

~ FABRICATION ~



CERAMICS

OPERATING INSTRUCTIONS



CERAMICS

INTRODUCING

the



ELECTRIC KILNS



1 x 13amp electric test kiln linked to programmable controller

3 x 13amp electric test kilns - These kilns should only to be used by students under strict technical supervision as they are not linked to programmable controllers

1 x Small 13amp Cromartie electric top-loader with IPCO 3000 programmable controller
Kilns and Furnaces Ltd (Harrier Range) hard wired top-loader kilns - 1 x IPCO Studio 3000 programmable controller and 1 x Stanton 501 programmable controller

1 x Cromartie hard wired front loader with Stanton 501 programmable controller

Level 2 (see Hot Lab Induction Guide on Access Levels)

Electric kilns are used to change clay into ceramic through a gradual process of increased heat over a set period of time. They are constructed of high insulation materials, usually brick supported by a steel jacket. They can be controlled manually but are generally controlled by a programmable system

PPE Basic

- Leather Gauntlets, welding grade will suffice but should NOT be oily (provided)
- Suitable Work coat (provided)
- Eye Protection, rated to BS/EN166 (provided)

What to do before use

- INFORM a member of staff BEFORE operating the kilns
- ENSURE flammable materials are NOT PLACED on-top of the kiln or within its immediate vicinity.
- ENSURE floor area is clean and free from obstacles and adequate light is available for operation.
- ENSURE all work is thoroughly dry before loading the kiln, particularly if it is a bisque firing.

- **ENSURE kiln is COOL**
- **ENSURE the power isolator switch is in the OFF position.**
- **Open kiln lid CAREFULLY, making sure that the lid is safely propped up-right.**
- **VISUALLY check that the floor of the kiln, electrical elements and Insulation brickwork are in GOOD CONDITION and that no bits of broken ceramic are fouling the elements.**
- **ENSURE that the pyrometer sheath projecting into the kiln is in GOOD CONDITION and not cracked or broken.**
- **If DAMAGE or FAULT is detected inform technical staff IMMEDIATELY (IF STUDENT) and report fault in the log book by the machine (IF STAFF) E-mail technical team to report if machine requires maintenance or servicing and if it is to be taken out of operation and for how long**

How to Use These Ceramics Kilns

- **CARE MUST be taken not to damage the pyrometer sheath that protrudes into the kiln chamber. If the pyrometer is damaged or broken, the kiln MUST NOT be operated. The pyrometer sheath and thermocouple are expensive items to replace**
- **CAREFULLY place kiln shelf/shelves on top of 3cm flat props in the base of the kiln**
- **CAREFULLY place props in a triangular pattern on the base kiln shelf and load the pots onto the shelf**
- **Pots to be BISQUE FIRED CAN be tightly packed and stacked one on top of another, whereas**
- **Pots to be GLAZE/GLOST FIRED need more space AROUND each pot and MUST NOT be stacked one on top of another. A spacing of 25mm is the MINIMUM distance between work when loading glazed/glost ware**
- **Pots should be loaded a MINIMUM distance of 25mm from the walls and electrical elements of the kiln.**
- **ENSURE shelves are AT LEAST 25mm ABOVE previously loaded work.**
- **Pots placed in a TRIANGULAR PATTERN prevent the kiln shelves from WARPING over a period of time.**
- **ALL PROPS should be placed in the same position as the props supporting the shelf BELOW**
- **Progressively move UP the kiln, from the bottom, packing pots and props with kiln shelves placed on top of the props as described above**

- **When the kiln is FULL, make sure NO clay items project ABOVE the top of the kiln. This will make the kiln lid/door difficult to close and may crush some of the delicate clay work.**
- **CAREFULLY close the kiln lid/door and SECURE it with the clamps fitted to the jacket of the kiln.**
- **CAREFULLY push the interlock key into its seat and turn to engage the interlock**
- **ALSO, lock the kiln door with a suitable padlock**
- **DO NOT place the bung in the bung hole if you are firing to BISQUE (biscuit) temperatures. The kiln needs to be ventilated at 650°C so that water and sulphurous gases CAN SAFELY ESCAPE**
- **When the kiln reaches 650°C, PROTET YOUR HAND with a leather gauntlet when handling the bung in the bung hole**
- **CAREFULLY place the bung IN the bung hole if you are firing up to GLAZE/GLOST temperatures, at around 1100°C**
- **If the kiln you are using is enclosed in a kiln cage, CLOSE and SECURE the cage door with the padlock**
- **TURN the power isolator switch to the ON position. This will begin the power-up sequence of the kiln programme controller**
- **FAMILIARISE yourself with the type of controller that is attached to your firing kiln**
- **There are a number of DIFFERENT CONTROLLERS fitted to kilns in the kiln room and controller manuals are AVAILABLE for familiarisation**
- **ONLY key in a firing cycle into the programme controller AFTER you have received training in the function of the various kiln controllers and have been SIGNED-OFF as able to do so**
- **Press the START button to begin the firing cycle and press it AGAIN if you wish to ABORT the firing**
- **PERIODICALLY monitor your kiln throughout the firing cycle**
- **Temperature and relevant information will be DISPLAYED on the LED read-out on the front of the controller**
- **Your controller is set to AUTOMATICALLY shut the kiln off at the temperature that was programmed into it but it is GOOD PRACTICE to be present when the kiln achieves its set temperature as a PRECAUTION against over-firing**
- **If possible, START a firing in the EARLY EVENING and follow it through to the next day, monitoring the rise in temperature throughout the day**
- **DO NOT REMOVE the bung or TOUCH the outer jacket of the kiln during the firing as this could result in serious burns**

- **When the kiln has followed its firing cycle and has COOLED DOWN to 100°C-150°C, the bung MAY be carefully removed, if a gauntlet is worn**
- **The kiln can be PARTIALLY OPENED below 100°C BUT is best left to cool further as AN IN-RUSH of cool air could AFFECT the contents of the kiln**
- **TURN the power isolator switch to the OFF position.**
- **When the kiln is FULLY COOLED, open the kiln lid/door fully and prop it up SAFELY**
- **CAREFULLY remove the pots, shelves and props being CAREFUL NOT to damage the pyrometer sheath**
- **If the firing is a GLAZE/GLOST firing, be CAREFUL when removing glazed pots and shelves that may have sharp, jagged glazed pieces adhered to them**
- **BEFORE you leave, ENSURE the area SURROUNDING the kiln is clean and tidy**

Date

I verify that I have read and understood the information detailed within this document

Name

Signature