

SK Silver and Etruscan Toploader Electric Kilns

manufactured by



Operating & Maintenance Instructions

Potclays Ltd., Brickkiln Lane, Etruria, Stoke-on-Trent, Staffs ST4 7BP England

Tel: 01782 219816 Fax: 01782 286506 Email: sales@potclays.co.uk

**POTCLAYS SILVER AND ETRUSCAN KILN OPERATION MANUAL
2021 EDITION**

WARNINGS

IMPORTANT NOTICE TO ELECTRICAL CONTRACTOR / INSTALLER

- The appliance is not to 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.
 - Isolation switch must be incorporated in the fixed wiring in accordance with the wiring rules.
 - If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified person in order to avoid a hazard.
 - Although all electrical connections were securely tightened prior to dispatch it is possible as a result of temperature cycling that some connections may work loose in the first few firings. We therefore strongly recommend that after the first few firings a check is carried out to ensure all electrical connections are tight, particularly the contactor and element tail connections.
 - Unless otherwise specified (see kiln data plate) our kilns are designed to operate from 230 volts single phase or 415 volts three phase with neutral power supply. With 415 volts supply each phase is connected to neutral so that each element takes only 230 volts.
 - Live, neutral and earth connector blocks to take the incoming electrical supply are located in the rear connection chamber of the kiln. Access is gained by removing the back panel to the kiln.
 - Where kilns can be operated from either 3 phase or single phase, we use three-line connector blocks (each taking power to one of three banks of elements). If the kiln is to operate from single phase supply, the incoming phase conductor should be connected to the centre line connector block with a loop wire in suitably rated wire to each of the other two-line connector blocks. The single phase supply is in this way spread across the three-line connector blocks. Ensure all connections are fully and firmly made and that 'surplus' cable or wires do not touch the wall of the kiln or are near element connections. It is also advisable that these connections are checked at each service.
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- For immediate response to *SPARES & SERVICE* requirements please contact Potclays Limited 01782 219816 email: sales@potclays.co.uk

Operation – SK Silver and Etruscan toploading kilns.

Introduction

Congratulations on your choice of a kiln manufactured by Potclays Limited. You can be assured that it is made only from the finest materials and manufactured to the highest standards.

Should you have any query:

email: technical@potclays.co.uk

telephone Technical or Sales: +44(0)1782 219816

The instructions which follow will provide basic information about the installation, care and operation of your kiln. More detailed useful information about the effect of heat on clays and glazes, pottery faults, etc. will be found in the resources section of our website.

Delivery Inspection

If it is not possible to thoroughly inspect the kiln for damage upon delivery, then it is essential you add the word 'unexamined' to the delivery note when signing for receipt of the goods. Otherwise, upon delivery, check for obvious external damage, then open the kiln door and check for internal damage. Minor surface blemishes in the brickwork are to be ignored (since all bricks may have these and they are not detrimental). If there is any damage you *must* notify the supplier *within 24 hours*.

Siting the kiln

- 1) Select a level, dry, well ventilated position, away from corridors and thoroughfares and with room to allow easy loading and unloading of the kiln. Ideally the kiln should be in its own, lockable room.
- 2) Ensure that the floor is strong enough to carry the weight of the kiln. The kiln should be not less than 200mm from the nearest wall and be a minimum of 750mm from the ceiling. Allow 500mm space behind the kiln and a gap on one side sufficient to provide easy access to the rear of the kiln for servicing.
- 3) The wall isolator, (power switch) must be easily accessible.
- 4) The kiln room must be clear of all flammable materials.
- 5) Nothing must be placed on top of the kiln, including the kiln controller.

Electrical Installation

Unless otherwise specified on the kiln data plate, your kiln must be connected to a supply which will provide a minimum 230 volts under normal operating conditions unless the kiln has been fitted with elements designed for a lower voltage, Connection of the electrical supply has to be made by your electrician to the terminals in the connection chamber at the rear of the kiln, access to which is gained by removing the back panel.

Kilns designed for 230 volts and having a rating of 3.1 kW or less can be connected to a 13 amp fused plug and plugged into a standard UK domestic power socket. Kilns above 3.1 kW must be wired into the electricity supply using a cooker type switch or isolator box suitably positioned on a wall adjacent to the kiln.

Kilns above 4.2 kW are wired so that they can be used from single or three phase supply. A neutral is provided. For single phase connection, link the live terminals 1, 2 and 3.

In all cases it is very important that the supply fuse and the supply cable be correctly rated for the kiln being installed. It is recommended that where possible the supply cable should be run in conduit. Flexible conduit (Kopex or similar) is very useful because it has the flexibility to permit some movement of the kiln for servicing purposes.

Kilowatt ratings and wiring diagrams are given in the Electrical Data section at the end of this manual and appropriate data is repeated on the kiln data plate fitted to the kiln.

Silver and Etruscan toploading Kilns.

General Information

Construction

The kiln jacket is constructed from mirror-finish stainless steel and encloses 75mm insulation brick with ceramic paper backup. Minor surface marks and fine surface cracks may be visible on bricks. These can be ignored as they are inherent from the manufacturing process of all bricks and are not detrimental to their efficiency or performance. The bricks have phenomenal insulation performance but are easily damaged so take care handling kiln shelves and props. The base of the kiln is reversable in the event of damage to the interior base. The heating elements are the industry standard Kanthal A1. There are vent holes with plugs in sides and top. The kiln is supplied with ST215 Program Controller, (see separate operating manual). A lid safety switch cuts power to the elements when the lid is opened.

