

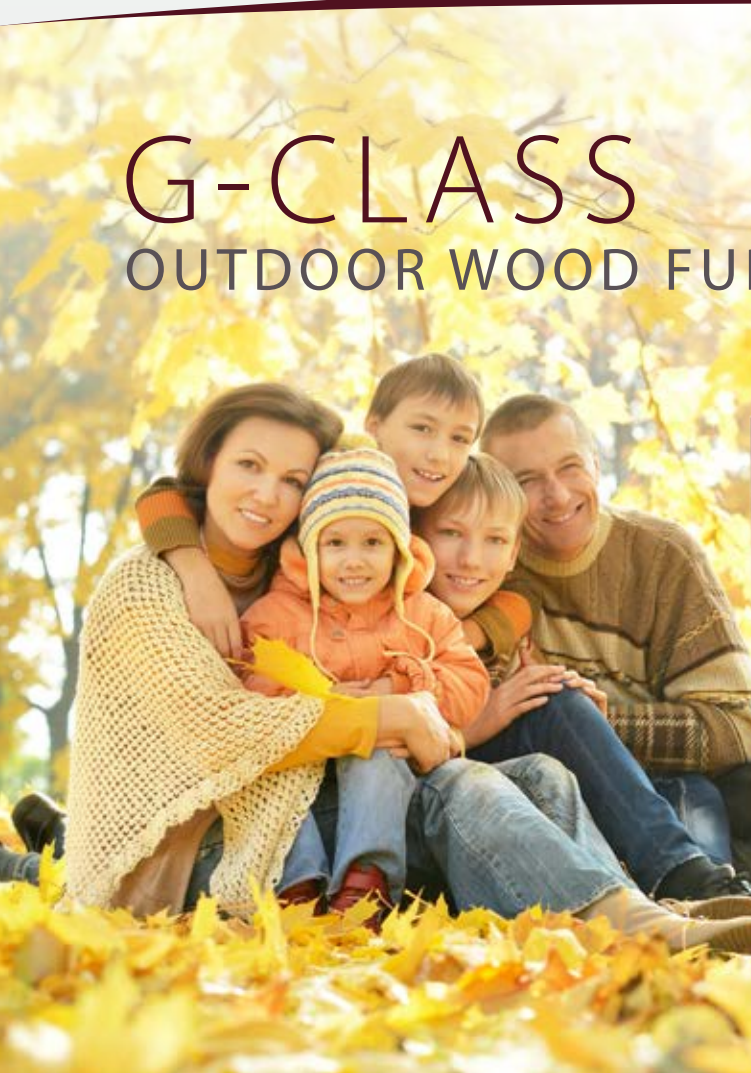
BURN UP TO **60%**  
LESS WOOD\*



**POLAR**<sup>®</sup>  
FURNACE  
clean, simple heating with wood



# G-CLASS OUTDOOR WOOD FURNACE



toll free 855 582 2233  
info@polarfurnace.com  
www.polarfurnace.com



MANUFACTURED IN A  
ISO 9001:2008  
CERTIFIED FACTORY



\*when compared to non EPA certified conventional outdoor wood furnaces



VOR-TECH™ Combustion Chamber  
ALL FIRE, NO SMOKE!

# G-CLASS

## VOR-TECH™ COMBUSTION CHAMBER

To get perfect combustion the right amounts of fuel(wood), heat, and oxygen (air) need to get thoroughly mixed with each other. This is exactly what happens at the heart of every G-Class inside the VOR-TECH combustion chamber. Preheated secondary air (oxygen) is mixed with the hot unburned smoke and gases (fuel) as they flow down into the VOR-TECH chamber from the primary chamber above. The incoming gas flow is angled to encourage a swirling vortex inside the cylindrical chamber. The resulting 1700 - 2000°F vortex mixes the unburned smoke with the preheated secondary air and the results are truly amazing. Combustion efficiency reaches 99.5%. This means that every piece of wood and all the smoke and gases are burned. Every BTU of energy stored inside the firewood is released from the wood and becomes available to transfer into the water jacket to heat your home or shop or anything else that requires heat.

