

FLAMING BEAR MINI CATALYTIC AND SOAPSTONE WOOD STOVE



**QUICK START
GUIDE**

OPERATION & INSTRUCTION MANUAL



Manufactured By:

ECHOLS STOVE WORKS, LLC. HC35 Box 185, Kenilworth UT 84529
Ph: 435-472-4205 <https://dragitanywhere.com/mini-catalytic-wood-stove/>

CHECK LOCAL AUTHORITIES IN YOUR AREA WITH JURISDICTION ABOUT PERMITS REQUIRED, RESTRICTIONS AND INSTALLATION INSPECTIONS FOR YOUR AREA BEFORE INSTALLING.

California Prop 65

⚠ WARNING: This product can expose you to chemicals including glass wool fiber and carbon monoxide which are known to the State of California to cause cancer, birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

WARNINGS

FAILURE TO READ AND FOLLOW WARNINGS MAY RESULT IN SEVERE INJURY, FIRE AND/OR POSSIBLY DEATH.

Use only a solid fuel rated stove Double Wall 3" pipe and Chimney pipe, observe proper clearances (See Chart), burn only approved fuels in your stove, and maintain smoke and carbon monoxide alarms at all times. Regularly inspect and clean the flue system to prevent blockages and creosote buildup.

Local laws and building codes vary, and applicable codes should be strictly followed if they differ from the information included in this manual. If you are attempting a DIY installation where installation by an unlicensed installer is permitted, an inspection of the completed installation by a professional is highly recommended.

If you have any doubts about your small stove installation, please ask for help from a professional installer!



Warning: California Proposition 65

Use of this product can expose you to chemicals including soot, creosote, wood dust, and wood smoke containing carbon monoxide, which are known to the State of California to cause cancer, birth defects, or other reproductive harm.

For more information, visit www.P65Warnings.ca.gov



Warning

The factory coating applied to your Dwarf stove is not food grade. So if you plan on using your stove for cooking, always place your food in appropriate cookware, and never directly on the painted stovetop. Remember to remove the Thermometer before cooking !



SAFETY NOTICE

IF THIS STOVE IS NOT PROPERLY INSTALLED, A HOUSE FIRE MAY RESULT. FOR YOUR SAFETY, FOLLOW THE INSTALLATION DIRECTIONS. CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION REQUIREMENTS IN YOUR AREA.

Burning Rules:

- Never operate your stove without carbon monoxide and smoke detectors.
- Never open a window, hatch or door downwind of the stove.
- Never use liquid fuel or any other material containing fuel to start the fire. Only use well seasoned hardwoods or pressed logs **without** wax or glue as a binder. Appropriate pressed logs should have a wood stove symbol on the packaging. Never use liquid fuels, pellets, or green wood.
- Do not operate your stove when the stove door is open.
- Never leave your stove unattended when in use.
- Inspect and clean your flue pipe regularly. (weekly, until you determine your own cleaning schedule.)
- Keep fuel lamps, fuel containers, aerosol cans and any other combustibles at least 6 feet away from the Stove.
- Never use oil when cooking on the top of the stove.
- Do not touch the surface of the stove when in use.
- Never leave Children and pets unattended when stove is in use.
- Never use your stove in very rough seas if installed in a Boat.
- Do not dry wet clothes directly on the stove
- Your appliance requires periodic maintenance and cleaning. Failure to maintain your appliance may lead to smoke spillage in your boat, cabin, or RV.
- Never clean stove when your stove is hot.
- Children and adults should be alerted to the hazards of high surface temperature and should stay away to avoid burns or clothing ignition.
- Due to high temperatures, the appliance should be located out of traffic and away from furniture and draperies.

