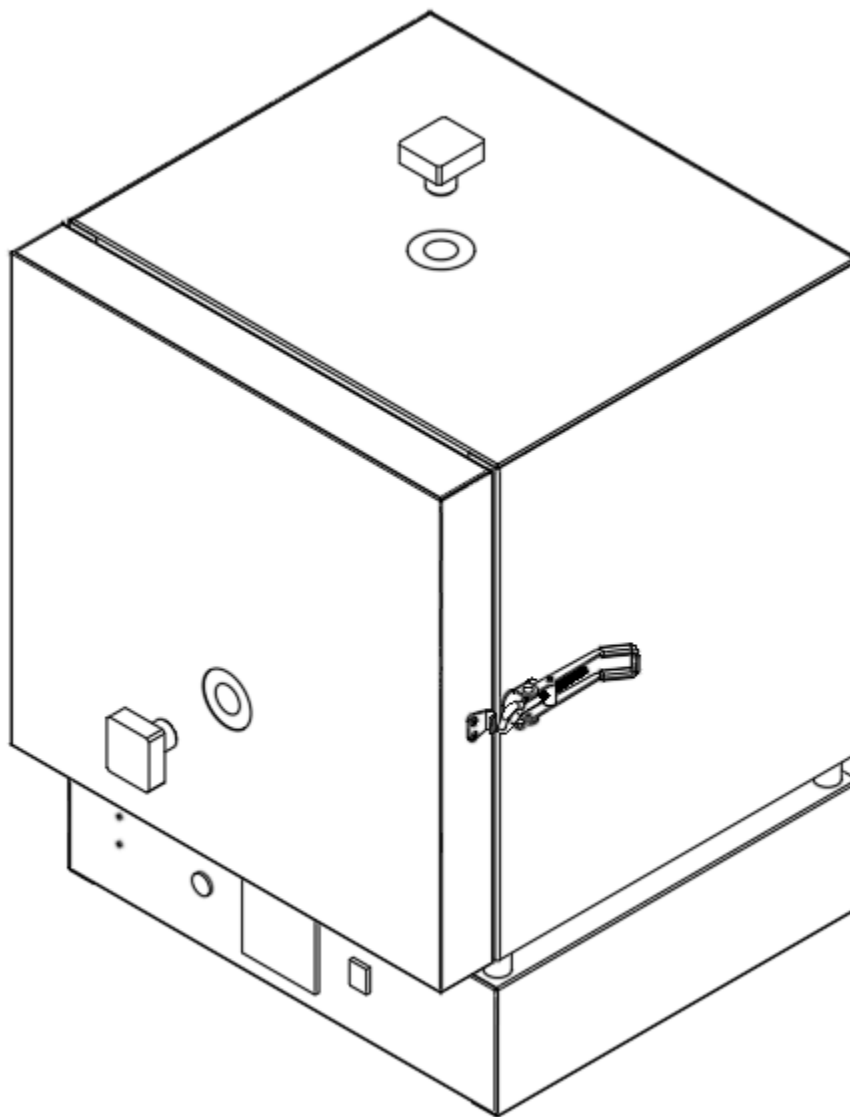


EASY KILNS

Owner's General Kiln manual 1st edition



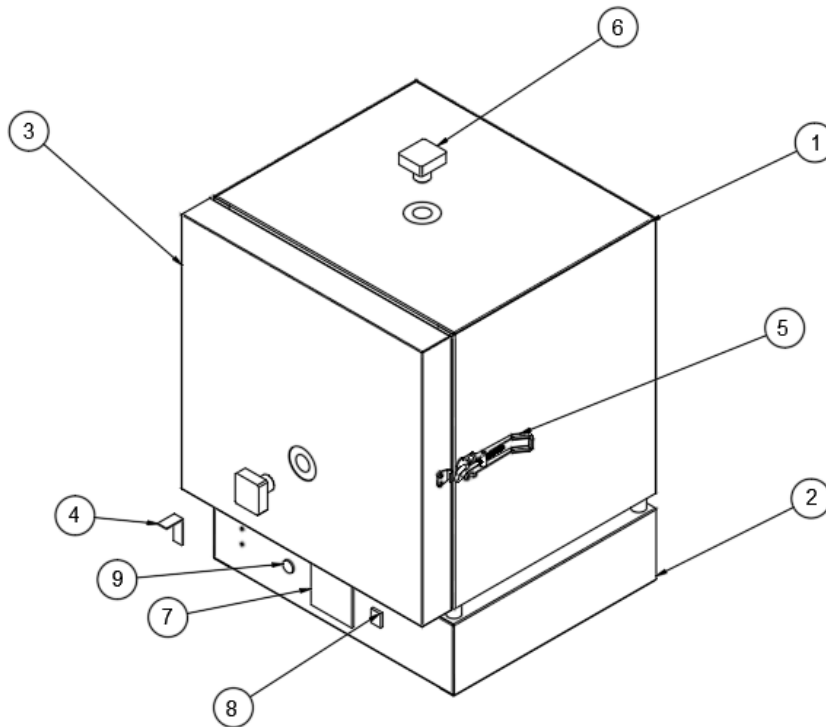
Warning!

