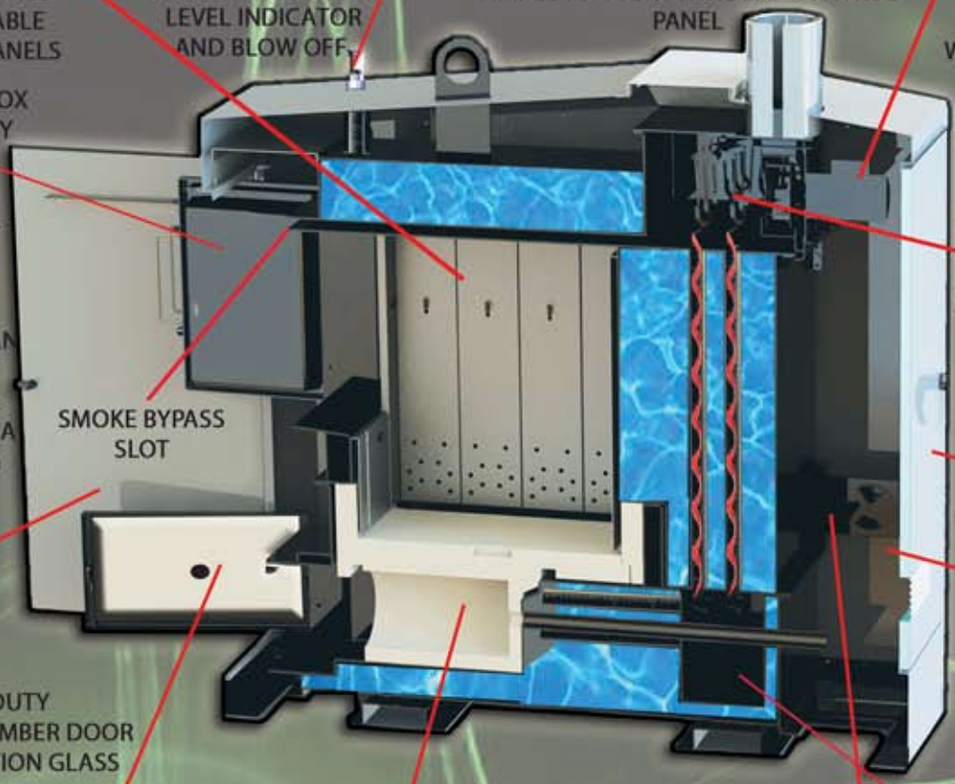
COMPLETELY LINED WITH REMOVABLE AIR CURTAIN PANELS

EASY TO SEE WATER LEVEL INDICATOR AND BLOW OFF

SIMPLE TO USE DIGITAL LED CONTROL PANEL

LONG LASTING HEAVY DUTY EXTRA COPPER WINDING LEESON MOTOR

INSULATED FIREBOX DOOR WITH EASY TO USE ADJUSTABLE ACCESS LATCH. ALL DOOR GASKETS ARE TOP QUALITY NORTH AMERICAN MADE SOLID CORE SILICONE ENHANCED FOR A POSITIVE LONG LASTING SEAL



SMOKE BYPASS SLOT

INSULATED FRONT ACCESS DOOR

MANUAL ROCKER TUBULATORS

INSULATED REAR ACCESS DOOR

ENCLOSED ELECTRONIC CONTROLS, PUMPS, PIPING AND AIR INTAKE BOX. ALL OUT OF THE ELEMENTS

HEAVY DUTY REACTION CHAMBER DOOR WITH INSPECTION GLASS

FRONT VIEW OF REACTION CHAMBER SECONDARY AIR EXTRA HEAVY DUTY REACTION OFFSET CHAMBER NOZZLE FOR OPTIMAL TURBULENCE

CLEAN OUT PORT

COMBUSTION AIR DAMPER

THE EGR250 WOOD GASIFICATION WATER FURNACE CROSS SECTION

What is Wood Gasification?

Wood gas is generated in a high temperature reaction (>700° F) between the wood and a limited amount of oxygen. The heat and lack of oxygen "bakes" the wood, causing it to breakdown and gasify into carbon monoxide, hydrogen, and some carbon dioxide. The wood gas mixture that is created in the firebox then gets forced through the base of the fire and burns at temperatures around 2000° F in the gasification reaction chamber. This creates a very hot, very clean burn which helps you get the most out of your fuel. After the gas is burned, the heat is transferred to the water jacket using 2 sets of heat exchangers, 1 set of horizontal tubes and 1 set of vertical tubes. The most notable indicator of effective gasification is the lack of smoke exiting the chimney. What you see exiting is mostly steam, not smoke. The gasification process creates longer burn times and can greatly reduce wood consumption compared to a standard wood furnace.

