



# Kilns for ceramics



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## INTRODUCTION

### **Offer**

Our company offers a wide range of kilns for both studio and industrial firing of ceramics. Based on your inquiry we offer the best and convenient engineering solution. Once the kiln is manufactured we deliver it to your plant, we set it into operation and provide operator's training.

### **Operational temperatures**

We develop and manufacture kilns for drying and firing of ceramics in the temperature field 20 – 1400 °C.

### **Standard and individual requests**

In all categories we offer basic dimension range, which can be modified and updated as per individual requests. A frequently used option is the "made-to-measure" kiln.

### **Heating systems**

1. electric heating
  - a) resistant heating wire or strip
  - b) resistant jacket heaters
  
2. gas heating
  - a) impulse burners with forced inlet of combustion air
  - b) injector middle pressure burners
  - c) radiant burners
  - d) monoblock automatic burners

### **Control systems**

As a standard we offer a wide range of microprocessor programmable controllers from renowned manufacturers with many operational options, including connection and data transfer to PC. For the most complicated technologies we offer programmable logic controllers with process visualization.

### **Delivery conditions**

Transport to door, assembly, setting into operation, operator's training.

### **Optional features**

Large variety of shelves, insulating coat for shelves (prevents glaze sticking to the shelves), supporting columns for shelves.

We manufacture special kiln furniture as well – see our special leaflet.



- KH 125
- electric heating system
- programmable controller
- automatic control of airing flaps
- operational temperature up to 1200°C
- heating spirals on ceramic tubes
- the top-selling model in hobby category

## HOBBY KILNS – FRONT LOADING

Operational temperature up to 1200 °C

Model	Volume dm <sup>3</sup>	Inner dimensions in mm			Outer dimensions in mm			Power kW	Connection V	Weight kg
		w.	d.	h.	w.	d.	h.			
KH 30	29	290	310	320	640	790	720	3,5	1 x 230	80
KH 55	57	370	350	440	730	840	1570	5,2	3 x 400	200
KH 125	125	470	500	530	820	950	1570	9	3 x 400	250
KH 180	180	530	550	620	920	1090	1680	12	3 x 400	285

### Standard features

- reliable and massive door hinges – opening to the right or to the left as per your choice
- surface finishing of the steel frame: fired powder coating, shade as per your choice
- outer mantle of stainless steel sheets
- outer mantle constantly spontaneously ventilated (air passage between the mantle and brick lining)
- adjustable closing pressure – original quick operating device
- control unit mounted on kiln sidewall – right or left as per your choice
- security door position switch
- lockable main switch
- rigid bottom pedestal making a part of the steel kiln frame
- brick lining of high thermal resistance, anti-dust finish
- electric heating system – resistant spirals of Kanthal A1 with free radiation, on ceramic tubes in lateral sides and kiln bottom
- automatic control of airing flaps in kiln bottom and ceiling by means of electric actuator (except for KH 30 which has just one manual flap in the ceiling)
- noiseless operation due to non-contact solid-stay relays
- detailed operating instructions
- programmable controller:
  - programming of 10 programs of 16 segments
  - setting of temperature for flaps closing when heating up
  - setting of temperature for flaps opening when cooling down
  - delayed start of the respective program
  - automatic shut-down of the kiln
  - energy consumption of the last burning cycle
  - setting of limit (protective) temperature

### Performance characteristics

- well-arranged, comprehensive and user-friendly controller
- low energy consumption
- unattended operation and high reliability

### Options

- operational temperature **1280 °C** or **1330 °C**

### Kiln furniture

- shelves and supporting columns as per your choice

- SH 40
- electric heating system
- programmable controller
- operational temperature up to 1200°C
- heating spirals on ceramic tubes



- CH 60
- electric heating system
- programmable controller
- operational temperature up to 1200°C
- heating spirals in slabs inside the bricks



