



**U s e r s M a n u a l**

**Kittec® X-Line**

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## About this Users manual

With the help of this **Users manual** we will introduce your new **Kittec®-X-LINE** kiln.

Please **read** this Users manual before your first firing to familiarise yourself with the operation of the kiln and the controller. Please take particular note of the **Safety tips** and **Advice** to guarantee successful and safe firing.

Should there still be a problem, we have listed some possible solutions in another section entitled "What if ....?"

## Use of the kiln

The electric **Kittec®-X-LINE** kilns are built in accordance with German Law VDE (association for electrical, electronic and information technologies) , exclusively for the purpose of firing, thermal treatment and/or melting of ceramics, china, enamel, glaze and/or glass. The maximum temperature in the firing chamber of the kiln is 1300°C.

The melting temperature of glazes and the vitrification temperature of the clays used will dictate the firing temperature required, invariably less than 1300 °C.

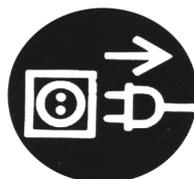
### Safety tips



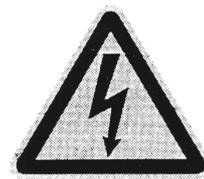
Do not open when hot!  
(firing chamber > 50 °C)



Hot surface



Before opening



Dangerous electric

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## Safeguards

The following Safeguards **need to be observed** for trouble-free and safe work with the kiln. Non-compliance could result in health hazards.

- For safety reasons the kiln should only be installed in a dry and ventilated room of adequate size.
- Fire regulations should be observed especially if working in a garage or boiler room.
- Please observe the installation advice for the kiln in the section entitled Installation and Operation.
- **Caution!** In use the surfaces of the kilns could reach a temperature of more than **75°C**. Do not obstruct the surfaces.
- The kiln may only be used for the purpose stated. Other applications, particularly the storage, production, cooking, warming and/or drying of food and/or other misappropriations are not allowed. In any case do not put flammable materials into the kiln.
- Use only authorized raw materials and glazes in your kiln. Ask your supplier for information on the correct use of the materials, safety data sheets and relevant specialist literature about firing temperatures, maximum temperatures and resulting gases and vapour relating to the materials you wish to use.
- For health reasons it could be necessary to draw off the fumes when the kiln is firing. Please take note of the advice given for the installation of an exhaust pipe from the kiln room to outside in the chapter installation and operation.
- The lid of the kiln must not be used as a table, even not if the kiln is not in use (the mechanical lid should not be put under any pressure and in use the heat given off could present a hazard). Nothing flammable should be left on or close to the kiln.
- The kiln must not be opened during use or until the firing chamber reaches a temperature of less than 50 °C. The escaping hot air is a fire and health hazard. The lid catch has the facility to be secured with a small padlock. This is strongly recommended to prevent unauthorised opening of the kiln, perhaps by young children.
- The very hot air, which escapes, leads to fire and violation danger.
- Under no circumstances use extension leads to connect your kiln to the power supply.
- During maintenance, disconnect the kiln from the power supply (pull the plug or if applicable turn off the isolator switch).
- The whole electrical circuit must be checked by a service engineer before the first use of the kiln, after maintenance and repairs and at least every 4 years.

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## Installation and getting started

### **Storage and transport:**

The kiln should be positioned in a dry room with humidity of less than 80 % to avoid the insulation bricks absorbing moisture. The kiln should be moved in an upright position with a fork-lift truck or suitable lifting equipment. Lifting equipment must not be fixed onto the body, only onto the frame of the kiln.

### **Installation:**

The kiln should only be installed and operated in a suitable room. The most important requirements are:

- The size of room must be adequate, dry (humidity < 80 %) and ventilated. Rule of thumb: Room volume > 600 times firing chamber volume.
- The floor should be of stone, concrete or a material of similar strength and heat resistance.
- The floor should be smooth and even. The authorized area loading must not be exceeded.
- Floors of wood, carpet, plastic or other flammable materials which deform and/or inflame with temperatures < 75°C are not authorized.
- Ceilings and walls must not be of inflammable materials like wood, carpet or other materials which deform and/or ignite at temperatures < 75°C are not suitable.
- Ceilings and walls must not be of flammable materials like wood, carpet or other materials which deform with temperatures lower than 250°C. Otherwise fire-proof insulation should be mounted on the ceiling, above the kiln, which exceeds the outer dimensions of the kiln 1 m in each direction. A minimum distances of 1,0 m from the ceiling and 0,2 m from the wall is necessary.
- In order that the surrounding materials do not ignite, suitable fire-proof materials of low heat conductivity should be used. Calcium Silicate insulation boards are particularly suitable, and are available from builders & merchants.

### **Electrical connection**

The electrical connection of the kiln should be checked by an electrician prior to use. An electrician should also

check existing electrical installations (fuse box, supply and sockets) and for sufficient size of fuse and thickness.