TWO MODELS TO CHOOSE FROM

WOOD GASIFICATION UNITS	OPTIMIZER EGR 250	OPTIMIZER EGR 100
Maximum Furnace Output (Btu/Hr)	Up to 250,000	Up to 125,000
Heating Area (Sq. Ft.)*	4000 to 6000	1500 to 3000
Total Size W x L x H	42 x 78 x 75	40" x 70" x 68"
Shipping Weight	3,200 lbs	2,000 lbs
Chimney Size	6"	6"
Door Size W x H	15.5" x 22"	14" x 15.5"
Firepot W x H x L / Cubic Feet	24.5" X 36" X 28" / 14	21" X 26" X 21"/ 6.5
Water Capacity (US Gallons)	160	100
Horizontal Fire Tubes	8 x 2 3/8 seamless tubes	6 x 2 3/8 seamless tubes
Vertical Fire Tubes	8 x 2 3/8 seamless tubes	6 x 2 3/8 seamless tubes
Maximum Log Length	28"	20"
Split or suggested Log Diameter**	4" to 6"	4" to 6"
Electrical Requirement	120 Volt	120 Volt
Suction Motor	Negative Pressure	Negative Pressure
Heat Exchanger	Double Pass	Double Pass
Limited Warranty	Lifetime	Lifetime

* Approximate only - heat load should be calculated. Many factors influence the heating area - such as the insulation value of the structure, and the climate in which the furnaces operates. It is always best to calculate the number of BTUs required per hour for your heating needs.
**For optimum performance wood gasification requires seasoned 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.portageandmainboilers.com

PORTAGE AND MAIN FURNACES.COM

Not just a pretty face, this furnace is a heavy weight and is packed with energy saving features.

This furnaces burns all types of seasoned wood.

Setting the standard higher... to deliver more.

TUBULATOR ROCKER ARMS | MILD STEEL REMOVABLE AIR CURTAINS | TUBULATOR CLEANOUT PORT

HEAVY DUTY CONSTRUCTION | HORIZ & VERT HEAT TRANSFER TUBES | VORTEX REFRACTORY FIRE CHAMBER

SOLID CORE SILICONE DOOR GASKETS | HEAVY DUTY LEESON ELECTRIC MOTOR | REFRACTORY DRY BASE FIRE BOX

Original, optimally designed Portage & Main Outdoor Water Furnaces
lead the industry in high efficiency, dependable and long lasting engineered products.
Proven technology that has stood the test of time for over 150 years.

The ***New Optimizer*** **EGR** is built with some of the same principals as commercial industrial boilers
– dry base, sectional design, efficient multi-pass heat exchanger.
These features have earned Portage & Main the reputation of being
the "best" and "most efficient" conventional boiler:

We accomplished this by doing the following:

1. The reaction chamber is surrounded with water for maximum heat transfer. A 180 degree turn starts the heat transfer through 8 - 2 3/8" (EGR250) & 6 - 2 3/8" (EGR100) horizontal seamless tubes, heading towards the back end of the EGR into an access chamber, where the heat transfer is further increased by an additional extra set of 8 - 2 3/8" (EGR250) & 6 - 2 3/8" (EGR100) vertical seamless tubes with rocker turbulators to allow for maximum heat extraction.
2. The round reaction chamber provides the turbulence, temperature and time required to achieve complete combustion.
3. The negative pressure exhaust system is driven by a Leeson heavy duty (extra windings), variable speed, DC motor which is linked to a "made in North America" control system. Unlike simple on/off controllers found in most competitors' furnaces, the smart controller used in the EGR models anticipates the upper set point temperature 5 to 10 F before it is reached and begins to reduce the fan speed and damper opening. This allows the burn cycle to last longer, thereby increasing the overall burn efficiency and minimizing set point overshoot.
4. The smart controller will also stop the fan and close the damper if the shut down temperature range, typically 150 to 200 F, is exceeded. The lower shut down temperature conserves hot coals in the ash bed to provide for a fast and easy restart when the next load of wood is added.
5. Water outlets & inlets are strategically designed and placed to maximize heat extraction.
6. The EGR has a refractory cement fire chamber base to insure an excellent burn. The refractory cement extends up the side of the fire pot base to further enhance the burn and protect the sides.
7. The primary fire chamber air is directed through the non-water cooled side refractory cement, allowing entry of preheated air into the fire chamber. This is normally a problem area in other brands of furnaces because a water cooled inlet region will allow steam to condense between burn cycles and cause corrosion. We have eliminated this problem by creating a dry hot entry through the refractory cement areas. This eliminates steam condensation and build up of ash and creosote.
8. Air curtains surround all four sides of the fire chamber. Air is introduced from behind the fire wall curtain. The curtains provide for a very dry wall, eliminating creosote build up and promoting high temperature complete burns.
9. The negative pressure system fan draws the flame through the bottom of the fire chamber into the rounded refractory reaction chamber which keeps the hot gases in the reaction chamber long enough to facilitate a complete burn.
10. All parts are laser cut for precision fitting which allows the bevel to be double welded (Boiler style welds). Welding inside and outside takes more time but is worth it as it results in total penetration welds, which helps prevent weld corrosion, cracking and pin hole leaks.
11. Firepot and heat exchanger are made of 1/4" W44 cold rolled steel which eliminates the problems associated with stainless steel. W44 cold rolled steel has the same corrosive resistant properties as boiler plate and is noted for being a very "uniform" steel that is easy to shear, break and is welder friendly. Inside water jacket is 1/4" cold rolled steel. Outside water jacket is made of 3/16" cold rolled steel.
12. Convenient, easily accessible, insulated doors have adjustable handle style latches and adjustable heavy duty hinges using 3/8" hardware. The safety latch doors seal with solid, top quality industrial silicone core gasket giving a long-lasting positive seal. The negative pressure exhaust design also enhances the life of the door seals.
13. Easy to read, convenient float water level indicator has no sight glass to fog or discolour or electronics to give problems.
14. The outer panels of the EGR furnaces are protected with a beautiful and long lasting powder coated finish.
15. And finally, to show how proud we are of our furnaces, we stamp "PORTAGE AND MAIN" into the front steel panel of every furnace we make.

Simply the Best!

North American Portage & Main Outdoor Water Furnace Distributor

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Authorized Portage & Main Outdoor Water Furnace Dealer