## ABOUT THE G-CLASS WOOD FURNACE

The G-Class models are modern 3<sup>RD</sup> generation gasification outdoor wood furnaces. Base burning (gasification) heater designs have been in use since well before 1869 when a patent was issued by the US patent office for an improved base burning furnace nozzle design.

Our research and development team has been involved in base burning outdoor furnace design since 2002. All our accumulated knowledge and experience comes together in the G-Class. The G-Class is user friendly, reliable, easy to install, easy to maintain and proven with hundreds installed throughout Canada and USA.

G-Class includes all the features an outdoor furnace should have. Several of these features were completely new to the outdoor furnace industry when the G-Class first launched. Some of these features continue to remain exclusive to G-Class like the Ignition Door. We continue to innovate and our most recent addition to G-Class is Connect-EZ. This is an assembly installed on the G-Class which simplifies and lowers the cost of installation and insures your installation complies with G-Class requirements.

Amazingly the G-Class models use up to 60% less wood when compared to older style conventional outdoor wood furnaces. You save time, money and wood storage space. Imagine your wood pile shrinking to half the size.

Wood burning with the G-Class is carbon neutral and does not increase the amount of green house gases in our atmosphere. Also, without even trying you are using a lot less of the earth's resources (wood) and keeping our environment cleaner because the G-Class is very clean burning and emits only a tiny fraction of the particulates and pollutants a conventional outdoor furnace emits.

The G-Class 15 year limited warranty is our guarantee. We know you will likely never need it because the G-Class is a proven, trustworthy, honest high quality product. Our commitment to high quality extends to every piece of steel, every component, every weld and begins with a rigorous R&D program to test our products against real world conditions.

G-Class. A lot more than you expect!

**BURN UP TO  
60%  
LESS  
WOOD**



*"I still can't believe how much less wood I'm using to heat my house and shop. I'm totally blown away by this"*

**JOHN, NEW YORK**

# G-CLASS

## OUTSTANDING FEATURES



OUTDOOR FURNACE INDUSTRY FIRST

MANUFACTURED IN A  
**ISO 9001:2008**  
CERTIFIED FACTORY



# ALL THE BEST FEATURES EVERY OUTDOOR WOOD FURNACE SHOULD HAVE

## ✓ 1. VOR-TECH™ Combustion System

Crafted from carefully selected materials the VOR-TECH combustion chamber reaches temperatures up to 2000F. Secondary combustion air insures total combustion including wood and smoke. Combustion efficiency reaches 99.5%, which means that every possible BTU of energy is released from the wood and made available as heat.

## 2. High Performance Heat Exchanger

The 2000°F air leaving the VOR-TECH chamber next flows into the high performance vertical flue type heat exchanger. The air leaving the heat exchanger has cooled to as low as 280°F accomplishing overall system efficiency as high as 86%.

## ✓ 3. EASY SWEEP System

Heat exchangers in any type of wood furnace need to be cleaned from time to time to maintain optimal efficiency. Moving the external EASY SWEEP handle activates the rocker system which moves the spirals inside the vertical heat exchanger up and down. This up and down sweeping action cleans the heat exchanger surfaces

## 4. Up to 86% Overall Efficiency

Using the appropriate North American test method the G-Class achieves overall efficiency over 86%. Using European test methods these types of wood burning furnaces achieve overall efficiencies well over 90%.

## ✓ 5. SMOKE X-Tract System

A channel built into the top of the fire chamber and the suction fan work together to insure your comfort and safety during loading. When the fire chamber door is opened the suction fan pulls any smoke that would otherwise escape from the fire chamber back towards the chimney and away from you! A must have feature for indoor installation

## ✓ 6. STRONGWALL System

This system of removable panels protects the firechamber walls from the extreme conditions inside the firechamber increasing the life of the furnace. At the same time the panels keep the fire chamber hotter resulting in superior combustion.