## HOBBY KILNS – TOP LOADING

Operational temperature up to 1200 °C

Model	Volume dm <sup>3</sup>	Inner dimensions in mm			Outer dimensions in mm			Power kW	Connection V	Weight kg
		w.	d.	h.	w.	d.	h.			
SH 40	39	330	360	330	600	670	620	4,1	1 x 230	73
SH 60	58	330	360	490	600	670	770	5	3 x 400	88
CH 60	60	diameter 420		440	diameter 605		780	3,6	1 x 230	68
CH 75	76	diameter 420		550	diameter 605		895	4,2	1 x 230	77

### Standard features

- outer mantle of stainless steel sheets
- surface finishing of the steel frame: fired powder coating, shade as per your choice
- rigid bottom pedestal forms a part of the steel kiln frame
- brick lining with high thermal resistance and anti-dust finish
- control unit with connector and flexible cable can be installed on the wall near the kiln
- electric heating system – resistant spirals of Kanthal A1 with free radiation, installed in kiln lateral sides
  - heating spirals on ceramic tubes – models SH
  - heating spirals embedded in slabs inside the bricks – models CH
- air vent in the lid – manually controlled ceramic plug
- noiseless running due to non-contact solid-state relays
- security lid position switch
- lockable main switch
- detailed operating instructions
- programmable controller:
  - programming of 10 programs of 16 segments
  - delayed start of the respective program
  - automatic shut-down of the kiln
  - energy consumption of the last burning cycle
  - setting of limit (protective) temperature

### Performance characteristics

- well-arranged, comprehensive and user-friendly controller
- low energy consumption
- high reliability

### Options

- operational temperature 1280 °C

### Kiln furniture

- shelves and supporting columns as per your choice



- KY 650
- programmable controller
- automatic control of airing flaps
- operational temperature up to 1280°C-
- front loading
- heating spirals on ceramic tubes

## CHAMBER KILNS

for professional ceramics firing  
electrically heated



- KY 2200
- programmable controller
- automatic control of airing flaps
- operational temperature up to 1330°C
- front loading
- heating spirals on ceramic tubes

Operational temperature up to 1280 °C

Model	Volume dm <sup>3</sup>	Inner dimensions in mm			Outer dimensions in mm			Power kW	Weight kg
		w.	d.	h.	w.	d.	h.		
KY 180	180	530	550	620	920	1090	1680	12	350
KY 250	255	680	530	710	1100	1090	1780	14	420
KY 300	310	680	650	710	1100	1240	1780	17	480
KY 400	410	780	650	810	1200	1240	1880	24	550
KY 500	510	780	810	810	1200	1400	1880	28	650
KY 650	670	880	750	1020	1300	1330	1980	30	740
KY 850	860	880	830	1190	1300	1410	1980	37	900
KY 1150	1150	1080	860	1240	1500	1440	1980	44	1180
KY 1350	1290	1080	960	1290	1500	1540	1980	52	1250
KY 1650	1580	1330	960	1290	1750	1540	1980	64	1370
KY 1850	1830	1330	1070	1290	1750	1650	1980	72	1450
KY 2200	2180	1330	1270	1290	1750	1850	1980	85	1620



- **KY 180**
- programmable controller
- automatic control of airing flaps
- operational temperature up to 1280°C
- front loading
- heating spirals on ceramic tubes

### Standard features

- massive steel frame of bent and hollow profiles with rigid bottom pedestal
- adjustable door hinges
- door opening to the right or to the left – as per your choice
- reliable door closing – quick operating devices
- adjustable closing pressure of the door towards the kiln front
- surface finishing of the steel frame: fired powder coating
- colour shade as per your choice
- outer mantle of stainless steel sheets with ground finish
- outer mantle constantly spontaneously ventilated (air passage between the mantle and brick lining)
- brick lining of high porous materials and ceramic fibres of high thermal resistance
- electric heating made of Kanthal A1, designed with optimal diameter and power, long life-time
- heating spirals with full radiation on ceramic tubes
- heating spirals installed in kiln bottom and all vertical sides
- one-zone-heating: models up to 0,3 m<sup>3</sup> of volume
- two-zone-heating: models more than 0,3 m<sup>3</sup> of volume
- air suction in the bottom, equipped with closing flaps
- air vent in the ceiling, equipped with closing flap
- automatic control of airing flaps in the bottom and in the ceiling by means of electric actuators
- thermocouples PtRh-Pt in protective tube
- electric control box installed on the kiln side wall – left or right as per your choice
- microprocessor programmable controller: starts the cycle in real time
  - shows both real and calculated temperatures of all heating zones on displays
  - indicates current phase of the running cycle to distinguish heating up and cooling down
  - free programming of 30 programs of 15 segments
  - setting of temperature for flaps closing when heating up
  - setting of temperature for flaps opening when cooling down
  - setting of limit (protective) temperature

