391-23-037-1
MYC-5

Nidec
All for dreams

Electric Kiln with Controller

DUB series

INSTRUCTION MANUAL

Please make sure to read the entire instruction manual thoroughly before initial set-up, operation, maintenance and inspection to ensure proper use.

Please keep this instruction manual in a location that is always available to the user.

NIDEC DRIVE TECHNOLOGY CORPORATION

Contents

Please be sure to closely follow all safety precautions and warnings.

Please be sure to read the entire instruction manual thoroughly before initial set-up, operation, maintenance and inspection and use.
Please start using only after you have read the equipment's function, safety information and precautions.

This instruction manual provides three grades of safety warnings: "Danger", "Warning" and "Caution".
All precautions described hereunder which concern to the safty are to be read carefully.
Please be sure to follow them.

DANGER — Danger marking indicates possible death, severe injury or fire if the user disregards the instruction.

WARNING — Warning marking indicates the possibility of severe injury if the user does not follow the instruction.

CAUTION — Caution marking indicates the possibility of minor injury or damage if the user operates the pug mill improperly. However, depending on the circumstances, it is still possible to cause severe injury. Please make sure to pay close attention to these warnings.

We call your attention to these warnings throughout the manual using the following symbols:

Warning; Pay Close Attention

Do Not

Please Follow Instructions

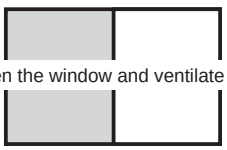
Operation

These are safety precautions regarding operating instructions in general.

⚠ Danger

Ventilation

Death or serious injury could occur since gases that are harmful to the human body such as carbon monoxide could occur depending on the variation of glaze or clay that is used.



Please set pressuring air fan for ventilation and be sure to open window during firing regardless of external temperature, and ventilate well.

Be careful of high temperature!!

Surface and inside of kiln are subject to high temperature created by the electric heating elements. Please be careful of burns or injury.

Please be careful of handling since this product is heavy.

Since serious injury could occur if you drop this product on your feet by mistake, please be careful of handling and be sure to carry it with two or more people.

⚠ Danger

Do not use the kiln other than for firing pottery.

Please do not use this product other than for firing pottery. This may cause serious accidents as fire, explosion or generation of harmful gases.

Stop using if you see smoke, smell fumes or hear unusual noises.

Please switch the power (breaker) off and contact us or our distributor.

Do not disassemble, repair or modify the kiln by yourself.

Electric shock, fire, explosion or injury could occur. Please be sure to follow the instruction manual for maintenance and for replacing the heating elements.

Do not put objects on the kiln or ride on the top of the kiln or the control box.

This may cause a fire or change in the shape of the kiln. Burn injury could occur or kiln may fall down if you ride on the top of kiln or control box.

Connect earth wire (Ground wire).

Please be sure to connect earth wire to prevent electric shock.

Please do not connect earth wire to the following parts:
- *Water pipe
- *Gas pipe

(Electrical flash or explosion could occur.)

* Please connect earth wire of power cable.

⚠ Warning

Be careful when handling the side door!

Pay attention not to catch fingers when opening and closing since it is heavy. Excessive burden (For example, leaning over or hanging down from the top cover) may cause contingent accident due to falling of kilns.

Do not put any metal objects, foreign substances, or fingers into the vent holes or other openings in the kiln.

This may cause electric shock or burn injury.

⚠ Cautions

Be careful not to touch the outside surfaces of the kiln when opening or closing the side door.

This may cause damage to the kiln or injury.

Do not place kiln near a TV, radio, or antenna wire.

This may cause disturbances to the TV image and audio signals.
Please keep a distance of 2 meters or more from these devices.

Prepare a safe operating environment.

Please be careful not to hit your head against the door, lid or kiln wall when placing pottery in the kiln or taking pottery out of the kiln.

Repair damages to bricks and insulating material immediately.

Damages to bricks or heat insulating materials affects the safety and performance of the kiln. Please consult our distributor. However, cracks on the surface due to use have no effect on the operation of the kiln.

Power supply

These are safety precautions regarding the electrical components of the kiln.

⚠ Danger

Be sure to switch the power (breaker) off when opening the side door.

Electric shock could occur if you touch the heating elements without switching the power off.