- 1. This kiln should not be used by persons (including children) with reduced physical, sensory or mental capabilities or lack of experience and knowledge unless they have been given supervision or instruction.**
- 2. Children should be supervised so that they do not play with the kiln.**
- 3. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.**
- 4. Please read the instruction manual carefully before operating the kiln.**
- 5. Please also wear proper PPE/P1 or higher respiratory protection when loading and unloading the kiln as harmful insulation dust can become airborne and pose a respiratory hazard.**

Thank you for purchasing an EASY KILN!

We're excited to be a part of your creative journey and are committed to providing you with the highest quality experience. Please note that the warranty on your kiln does not cover damage caused by overfiring, regardless of the circumstances. It is the operator's responsibility to ensure the kiln turns off when the firing is completed. To prevent issues, never leave your kiln unattended near the end of the firing process. Fibreboard expands and contracts with each firing, resulting in hairline cracks while the kiln is cold—even in a new kiln. These cracks are normal and serve as expansion joints. They close tightly when the board heats up and will not affect the kiln's performance or firing results. A small amount of light may be visible around the edge of the door. As long as the door is closed completely, this is normal and results in minimal heat loss. We're here to support you every step of the way. If you have any concerns or questions, please don't hesitate to reach out!

PARTS



Parts List			
Item	Qty	Part Number	Material
1	1	Hotbox	---
2	1	Controller	Steel
3	1	Door	Steel
4	1	Safety switch bracket	Steel
5	1	Lock Mechanism Assembly v1	Steel
6	1	Bung	Steel
7	1	Control panel	Steel
8	1	Switch	Steel
9	1	Buzzer	Steel

1. **Kiln heating body:** Contains insulation, elements, casing gets very hot during use.
2. **Control box:** Actively cooled control box containing sensitive electronics.
3. **Kiln door:** Contains insulation and seals heat into the kiln chamber.
4. **Safety Pin:** Activates the element circuit switch when closed, disables the element when open to allow safe loading/unloading. **Ramp soak programmable controller:** Measures temperature, powers element to achieve desired temperature schedule.
5. **Latch:** Holds door shut, lockable.
6. **Kiln vent plug:** Holds temperature, once removed gases can escape when firing bisquare, burnout etc.
7. **Control panel:** This is either a TMCON or Bartlett Spark control panel, programmable interface, please check manual for specific programming instructions.
8. **Main power switch:** Isolates the entire circuit of the kiln for safe loading/unloading.
9. **Electronic buzzer:** Settable alarm if you want the kiln to alert you once a schedule is complete or once it reaches a certain temperature. Disabled by default.

