



FIRED UP KILNS

and pottery supplies



Owner's Manual

Raku Gas Drum Kiln

Last Updated: January 2024

NOTE: Before operating this kiln, you must read this manual and take note of the warnings.

Warning

1. Only operate the kiln outdoors where there is plenty of ventilation.
2. Ensure no flammable materials are within 10 metres of the kiln when it is operating.
3. Ensure the kiln is placed on a fireproof surface such as a concrete when operating.
4. Set up the gas bottle and burner on the opposite side to where you load and unload the kiln, so you don't trip over or cause the burner to dislodge from the port.
5. Check all gas items for damage and leaks prior to each firing, including the quality of the gas hose. The gas hose is marked with the year of manufacture so you can see how old it is. In general, we recommend replacing the hose every two years. (\pm 5 years after approval) However, replace the hose immediately in case of discoloration, deformation, damage or at the first signs of porosity.
6. Always use appropriate safety items i.e. Long fireproof leather apron, high-temperature gloves, face shield and work shoes when firing.

Setting up your kiln

Set your kiln up so that so that the side of the kiln opposite the burner port is the "working side". From this side, check the progress of firing in the kiln and unload the kiln.

The kiln is fired with **LPG gas**.

The regulator fitting is designed to attach to a standard 9kg LPG bottle. It is advisable to have a spare bottle on hand should one bottle empty mid-way through firing.

LPG gas is a liquefied gas that must evaporate in the bottle before it can flow to the burner through the pressure regulator. Heat is required for this evaporation, resulting in a constant demand of heat from the propane gas in the bottle during firing – this heat is extracted from the environment. During firing, condensation will soon appear on the outside of the bottle as a sign that the bottle is colder than its surroundings. If the gas cylinder cannot extract enough heat from its immediate surroundings, the bottle will get colder and colder and will eventually freeze. If that happens, the entire firing process stagnates.

To prevent this occurring, you can place the gas bottle in a tub of hot water. This hot water will need replacing as the gas evaporates and cools the water.



Examples of Raku Gas Drum Kiln setup

About the burner

The burner is laid horizontally in front of the burner port on the supplied brick. Make sure that the propane flame is not directed against the kiln floor but horizontally towards the fibre protection brick.

Do not insert the burner into the burner opening. The front of the burner should sit 10-20mm outside of the kiln. In this way, the burner draws secondary combustion air into the kiln. To light the burner, it is best to use a piezo or gas lighter instead of matches or a regular lighter.



Above Image shows correct burner positioning



Above Image shows "gas side" – access to kiln from the opposite side

WARNING: Always light the burner with the lid off the kiln.

- Connect the pressure regulator to the gas cylinder. The gas tap on the gas cylinder is closed. Note: The threaded connection gas bottle/pressure regulator is a left-hand thread. In other words, tightening and loosening is exactly the opposite as you are used to.
- Turn the pressure regulator adjustment knob **counter-clockwise** until it is completely out of the pressure regulator. Then turn it back in 1 or 2 turns. This way you can be sure that the pressure regulator is closed and no gas flows out of the burner when you open the valve on the gas bottle.
- Position the burner on the brick about 20mm from the burner port.
- Now slowly turn on the pressure regulator adjustment knob **clockwise** until it reads 0.2 Bar pressure – this is only a very small amount of pressure.
- Open the ball valve 1/3, depress the red flame failure valve button and ignite the burner. Once the burner is lit keep the red button depressed for 30 seconds to allow the thermocouple to heat up and allow gas to continue to flow.
- Because the gas pressure is low (the pressure regulator still indicates a pressure of 0.2 bar), the flame you get when lighting is small. **Higher gas pressure will make it more difficult to light the burner and when it does ignite, there will be a roaring burner running!**
- You can increase the power of the burner by opening the ball valve lever further and increasing the pressure on the regulator in **very small increments**. There should be no need to increase the regulator pressure beyond 1 bar.

[We strongly recommended you follow this link and watch the short video on lighting your Raku Drum Kiln.](#)

The firing process

If the kiln is being fired for the first time, it is advisable to allow some extra time for the kiln to heat up at a slower rate to prevent thermal shock to the kiln shelves and the ware in the kiln.

It is also better to take some time for the work to warm up, especially if you have glazed just before firing. All moisture must evaporate from the work and kiln shelf before the temperature gets too high, to reduce the chance of damage. The newly applied glaze layer can also crack and curl upwards if the temperature gets too high too quickly - with the risk that it will not be able to flow nicely.

The kiln is set up in a suitable place. The gas tank is in the right location as described earlier. The excess hose is neatly wrapped around the tank, so you do not trip over it when you want to operate the pressure regulator.

The burner is aligned horizontally in front of the burner port and the kiln is carefully loaded. The lid of the kiln is still off the kiln.

The thermocouple of the pyrometer can be moved into position through the opening provided for this purpose.

WARNING: Everyone involved in firing the kiln must wear protective gloves, aprons, work boots and safety goggles or face shield. Please note: the coating of glasses (including plastic lenses) can be damaged by the high heat.

- Ignite the burner according to the procedure explained in the burner section. The burner head is outside the kiln by 10-20mm.
- The gas pressure remains constant at 0.2 bar for at least half an hour. In this way, we give both the kiln and the workpieces the opportunity to heat up gradually.
- After half an hour, we put the lid on the kiln while the gas pressure remains unchanged, allowing the temperature to rise further.
- Maintain this situation for another half hour.

Please Note: Preheating as described above is necessary when you fire the kiln for the first time during a firing day. You can adjust this firing time as you see fit when firing the kiln several times in a row. But make sure that your glazed pieces are thoroughly dry before the temperature rises above approx. 150 °C. Even with this lowest possible gas pressure, but with the lid on the kiln, the temperature can quickly rise to values that can cause the workpieces to crack if they are not dry enough.

- You can then repeat the firing process for multiple firings.
- To stop the firing process, turn the gas bottle valve off, then close the regulator valve and finally the fine

gas control lever. This will ensure that the lines are purged of gas.

Notes



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Fired Up Kilns works from the lands of the Wurundjeri Woi Wurrung and Bunurong peoples of the Kulin Nation and we pay our respects to their Elders, past, present and emerging.