Be sure to ask a qualified electrician to perform work pertaining to the electrical components of the kiln.

A qualified electrician is required for performing any electrical work on the kiln.
Please be sure to use only a qualified electrician for electrical work on the kiln.

Do not operate any switches with wet hands.

This may cause an electrical shock if you operate switches or plug/unplug the power cord into the power outlet.

Do not insert hands into or touch electrical parts.

Electric shock could occur.

⚠ Warning

Please do not use this product in other than rated supply voltage.

Fire, electric shock, breakage of equipment could occur.

∗ Please be sure about the rated supply voltage in specification list (P.6).

Turn the power off if you will not be using the kiln for an extended period of time.

This may cause electric shock or fire due to insulating degradation.

Keep the power cable free from the bottom of kiln or high-temperature surface.

It may cause a fire due to an electrical shock or electrical short.

Keep the power cable free from stress and obstructions.

Please do not twist, pull, put heavy objects on, or insert the power cable forcedly.
It may cause a fire or electrical shock due to the damaged power cord.

Installation

These are safety precautions regarding the installation of the kiln.

⚠ Danger

Set up in a location which has enough space.

It may cause a fire or other accidents if an object is in touch with the top or side of the kiln.

Do not put flammable materials near the kiln.

Please do not put flammable materials such as curtains, paint, etc. within 1 meter of the kiln. It may cause a fire.

Set up in a location that is out of reach of children and people outside

Gas burner may fall down and cause accident.

Please be sure to ask the electric engineering company who supplies the professional electrical works.

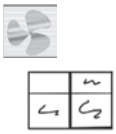
All electrical engineering works including the power supply installation have to be conducted by a qualified electrician.

Set up in a location that is out of reach of children.

Please pay attention to this product strictly since it may cause fire, burn or serious accident if you operate incorrectly.

Set up in a location that is properly vented.

It may cause a fire. Please open a window a few centimeters for to allow fresh air into the room and use a portable fan for additional air circulation if required.



⚠ Warning

Do not set in a location which is susceptible to rain and water or an area of high moisture.

This may cause a fire or failure from electrical shock or electrical leakage.
Please set in a location which is dry and not susceptible to rain to prevent electrical shorts.

Do not set under the fire-alarm box or sprinkler.

It may cause improper operation due to the heat from kiln.

Keep sufficient space between the kiln and nearby walls.

Be sure to place the kiln on a nonflammable floor surface. Do not set up on flammable material such as carpet. It may cause a fire due to heat unless you keep at least 15cm or more from wall. Please use nonflammable material for floor or protect with heat insulating board or slate.

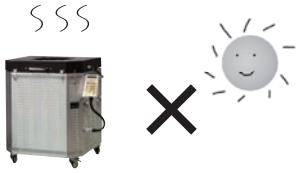
Be careful of strength of the floor in set-up location.

Since this product is heavy, floor material may be damaged or kiln may fall.

⚠ Cautions

Do not use in a place which is susceptible to direct sunlight.

It may cause trouble due to the overheating.



Firing

These are safety precautions regarding with firing.

⚠ Danger

Do not touch kiln due to high temperature.

It may cause burn injury if you touch kiln due to high temperature of the outside of kiln.
Especially, be careful not to bring children close to kiln.

Never let unattended children use kiln, or set kiln in a location which children can reach.

It may cause burn injury, electrical shock or injury. Please set up barrier not to let children close to kiln since the temperature of the kiln surface becomes high during firing.

Do not touch heating elements.

It may cause an electrical shock or burn injury.
It may also cause breaking of the element.

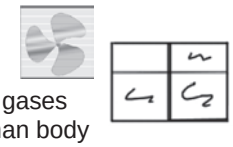
Do not make reduction firing.

This product is for oxidized firing.
Please do not make reduction firing.

Be careful of burn injury when checking color or removing gas.

Please be careful not to get burned since the temperature of the surface and inside the furnace of kiln is high.

Ventilation



Please ventilate fully since gases that are harmful to the human body could occur depending on the variation of glaze or clay that is used.

Do not bring your face close to kiln. Do not look straight into kiln.

Please do not look straight into the inside of kiln or bring your face close to holes of kiln. It may cause accidents such as burn injury since hot air or flame comes out from holes.
Please do not look straight into the kiln.