SAFETY

- There is minimal risk of serious burns from accidental contact with the kiln, provided you exercise the same level of caution as you would with an electric iron.
- Do not install closer than 200mm from any wall or combustible surface.
- Always fire your kiln in a well-ventilated, covered, and protected area to ensure safety and optimal performance.
- Do not open the lid until the kiln has fully cooled to room temperature and the switch has been turned off.
- Never touch the heating elements with anything to avoid risking electrocution.
- Disconnect kiln before servicing
- Never leave the kiln unattended while firing. Do not leave the kiln turned on in your studio if you are away or sleeping.
- Always wear firing safety glasses when looking into a hot kiln to protect your eyes from heat and glare.
- Keep the kiln door closed when it is not in use. This helps prevent dust from entering the kiln and, in the unlikely event that someone turns on the kiln while you are away, ensures that the heat remains safely contained within the firing chamber.
- Remove all tripping hazards from the area surrounding the kiln. Ensure the kiln's supply cord is kept out of high traffic areas to prevent accidents.
- Do not allow the cord to touch the side of the kiln, as the heat may damage the cord.
- Avoid extension cords as they will reduce the firing temperature of the kiln and may pose a fire hazard.
- When loading or unloading your kiln, always wear gloves. Always wear a P1 (N95) or higher breathing mask when working with the kiln. Fiberboard and ceramic dust can pose a health risk if inhaled. Choose gloves that are thick and durable to shield your hands from hazards such as glaze shards, fragments of pyrometric cones stuck to shelves, sharp edges of broken ceramics, and stilt marks on the bottoms of glazed pieces.

- Do not remove items from the kiln until it has cooled to below 80°C. Removing ceramics while they are still hot can cause thermal shock, potentially breaking the pieces. Broken ceramic edges can be extremely sharp and pose a risk of injury.
- After firing glazed ware, inspect the kiln shelves for any glaze particles. Sharp glaze slivers stuck to the shelves can cause cuts. Always ensure the shelf is clear of glaze shards before running your hand over its surface.
- Only fire materials specifically approved for kiln use and purchased from a knowledgeable supplier. Avoid firing items such as marbles, concrete, rocks, or other unapproved objects, as rapid heating to high temperatures can cause dangerous reactions or explosions.
- Do not fire toxic materials, such as mothballs, in your kiln. When burned, mothballs release harmful fumes and can even explode, posing serious health and safety risks.
- Greenware, or unfired clay, must be completely bone dry before firing. Moist greenware can explode in the kiln, causing damage to both the pieces and the kiln itself. To check if the greenware is dry, touch it to the inside of your wrist; if it feels cool, it is still too wet to fire.
- Do not fire cracked shelves, as they can break during firing and potentially damage the items in the kiln.
- As the kiln fires, make it a habit to periodically touch the power cord to check its temperature. A slightly warm cord is normal, but it should never feel hot. Also, ensure the plug is securely inserted into the receptacle to prevent overheating or electrical issues.
- Never add extra insulation around the kiln to try to conserve energy. Doing so can cause the wiring and aluminum case to overheat, creating a serious fire risk.
- Fire kiln on non-combustible surfaces only.
- Keep unsupervised children away from the kiln and the work area.
- Unplug the kiln or turn off the electrical shut-off box or circuit breaker when the kiln is not in use, especially if you're concerned that someone might accidentally turn it on while you're away.
- Supervision and Access Control: Restrict access to the kiln during firing. The exterior can exceed 120°C, and unauthorized handling can lead to injury. Secure the kiln door with a padlock to prevent tampering, especially by children.

- **Automatic Safety Features:** The kiln is equipped with a dual-pole automatic safety switch to cut power when the door is opened. Never bypass this switch. Always switch off and unplug the kiln before performing maintenance.
- **Maximum Temperature:** Do not exceed 1280°C, as this may void the warranty and severely damage the kiln. For longevity, limit firings to 1260°C or below. Just by operating 100 degrees less (from 1280 to 1180c) you can increase element lifespan 5x
- **Thermocouple Safety:** Avoid contact between the thermocouple and kiln ware to prevent overfiring and ensure accurate temperature readings.

WHERE TO LOCATE YOUR KILN

Ventilation: Position the kiln in a space with natural ventilation to the outside. Consider forced ventilation if natural airflow is insufficient, as kiln fumes can damage metal fittings and pose health risks. Never expose the kiln to outdoor weather; it lacks an IP rating.

Clearance: Keep 200mm (8 inches) of space around the kiln from walls or other structures. Maintain at least 600mm (24 inches) of clearance above the kiln.

Combustibles: Remove all combustible materials (e.g., canvas, wood, paper, chemicals, plastics) from under, around, or behind the kiln. Never store items on top of the kiln. Position the kiln on a level surface that can withstand heat without being damaged. A cement surface is ideal, but if necessary, you can use a sheet of protective material under the kiln. Consult your hardware or building supply store for appropriate recommendations. Avoid placing the kiln stand on rubber tiles, linoleum, or any surface that could be damaged or discolored by heat. Do not allow the kiln's power supply cord to come into contact with the side of the kiln, as this could cause the cord to burn.

