

 **KITTEC® STUDIO-LINE**

User manual



Model series CB / ECO / SQ

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1 About this manual

With this user manual, we would like to acquaint you with your **KITTEC**[®] kiln. Please read the instructions carefully and familiarize yourself with the operation of the kiln and controller or burner construction. Above all, please observe the **safety instructions** and the **safety symbols** to ensure successful work.

The operator is responsible for ensuring that all persons operating the kiln have read the manual.

This product is built according to state-of-the-art technology and to recognized safety rules. The product may only be operated in perfect working condition. The operating instructions are part of the product and must be observed during the entire operating period and included with every change of location.

The content of this manual is for informational purposes only. It is subject to change without notice and can not to be considered as an obligation of the manufacturer. KITTEC does not accept any responsibility or liability for the accuracy, content, completeness, legality, or reliability of the information contained in this manual.

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2 Safety

2.1 General safety information

The following safety instructions must be strictly observed in order to avoid any risk or danger while working.

Even though the product is state-of-the-art, hazards can arise if the personnel is not instructed properly, if maintenance and installation are not performed according to the operating instructions or if the product is used for other purposes.

For safety reasons the product is designed only for persons over 14 years without physical limitations.

It is intended solely for the described use.



2.2 Intended use of the product

The electric kilns described in this manual, KITTEC® **Studio-Line**, are built 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 1320°C (except: SQ50 with max. 1280±30°C and SQ70 with max. 1250±30°C).

The melting temperature of glazes and the vitrification temperature of the clays used will dictate the firing temperature required, invariably less than 1320 °C (respectively for SQ50 less than 1280±30°C and SQ70 less than 1250±30°C).

Carburizing atmospheres, endogases, exogases, chlorine, fluorine, sulphur, metal oxides and alkaline compounds impair the durability of the heating coils and the durability of the insulation and reduce the maximum permissible limit temperature.

2.3 Safety labels

 <p>Read this manual carefully before using the kiln!</p>	 <p>Never open hot kilns! (=firing chamber > 50°C)</p>	 <p>Danger! High voltage!</p>
 <p>Hot surface! Particular caution when opening in heated state!</p>	 <p>Pull power plug before opening!</p>	

Within this user manual the following sign is used for safety instructions:



2.4 Safety instructions



The following safety instructions **must be observed** for trouble-free and safe work with the KITTEC[®] kiln. Failure to do so may result in risks.

- For safety reasons and due to generation of harmful gases and vapours the kiln should only be installed in a dry and ventilated room of adequate size.
- Following fire regulations the kiln shall not be used in a garage or boiler room.
- It is not permitted to operate the kiln with explosive gases/mixtures!
- **Caution!** In use the surfaces of the kiln could reach temperatures of more than **75°C**. Do not obstruct heat radiation of 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.
- Do not allow unauthorized persons access to the kiln.
- Keep children away from the kiln, possibly lock the room!
- Never put flammable materials into the kiln.
- While operating the kiln, it must be ensured that it is not possible to reach into the hot firing chamber! It is recommended to lock the lid/door.
- Use only authorized raw materials and glazes in your kiln. Ask your supplier for information on the correct use of the materials, read the safety data sheets and relevant specialist literature about firing temperatures, maximum temperatures and resulting gases and vapour relating to the materials
- For health reasons it could be necessary to draw off the fumes when the kiln is in operation. 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 storage surface or table, even 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, free heat radiation needs to be guaranteed during operation).
- The kiln must **never** 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.
- Never 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 prior to first use of the kiln, after maintenance and repairs and regularly at least every 4 years.
- Keep order in vicinity of the kiln. Disorder increases the risk of accidents.
- Changes to electrical components may only be carried out by qualified service engineers. Proceed only according to circuit diagram!
- Safety devices must never be put out of operation.

If you are not able to properly carry out your work process with our protective devices, please let us know. Together we will surely find an acceptable solution.

3 Transport and installation

3.1 Storage and transport

The kiln should be positioned in a dry room with humidity of less than 80% to avoid that insulation bricks are absorbing moisture. Protect the kiln against strong temperature fluctuations and aggressive atmospheres.

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. During transport the kiln itself can overturn or parts may fall down. For this reason, it must be ensured that there are no persons in vicinity of the kiln.

