



OVEN COMMISSIONING, GAS SYSTEM CONTROLS & FUNCTIONS



COMMISSIONING

GAS SYSTEM OPERATION

With the gas, electricity and exhaust system connected as described earlier the oven system can be **started simply by pressing the “Control” button (#1).**

The set value temperature (white display on control system) can then be adjusted to control the oven temperature.

FIRST FIRING: If this is the first time that the oven has been fired it is very important to **warm the oven slowly for three days**. If the oven is operated at full power at this time, damage will occur to the refractory lining. The refractory must dry out slowly during the initial warm up.

To control the power of the initial warm up fire, use the isolation tap below the oven to set the flame height to a maximum of 70mm. This setting can be left for the first two days of firing.

PRE-HEAT SCHEDULE:	Day ONE:	SV setting at 80°C (175°F).
	Day TWO:	SV setting at 180°C (350°F).
	Day THREE:	SV setting at 250°C (480°F).

After day three recommended operating temperature is approx. 275-315°C (525-600°F)

The control system has a colour intuitive temperature display, you will see the change of colour as follows:

- **BLUE** < 25°C Set Temperature
- **GREEN** = +/- 25° C Set Temperature
- **RED** > 25°C Set Temperature

NOTE: Always switch on the exhaust fan before operating the oven, it is critical to ensure adequate air flow in the flue at all times. The oven is fitted with a safety sensor to disable the gas system should the fan not be operational.

USING WOOD

The oven must be preheated to thoroughly warm the oven **without** the purpose of cooking. This is best done by making a fire just as you would build any fire for a BBQ. *NOTE: Take care not over fire.* If flame spills out of the oven opening, you are over firing. **A small fire is ideal for slow preheating.** Normally 2 or 3 logs of timber are sufficient.

The best wood to use is a **HARD, DRY AND DENSE TYPE OF WOOD. DO NOT USE ANY WOOD THAT HAS BEEN PAINTED OR CHEMICALLY TREATED.**

- ▶ To start the fire, find a flattened cardboard box.
- ▶ Place your larger pieces of hardwood on the outer extremities of the box and place kindling and softwood on the inside with newspaper under the kindling.
- ▶ Light the kindling.
- ▶ Once the kindling is satisfactorily alight, push the whole lot to the position in the oven (either the side or the back) where you normally locate the fire.
- ▶ **This fire of approximately 16" (400mm) diameter should be kept going for 3 DAYS to thoroughly pre-heat the oven prior to use.**
- ▶ **If you are having any problems, please to call the Phoenix office or the local representative.**

The **PHOENIX OVEN** only requires wood for satisfactory operation. Some models have the extra facility of a gas burner for those clients that are looking for a more automated cooking system.

OVEN CONTROL COMPONENTS & FUNCTIONS



1. ADJUST OVEN TEMPERATURE HIGHER BY PRESSING
2. ADJUST OVEN TEMPERATURE LOWER BY PRESSING
3. OVEN LIGHT (ON/OFF)
4. MAIN POWER (ON/OFF) & FLAME FAILURE RESET OPERATION
5. **SV” Set Value OVEN TEMPERATURE** (white coloured display with “o” degrees symbol)
6. **“PV” Present Value OVEN TEMPERATURE** (variable coloured display with “o” degrees symbol)

NOTE:

- ▶ The gas burner will take 90seconds to ignite after turning on
- ▶ The system will automatically attempt three (3) ignitions before shutoff (Reset is required)
- ▶ Allow Five (5) minutes before RESET attempt

IF YOU SMELL GAS IN THE VICININTY OF THIS OVEN TURN OFF THE KITCHEN GAS SUPPLY AT THE MAIN ISOLATION VALVE (SAFETY STOP) AND HAVE A LISCENCED GAS TECHNICIAN INVESTIGATE THE CAUSE.