SEATING THE ELEMENTS

Shipping may dislodge the elements of your kiln, so it's important to perform the **Kitchen Knife Test** to ensure the elements are properly seated in their grooves.

Kitchen Knife Test

Important: Always unplug the kiln before touching the elements with anything. Only touch cold elements—never hot ones—with a plastic object like a comb, as plastic can melt and damage the element.

To check the elements:

1. Use a blunt kitchen knife, plastic comb, or similar blunt object to press the elements into their grooves.
2. If the element doesn't lie flat at the bottom of its groove, there's no need for concern as long as it fits all the way back into each corner without bulging out. Keep in mind that elements may not lie flat at the terminal bricks (right behind the switch box).

CLEANING THE KILN

Clean your kiln before firing to ensure optimal performance. Use a soft brush nozzle on a vacuum cleaner to remove brick dust from inside the kiln, particularly from the grooves. You can also use a damp cloth or sponge to gently wipe dust from the sidewalls and fiberboard bottom. Repeat the cleaning whenever you notice dust inside.

Note: Always vacuum the kiln with a HEPA-filtered vacuum cleaner or a central vacuum system that directs the dust outside to prevent dust buildup.

FIRING ACCESSORIES

Shelves: Kiln shelves are flat slabs made of cordierite, fired to a temperature higher than what your kiln will reach. Using multiple shelves allows you to stack more ware, maximizing space and efficiency in your kiln. Always have a shelf on the floor of the kiln to protect the delicate floor insulation.

Posts: Kiln posts are made from the same material as shelves and are used to support and separate layers of shelves inside the kiln. Shorter posts provide greater stability, but posts can be stacked for additional height. However, a single post is generally more stable than multiple stacked ones.

All-Purpose, High-Fire Kiln Wash: High-fire kiln wash is a mixture of finely ground minerals that do not fuse at porcelain or stoneware temperatures. It acts as a protective barrier between the shelf and any glaze drippings. Kiln wash must be applied to the top of kiln shelves and the kiln bottom to prevent ceramic glaze and glass from permanently sticking to these surfaces. Without this barrier, glaze would bond permanently to the shelf.

Note: Do not apply kiln wash to the kiln walls or lid, as contact will damage the heating elements. Kiln wash, in its powdered form, has an unlimited shelf life.

PREPARING TO FIRE THE KILN

Loading a kiln requires careful attention, as even a small mistake can cause your pottery to melt, crack, under-fire, or misfire. However, when loaded correctly, the kiln can produce stunning ceramic or glass pieces. If you're experiencing issues with not reaching the desired temperature, check that the kiln is packed according to the recommended guidelines before assuming there's a problem with the kiln. Most under-firings result from improper spacing around the thermocouple, the pieces themselves, or uneven loading.

Wear appropriate protective gear: Mask: Class P1 minimum for dust protection. Gloves: Leather mittens or quality gardening gloves. Clothing: Long-sleeved, loose-fitting, non-combustible materials (e.g., leather or wool).

Cleanliness: Remove debris and dust from the kiln and shelves after each firing. Vacuum regularly. **Protect the Kiln Floor:** Always use a shelf as a base layer; never place props or items directly on the kiln floor. **Inspect Pieces:** Ensure all items are dry and free from cracks to avoid damaging the entire load.

How to Use Kiln Wash

1. **Prepare the Mixture:**

Pour a small amount of water into a disposable container and gradually add powdered kiln wash until the mixture reaches the consistency of coffee cream. Stir thoroughly to dissolve any lumps.

2. **Apply the Kiln Wash:**

Use a soft paintbrush to apply the kiln wash to the shelf. Each time you dip the brush into the mixture, swirl it around the bottom of the container to ensure the kiln wash is evenly distributed (as it settles quickly). Start brushing near the center of the shelf and work toward the edges to prevent a buildup at the edges.

3. **Apply Multiple Thin Coats:**

Apply two or three thin coats, allowing each coat to dry for a few minutes between applications. Change the direction of your brush strokes by 90° with each coat to ensure even coverage. Avoid applying thick coats, as they can flake off.