- Even after the appliance is out, the stove and the glass will remain hot for an extended period of time so do Not Touch stove other than handles.
- Under **NO** circumstances should this appliance be modified, doing so voids Warranty and or claims.
- Do not operate the appliance with the glass door removed, cracked or broken.
- Do not strike or slam shut the appliance glass door.
- Always allow a small amount of air to enter Home, Cabin, RV, Van, or Tent by opening a window, hatch or vent up wind from the stove to replace air consumed by the stove.
- Some smoke may be emitted during the first hour of operation as the paint is curing. Open windows or hatches as required to vent cabin. Or you can cure the paint outdoors by attaching a couple sections of stove pipe to the stove and lighting it outside. To eliminate the odor can take up to 20– 30 hours of burn time. We fully tested the Flaming Bear Stove for 2 + Hours to insure that the Catalyst was functioning properly and there were No Stove leaks.
- Never operate the stove without the Stove Feet being secured.
- Never leave a Boat Roof Hatch or Vent open when the stove is in use to prevent carbon monoxide from entering the space.
- Never burn garbage or trash, colored or glossy paper, solvents, plywood, artificial logs, cardboard, or driftwood, in this stove.
- DO NOT BURN FLAMMABLE FLUIDS.
- ALWAYS Burn Clean Dried Wood as wet or wood containing moisture will damage the Catalytic Combustor.
- DO NOT USE CHEMICALS OR FLUIDS TO START THE FIRE. Never use gasoline, kerosene, charcoal lighter fluid, or other flammable fluids to start or invigorate the fire, these fuels will cause dangerous burning conditions in the stove. Keep all such materials away from the stove.
- Use Only the supplied wood grate to elevate the fire.
- Never allow logs in the firebox to hit the glass when the door is closed.
- Never slam the door or use the door to force wood in to the stove.
- Never over-fire your stove, if stove should have a “Run Away” condition, close Stove Door & Air-vent and allow fire to settle or go out.
- Never put articles of clothing or candles on a hot stove.
- Never connect the stove to a flue used by another appliance.

Setting The Stove Up :

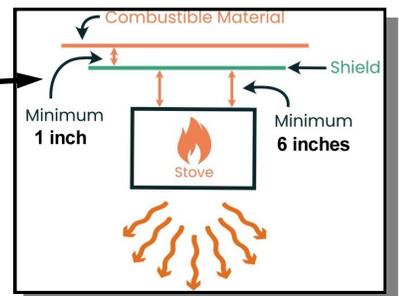
Your **Flaming Bear Mini Catalytic Stove™** comes ready to use once you have secured the stove and installed a Double Wall 3” Stove Pipe like **AmeriVent™** or **DuraVent™** pipe. Follow local home, boat and RV laws on how to install your pipe through your roof.

1. Unbox the stove, sit the stove crate upright and slide the stove out the top of the box and Remove the 2 screws from each leg with a Phillips screwdriver.
2. Open the door and remove the foam keeping the Soapstone floor and fire Grate in place during shipping.
3. Remove the Foam protecting the Glass Door.
4. Inspect the stove to make sure the Monkeys at Fed-Ex or UPS have not played a round of catch with your new stove ! Report and Damage immediately to the Dealer.
5. Mount your stove on a fireproof flooring (see local laws for material you should use)
6. Attach the 3” pipe to the Stove outlet by rocking it on slowly and carefully.



Air-Cooled Wall Shield:

The most effective heat shield is made of 24 gauge (minimum) sheet metal with 1” air space behind it, and 1” gap around the entire perimeter of the shield for air flow. The shield is attached to the wall using ceramic or metal spacers. The “air wash” behind the shield is very effective at minimizing the heat transferred to the combustible surface behind the shield. Avoid placing spacers directly between the stove and the wall so that they don’t conduct heat through the shield. A heat shield of this type can reduce wall clearances by up to $\frac{2}{3}$, or ceiling clearances by up to $\frac{1}{2}$. This means 6” from the back of the stove, 5 $\frac{1}{2}$ ” from the sides of the stove, 18” from ceiling, and 6” from single wall pipe.



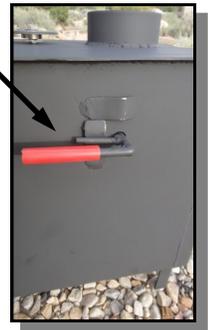
FLAMING BEAR STOVES MINIMUM REQUIRED CLEARANCES :

- **Sides: 16” from combustibles**
- **Rear: 18” from combustibles**
- **Top: 36” from combustibles**
- **Single Wall Stove Pipe: 18” from combustibles**
- **Double Wall Pipe: 6” from combustibles**
- Observing proper clearances is vital to the safety of your installation. Clearance violations are one of the most common causes of wood stove related house fires. Combustible materials close to the stove can appear fine for years, but they deteriorate as they are repeatedly heated, and the temperature required to ignite the material drops. A fire can start without warning or even a spark. Combustible materials

Operation of Stove:

Note: Your Stove comes with 2 Thermometers: One **Condar Catalytic** and One **Standard Stove thermometer**.