IN CASE OF NO POWER (NO LIGHTS) ON THE CONTROL PANEL, THE GAS SYSTEM IS INTERLOCKED TO THE OPERATION AND TEMPERATURE OF THE EXHAUST SYSTEM. (AS1556).

- ▶ CHECK THE EXHAUST FAN OPERATION (main switch in rear of kitchen)
- ▶ CHECK THE EXHAUST FILTER (blockage of the filter will cause exhaust to overheat) SEE REAR OF SHEET FOR FILTER INSTRUCTION
- ▶ THE SYSTEM WILL NEED TO BE MANUALLY RESTARTED BY PUSHING POWER ON BUTTON (4.) WHEN POWER IS RESTORED

CONTROL FAULTS & INDICATORS

BURNER FAILURE INDICATION CODES

AL DBC = 579 DBC ALARM FAULT

The mains supply relay for the 579DBC is turned off and the gas modulating valve is turned off. No gas will flow. **The PV digits are set to “AL” (short for ALARM), the SV digits show “DBC” and all digits flash on and off.**

FAULT CHECKLIST:

- ▶ Press the Power (On/Off) button. This may clear the fault if the cause is a simple system error. If AL DBC message continues:
- ▶ Check Gas Supply ie. Other equipment on the same gas supply line working?
- ▶ Check the tri-electrode on the burner is free from debris. This is the most common cause of this fault code. Suggest using a soft brush to sweep gently over the electrode and burner
- ▶ **Try to start the system (Press the Power On/Off button), can you hear “clinking/ticking/sparking” sound? This sound indicates the 579DBC is operational and trying to ignite the burner.** If you can not hear a sound check parts under the oven, inspect for visible damage.
- ▶ If the flame ignites briefly then goes out the most likely cause is failure to sense the flame. This could be debris on the electrode, broken electrode or blue/red lead connections between electrode and the SIT 579DBC.
- ▶ If there is no flame at the ignition attempt, check gas supply. Bottles/cylinders, manual and automatic safety valves.
- ▶ Inspect all gas components, cables and connections under the oven. Check for visible signs of damage ie. Burning/melting, worn out leads or terminal connections.
- ▶ Check the blue/brown ignition leads that connect the blue SIT 579DBC to the tri-electrode. Ensure the leads and connections are in good condition.

AL TC = THERMOCOUPLE FAULT

- ▶ The mains supply relay for the 579 DBC is turned off and the gas modulating valve is turned off. No gas will flow. The SV digits are set to **“AL”** (short for ALARM), the PV digits show **“TC”** (Thermocouple abbreviated) and all digits flash on and off.
- ▶ If the Power button is pressed the controller clears the thermocouple fault flag and enters the Power Off state.
- ▶ **Check the “TC” thermocouple is correctly plugged into the rear of the control panel (yellow plug connection) and that the braided wire connection to the underneath of the oven floor is not broken or kinked.**

Power Outage / Brown Out

In the event of a power outage or brown out condition while the controller is operating, when the power supply resumes the controller will default to the Power Off / Standby state.