4. **Remove Excess:**

If there is any kiln wash buildup on the edges of the shelf, remove it by tracing around the edge with your finger. Excess kiln wash can break off and fall onto the ware below.

5. **Dry the Shelves:**

Let the kiln-washed shelves dry for a few minutes before firing. Allow them to dry completely before placing them in the kiln. You can speed up the drying process by

placing the shelves in the kiln and heating them to around 200°F (93°C) for an hour. However, they are still wet if they feel cool to the touch.

6. **Protect the Kiln Walls and Elements:**

Use a piece of cardboard to protect the kiln walls and elements from kiln wash during application. Never apply kiln wash to the kiln walls or the underside of shelves.

7. **Final Drying:**

Let the kiln wash dry overnight before firing the kiln to ensure the wash is fully set.

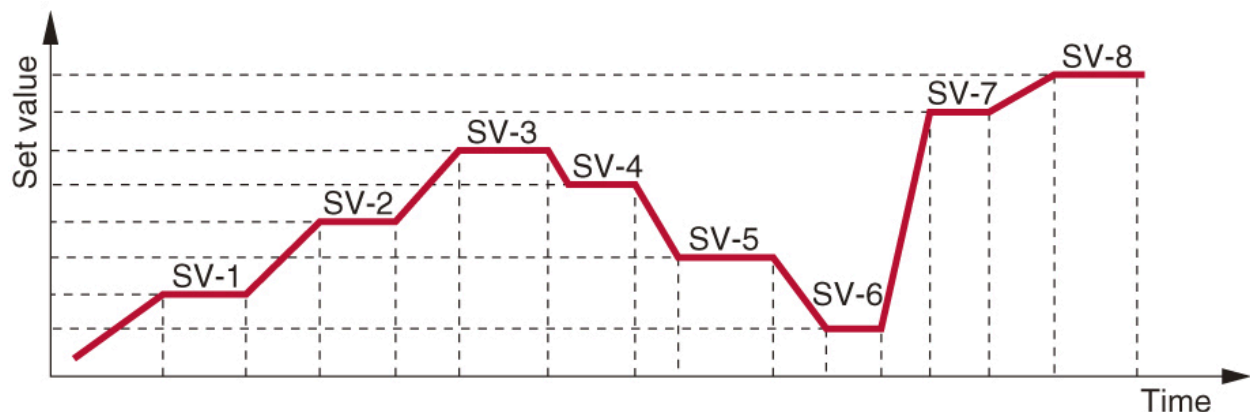
Loading the Kiln

Balance and Symmetry: Distribute the weight evenly in all directions (left-right, front-back). Use shelves and props to create levels, grouping items by height for efficient use of space.

Thermocouple Placement: Maintain a 2-3 cm clearance around the thermocouple to avoid inaccurate temperature readings.

Glazed Pieces: Use ceramic stilts to prevent glaze from fusing pieces to the shelves. Apply kiln wash to shelves as a secondary measure for glaze drips.

FIRING THE KILN



Please refer to the Controller manual included with your kiln for programming and beginning the firing of the kiln.

Using Bungs (Door and Roof Plugs)

Bisque Firing: Initial Stage: Keep bungs out until the kiln reaches 600°C or until an orange glow is visible. Moisture Management: If ware is slightly damp, fire with bungs in from the start but ensure pieces are extra dry. Cooling: Optionally remove bungs after reaching maximum temperature to speed up cooling.

Glaze Firing: Bungs can remain in place throughout the firing unless there are burn-out materials (e.g., oils in gold lustres) that require venting. Safety: Remove bungs slowly and always wear protective gear, including shade level 5 welding glasses, gloves and respiratory protection.

KILN MAINTENANCE

This section outlines best practices for managing moisture, avoiding foreign materials, and properly using kiln bungs during firings.

Shelf Care and Maintenance

Prevent Warping: Rotate and Flip Regularly: Change the orientation of the shelves between firings to balance stress and prevent excessive bending. Avoid Prolonged High Temperatures: Limit time at maximum temperature to reduce thermal stress on the shelves.

Inspect for Cracking: Early Detection: Replace cracked shelves immediately, as cracks indicate the shelf has reached the end of its useful life.

