

Operating Instructions

STUDIO 1260 °C and PROFITHERM 1320 °C

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Please do observe the rules for installation and safety precautions for operation of the kiln.

General information

Reading this manual you will become familiar with your PYROTEC kiln. Please take time to study carefully before first firing. Also pay attention to the operating instructions of the controller.

Safety precautions

Operating electrically heated kilns for temperatures up to 1320°C (2408 °F) it is absolutely necessary to pay attention to the following safety precautions:

- Kiln may only be installed in appropriate rooms (see Installation below).
- Electrical settings shall be checked by an authorised electrician.
- Do not put inflammable stuff into or onto the kiln.
- Do not heat up the kiln to a temperature higher than indicated by the manufacturer for clay or ceramic firings because kiln and ceramics could be damaged
- Do not touch the kiln shell and kiln lid during operation (danger of burn injuries).
- Open lid only when kiln has cooled down
- Pull the plug before cleaning or carrying out maintenance work.
- The electronic controller serves for a simplified operation of the kiln and for the reproduction of different firing processes. **In order to avoid overheating as a result of a failure which occurred in the kiln or in the controller it is recommended to supervise the kiln in the final phase of the firing.**

Installation of the kiln

Take care that only authorised persons have admittance to the kiln. Changing values at the controller may result in damage of the kiln and contents.

The room, in which the kiln is placed, has to be dry and must be aired during operation. It is not allowed to set up the kiln in garages because of danger of fire. The room must be dry, must have sufficient volume and must be easy to air. For better airing a BYPASS is available as special accessories. The exhalation then will be guided by means of a pipe of aluflex out of the room. The pipe will be connected to the BYPASS and has to be installed ascending.

The ground has to be even (stable stand), not inflammable and has to stand the weight of the kiln even when loaded.

The surrounding walls and ceiling must not consist of inflammable material (such as wood, synthetics, textiles). If necessary a fireproof board (such as GLAFABOARD) covering even the surrounding ceiling must be mounted. Minimum distances are 50 cm to the walls and 90 cm to the ceiling.

The distance even to not inflammable walls must come to min. 30 cm to avoid heat accumulation. Do not place inflammable or temperature sensitive objects on top of the kiln. During the firing, the mains flex must not get into contact with the kiln shell and lid.

Controller

Using the hooks provided, the controller is to be fixed on the wall at the side of the kiln (min. distance 30 cm, some kiln models provide a special appliance to be mounted at the kiln itself). It is connected to the switch box of the kiln via the multipolar plug. Do observe that the plug can only be plugged in easily in one position. The connection will be fixed by clicking the safety-bow.

Electrical Installation

Insulation of PYROTEC kilns is classified in German „VDE Schutzklasse I“. According to that electrical safety is obtained by the safety ground wire. It is therefore strongly recommended, to have the electrical settings checked by an electrician before connecting the kiln to your wall socket. Please pay attention to sufficient diameters of the mains and appropriate fuses in Your meter case. Refer to technical data given on the rating plate close to mains flex entering the kiln.

The wall socket must be accessible to enable pulling the plug anytime. Do not connect other devices to this wall socket.

Never use an electrical extension cable for the connection! Kiln mains flex of any length is available on order.

First Firing

When the kiln is put into operation it must be operated empty, only equipped with shelves, in a firing program with a long pre-heating time or with a slow increase in temperature. During this slow firing possible humidity of insulation and shelves can evacuate. Also the heating elements will build up a protective layer of oxide that provides them with a longer life.

During operation the switching sound of the contactors can be heard clearly.

A bad smell can occur during the first two or three firings. It is caused by burning off organic binder of the thermo-insulation and there is no cause to be worried.

Due to extreme temperature tensions, hairline cracks appear in the bricks. These cracks sometimes already occur whilst testing the apparatus in the factory. They, however, do not effect the firing in any way.

Operation of the Kiln

PYROTEC kilns can be fired up to temperatures in between 1100 and 1320 °C, depending on the model. Mostly the maximum temperature, however, is reduced by the features of the material to be fired. In case of doubt always the lower value has to be regarded. Please do fire only admitted material in your kiln. In case of doubt consult your dealer.

Set the pieces to be fired equally into the kiln. In order to achieve best use of the whole kiln use shelves and supports.

Biscuit firing

Raw ceramic pieces may touch one another during biscuit firing. They may be placed directly onto the shelves. Large, flat bowls or tiles should be burned in a flat position on shelf so as to avoid warping. Do not place the pieces too close to each other, there must be sufficient space for air circulation so that a constant temperature will be guaranteed.