1. Open the **Air Intake** by turning the control handle to its furthest Right Hand position to the "O".
2. Open the **By-Pass Damper handle** to it's **9'O'clock position (Forward)**.
3. Open any Flew Dampers if installed by you.
4. Place small timber, clean non colored paper and stack small logs inside in a Log **Cabin Style** or **Tipi Style** to help air-flow around the kindling.
5. Light the fire using a long neck lighter or matches.
6. Leave the front Door Ajar a bit to allow air to enter in the front and help Stoke the fire.
7. Once the fire is going close the door and keep the door screw loose. As the temperature rises near the **500 degree** on the **Catalytic Condar thermometer**, begin to tighten down the front door screw knob, this will close the door tighter. Be careful not to over tighten or you may bend the door latch.
8. After a 10 + minutes check the **Condar Temperature gauge**, when it reaches **600+ degrees** move the **By-Pass Handle** to the Forward **12' O'clock position (Straight Up)** on the side of the stove, make sure you hear or feel it lock in place otherwise air make leak past the By-Pass Damper. This will now engage the **Catalytic Combustor**.
9. Keep the Air Intake knob to fully Open position for a few minuets. Once you see the Catalytic Thermometer reach 700-800 Degrees then turn the Air Intake knob a bit Counter Clock-wise to reduce airflow.
10. If the **Catalytic Thermometer** reaches **1200 Degrees** slightly turn the Airflow knob Down a bit more.
11. It's up to you based on the Outside temperature and the Wood you use, to get to know your Flaming Bear Stove and what you must set your airflow at to keep the **Catalytic Thermometer** at or around **800-1200 Degrees**. The **Stove Thermometer** should be around **300-500 Degrees** as this is the *Stove Temp*, not the *Catalytic temp* !



STOVE OPERATION :

After a hot coal bed is formed or new fuel is charred and ignited, you can adjust the air controls to slow down the rate of burn if needed. It's a good idea to use a flue thermometer and adjust the air controls according to thermometer readings.

STOVE PIPE THERMOMETER

Placed on stovepipe 12"-18" above stovetop

Too Cool: <250 degrees F

Just Right: 250-500 degrees F

Too Hot: >500 degrees F

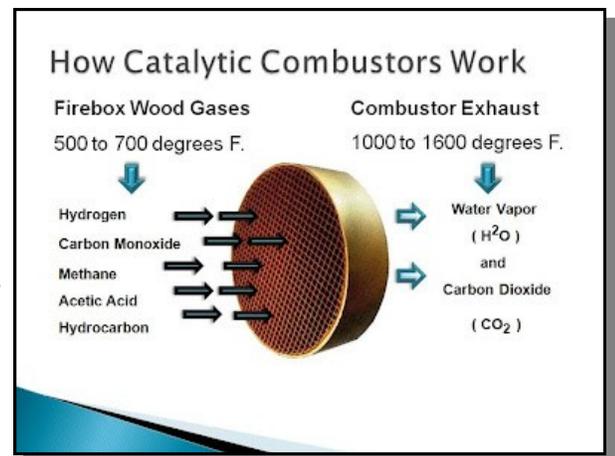
Going too far above or below these temperature readings can cause problems. Temperatures that are too cool (except after the fire has burned down to coals) can indicate a cold chimney and incomplete burn, which can cause excessive creosote buildup and chimney fires. Temperatures that are too hot indicate inefficient burning (generating heat faster than the stove can release it into your space). Temperatures approaching 900 degrees F on the **Stove Thermometer** and higher can cause permanent damage to your stove and flue system.

NOTE: The **Flaming Bear Stove** being a smaller wood stove will tend to have lower flue temps. An optimal burn will likely be on the lower end of what a standard thermometer reads. Additionally, you will have lower flue temps towards the end of a burn cycle when all the fuel has burned down to coals. As long as the **Condar Catalytic Thermometer** shows between **700-1200 Degrees** than this will indicate that the **Catalytic Combustor** is still active. If it drops below **700 Degrees** either check to see if your wood supply is low, or you need to adjust the airflow.

It is typical for the stove to go reach 500-600 degrees once the wood supply is near its end, in this case if you are near the stove please adjust the **By-pass Damper handle** to its **12 'O'clock position** as low temperatures below 500 degrees will cause the combustor to collect ash, soot, or creosote and block the combustor performance and you may need to clean it.