3.2 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 (relative humidity < 80%) and ventilated.
- The floor should be of stone, concrete or a material of similar strength and heat resistance.
- The floor should be smooth and even offering secure standing for the kiln. 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 acceptable.
- The installation must allow free heat radiation during operation without the risk of ignition of objects, floor, walls or ceiling. The following minimum distance is recommended:
 - from the wall: 0,2 m
 - from the ceiling: 0,5 m
- Ceilings and walls must not be of flammable materials like wood, carpet or other materials which deform with temperatures lower than 250°C. Otherwise a lateral distance of minimum 1m must be observed, respectively a 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. In order that the surrounding materials do not ignite, suitable fire-proof materials of low heat conductivity should be used. Calcium Silicate insulation boards (15 mm) are particularly suitable and available from builders & merchants.

3.3 Checking clamps

When putting toploader kilns in operation the lid clamps on the kiln must be checked for strength and tightened if necessary. The test needs to be performed during first installation and every 6 months in the first 2 years of operation (or after 30 firings, whatever occurs first).

After 2 years of operation this check must be carried out at annual intervals.

3.4 Connection of exhaust pipe

Generally, all kilns are supplied with an exhaust pipe of \varnothing 80mm which should be fixed with two threaded screws with the sloped side in front of the side ventilation hole.

For a discharge to atmosphere a minimum 2 m long (chimney effect) stovepipe (e. g. flexible aluminium pipe \varnothing 80 mm available from KITTEC[®]) can be connected to the end of the exhaust pipe (suitable size metal hose clamp) and passed through a heat-resistant fairlead



(e.g. stone or concrete) 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.



Notice

In most cases it is sufficient to ventilate the premises during firing, e.g. through a tilted window. If there are people in the same room for several hours during firing, we recommend discharging the exhaust air outside via a pipe. However, this is not required by law. As far as we know, there is not even a corresponding regulation for public institutions throughout Europe.

3.5 Electrical connection

The electrical connection of the kiln should be checked by a professional 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 according details given on the type plate of the kiln.

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

For enlargeable kilns the plug connection between the kiln components has to be checked!

Do not connect kilns with 230 volts nominal capacity to any 230 volts socket, before an electrician has checked all mentioned points.

For kilns with 400 volts nominal capacity and higher than 10 kW nominal power different regulations (like necessary registration or official approval) apply. Please check with your electrician.



The controller is linked via a plug connection to the kiln.

Caution!

Never use extension leads!

3.6 Initial operation/Test firing

Initial operation

For several reasons each new kiln has to be fired empty prior to general use:

- Checking the function of the kiln and controller.
- Extending the life of the heating elements by a protecting oxide layer. This oxide layer is built up during the empty first firing process.
- The kiln's insulating fire bricks may still contain moisture residue, which shall dry during the slow increase in temperature of this first firing.

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

Advice:

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. Remove any protective packaging and close the kiln by carefully bringing down the lid again.

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, bringing down the fixing catch.

Advice:

Avoid placing the control unit on the kiln although the kiln is not in use. It has often happened that customers out of habit placed the control unit on the kiln after they have started a program. By rising heat, your controller will be destroyed and may even cause fire. Therefore:

Never place the controller on top of the kiln!

Test firing

Insert the electric power plug into a correctly installed and checked socket. Turn on the power switch of the control, bolt the lid with the safety lock and start a firing program (please see controller manual for how to call up a program).

When heating over 200°C for the first time, an odour nuisance may occur due to evaporation, this is not harmful to health.

Example first firing program:
60-100°C/h until 600°C, after that
skip (fast heating) until 1200°C,
60 min. dwell

During all programs the noise of the protectors in the power box is clearly audible. After completion of the firing test program your KITTEC® kiln is ready for use.



Attention!

NEVER 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 main isolator switch.

4 The firing process

4.1 General

Open the kiln and distribute the ware evenly in the kiln. Advice for the stacking of ware can be found in the following sections. Fill the whole firing chamber to avoid energy wastage.



Attention for base heating of CL series!

The bottom burning plate needs a minimum distance of 4 cm to the bottom heating (valid for CL-series). Otherwise the heat-up might lead to destroyed heating coils and damaged brick lining. Make sure not to place stilts and cordierite base plates directly over heating coils grooves but on the brick-surfaces in between.

Then close the lid (for top-loader) or door (for front-loader) with the lock on the body.

For starting the firing process please use the controller to select the desired firing program and start the kiln (see user manual for the controller).