When using a kiln with a gas burner, be careful and be sure that the burner flame does not extinguish.

Explosion or serious accident could occur due to the collection of gas inside the kiln if the fire of gas burner goes out.

Do not pour water on the kiln during firing.

Explosion could occur due to the sudden drop in the temperature.

Do not open the side door unless the temperature has become normal.

It may cause burn injury due to heated air unless it drops down to normal temperature (under 40℃) inside furnace.

⚠ Warning

Do not put laundry near the kiln. Do not hang up cloths near the kiln.

These may catch on fire.

Be sure to secure the door with handle when you close it.

It may cause burn injury if the door opens by itself.

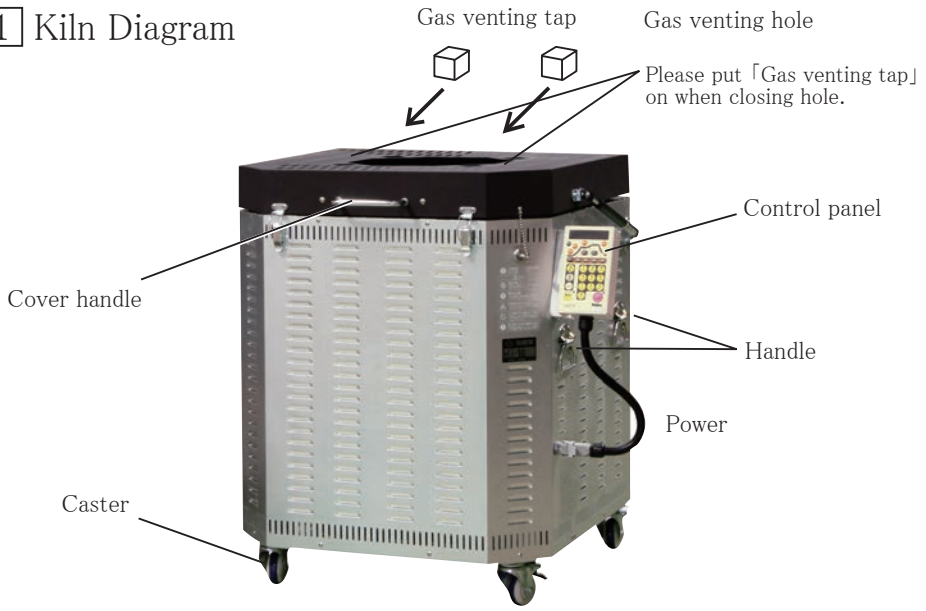
Do not strike the heating elements or insulating material with pottery or kiln shelving.

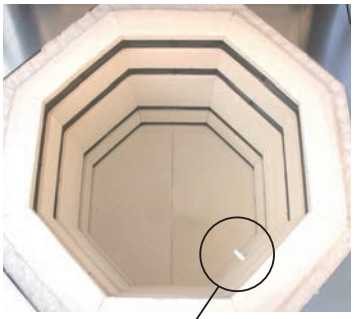
Accessible parts may become hot during use. Young children should be kept away.

During use the appliance becomes hot. Care should be taken to avoid touching heating elements inside the oven.

If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

1 Kiln Diagram





2 Specifications / Attachments

Model	DUB-05	DUB-07	DUB-10	DUB-12	DUB-15
Outside dimension W × D × H (mm)	890 × 810 × 730	890 × 810 × 955	1070 × 985 × 1070	1180 × 1070 × 855	1180 × 1070 × 1080
Inside dimension W × D × H (mm)	ϕ 445 × 340	ϕ 445 × 570	ϕ 585 × 685	ϕ 715 × 455	ϕ 715 × 685
Weight	110kg	140kg	175kg	185kg	220kg
Electric capacity	4.5kW	6.7kW	10.3kW	11.5kW	15.1kW
Power voltage	1 ϕ 220V 21A	1 ϕ 220V 31A	1 ϕ 220V 47A 3 ϕ 380V 16A	1 ϕ 220V 53A	1 ϕ 220V 69A 3 ϕ 380V 23A
Firing	Firing of controller				
Heating elements	Spiral heating elements				
Attachments	Gas venting tap 4 pcs				

3 Operation

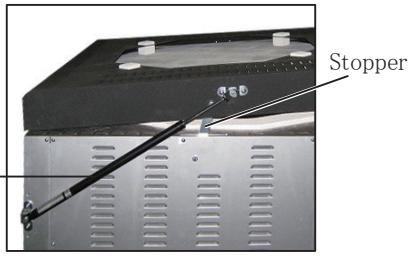
(1) Fix caster

Please operate the lever and lock the caster not to move the main body.