To guarantee a fast and easy disconnection from the power supply for the kiln in case of emergency, the main isolator switch on the electrical supply should be readily accessible within the kiln room.

Do not connect kilns with 230 volt nominal capacity to any socket, before an electrician has checked all the above mentioned points. For kilns with 400 volt nominal capacity different regulations apply. Check with your electrician.

**Under no circumstances use an extension lead!**

### **Connection of exhaust pipe:**

All kilns with 400 volt nominal capacity are supplied with exhaust pipe which should be fixed with two threaded screws with the sloped side in front of the side ventilation hole. A minimum 2 m long (chimney effect) stovepipe (e. g. flexible aluminium pipe  $\varnothing$  70 or 80 mm available from builders & merchants) can be connected to the end of the exhaust pipe (suitable size metal hose clamp) and passed through to the other side of the wall or ceiling to open-air in an upward direction. Precautions should be taken to prevent rainwater entering the exhaust pipe and to prevent the flue being influenced by bad wind conditions .

### **The first firing (test firing)**

Each new kiln has to be fired empty prior to normal use. This is necessary for three reasons:

- Checking the function of the kiln and controller
- To extend the life of the heating elements they need the protection of an oxide layer provided by an empty first firing.
- The insulating fire bricks of the kiln may still contain moisture residue, which has the opportunity to dry during the slow increase in temperature during this first firing.

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**The first firing is carried out empty of ware but including kiln furniture.**

**Our tip:  
Load the kiln furniture supplied with the kiln into the kiln for the first firing**

To open the kiln release the lock and lift up the lid until it comes to rest. Close the lid with the lock on the body.

Screw on the arm for the controller to the left of the lid frame. Mount the controller to the bracket provided and connect the controller plug to the multipin socket on the bottom of the power box at the rear of the kiln, bringing down the fixing catch.

Insert the electric power plug into a correctly installed and checked socket, or wire the kiln cable directly into an isolator switch. Turn on the power switch of the controller and start a firing program: first firing program 5 (see controller manual for how to call up a program

**Example first firing program:  
60-100°C/h until 600°C => afterwards  
Skip (fast heating) until 1200°C,  
60 min. dwell**

During all programs the noise of the protectors in the power box is clearly audible.

**Watch out !  
Under no circumstances open the hot kiln when the firing chamber temperature > 50°C.**

Always switch off the controller at the power switch, if the kiln is not in use. For a longer period out of use the electric power plug should be disconnected at the mains isolator switch.

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## The firing process

### General

Open the kiln lid and distribute the ware evenly in the kiln. Advice for the stacking of ware will be found in the following sections. Fill the whole firing chamber to avoid energy wastage. Then close the lid with the lock on the body. For starting the firing process select the desired firing programme and start the kiln (see users manual for the controller).

### Supply air bottom valve (optionally)

The supply air bottom valve can be opened with

1. dry firing to draw off humidity
2. decor and gold firing, because of solvents
3. with desired faster cooling process

### Biscuit firing

Biscuit firing is the first firing of ceramics, that means the firing of the dry, unglazed piece. Care should be taken when loading the kiln not to touch kiln walls or elements. In a biscuit firing the arrangement of the ware in the kiln is not crucial. The pieces may touch each other and may be stacked. If there is not enough surface area several levels may be filled by the use of props and one or more kiln shelves.

**Tip:**

**When firing large, smooth plates use grog or sand as roaming support, this works like a lubricant on the ware.**

When firing very large pieces, the increase in temperature should be slow, e. g. 60-120°C/h. In this way cracking should be avoided. Pieces which are not completely dry can be prepared for firing with a drying program.

### **Glaze firing**

In glaze firing the even temperature distribution is of vital importance for the fired appearance of the ware, because glazes are very sensitive to temperature differences. Therefore distribute the ware evenly in the kiln. Fire similar pieces on one level. The minimum distance between the pieces should be three to five cm, that is also advised for the distance to the wall.

The base of each piece should not be glazed or it should be supported on stilts to protect the surface of the kiln shelf.

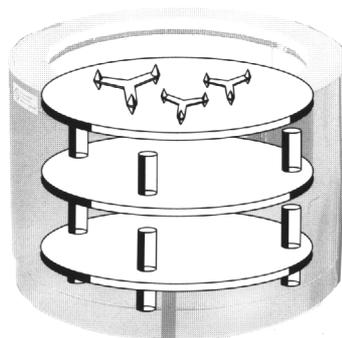
The kiln shelves may be spread with suitable protective batt wash, as protection from accidental glaze runs.

### **Reduction glaze firing**

Reduction firing should be avoided in electrically heated kilns, because the protecting oxide layer on the heating elements will be reduced and their life shortened.

### **Firing records**

To reach reproducible results firing records are an important aid. On page 11 of the users manual you will find a template.