GAS FLAME ADJUSTMENT

GAS VALVE

SIT SIGMA 845
Double Solenoid
Modulating



FLAME MANAGEMENT PACK

SIT DBC 579
full integration with
SIGMA 845 gas valve

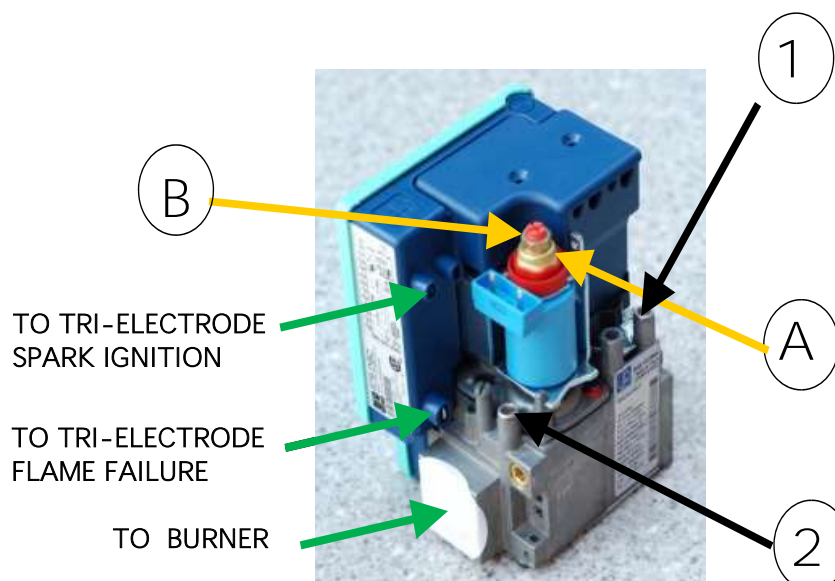
Features:

- 3 auto start attempts
- 5 second ignition, 90 sec. delay
- Flame failure, non volatile lock out = no gas flow
- Clips to all SIT Sigma family valves



TEST SUPPLY PRESSURE: loosen screw (1), attach meter/hose. Open all gas supply valves and taps on main feed to oven. Test before start up and after start up.

- ▶ Natural Gas: 1.3—6.0 kPa (must not exceed 6.0 kPa as may damage to gas valve)
- ▶ LPG/Propane: 2.75—6.0 kPa



GAS FLAME ADJUSTMENT

HIGH FIRE: Test working pressure—loosen screw (2), attach meter/hose.

- ▶ Natural Gas: 1.0 kPa
- ▶ LPG/Propane: 2.75 kPa

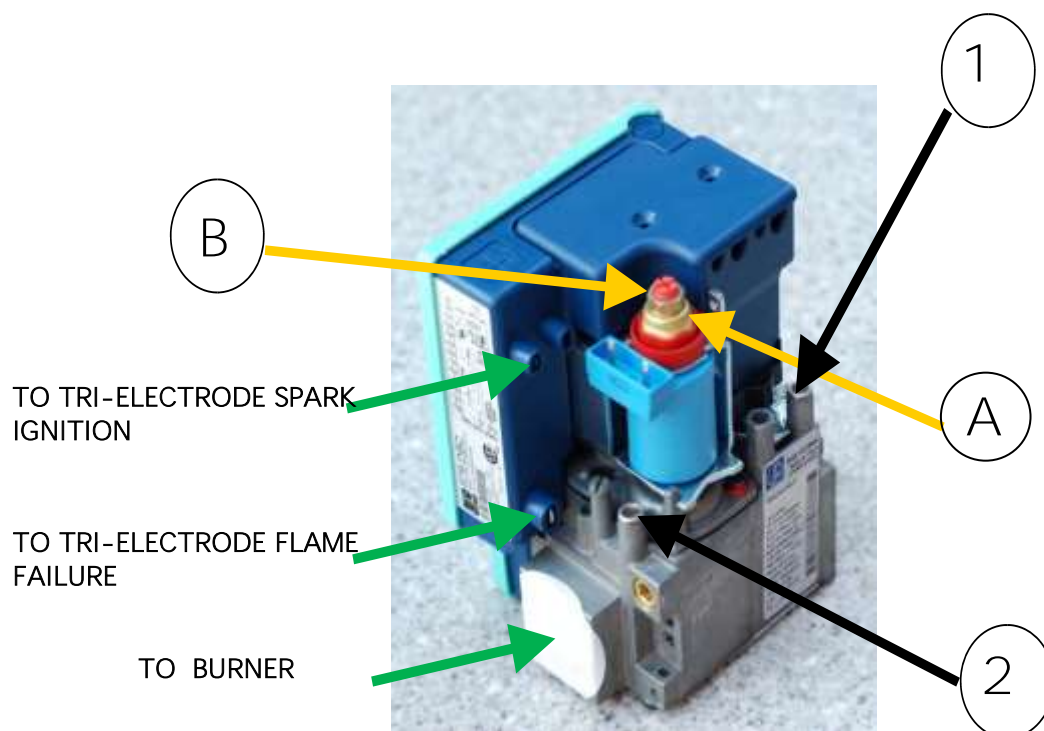
Check with oven running (Hi flame will operate when the PV is 50C° below the set temp)
Adjust pressure at 10mm Brass Nut (A) Turn CLOCKWISE to INCREASE pressure.