Glaze firing

Glazed ceramic pieces must in no case touch one another, so as to avoid that the glaze layers melt into one another. Glazed pieces require tripods, triangular bars etc. placed underneath them during firing. This prevents the pieces from being stuck to the shelves. In addition to this it is recommended to coat the shelves with a parting compound so that any glaze dripped down onto the shelf it can be easily removed.

Kilns with a lid-locking device should be locked during operation, so that the lid does not warp.

Maintenance

It is recommended to have the electrical installation checked for it's safety by an electrician at least every 4 years.

For your own safety pull the plug before cleaning or carrying out maintenance work. Before every firing look for remains of clay and glaze on the inner walls of the kiln. If there is any, do remove it before next firing. Please avoid moving the heating elements, as they get very fragile after some firings.

The insulation materials are subject to a reasonable shrinking process. It is therefor recommended to tighten the kiln's shell from time to time.

Repairs

ATTENTION: Repairs must be carried out only by an authorised electrician!

1) Checking heating elements

- start cold kiln (kiln temperature must be below 50 °C) with full power (see controller instructions)
- After 20 seconds switch off
- **Pull the plug**
- Open kiln and check temperature of every single heating element by touching it with wet finger or sponge
- Cold elements are broken and must be replaced

2) Replacing elements

- Loosen and remove the screws at the switchbox of the kiln
- Loose and remove connecting screws with two spanners size 8
- Cut off the ring-ends of the heating elements
- Remove fastening pins inside the kiln
- Carefully remove the defective heating elements from the grooves and pull the spiral end inwardly
- Clean the grooves **carefully** (use a Hoover)
- Place new heating elements and push the spiral ends outwardly through the holes
- Cut the spiral ends to the length required, bend the rings and connect them to the leads, use connecting screws. -- The screws must be tightened very firmly. Reinstall switchbox.

IMPORTANT

When the kiln is fired with new elements, there may be a slight smell as the grease evaporates.

3) Exchange of Thermocouple

- Remove the switchbox at the kiln
- Loosen the safety wire of the thermocouple
- Loosen the connecting screws, take out the defective thermocouple
- When connecting the new thermocouple, the compensating cable must be connected as follows:

PtRh-Pt thermocouple type S:

Red wire, connect to '+' contact
white wire, connect to '-' contact

NiCr-Ni thermocouple type K:

Red wire, connect to '+' contact
green wire, connect to '-' contact

- Use wire to secure new thermocouple against slipping out

Conditions of Guarantee

Each kiln and electronic controller will have a guarantee of three years for the user. The heating elements and the thermocouple will be excluded from this guarantee. For registration please send us data of the name plate of your kiln and a copy of the invoice of your local dealer.

List of Possible Faults and Errors

(See also the operating instructions of the controller!)

<u>Fault</u>	<u>Possible Reasons</u>
Kiln does not heat up	<ul style="list-style-type: none"> - Kiln lid has not been closed properly - lid switch not placed correctly - defective relay - defective thermocouple <p>(for exchange of thermocouple see page 12)</p>
Kiln does not reach end-temperature or is too slow	<ul style="list-style-type: none"> - Defective heating element (see page 12) - In case of kilns with a three-phase current connection, a fuse in the meter case may be defective heating elements are too weak because of their age and must be replaced <p>(see page 12)</p>
Kiln switches off before reaching end temperature	<ul style="list-style-type: none"> - Sudden mains failure - Defective controller, ask your dealer
Kiln switches off immediately after being started	<ul style="list-style-type: none"> - defective thermocouple - defective connection between kiln and controller

PRÜFPROTOKOLL / TESTREPORT

Serien-Nr /Serial-No:

Ofenmodell/kiln-model :

Stromaufnahme/current intensity : $L_1 = \underline{\hspace{2cm}} \text{ A}$ $L_2 = \underline{\hspace{2cm}} \text{ A}$ $L_3 = \underline{\hspace{2cm}} \text{ A}$ Schutzleiterwiderstand /PE-resistance $R_{SL} = \underline{\hspace{2cm}} \text{ m}\Omega$ Isolationswiderstand /insulation-resistance $R_{ISO} > \underline{\hspace{2cm}} \text{ M}\Omega$ Ersatzableitstrom /PE - current $I_{EA} = \underline{\hspace{2cm}} \text{ mA}$ Thermoelement korrekter Sitz /thermocouple OK : Deckelschalterfunktion /function of safetyswitch : Osnabrück
Datum /Date Unterschrift/Signature