AIRWASH (Front Control) :

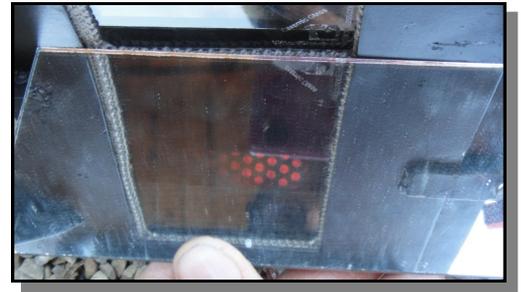
The Creative Geniuses at **ECHOLS STOVE WORKS™** found a way to only use one airflow system without the need of a Secondary or Tertiary airflow. The air enters the stove just above the door through the air-wash manifold. This air is preheated from the back of the stove and through the Airflow Pipes and washes down over the surface of the glass keeping the glass clean. This air control is mainly designed to keep the stove glass clean, but it does contribute some air to the



Adding More Wood :

1. To add more wood supply to your stove first move the **By-Pass handle** to the **9 O'clock position** and close down the Airflow control knob to the **"C"** Position.
2. Do Not Open the front door till the temperature comes down to **500 Degrees** or so, opening the door on a hot Catalytic Combustor will Crack the Combustor know as **"Thermal Shock"**.
3. Once the temperature has come down, open the front door.
4. Carefully add more wood on the hot coals.
5. Open the airflow control to **"O"** Full Open and leave the door Ajar a bit as in the beginning instructions.
6. Once the fire starts up adjust the door screw and airflow till the Catalytic Thermometer again reaches above 600-700 F Degrees.
7. Move the By-Pass handle **UP** to engage the Combustor and adjust the air as needed to reach the 800-1200 Degree probe temperature. You will see the Combustor fire back up.

NOTE: It is NOT necessary for a Combustor to turn Red during operation. If the combustor is working you will see the temperature rise on the Catalytic Thermometer.



CATALYST THERMOMETER:

The catalyst thermometer monitors the downstream temperature of the catalysts, and indicates when the stove is in the active range for the catalysts. When the stove is in the **"active"** range, the bypass handle should be closed. When the stove is in the **"Inactive"** range, the bypass handle should be opened until the stove heats up. If the thermometer is in the **"Too Hot"** range, keep the door closed, fully close the air control, and allow the stove to cool down until the thermometer falls into the **"Active"** Range. Once the catalyst thermometer has reached the active range, heat generated from burning smoke keeps the catalysts warm and active as long as fuel remains in the stove. The **Flaming Bear Stove** typically operates in the 800 Degree F to 1300 Degree F range.

The quality of your firewood directly affects heat output, duration of burn and performance of your stove. Softwoods generally burn hotter and faster, while hardwoods burn longer and produce better coals. Density and moisture content are two critical factors to consider when purchasing wood.

TYPE OF WOOD	LOG	DESCRIPTION OF WOOD
Oak		- Very dense - Hot-burning - Should season at least one year
Maple		- Difficult to split - Efficient, hot-burning - Should season at least one year
Cherry		- Burns at medium heat - Sweet burning aroma - Sparks a lot, doesn't produce lots of smoke
Birch		- Burns very quickly - Bright, hot-burning - Good firestarter
Pine		- High sap content - Burns messy - Don't use as your exclusive firewood
Elm		- Very dense, hard wood - Difficult to split - Doesn't smell great as it burns
Chestnut		- Burns and splits easily - Burns at a low heat - Sparks a lot, heavy smoke

The following is a list to the left shows some wood species and their relative BTU (British Thermal Unit) content. The higher the BTU content, the longer the burn. Firewood with higher BTUs is generally ideal for a wood stove. Burn untreated wood only. Other materials such as wood preservatives, metal foils, coal, plastic, garbage, sulphur, or oil may damage the catalysts. Moisture content also plays a key role in the performance of your stove. Wood freshly cut from a living tree (green wood) contains a great deal of moisture. As you might expect, green wood burns poorly. You must season green wood before using it in your Catalytic wood stove. To season green wood properly, split, stack, and allow it to air dry for a period of one year. Green wood may provide less than 2000 Btu per pound, whereas dry wood can provide up to 7000 Btu per pound. Stack the firewood on skids or blocks to keep it off the ground, cover only the top of the stack. Plastic or tarps that cover the sides of the woodpile trap moisture and prevent the wood from drying. As for stacking, the spaces between the logs should be large enough for a mouse to get through, but not for the cat that's chasing it !