### Options

- operational temperature **1000 °C, 1280 °C, 1330 °C**
- inner dimensions made-to-measure
- optimization of parameters and equipment to the respective technological requirements
- system for large-volume batch loading
- controlled ventilation
- controlled cooling

### Performance characteristics

- unattended operation
- perfect temperature distribution
- low energy consumption
- noiseless operation
- easy and well-arranged batch loading
- operational endurance and high reliability

### Operational safety

- lockable door closing device
- security door position switch
- lockable main switch on power supply
- limit (protective) temperature
- CE mark

### Kiln furniture

- shelves
- insulating coat for shelves (prevents glaze sticking to the shelves)
- columns for shelves



- KMG 2.1,5.1,1-13
- operational temperature up to 1330 °C
- gas heating system
- mechanical batch loading

## CHAMBER KILNS

professional ceramics firing – gas-heated  
Operational temperature up to 1330 °C

Model	Volume dm <sup>3</sup>	Inner dimensions in mm			Outer dimensions in mm			Power kW
		w.	d.	h.	w.	d.	h.	
KMG 08.05.08-13	320	800	500	800	1500	1500	2000	100
KMG 1.06.1-13	600	1000	600	1000	1800	1800	2000	180
KMG 1.08.1-13	800	1000	800	1000	1800	2000	2000	240
KMG 1.09.1,1-13	1000	1000	900	1100	1800	2100	2200	360
KMG 2.06.1-13	1200	2000	600	1000	4000	1800	2000	360
KMG 2.08.1-13	1600	2000	800	1000	4000	2000	2000	480
KMG 2.09.1,1-13	2000	2000	900	1100	4000	2100	2200	480
KMG 3.08.1-13	2400	3000	800	1000	5200	2000	2000	720
KMG 3.08.1,1-13	3000	3000	900	1100	5200	2100	2200	720

### Standard features

- door opening: manual door on side hinges or door opening upwards electromechanically
- door opening to the right or to the left – as per your choice
- adjustable closing pressure of the door towards the kiln front
- outer mantle of stainless steel sheets with ground finish
- insulation of fibre materials with classification temperature 1430 °C
- multi-zone control
- automatic regulation of reducing atmosphere
- controlled cooling
- control system as per individual choice
- programmable logic controller (PLC) including software
- data records, transfer and save in PC
- “made-to-measure” dimensions
- system for large-volume batch loading with manual fork lift

### Performance characteristics

- low energy consumption
- unattended operation
- cycle cold/cold as required by respective technology
- reliable heating and cooling in automatic mode
- excellent temperature distribution inside the kiln
- faultless products
- noiseless operation

### Delivery conditions

- transport to door
- assembly, setting into operation, operator’s training done by our technician

### Kiln furniture

- shelves
- insulating coat for shelves (prevents glaze sticking to the shelves)
- columns for shelves



## CAR-HEARTH KILNS

Operational temperature up to 1280 °C

- VY 1,4.3.1-12
- programmable logic controller (PLC)
- forced ventilation
- controlled cooling
- operational temperature 1100°C
- heating spirals on ceramic tubes

Model	Volume m <sup>3</sup>	Inner dimensions in mm			Outer dimensions in mm			Power kW
		w.	d.	h.	w.	d.	h.	
VY 1.1,5.1-12	1,5	960	1500	1000	1500	2200	1950	75
VY 1.2.1-12	2	960	2000	1000	1500	2700	1950	99
VY 1.2,5.1-12	2,5	960	2500	1000	1500	3200	1950	120
VY 1.3.1-12	3	960	3000	1000	1500	3700	1950	144
VY 1,2,3,5.1-12	3,5	1160	3500	1000	1700	4200	1950	168
VY 1,2,4.1-12	4	1160	4000	1000	1700	4700	1950	192
VY 1,2,4,5.1-12	4,5	1160	4500	1000	1700	5200	1950	210
VY 1,4,5.1-12	5	1360	5000	1000	1900	5700	1950	240
VY 1,4,5,5.1-12	5,5	1360	5500	1000	1900	6200	1950	264
VY 1,4,6.1-12	6	1360	6000	1000	1900	6700	1950	280