LOW FIRE: Test working pressure—loosen screw (2), attach meter/hose.

- ▶ Natural Gas: 0.35 kPa
- ▶ LPG/Propane: 1.10 kPa

Check with oven running (Low flame will operate when the PV is 10-20C° above the set temp,
when PC is >25C° above the set temp the flame will shut off until the PV = Set temp)
Adjust pressure at Red Plastic screw (B) Turn CLOCKWISW to INCREASE pressure.

- ▶ SECURE SCREWS WHEN ADJUSTMENTS COMPLETE AND CHECK FOR LEAKS



GAS BURNER ADJUSTMENTS

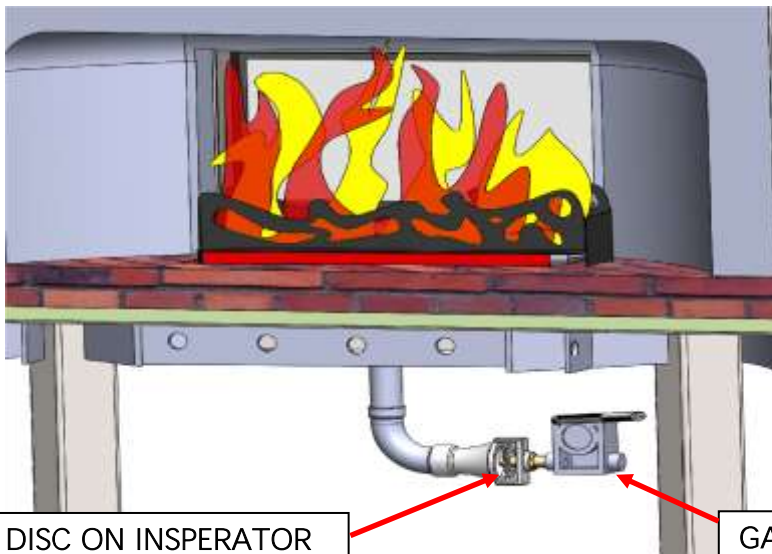
Normal operation of the burner will produce a slightly yellow flame at the tips and blueish flame close to the burner. There will not be any black smoke.



If the flame is too yellow it will produce black smoke which will be noticeable on the roof of the oven.



To adjust the mixture (gas-air) there is a disc that is part of the insperator which can be adjusted to allow more or less air to the burner. The insperator is located under the oven between the gas valve and the burner.



ADJUSTABLE DISC ON INSERATOR

GAS VALVE

To make cleaner flame (more blue) turn/screw the disc towards the gas valve. This allows more air into the mixture.

To make the flame richer (more yellow) screw the disc towards the burner.

Different gas types and mixtures will produce different colours. Propane (LPG) is more yellow. Natural Gas is Bluer. Butane and Synthetic gas is often red.

If air adjustment does not stop smoking problem. Gas pressure and/or jet size should be tested by a technician.

SECTION 2

OVEN OPERATION



OPERATION OF OVEN & COOKING

The oven cavity is basically self-cleaning. A brush and scraper can be used to sweep debris and food waste from the floor of the oven. A damp mop can be used to wipe the oven floor area to clear ash debris. **Do not use a very wet mop or water** as this will wear and/or damage the floor surface.

The roof and wall area of the oven is self-cleaning by the oven temperature which should exceed 420°C (790°F) from time to time during warm-up periods. If discoloration or contamination should appear, firing the oven to a **high** temperature for a couple of hours should restore these areas to a clean finish.