• **CAUTION:** DO NOT STORE FIREWOOD WITHIN THE STOVE'S SPECIFIED CLEARANCES TO COMBUSTIBLE MATERIALS.

REMOVAL AND DISPOSAL OF ASHES :

You can leave a thin layer of ashes in the firebox if preferred. Allow fire to die down or go out completely. It is important to prevent ashes from building up around the front door opening or they will spill out, or they can pack into the gasket channel and prevent proper sealing. To remove ashes, use the supplied fireplace shovel.

Avoid removing large live coals by pushing them to the side and removing only the finer ash with the supplied shovel. Disposal of ashes - Ashes should be placed directly into a metal container with a tight fitting lid. Do not place any other items or trash into the metal container. Do not pour water into the container. Replace the container's lid and allow the ashes to cool. Never place the ash container on a combustible surface or vinyl flooring, as the container could be hot! Pending disposal, place the closed ash container on a non-combustible floor or on the ground outside, well away from all combustible materials, liquid fuels, or vehicles. Retain ashes in the closed container until all coals thoroughly cool. If the ashes are disposed of by burial in soil or otherwise locally dispersed, they should be retained in the closed container until all cinders have thoroughly cooled. NEVER place ashes in wooden or plastic containers, in trashcans with other trash, or in paper or plastic bags, no matter how long the fire has been out. Coals within a bed of ashes can re-

TROUBLESHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE	SOLUTIONS
STOVE SMOKES	Operating Technique	Fully open the primary air control one minute before opening doors, and ensure the bypass is open before opening door.
	Cold Chimney or reverse draft	Preheat the chimney when first starting a fire. Briefly open a window in the room containing the stove.
	Blocked Chimney	Examine the chimney and stovepipe for blockage or creosote accumulations.
	Oversized Chimney	Reline the chimney to the appropriate diameter
	Undersized Chimney	Install a draft inducer or replace the chimney.
	Chimney Too Short	Lengthen the chimney.
	Air Infiltration Into The Chimney	Seal chimney connections and openings. Check clean-out doors.
	Bypass not closed	Ensure that the bypass door is closed when the catalysts are in the active range.
	Catalysts not functioning	Inspect catalysts for damage, ash build-up, or plugging. Brush catalysts with a soft-bristled brush, or vacuum lightly. Replace if required. Follow instructions to ensure catalyst light-off.
	Not burning proper fuel	Ensure cordwood is seasoned and dry.
	More Than One Appliance Connected to the Flue	Disconnect all other appliances and seal openings.
BACK-PUFFING OR GAS EXPLOSIONS	Operating Technique	Fully open the primary air control one minute before opening the door and keep it fully open for a few minutes after reloading. Ensure the bypass door is open before opening the door
	Extra Low Burn Rate	Burn the stove at a higher burn rate.
	Chimney Down-draft	Install a chimney cap.
	Excessive Ash Build-up	Empty the ash pan more frequently. Increase efficiency of burns, and avoid using poor quality or green wood.
UNCONTROLL-ED OR SHORT BURN	Unsealed or Open Door	Close the door tightly or replace the gaskets. Air leakage around glass gasket – replace gasket
	Excessive Draft	Check the installation. Operate at LOW BURN. Install stovepipe damper. Draft in excess of 0.1 wc should be corrected with a stovepipe damper(s)
	Extra Long Chimney	Shorten the chimney. Install stovepipe damper(s).
	Oversized Chimney	Reline the chimney to the proper diameter.
	High Winds or Hilltop Location:	Install a chimney cap.
INSUFFICIENT HEAT	Poor Quality, low Btu content, or Green Wood	Use only air-dried wood, preferably dried <u>at least</u> one year. Use a wood with a high Btu content if available.
	Low Burn Rate	Operate the stove at a higher burn rate.
	Cold Exterior Chimney	Reline or insulate the chimney.
	Leaky Stovepipe or Chimney	Check the installation. Replace with a pre-fabricated insulated chimney system or a properly sized masonry chimney.
	Too Much Heat Loss From House	Add insulation, use energy efficient windows, or caulk windows, and seal openings in home.
	Excessive Ash Build-up	Empty the ash pan more frequently. Increase efficiency of burns, and avoid using poor quality or green wood.
BLISTERING OF FINISH	Operating Technique	Do not over-fire the stove. Monitor stove temperatures. Use seasoned wood only.
	Excessive Draft	Check the DRAFT. A damper may be required. Operate the stove at a LOW BURN range.

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