### Standard features

- outer mantle of stainless steel sheets with ground finish
- brick lining of high porous materials of high thermal resistance
- electric heating made of Kanthal A1, designed for long life-time, with optimal diameter and power
- heating spirals with full radiation on ceramic tubes
- heating spirals installed in the car and all vertical sides
- number, layout and control of heating zones in compliance with the kiln size
- air suction in the car bottom, equipped with closing flaps
- air vents in the ceiling in the ceiling, equipped with closing flaps
- automatic control of airing flaps in the bottom and in the ceiling by means of electric actuators
- thermocouples PtRh-Pt in protective tube
- microprocessor programmable controller:
  - starts the cycle in real time
  - shows both real and calculated temperatures of all heating zones on displays
  - indicates current phase of the running cycle to distinguish heating up and cooling down
  - free programming of 30 programs of 15 segments
  - setting of temperature for flaps closing when heating up
  - setting of temperature for flaps opening when cooling down
  - setting of limit (protective) temperature

### Options

- operational temperature **1000 °C, 1280 °C, 1330 °C**
- electric or gas-heated
- controlled ventilation and cooling
- programmable logic controller (PLC) including software
- "made-to-measure" dimensions
- kiln parameters optimized to the respective technology

### Performance characteristics

- low energy consumption
- unattended operation
- cycle cold/cold as required by respective technology
- reliable heating and cooling in automatic mode
- excellent temperature distribution inside the kiln
- reliable insulation between the door, the car and the kiln itself



- chamber drying oven
- model: K-RX 1,5.1,5.1,8-2
- inner dimensions: w.1500, d.1500, h.1800 mm
- electrically heated
- forced atmosphere circulation
- controlled ventilation in compliance with humidity

## DRYING OVENS

Our offer includes development and production of chamber, car-hearth and conveyor drying ovens.

Chamber drying ovens

Operational temperature up to 200°C

Model	Volume m³	Inner dimensions in mm			Outer dimensions in mm			Power kW
		w.	d.	h.	w.	d.	h.	
K-RX 08.08.08-2	0,5	800	800	800	1200	1000	1800	6
K-RX 1.1,2.1,2-2	1,4	1000	1200	1200	1400	1400	1800	9
K-RX 1.1,5.1,8-2	2,7	1000	1500	1800	1400	1700	2400	12
K-RX 1.2.1,8-2	3,6	1000	2000	1800	1400	2200	2400	18
K-RX 1,2.1,5.1,8-2	3,2	1200	1500	1800	1600	1700	2400	12
K-RX 1,2.2.1,8-2	4,3	1200	2000	1800	1600	2200	2400	18
K-RX 1,5.1,5.1,8-2	4,0	1500	1500	1800	1950	1700	2400	18
K-RX 1,5.2.1,8-2	5,4	1500	2000	1800	1950	2200	2400	24
K-RX 1,5,2,5.1,8-2	6,7	1500	2500	1800	1950	2700	2400	24

Standard features

- stainless steel materials in inner space
- thermal insulation of composite boards of high thermal resistance
- electric or gas-heated, direct or indirect heating
- multi-zone temperature control
- controlled ventilation in compliance with humidity
- controlled cooling
- control systems: PID programmable microprocessor controllers, programmable logic controllers (PLC) including processing software "made-to-measure"
- batch loading tools, trolleys

### Performance characteristics

- extremely low specific energy consumption
- short time to reach operational temperature
- both single-shift and continuous operation possible



- conveyor drying oven
- model: P-GX 2,2.12.02-3
- inner dimensions w.2200, d.12000, h.200 mm
- operational temperature up to 300°C
- gas-heated – 1000 kW
- conveying speed 3 – 50 mm/sec