(2) Open and close door

Open the door

① Lift the door slowly.
② Lower the door a little after setting stopper and release your hand.



Close the door

① Hold the handle and bring the door up a little.
② Pull stopper
③ Close the door slowly

To Electricians

1 Electric works

Please consider the specification of kiln and circumstances of the set-up location, and undertake construction following all regulations.

1.Connection to power supply

Please connect power cord into short circuit breaker or cord for wiring.

Model	Capacity	Phase	Voltage	Current	Breaker		Cable
	kW		V	A	AT	mA	mm
DUB-05	4.5	1 φ	220	21	30	200	6
DUB-07	6.7	1 φ	220	31	40		16
DUB-10	10.3	1 φ	220	47	60		25
		3 φ	380	16	20		4
DUB-12	11.5	1 φ	220	53	60		25
DUB-15	15.1	1 φ	220	69	75		35
		3 φ	380	23	30		10

*Allowable current of breaker size or wire depends on the circumstances of set-up location or construction techniques.

DANGER

Ask professional electrician to perform all electrical work.

2 Installation

1. Installation

(1) For indoor

[1] Ventilate well.

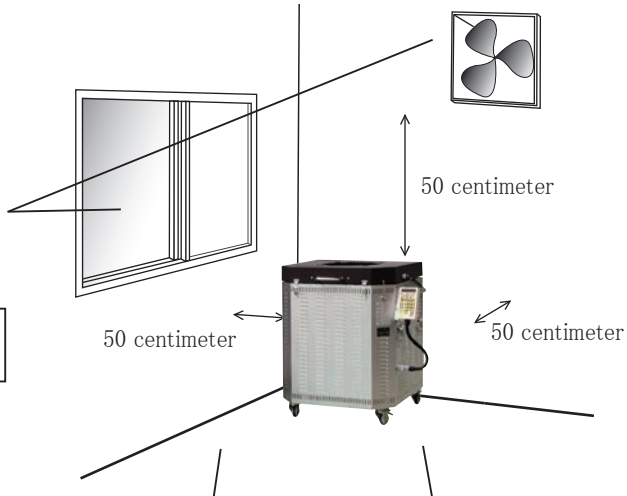
An odor may occur from the pottery or kiln during firing since the temperature of the kiln surface becomes high. Please set up a fan for air circulation and ventilate the area well.

[2] Do not put objects around the kiln.

Please do not put objects within 50cm around the kiln for safety.
Please keep 50cm or more from walls.

[3] Insulate.

Please place rubber pads under the legs of kiln for protection to floor.



[4] Use heat resistant floors and walls.

Please place kiln on a floor and near walls that are made of heat resistant material such as concrete or other such material.

[5] Set up kiln on a flat floor.

DANGER

Set kiln in a location which you can ventilate well.

Ventilation is necessary for firing. Please set kiln in a location which you can ventilate well.

Do not connect several cords into one plug.

Do not use extension cord

WARNING

Do not set kiln in a location that is susceptible to rain and water.

Do not set under the fire-alarm box or sprinkler.

Do not set fluorescent light on the top of kiln.

CAUTION

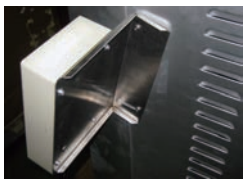
Do not set in a location which is susceptible to direct sun light.

(2) For outdoor

Please set up kiln on a solid flat floor in a location that is not susceptible to rain or water.

Installation of the Controller

Install the controller on the right of kiln, and connect with the connector.



① Fix the controller with two screws.

② Insert it to the connector on the right bottom side of the kiln.

Switch on the power (breaker).

3. Set up of Timer

You can set current time and change it.
Please set current time in advance since it is necessary for set-up of timer.

P.19
Set up of Timer

[1] How to set time

: : shows flashing.