## ✓ 7. CONNECT-EZ System

This system includes a boiler recirculation pump, boiler protection valve and manifold and is installed into the plumbing compartment at the rear of the furnace. This system greatly reduces installation cost, simplifies the installation and has multiple ports for easily connecting more than one primary distribution loop and pumps.

## ✓ 8. Ignition Door

The Ignition Door is there to make your life simple. It gives you direct access to the base of the fire chamber for easy maintenance. Lighting the wood at the base of the pile is a breeze and without any smoke rollout!

## 9. High Performance Insulation

Resin bonded glass fiber board insulation with a foil layer retains not only radiant heat but also infrared heat energy for superior insulating performance. This type of insulation is the best choice for outdoor furnaces because it does not trap or retain moisture.

## 10. GALVANEEL Housing

GALVANEEL provides superior durability against the outdoor elements. Precision formed heavy 18 gauge GALVANEEL housing assembles to a tight fit keeping rain and snow from penetrating the furnace housing.

## 11. UV Resistant Powder Coating

Beautiful High Luster UV resistant powder coating on GALVANEEL steel gives exceptionally long lasting durability and good looks.

## ✓ 12. Powerful DC/ECM Induction Fan

See next page for more information on this high performance motor/fan assembly.

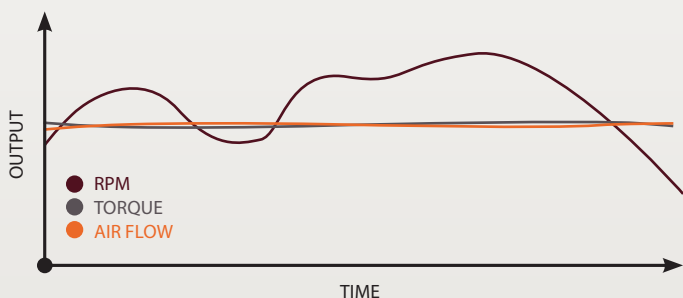


Certified for  
**INDOOR & OUTDOOR**  
installation

# UNMATCHED FAN & MOTOR TECHNOLOGY

The Polar Furnace G-Class is the only outdoor wood furnace featuring ECM/DC motor technology on the fan assembly. ECM/DC motor benefits include much higher electrical efficiency when compared to older shaded pole and PSC motor technology. Other benefits include longer average service life as well as the ability to run the motor at any speed for optimal furnace performance.

## ECM MOTOR: Constant Torque / Constant Airflow



### 1. SMART Constant Torque Motor Control

The smart motor control will change the fan speed to maintain stable constant combustion. For example, if the firewood in the fire chamber settles over the VOR-TECH nozzle restricting air flow the control will sense this as a change in torque and will increase the fan speed to keep moving the proper amount of air through the furnace. That's Smart!

### 2. EFFICIENT ECM Motor Technology

ECM motor technology is the most efficient motor technology in the world today. The powerful G-Class fan motor uses as little as a 1/4 of the electricity older motors use. You are saving money.

### 3. RELIABLE ECM Motor Design

Electronically Communicated Motors don't have brushes that wear out over time. On average these types of motors will work reliably almost twice as long as older motor technology with brushes. You are saving money over a long period of time.



## ECM vs. OLDER MOTOR EFFICIENCY

ECM EFFICIENCY

OLDER MOTOR TECHNOLOGY

### 4. HIGH PERFORMANCE Induction Fan

The heavy gauge induction blade is carefully sized and matched with the ECM motor to pull the proper amounts of combustion air into the heater. It provides powerful suction to pull combustion air through 8 air inlet ports around the primary and secondary fire chambers. With a suction based design air flows exactly to where it is needed all the time every time for steady stable combustion. Load wood and walk away. No Fiddling.