Load with shelf props

## Maintenance and care

### **Watch out !**

**For safety reasons the electric power plug has to be pulled or the isolator switch turned off, as appropriate before all maintenance work.**

To guarantee safe use the electrical installation has to be checked every four years by a specialist. Otherwise maintenance of your **Kittec®-X-LINE** is restricted to regular cleaning. Sweep the kiln and afterwards clean the grooves in which the heating elements sit with a vacuum cleaner. Once used the heating elements get very brittle and break easily, so they should not be touched with the vacuum cleaning pipe.

Should glaze make contact with the insulation bricks, it should be removed with a suitable tool, e.g. a spatula. With further firings the glaze would damage the brickwork more. After each firing check the firing chamber for damage by accidental glaze spillage or runs. If more than 2 cm of the brick is eroded, the area of brickwork should be repaired.

- First make the damaged spot rectangular
- Tidily shape a new piece insulating brick
- Clean the damaged area with a vacuum cleaner and
- put in the replacement piece with kiln mortar

Any spare parts and repairs mentioned are available from **Kittec®** or can be carried out by your service engineer.

### **Advice**

**Hairline cracks in insulating bricks are a result of high temperatures, are quite normal and will not affect the operating efficiency of your kiln.**

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## Troubleshooting

### What if ...

#### **... on the display of the electronic controller the error F is shown?**

- The regulation found an error in the program sequence. The meaning of the error and its correction are described in the controller users manual.

#### **... if the firing chamber does not heat up?**

Possible causes are:

- The lid is not closed completely. Then the safety switch could be activated to switch the kiln off. The lid should be adjusted by your service engineer.

#### **... the firing chamber heats too slow or the kiln does not reach the set temperature?**

- One or more heating elements are defective. Firstly, check the elements visually for breaks.
- If you cannot find a break, flow of current through the elements can be checked with a suitable meter. Broken heating elements should be changed by your service engineer.
- The voltage supply to your kiln could be below 230V. This can be checked by your service engineer.

#### **... the glaze did not melt enough or the kiln switched off before reaching the set temperature?**

- Power failure during the firing
- Lid was not fully closed

If you are still unable to locate the error despite these tips please get in contact with your service engineer or with our service department.

The **Kittec**<sup>®</sup> address can be found on the warranty certificate page 13.



## Technical Data X-LINE Models New Edition

X-Line TYPE	Firing chamber ø [mm]	Firing chamber height [mm]	Volume [l]	External ø without frame [mm]	External width incl. frame [mm]	Depth closed [mm]	Depth with open lid [mm]	Max. Temperature [°C]	Power rating [kW]	Input voltage [V]	Amps [A]	approx. weight [kg]
X 45	430	325	47	625	700	785	1030	1320	3,6	230 N~	16	70
X 45 S								1320	4,4	400 2N~	2x10 CEE16	70
X 55		400	58					1280±30	3,6	230 N~	16	85
X 55 S								1320	4,4	400 2N~	2x10 CEE16	85
X 65		480	69					1250±30	3,6	230 N~	16	90
X 65 S								1320	5,6	400 2N~	2x12 CEE16	90
X 75		555	79					1200±30	3,6	230 N~	16	95
X 75 S								1320	5,6	400 2N~	2x12 CEE16	95
X 85	510	400	82	695	780	865	1110	1200±30	3,6	230 N~	16	90
X 85 S								5,6	400 2N~	2x12 CEE16	90	
X 100 S		480	98					1320	6,8	400 3N~	3x10 CEE16	100
X 115 S								555	113	1320	6,8	400 3N~
X 135 S	590	480	132	775	860	945	1180	1320	8,2	400 3N~	3x12 CEE16	125
X 170 S		630	172						11		3x16 CEE16	140
X 195 S		710	194						11		3x16 CEE16	155
X 215 S		780	213						11		3x16 CEE16	170
X 240 S	690	645	241	895	980	1085	1320	1320	14	400 3N~	3x20 CEE32	175
X 270 S		710	266						16		3x23 CEE32	195
X 300 S		780	292						18		3x26 CEE32	215

We reserve the right to make technical changes as necessary. Stand: 1/2015

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**Kittec®** GmbH  
Uhlandtr. 5a  
D-83024 Rosenheim / Germany

Warranty certificate for kiln:

Type: \_\_\_\_\_ Serial number: \_\_\_\_\_

Company: \_\_\_\_\_

Area of business: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Date of delivery: \_\_\_\_\_

Dealer: \_\_\_\_\_

Further details (not necessary for guarantee, but help us to reach you faster if necessary):

phone: +\_\_\_\_ ( ) \_\_\_\_\_ / \_\_\_\_\_ (with dialling code)

Fax: +\_\_\_\_ ( ) \_\_\_\_\_ / \_\_\_\_\_ (with dialling code)

eMail: \_\_\_\_\_ @ \_\_\_\_\_

Warranty regulations:

We grant three years guarantee on kiln and controller, excluding heating elements.

**Please send this form back for registration!**

**eMail: [info@kittec.de](mailto:info@kittec.de)**  
**Fax: +49 (0) 8031 / 892779**