USING WOOD ONLY *As per the pre-heat schedule (p. 18)*

1. Start a small fire in the mouth of the oven with kindling (placed on folded cardboard) and proceed making the fire with larger timbers.
2. Once you have the large timber eg. 100-125mm (4-5") diameters burning, **push the fire to the back** or side of the oven.
3. From cold, allow the oven approximately 3 hours to heat up initially. Thereafter, warm up should take about 60-120 minutes. *Using a gas system can reduce this time.*
4. As the timber embers reduce, more timber should be placed on the fire. When there appears to be too much ash, simply drag this out and place in your ash receptacle. **Removing ash should always be done with great care as hot embers may be hidden in the ash.** There is, however, a surprisingly little amount of ash compared to the timber entered and most restaurants only clean out once a day, before start-up.

NOTE: Once the oven has been operated daily, the oven will be hot on arrival in the morning and may take as little as one hour to reheat.

The oven temperature is controlled by the size of the fire or and the draft up into the flue system. In all circumstances it is recommended that cooking is not attempted until the oven has reached a temperature of minimum 175°C (350°F).

Operating Temperature: Optimum temperature for pizzas is approx. 350°C (660°F). If pizzas do not cook in around five minutes, either the oven is too cool (a larger fire required) or you need to adjust the damper in the flue.

Pizza Rotation: The pizzas should be rotated to suit their cooked condition. The chef soon becomes familiar with the radiated and reflected heat conditions in the oven and moves his pizzas around to suit this. Most restaurants place the dough directly on the brick although they can be placed on trays for time enough to toast the base a little before placing directly onto the brick. Some chefs choose to leave the pizzas on trays for the whole process. This is a decision for the Executive Chef.

FINISHING FOR THE DAY

When you have finished for the day simply spread the coals inside the oven to burn out and cool. Any size fire can be left burning safely. Some owners put another log on to keep the oven hot. It is safe to leave the fire burning inside the oven however the **exhaust should be left running** for sometime after the oven is switched off to remove excess heat and any exhaust gases still being produced.

MAINTENANCE (refer Regular Flue Maintenance pg. 22)

IT IS CRITICAL THAT THE FLUE BE CLEANED ON A THREE MONTHLY BASIS TO REDUCE THE DANGER OF FLUE FIRE CAUSED BY THE BUILD UP OF SOOT AND FAT IN THE FLUE.

CLEANING THE PARTICLE FILTER PANEL

- ▶ There is a particle filter located just above the oven door/mouth.
- ▶ This filter is very easy for the operator to access from standing in front of the oven and reaching up into the exhaust spigot, always do this when the oven is cool ie. Start of day before switching on.
- ▶ Remove the filter by adjusting the angle and gently pulling down, no special tools are required.
- ▶ Removal and washing of the filter panel can be done daily or once a week (recommended minimum).
- ▶ The SS area between the door/mouth and spigot also requires regular cleaning by kitchen staff.

OPERATION OF OVEN & COOKING

WARNING: Improper installation, adjustment, alteration, service or maintenance can result in property damage, injury or death. Read the installation, operation and maintenance instructions thoroughly before installing or servicing this equipment.

It is recommended that this oven be installed only by professional personnel as specified herein.

IMPORTANT: Consult your local gas supplier for a statement outlining the procedure to be followed in the event you smell gas. The following suggested statement can be posted in a prominent location near the oven:

FOR YOUR SAFETY

Never use gasoline, gasoline-type lantern fuel, kerosene, charcoal lighter fluid or similar liquids to start or 'freshen up' a fire in this oven.

Keep all such liquids well away from the oven when in use.

A MAJOR CAUSE OF OVEN RELATED FIRES IS FAILURE TO MAINTAIN REQUIRED CLEARANCES (AIR SPACES) TO COMBUSTIBLE MATERIALS.