Conveyor drying ovens

Electrically heated, operational temperature up to 200°C

Model	Inner dimensions in mm			Outer dimensions in mm			Power kW
	w.	d.	h.	w.	d.	h.	
P-RX 08.12.03-2	800	12000	300	1500	14000	1500	30
P-RX 1,0.12.03-2	1000	12000	300	1700	14000	1500	40
P-RX 1,2.12.03-2	1200	12000	300	1900	14000	1500	50
P-RX 1,4.12.03-2	1400	12000	300	2100	14000	1500	60
P-RX 1,6.12.03-2	1600	12000	300	2300	14000	1500	70
P-RX 1,6.12.03-2	1800	12000	300	2500	14000	1500	80
P-RX 2,2.12.03-2	2200	12000	300	2700	14000	1500	100

Standard features

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- thermal insulation of composite boards of high thermal resistance
- electric or gas-heated, direct or indirect heating
- multi-zone temperature control
- controlled ventilation in compliance with humidity
- controlled cooling
- control systems: PID programmable microprocessor controllers, programmable logic controllers (PLC) including processing software "made-to-measure"

**Performance characteristics**

- extremely low specific energy consumption
- short time to reach operational temperature
- both single-shift and continuous operation possible



• production of special kiln furniture

## KILN FURNITURE

Shelves

Type	Dimensions in mm		
	w.	l.	thick.
T2	268	300	6,5
T2	268	320	6,5
T2	280	300	8,5
T2	360	390	10
T9Z	400	400	12
T9Z	400	450	12
T9Z	400	500	12
T9Z	528	550	14
T9Z	528	600	14
T9Z	606	606	14
T3	345	400	17
T3	345	650	17
T3	400	400	17
T3	400	660	17
T3	450	450	17
T3	450	500	17
T3	500	500	17
T3	500	550	17
T3	500	600	17
T3	500	750	25

### Products of ICRA company

The complete range of products is much larger. If you did not find a convenient dimension, please contact us.

Shelves are produced in 4 different profiles:

- smooth-two-sides full shelves
- T2 – ribbed shelves – light thin shelves, for light load
- T9Z – ribbed shelves – thicker shelves with low ribs
- T3 – smooth-two-sides hollow shelves

Shelves are produced of two types of cordierite-mullite:

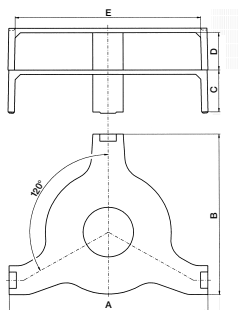
type C2 – for operational temperature up to 1280 °C, convenient for both heating and cooling in electric kilns

type C3 – for operational temperature up to 1330 °C, resistant to thermal changes, convenient especially for electric and gas-heated kilns with quick cooling cycles.

To prevent glaze sticking to the shelves, we offer a special insulation coating.

### Columns

An indispensable feature for your shelves – columns of different sizes. Columns are fair cut of tubes of oxide ceramics. In compliance with the size we will recommend you the ideal diameter for your columns (25 – 62 mm).



Model (plate Ø in cm)	Dimensions in mm				
	A	B	C	D	E
10 – 12	157	116	36	25	141
13 – 16	200	148	40	30	182
19 – 21M	250	185	41	30	232
23 – 27M	317	231	47	35	297
23 – 27H	317	231	68	55	297
28 – 31	362	268	78	65	338

### Supports for plates

For maximal use of the kiln space when producing plates or dishes, we manufacture special supports for plates. Their advantages are low weight and a very close loading. They are designed for quick heating and cooling without any danger of damage. The special self-locking system ensures perfect stability, which is very important especially during volume loading.

**Beams for volume loading**

Beams of firm and resistant material, for operational temperature up to 1400 °C. These beams make it possible - you can manipulate the batch with fork lift or other special truck. Double-block system increases the production capacity – batch stowing and withdrawal being done outside the kiln, one cycle can follow another one immediately.

**Loading trucks**

To make the loading system complete we offer loading trucks as well.



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