# *Smart kilns*

*Instruction manual*

# Contents

# *Introduction*

*Congratulations! You have just bought a high quality Keramikos Smart kiln. This Dutch product is made to guarantee years of safe and enjoyable use.*

*Read this instruction manual thoroughly before starting installation and use. Instructions on placement and use of the kiln can be found in this manual. As well as any regulations regarding safety and the area in which the kiln will be placed, for safe usage of your kiln.*

*Feel free to contact us in case of any remaining questions after reading this manual!*

*info@keramikos.nl*

# *Safety regulations*

- *Read this instruction manual before using the kiln.*
- *The kiln should be placed with a free area of 30 cm surrounding it.*
- *The kiln should be placed on its chassis, on a concrete floor (or ceramic or concrete tile).*
- *Do not place anything on or against the kiln. Anything placed on or against the kiln can start melting or burning.*
- *The kiln may only be used by people qualified to use it.*
- *The space in which the kiln is placed may not be accessible to anyone not qualified.*
- *Ensure the area in which the kiln is placed is well ventilated.*
- *The kiln must be kept closed (with the lock, if present) at all times during firing.*
- *Only open the kiln once the program has finished and a safe temperature (50°C or lower) has been reached.*
- *Only allow the replacing of the power cord to be done by your supplier or a qualified electrician.*


***Tip:*** *take care of the controller as well. Hang it on a wall in the designated holder it came with. Do not place the controller on or against the kiln!*

# Installation

**Placement of the kiln**

*Always place the kiln on a flat and heat resistant base. If there is a wooden or synthetic polymer floor beneath the kiln (linoleum, hardwood, laminate flooring, etc.), cover it with ceramic or paving tiles.*

*Then place the chassis as levelled as possible, using the legs beneath the frame. Ensure a surrounding free space of at least 30 cm during placing, with regard to the emission of the kiln's heat. Make completely sure the frame is stable and levelled.*

*Place the kiln onto the chassis, with the grey case on the back side.*

***Location***

*The space in which the kiln is placed must be large enough to allow working in front of the kiln. Ensure no flammable objects are in close proximity to the kiln. Do not place closets or racks near the kiln. Do not install shelves or cabinets closely above or over the kiln either.*

*The space must be well ventilated, especially during firing so any fumes can be aired out. Firing in an active working space is only recommended if the space is large enough, well-ventilated and no one can come near the kiln during firing.*

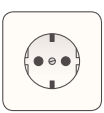
***Attention:*** *keep 30 cm of free space around the kiln!*

### *Electricity*

*Use a good quality electricity socket for the kiln. Due to the kiln's high capacity, use of switch material of inferior quality may cause the socket to heat up and/or start discolouring.*

*Have a socket installed by a qualified electrician and use a separate group only for the kiln. In case of circuit breakers it's vital to use fuses with a C-property, because of the high inrush current.*

***Attention:** use of an extension cord is only possible with a thickness of at least 3 × 2,5 mm² (monophase kilns) or 5 × 2,5 mm² (2-phase/3-phase kilns up to 11kW). Never use a thinner extension cord, as it will not be fit for the kiln's high capacity!*



### *Safety switch*

*The kiln is equipped with a safety switch that shuts off the power supply when the lid is removed. To make sure your kiln operates properly it is important to close the lid with the clip (see picture).*

*Let the kiln cool down to 50°C or less before opening the lid.*

**Attention:** *never put anything between the lid and the kiln to accelerate cooling process.*

***Lid hinge and closing mechanism***

*The lid hinge closes the safety switch in a correct way automatically.*

*Make sure to close the lid with the clip before firing. At 800 to 900 °C the lid will curve inwards a little. The lid's attachment to the back of the kiln might cause a slit to the front of the lid, allowing an unnecessary loss of heat. Using the clip will prevent any slits.*

# Start-up

## *Pre-firing*

*Before using the kiln, fire it once entirely empty then bisque fire it once as well. After this the kiln is ready to use for glaze firing.*

*Pre-firing is necessary to provide a protective oxidized layer on the elements, this ensures a greater durability. The kiln must be completely empty for the first firing, for the second firing it may be filled with bisque items. Use the program below for the first firing:*

1. *Heat up to 600°C in 8 hours (or to 600°C with 75°C per hour).*
2. *Follow with 150°C an hour (or SKIP) up to 1000°C.*
3. *End of program.*

***Attention:*** *pre-firing has an unpleasant smell. Ensure the room is well ventilated and leave the room during the pre-firing process.*

**Attention:** *the thermocouple could get damaged if the kiln is not carefully loaded.*

***Loading the kiln***

*Placing cylinders for base slab support; three 3 cm tall cylinders. Arrange these in a triangular shape, with equal distance between (see image).*

*The first kiln slab is placed onto these cylinders. After placing this slab, it is unnecessary to take it out between firings. The space between the slab and the bottom of the kiln allows good circulation of heat. Kiln slabs can be stacked further with different cylinders.*

*Place the cylinders in the same triangle shape, at the same distance, as much as possible, this provides greater stability. To prevent errors in temperature measurement, there must be a free space around the thermocouple.*

# Tips

***Sustainable temperature***

*All kilns are designed for long-term use. The kiln is more durable and eco-friendly when the sustainable temperature is used. Most of our kilns have a sustainable temperature of 1260°C, perfectly suitable for bisque, earthenware, glaze, stoneware and porcelain.*

*The maximum temperature is the temperature the kiln can reach. Consistent use of maximum temperature will cause quicker wear and power use will also be at a maximum, while this does not guarantee an optimal result. Our advice is to use maximum temperature only by exception.*