Common Causes of Shelf Cracking and Prevention

Thermal Shock: Ramp Rate: For thinner shelves, keep the heating or cooling rate within 300°C/hour, especially between 20°C and 250°C. Avoid Moisture: Ensure shelves are completely dry before firing, as moisture can escape violently and cause cracks.

Uneven Heating or Cooling: Proper Circulation: Ensure good airflow around shelves and pieces by maintaining even spacing in the kiln. Balanced Loading: Distribute weight evenly to minimize localized stress.

Improper Propping: Use Three Props: For optimal stability, use three evenly spaced props under each shelf. Alignment: Ensure props are vertically aligned and touch both the ground and the shelf securely.

Moisture Management

Dry Pieces Thoroughly: Ensure pieces are completely dry and not cool to the touch before firing. Firing damp pieces can damage the kiln's refractories and elements and increase the risk of explosions.

Firing Speed: Fire slowly when moisture might be present to reduce stress on the kiln and the ware.

Avoiding Foreign Materials

No Reduction Firing: These kilns are not designed for reduction firings, as the reducing atmosphere can degrade the protective oxide layer on the elements.

Prohibited Materials: Avoid burning out paper, cloth, or other temporary supports in the kiln to prevent damage. Ensure metallic objects, such as burn-out flasks, do not contact the elements to avoid safety hazards.

Cleaning: Brush or vacuum the kiln every few firings to remove dust. Wear a P1 safety mask to prevent inhaling harmful particles.

Element Grooves: Inspect grooves regularly for damage; broken grooves leave elements unsupported. Repair broken sections promptly to prevent element sagging and potential replacement.

Kiln Elements

Inspection: Check that coils are evenly stretched and not bunched or leaning on one another. Worn or sagging elements slow firing times and create uneven heat distribution.

Reseating a Bulging Element

Once an element has been fired, it becomes brittle and will break if bent while cold. To safely re-seat a bulging element, follow these steps:

1. **Unplug the Kiln:** Always disconnect the power before working on the element.
2. **Use a Propane Torch:**
 - Heat the element with the propane torch until it becomes red-hot. Press the igniter to light the flame and hold it near the bulging element until it turns red, then release the igniter.

3. Reseat the Bulging Element:

- With a pair of long-nosed pliers, gently press the individual coils together to shrink the bulging part of the element. Take care not to press two turns tightly enough to touch.
- As the element shrinks, work it back toward the groove and into place. Work quickly, and stop as soon as you feel stiffness in the coils. Reheat the element if necessary.

4. Lengthening the Element (if needed):

- If you need to lengthen the element to fit it into the corners, use snap-ring pliers (available from automotive parts stores) to expand the space between the coils.
- **Caution:** Be mindful that the kiln's warranty covers elements only if they fail during normal use, not if damaged from being bent while cold.

5. Reseat the Element:

- Once the element is positioned properly above the dropped recess in the grooves, reheat the element section and use a blunt kitchen knife to press the element into the grooves.
- **Note:** Never use plastic objects like combs to press hot elements, as melted plastic can ruin the elements.

6. Final Firing:

- Fire the kiln to cone 4 or 5 to fully soften the elements, ensuring they are properly seated and functional.

Replacement Elements: Replace elements if firing times lengthen significantly or heat distribution becomes uneven.

Electrical Safety: Always unplug the kiln before maintenance. Inspect the plug and lead regularly for wear or damage.

Thermocouples

Inspection: Check the metallic end inside the kiln; wear shows as shrinkage, flaking, or breakage.

Failure: A failed thermocouple will trigger a controller fault, halting firing.

Replacement Procedure:

1. **Preparation:** Disconnect the kiln from power.
2. **Removal:** Unscrew the control box cover, locate the **K-type thermocouple terminal**, and remove its mounting screws and electrical connectors.
3. **Installation:** Mount the replacement thermocouple, ensuring correct polarity:
 - RED wire to + terminal

- BLACK wire to - **terminal**
- Incorrect polarity will cause the controller to fault.

Safety Door Switch

Function: Prevents power to elements when the door is open, ensuring safety.

Troubleshooting Misalignment: Realign the probe if bumped out of position. Ensure the probe clicks into place when aligned with the control box hole, signaling proper engagement.

Failure Indicators: If the kiln does not heat at all, check this switch first.