### 5. VERY LOW MAINTENANCE Design

The shape and angle of the fan blades are designed so that dust which would accumulate on an ordinary fan blade is swept from the blade surfaces by the air flowing through the fan. Blade cleaning is needed only once a year at the end of the heating season and quick plugs and thumb screws allow removal of the entire fan assembly in just seconds. EASY!

# THE FUTURE

Building on the success of past products Polar Furnace is continuing to develop and bring new wood burning products to the North American market. Our goal remains to create high quality products that make wood burning cleaner, simpler and easier than before while continuing to meet and exceed any coming regulatory requirements. Polar Furnace already has a G-Class product that meets 2020 EPA emission requirements. At Polar Furnace we are positive and excited about the future and the endless possibilities it provides.

## 2016

New EPA regulation bans sale of conventional updraft models for use in residential heating throughout the USA and now only EPA certified products like the G-Class can be sold.

## 2015

Connect EZ becomes standard on G-Class products greatly simplifying and reducing the cost of installation.

## 2013

New and improved Easy Sweep 2 added to G-Class simplifying maintenance even more

## 2011

First G-Class models, the G2 & G3 start shipping.

## 2008 ▶

Development work on the G-Class gasification furnace begins. The G-Class will introduce cutting edge wood burning technology from around world into the outdoor hydronic heater market.

## 2007

Generation 2 downdraft gasification furnace enters market. Some models introduce secondary air and a true fire tube heat-exchangers.



## ◀ 1995

1st Generation downdraft gasification type outdoor furnace known as The Converter appears on the North American market.



## 1980-1990

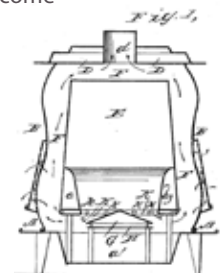
Downdraft base burning boilers become widely used in European countries including Germany and Austria.

## 1975

Downdraft (base burn) hydronic heater concepts show up in USA, but not widely used.

## 1869 ▶

Patent issued for a base burning (downdraft) wood furnace design by the US Patent Office



Patented Jan'y 19, 1869.

## GASIFICATION WOOD BURNING TECHNOLOGY TIMELINE

Despite often being considered a new and innovative way to heat with wood, the core technology that the Polar G-Class Furnace utilizes was actually developed decades ago. Although this technology has existed for a while now, we are proud to say that we've come a long way in creating a furnace that is far superior and incredibly more efficient than the outdoor wood furnaces of the past.

# G-CLASS

## OUTDOOR WOOD FURNACE

SPECIFICATIONS	G2	G2 Plus	G3
Overall Height (in)	72	76	80
Overall Width (in)	36.5	40	42.5
Overall Length (in)	63.5	69.5	69.5
Weight (lbs)	2200	2650	2750
Wood Load Door Opening (W x H) (in)	15 x 14	15 x 18	15 x 18
Max. Wood Length (in)	21	27	27
Qty & Size of Supply and Return Ports (Qty x in)	2 sets x 1"	2 sets x 1"	3 sets x 1"
Chimney Connection Approx. Height (in)	72	76	80
Chimney Diameter (in)	6	6	6
Water Capacity (US gal.)	160	200	250
3 Fire Chamber Volume (ft <sup>3</sup> )	5.6	9.2	12.7
Max. continuous output (BTU/hr)**	160 000	180 000	200 000
8 hr. output rating (BTU/hr)**	60 000	100 000	140 000
Electrical (V/A)	120/1	120/1	120/1

All specifications are subject to change and corrections without notice.  
 \*\*based on EPA certification testing using red and/or white oak.



Polar Furnace G-Class Outdoor Wood Furnaces are manufactured in a state-of-the-art facility ensuring precision and enduring quality.

ALSO AVAILABLE  
FROM POLAR:

UPDRAFT  
OUTDOOR  
FURNACES



Your Polar Furnace Dealer:



toll free 855 582 2233  
 info@polarfurnace.com  
 www.polarfurnace.com

call or e-mail for dealer locations near you.

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