IT IS VERY IMPORTANT THAT THIS OVEN BE INSTALLED ONLY IN ACCORDANCE WITH THE INSTRUCTIONS CONTAINED IN THIS MANUAL.

NOTE: Installation of the exhaust system should comply with local and national codes.

The minimum mantle extension areas to be covered with relationship to the door opening of the oven for combustible floors. At least the following areas shall be specified (See Page 7):

- ▶ 750 mm (30 inches) to each side of the door opening.
- ▶ 1000mm (39 inches) in front of the door opening.

The Phoenix oven utilizes wood or gas or a combination of both to perform regular baking of foods in particular pizza. The basic oven is available in various different sizes.

The oven comprises a ¼”(5mm) mild steel outer skin of two sections, top and base.

The base includes four SHS legs supporting the floor of the pizza oven. The refractory lining of the base utilizes 'High Alumina' bricks as the hot face. The floor is insulated by a layer of vacuum form board sheet.

The top section of the pizza oven has a steel outer shell as mentioned. The inside hot face cavity is made of ceramic castable. The castable used is rated by a factor of two to withstand the hottest possible burning in a naturally aspirated timber or gas fired environment.

REGULAR FLUE MAINTENANCE

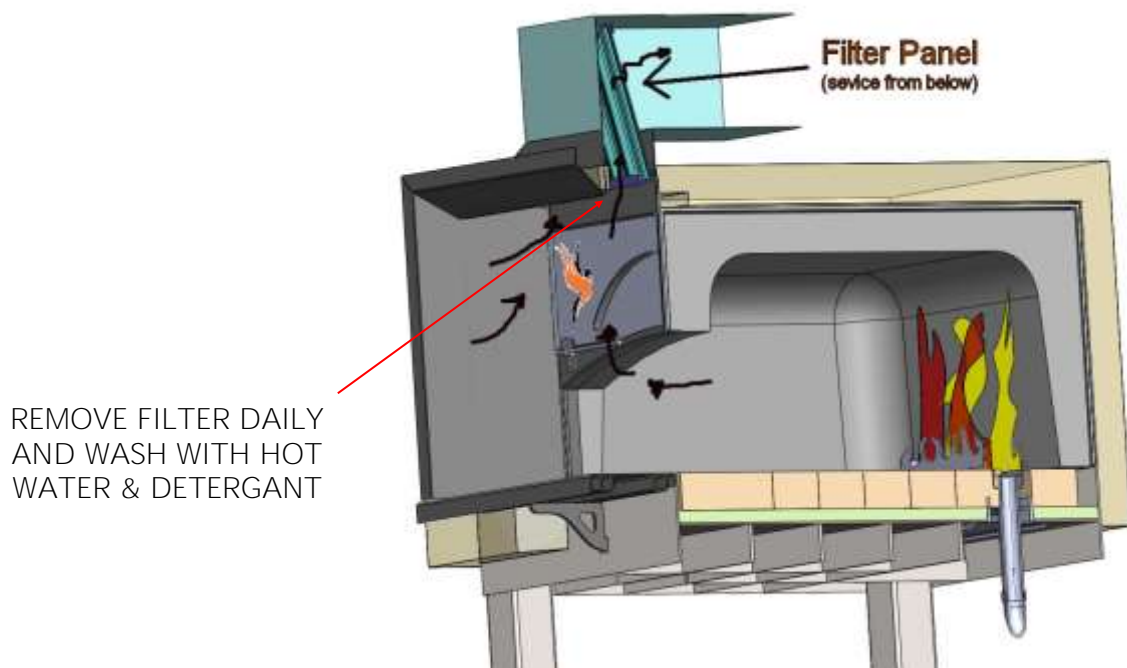
The Phoenix oven is designed to reduce the risk of fire in the flue system. By following a regular cleaning and maintenance schedule you can greatly guard against the risk of a flue fire.

IMPORTANT!