***Shrinkage tears***

*After using the kiln for a while, it is usual for small tears to appear. This occurs because of the great difference in temperature between the inside and outside of the kiln. These tears are completely harmless for the functioning of your kiln and are for the most part superficial. Frequent high firing increases the chance of these tears.*

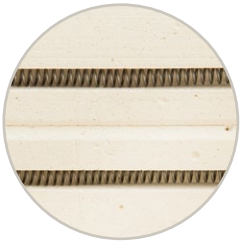
***Fender magnetic switch***

*The controller of your kiln regulates the temperature by constantly switching on and off your kiln, to realize a specific rise in temperature. During the firing process the controller and the magnetic switch are in constant cooperation to get to the right temperature at the right time according to the firing program. The magnetic switch makes a ticking noise during the firing process.*

***Elements***

*Elements are sensitive to wear and tear over time, take in account that a set of elements lasts 3 to 6 years. This is dependent on how often you fire, at what temperature, the space the kiln is kept in and the type of things you fire. Make sure to keep the ridges of your kiln clean. Dirt can be removed by using a vacuum cleaner or a brush to suck it out of the ridges. Glaze slatter on your elements can cause them*

*to break. Make sure to always use trusted glazes to prevent splatter.*



### *Salt glazing*

*Electric kilns are not suited for salt glazing. This is because slat glaze attaches itself to both your work and to the inside of the kiln. When this happens, your kiln can no longer be used for other types of glazes and will deteriorate quickly. In addition, the vapor of the salt coming out of the kiln is harmful to your health.*

### *Clay type*

*Make sure you select the right clay for your intended work, to prevent breakage or deformation. Always note the maximum firing temperature of the clay. Earthenware clay is not suited for high/stoneware temperatures.*

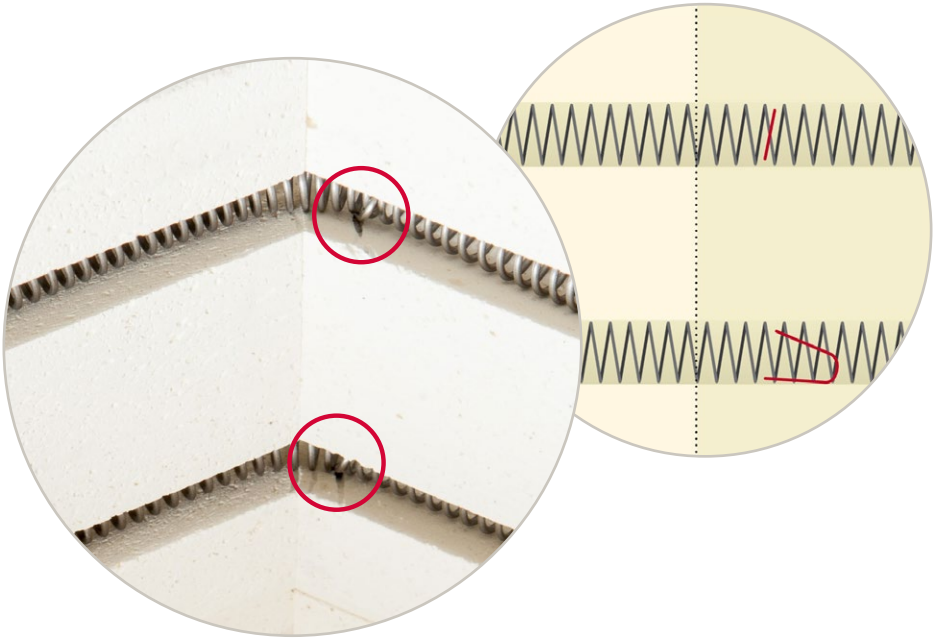
# *U-pins and elements*

*Because of the constant heating up and cooling down of the elements, it is possible that they lose their stretch over time. Even with careful assembly of the kiln, it is not entirely avoidable that this happens. To further enforce the elements, you can easily put in special made u-pins, these are made from the same material as the elements.*

*When using the u-pins to enforce the elements, a flat mouth plier is used. With this you push the u-pins into the stone, across a twist of the elements. The kiln stones are made of a soft material. The u-pin should be put into every corner and grove of the kiln.*

*The aim is to put the u-pin a little beside the corner. When you place the directly in the corner, there is more chance of them popping out (see image).*

**Attention:** *never use a different type of wire to make your own u-pins and secure your elements. Different material might not be resistant to high temperatures and could damage your kiln and elements.*



# *Firing tips*

- *Always use the right temperature. When firing too high your work can melt and deform. The right firing temperature can be found on the packaging of the clay or glaze.*
- *Do not place stoneware on triangles during firing to prevent deformation.*
- *Keep the bottom of your stoneware glaze free to prevent sticking to the kiln slab.*
- *Do place glazed earthenware on triangles during firing.*
- *To prevent air bubbles that make your work explode in the kiln, make sure to kneed and construct your work properly.*
- *When firing glazed work there are certain risks to consider. Tearing because of different thicknesses of the glaze or bubbles because of too little drying time for example. Make testers in advance always.*

# Warranty certificate

*Kiln:* _____

*Serial number:* _____

*Date of delivery:* _____

*Delivery to:* _____

*Particularities:* _____

*Signature:* _____

*From the date of the delivery Keramikos provides 3 years of limited warranty on the kiln mentioned above. This warrantee only applies to the aforementioned first owner and ends when ownership changes. In the case of incompetent use of the kiln this warrantee comes to end, read the manual before the first use.*

*Examples of incompetent use: the breaking of a heating element because of glaze splatter, or the use of an aggressive glaze. The damaging of the kiln wall because of explosions because of air bubbles in your work. Damage because of improperly moving your kiln et cetera. NB: with repairs under warranty, only call out cost is charged.*

*Company stamp:*

Enjoy your new kiln!


www.keramikos.nl