Test Firing

A first test firing should be done in order to dry out the kiln and to start forming the protective oxide layer on the elements, it will also familiarise you with the way the kiln sounds, the buildup of temperature on the outside of the kiln and the way the controller works. We recommend the following firing program:

First segment: 70°C per hour to 80°C, soak for one hour.

Second segment: 120°C per hour to 600°C, soak for 20 minutes.

Third segment: 200°C per hour to 1100°C, soak for 10 minutes. End.

Leave the vent plug in the lid out till 700°C then put it in, keep spyholes in the body of the kiln closed. It is useful to repeat this firing program when new elements are installed. Please note that the service life of the heating elements will be prolonged significantly by leaving the lid vent plug out until 600-700°C, in all firings but make sure to close the vent above 700°C as an open vent can be a fire hazard at high temperatures.

Please note that when the firing has reached above 800°C a glow from inside the kiln will be visible between the lid and base, it will be especially prominent in a darkened room. This is quite normal, it occurs with all top loading kilns and is nothing to be concerned about. It is light from the incandescence within the kiln, it does not equate to loss of heat

Use of batt wash

It is recommended that the upper surface of each batt should be painted with batt wash mixed with water to the consistency of milk. Sufficient should be painted on to cover the batt without show-through. Periodic replacement of this coat will be necessary but only when it is worn away, avoid building it up to a thick layer. Do not paint props or any kiln brickwork with batt wash.

Loading the Kiln

A kiln batt may be placed directly onto the base of the kiln to spread the load, with ware and props placed directly onto this. However, it is preferable to use half inch props between this batt and the kiln base, ensuring that these props are positioned directly over the steel stand on which the kiln base is supported. Prop columns are then placed on this base shelf.

Full size shelves would normally be supported using three separate prop columns placed equidistantly around the edge. Props supporting a shelf must be placed directly over props supporting lower shelves so that the weight is transferred down through a continuous column of props to the brick base, and through the bricks onto the steel stand. Place the shelves carefully and try to maintain an even gap between shelf and kiln bricks all the way around. The height between shelves can be varied to suit the ware being fired, keeping an equal number of elements showing between shelves will aid heat distribution.

It is more economical to fire the kiln as full as possible but sometimes it is necessary to fire a kiln with just a few pots. In this case load the full kiln furniture set, filling the kiln and place the pots as evenly spaced top to bottom as possible; if there is just one pot place it in the middle of the kiln chamber. When the temperature exceeds 600°C the chamber starts to become incandescent, glowing with radiant heat. As the temperature builds up so everything in the kiln glows and this aids the evenness of temperature distribution throughout the chamber. The kiln controller gets its information from the thermocouple which is positioned about half way up the kiln, if you were to fire the kiln with one pot sitting on the bottom it is likely that the temperature at the bottom of the kiln will be different from the temperature at the thermocouple as there is nothing to bounce the heat around.

Maintenance

We advise that kilns in educational establishments, shared studios and similar are PAT tested for electrical safety every year, to ensure cables are undamaged and connections are tight etc. as is required of every electrical appliance. A full service of the kiln is not necessarily needed each year as it depends on the frequency of use, we recommend service intervals of fifty firings. Routine maintenance should be carried out regularly as follows.

- 1 Every 5 firings, examine the interior of the kiln and ensure it is clean and free of dust. Check the lid and wall brick for loose fragments, remove any dust from the base of the kiln and element grooves with a soft brush or vacuum. Dust accumulating in element grooves can hold heat around the element causing them to wear more quickly. Avoid touching elements with anything metallic that might damage them. After a few firings, elements become brittle and can break if bent.
- 2 Check the condition of the batt wash on kiln shelves and touch in as necessary.
- 3 Check condition of kiln furniture for cracks or warping.
- 4 Continued heating and cooling of the kiln structure will eventually cause the clamps retaining the jacket and lid and base rings to loosen. These should be re-tightened using a screwdriver when the kiln is warm.
- 5 Remove any glaze spots from the walls, bottom or shelves. Pay particular attention to any glaze contamination of element grooves, if glaze touches and element it will cause it to burn out.
- 6 Fine cracks in brickwork are usually surface imperfections and do not normally require attention. However, when sections of brick are in danger of falling out of place, a satisfactory repair can be made using Refractory Cement which is applied to clean, dry brickwork.

Electrical maintenance

In addition to PAT testing and full service previously mentioned, we recommend a visual inspection of the electrical components be carried out approximately every 20 firings. This is simple to do and does not require a qualified electrician as long as the instructions below are followed.

First turn off the electric supply at the isolator next to the kiln and also turn off the supply at the fuse box. If the kiln is connected to a ring main with a three pin plug, remove the plug from the wall socket.

Remove the cover to the electrical box and examine all the wiring and element connections to ensure that there is nothing loose, look for any signs of scorching or burning that might indicate a short circuit. If you are unsure if there is a problem send a picture of the suspect area together with a note of the kiln's model and serial numbers to technical@potclays.co.uk