It is critical that the flue be cleaned on a three (3) monthly basis to reduce the danger of flue fire caused by the build up of soot and grease in the flue. With experience you will be able to customize a schedule to suit your particular requirements. Initially three (3) month inspections are recommended. Contact Phoenix Technical Support if you require more information on this matter (technical@phoenixfocus.com.au).

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- ▶ Remove the filter by adjusting the angle and gently pulling down, no special tools are required.
- ▶ Removal and washing of the filter panel can be done daily or once a week (recommended minimum).



The open area between the oven door and the exhaust spigot entry gives a clear visual inspection / aspect to ensure "over firing" does not occur. Over firing is when flames extend outside the oven door. In traditional ovens this commonly goes unnoticed and flames are drawn directly into the spigot and flue system often with disastrous results. On the Phoenix oven this area is easily cleaned and if over firing is observed there is a swing down door that will quickly contain any flames. This **exclusive "break" design between the oven chamber and the flue system results in the air entering the exhaust to be much cooler than other stone hearth ovens.**

Phoenix Ovens with Gas or Electric operation are also fitted with additional safety features including a thermal interlock sensor, flue system pressure differential switch and oven OT sensor. These devices are connected in series and mounted inside a separate interlock cabinet below the oven. The gas or electrical system will enter "lock-out mode" if either sensor detect abnormal operation.

REGULAR FLUE MAINTENANCE

REMOVING & CLEANING THE FILTER PANEL

IMPORTANT: The filter panel will be hot during operation, recommend cleaning to be done in the morning prior to turning the oven on for the day.

STEP 1: Locate the filter panel positioned inside the exhaust spigot at the top of the oven door.

STEP 2: Gently remove the panel by pushing the filter “up” to dislocate the panel from the centre holding bracket.

You may want to use a heat protective glove or towel to cover your hand if you are concerned about the panel being hot to touch.

STEP 3: Slide the filter panel down and out of the spigot.

Clean mesh filter in sink with warm soapy water to remove as much soot, grease and debris as possible.
The filter can also be placed in commercial dishwasher.

STEP 4: Slide filter panel back up into position inside the exhaust spigot making sure to rest on the centre holding bracket. The angled tabs on the side of the panel will position the panel into the required angled location.

Do not force the panel, if there is resistance look for any obstructions inside the spigot, take care to avoid the thermal interlock sensor probe on the far right of the spigot.



APPENDIX: OVEN SURFACE CRACKS EXPLAINED

All masonry stone hearth ovens are susceptible to forming surface cracks in the roof or side wall. The surface cracks are a result of thermal expansion and contraction of the cast refractory lining however do not affect the structural integrity or longevity of the oven due to the steel reinforcement fixed within the structure of the oven.

It is not uncommon for surface cracks to appear during the initial warm-up or Commissioning period if the correct procedure as outlined in the Phoenix Installation and Operation Manual is not followed. We clearly instruct that all ovens should be heated slowly over 3 days. This procedure is necessary to draw out any moisture from the refractory and helps to minimize the risk of surface cracks forming. However, surface cracks may still form during the normal daily operation due to the above-mentioned thermal expansion and contraction process. The oven structure is in no way compromised by the appearance of cracks. Performance and longevity are not affected in any way.

The Phoenix method of manufacture ensures the cast roof and wall structure is fixed securely to the external steel oven shell and will not dislodge. The refractory lining is not a load bearing part of the oven structure and thus any surface cracks that may appear will not affect the structural integrity or performance of the oven. The insulating properties of these ovens is ensured by the layer of industrial quality ceramic wool insulation applied to the external oven surface and this is not affected by an internal changes to the refractory.

If a crack appears do not be concerned and do not try to repair, fill or patch the area as any material used will not adhere to the cast refractory. Over time it is common to expect some surface cracks may appear and often they are considered as part of the ovens character.



Should you have any further questions or concerns regarding your Phoenix oven please contact your local representative or email us directly sales@phoenixfocus.com.au