Supply air bottom valve (mostly optional)

The (optional) supply air bottom valve can be opened in case of:

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

4.2 Firing procedure

Biscuit firing

Biscuit firing, also called glow, raw or rough firing is the first firing of ceramics, that means the firing of dry and unglazed pieces. 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.

Take care when loading the kiln not to touch kiln walls or elements. If there is not enough surface area several levels may be filled by using props and one or more kiln shelves.

Hint:

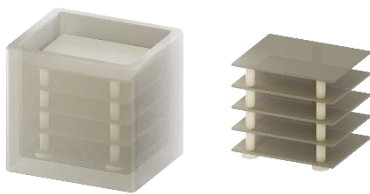
When firing large and even plates, use firesand or firing rods as a moving support. This works like a lubricant underneath the pottery ware.

When firing very large pieces, the increase in temperature should be slow, e. g. 50 °C/h. This prevents possible cracking due to thermal stress. 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 future 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.

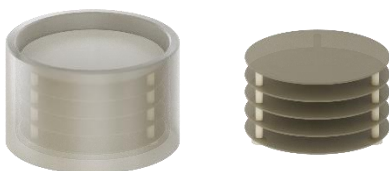
The kiln shelves may be spread with suitable protective batt wash, as protection from accidental glaze runs (for information ask your kiln retailer).



sample images:
load with shelf props

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. At the end of this user manual you will find a firing record template.

5 Maintenance and care



Warning!

For safety reasons, the mains plug must be pulled out or any main switch installed must be reset before any maintenance work is carried out. It must be ensured that the kilns firing chamber temperature does not exceed 70°C.

To guarantee safe use of your KITTEC® kiln the electrical installation must be checked at least every four years by a specialist.

Other maintenance of the kiln is limited to regular cleaning and visual inspection for damage. Sweep the kiln and clean the grooves where the heating elements are situated carefully with a vacuum cleaner. After some time, the heating elements get brittle and break easily. So please avoid toughing the heating elements with the vacuum cleaner suction pipe.

Should glaze get in contact with the insulation bricks, it should be removed with a suitable tool, e.g. a spatula. With further firings the glaze would lead to further damage of the brickwork. After each firing please 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 as follows:

- First carve out 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 high temperature cement.

You may obtain an overview of spare parts and repair materials from your KITTEC® dealer.

Advice:

Hairline cracks in insulating bricks resulting from high temperatures, are quite normal and will not affect the operating efficiency of your KITTEC® kiln.

6 Kiln disposal

The decommissioning must be well prepared if the kiln is to be reassembled and installed in another location. Please disconnect the kiln from the power supply and any further connection.

It is recommended to disassemble all mounting parts thoroughly, to label and if necessary, to pack them. This helps to ensure that all parts can be reassembled properly.

With each firing process the heating elements and (for electric kilns also) the brickwork become fragile, so KITTEC® denies liability for all kind of transport damage.



Final disposal:

If no take-back or disposal agreement has been made, recycle all disassembled components of the kiln.

For more information on appropriate disposal please contact your local Environmental Agency.

7 Troubleshooting

What if...

... the error „E“ is displayed on the electronic controller?

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

... the firing chamber does not heat up?

It might be the case that the lid or door may not be closed completely.

... the firing chamber heats up too slowly or the kiln does not reach the set temperature?

One or more heating elements might be damaged. First check the elements visually for breakage or cracks. If you cannot find any breakage, get a resistance check of the heating elements. Broken heating elements can only be changed by a service engineer.

Alternatively:

The voltage supply to your kiln could be below 230V. This can be checked by your service engineer.

... the glaze did not melt out or the kiln switched off before reaching the set temperature?

Power failure during the firing.

Alternatively:

The lid or door was not closed correctly.

8 Warranty

Warranty Conditions

We guarantee faultless finish and function of the delivered kiln (incl. control unit), machines and devices and provide a 3-year warranty from the date of invoice. For industrial use the warranty is reduced to 2 years. We grant a 1-year warranty on spare parts, heating spirals excluded (as these are wearing parts).

The warranty claim does not cover:

- Damage caused by the customer
- Improper installation
- Damage due to incorrect assembly/disassembly of parts and incorrectly performed maintenance measures
- Repairs by non-expert people
- Damage caused by force majeure or natural disasters
- Damage due to improper transportation
- Kiln heating elements (because these are wearing parts)
- Damages on kilns, caused by firing goods (for example by exceeding the specified maximum temperature)
- Damages on kilns, caused by improper chemical reactions during the firing (for example salt firing)
- Damage caused by gases released during firing (carburizing atmospheres, endogases, exogases, metal oxides, alkali-containing compounds, chlorine, fluorine, sulfur)
- Damages on firing goods
- Damage due to improper handling
- Hairline cracks in insulating bricks

Services under warranty:

In case of damage please inform us or your KITTEC® dealer without delay and **before any costs are incurred**. In the event of a complaint, please indicate

- type of kiln,
- serial number and
- construction year (see type tag).

We then decide how to proceed. It is our decision to carry out a repair or to have this carried out by someone else, to make an exchange or to rescind the contract.

In case of justified complaints, the warranty covers the free supply of necessary spare parts, including installation or repair. If a product or spare part is no longer available, Kittec is entitled to deliver another equivalent or similar product or spare part. Transport or shipment to Kittec or any other activity may only be made with our prior consent. If we agree to the proposed action Kittec bears the costs incurred in carrying out the measures.

Please fill out the warranty registration and send it back to enable faster processing in the event of damage. By sending back this form, you agree to your data being stored for the purpose of handling claims and further processing. Your data will not be shared with third parties. You can find further details in our data protection declaration.

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For registration fill in and return this form to:

E-Mail : info@kittec.de

Fax : +49-8031-892779

Use the online-registration on our website:

www.kittec.eu/garantie

Warranty Registration

Congratulations on your new KITTEC kiln!

Register as an owner of a KITTEC kiln. The warranty registration enables quick and uncomplicated processing in case of a defect. By returning the form, you agree to your data being stored for the purpose of handling claims and further processing. Your data will not be shared with third parties. You can find further details in our data protection declaration.

Type: _____ Serial number: _____

Construction year: _____

Company: _____ Area of business: _____

Name: _____

Address: _____

Date of delivery: _____

Dealer: _____

Further details:

(not necessary for warranty, helps to accelerate the process)

Phone number: _____ / _____ (with dialling code)

Fax number: _____ / _____ (with dialling code)

E-Mail.: _____ @ _____



10 Certificate of conformity

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EEC Certificate of Conformity

Herewith we declare, that the kiln series "Kittec® CB-Series" correspond in their design and building as well as in the from us traded version correlate to the EC-Guidelines "Low Voltage Directive" and "Electromagnetic Compatibility". With changes of the kiln which are not coordinated with us, the certificate becomes invalid.

General description:

Kiln

Function:

Burning of ceramics/porcelain, heat treatment of metals/glass/enamel

Model and type, simultaneously trade name:

CB 20 – CB 520 S

Serial number:

According to type tag

EC - Guidelines:

Low Voltage Directive 2014/35/EU

Electromagnetic Compatibility 2014/30/EU

Applied standards and technical specifications:

IEC 60204-1 ed.2	ISO 12100	IEC 60617DB	IEC 60909-0
IEC 60519-1 ed.3	IEC 60947-7-2	IEC 61000-1-2	IEC 60909-0 ed.2
IEC 60519-2 ed.2	ISO/IEC 17050-1	IEC 3864-1	IEC 128-20

Person authorized to compile the technical file:

Marek Adamec, Kittec a.s., Kelčice 144, CZ-79808 Vranovice-Kelčice

Rosenheim, 26. Oktober 2016



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EEC Certificate of Conformity

Herewith we declare, that the kiln series "Kittec® SQ" correspond in their design and building as well as in the from us traded version correlate to the EC-Guidelines "Low Voltage Directive" and "Electromagnetic Compatibility". With changes of the kiln which are not coordinated with us, the certificate becomes invalid.

General description:

Kiln

Function:

Burning of ceramics/porcelain, heat treatment of metals/glass/enamel

Model and type, simultaneously trade name:

SQ 11 – SQ 390 S

Serial number:

According to type tag

EC - Guidelines:

Low Voltage Directive 2014/35/EU

Electromagnetic Compatibility 2014/30/EU


Applied standards and technical specifications:

IEC 60204-1 ed.2	ISO 12100	IEC 60617DB	IEC 60909-0
IEC 60519-1 ed.3	IEC 60947-7-2	IEC 61000-1-2	IEC 60909-0 ed.2
IEC 60519-2 ed.2	ISO/IEC 17050-1	IEC 3864-1	IEC 128-20

Person authorized to compile the technical file:

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Rosenheim, 26. Oktober 2016


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