Operating procedure		Display panel
(1) Push Clock for more than 5 seconds.	Clock	00. 00
(2) Input current time. (Example)	7 1250℃ 8 1260℃ 9 1270℃ 4 1220℃ 5 1230℃ 6 1240℃ 1 400℃ 2 700℃ 3 800℃ 0 200℃	
	1 400℃ → 3 800℃ ↙ 3 800℃ → 4 1220℃ For example 13:34	13. 34 For example 13:34
(3) Push Clock	Clock	13. 34 The indicator turns back to show temperature after displaying time for 5 seconds.

When you input incorrectly, please push「0」for 4 times in a row. Then you can start from the beginning of operating procedure.

0 200℃ 0 200℃ 0 200℃ 0 200℃

[2] Display of time

Control panel usually shows the temperature inside of furnace.
When you want to confirm the current time, you can do as following procedure.

Operating procedure		Display panel
(1) Push Clock for more than 5 seconds.	Clock	13. 34

* If you do not operate any keys for 10 seconds, the display turns back to show the kiln temperature.
Please operate form the beginning of operating procedure.

Time shows 24 hours a day.
Please be careful.

Before noon 7:00
→ 0 200℃ 7 1250℃ 0 200℃ 0 200℃

Afternoon7:00
→ 1 400℃ 9 1270℃ 0 200℃ 0 200℃

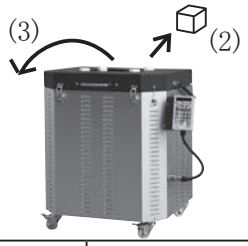
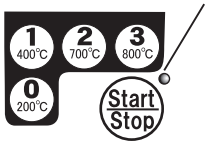
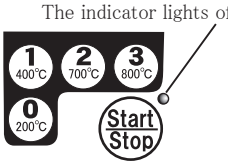
3 Trial operation《Time required: About 5 hours》

*When you do firing for the first time or haven't used for a long time, or in the rainy season, trial operation (dry operation) is necessary for moisture inside furnace.
*Please cool the kiln off after trial operation once and use.
Please do bisque firing first and then do glaze firing.

Please check the following points before trial operation (dry operation).

*Is ventilation enough?
*Aren't flammable objects near the kiln?
*Is attached rubber board matted under the kiln?
*Disconnect earth wire.
*Take the gas venting tap and the moisture venting tap off.
*Check if thermocouples are inserted correctly.

: : shows flashing.

Operating procedure		Display panel
(1) Disconnect earth wire. (2) Take the gas venting tap and the moisture venting tap off. (3) Close the door.		
(4) Switch the power (breaker) on.		Display shows kiln temperature. 
(5) Push「Basic program」key. Basic A		
(6) Push trial operation program.		
(7) Push「Start」key.		The indicator lights up. 
During firing《5 hours》		
(8) Firing completes when END is displayed.		
(9) Push「Stop」key.		The indicator lights off. 
(10) Switch the breaker off.		
(11) Connect the earth wire into the electric kiln.		
(12) Insert the gas venting tap and the moisture venting tap into the electric kiln.		

P.7
Please make sure in「Connection to power supply」when installing earth wire.

DANGER
Ventilation
Please ventilate well since odors occur from heating elements and heat insulating board for the first operation.
Smoke and odors become less with future firings.

*If you do not operate any keys for 10 seconds, the display turns back to show the kiln temperature.

DANGER
Do not touch kiln due to high temperature.

DANGER
Be sure to switch the power off when you open the door or raise the lid.

P.7
Please make sure in「Connection to power supply」when installing earth wire.

Please check the following before firing

*When you use the kiln for the first time or there is a lot of moisture inside the kiln furnace (brick), please do trial (dry) operation.
*Is there sufficient ventilation?
*The earth wire (ground wire) is connected?
*Gas venting tap and moisture venting tap are inserted correctly?
*Thermocouples are inserted correctly?
*Is insulated rubber board matted?
*There are no flammable objects near the kiln?

DANGER
Ventilation

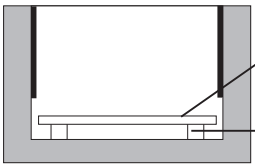
Please ventilate well since odors occur from heating elements and heat insulating board for the first operation.
Smoke and odors become less with future firings.

1 Precaution for loading / unloading pottery out of kiln

1. Instructions for loading pottery into kiln

(1) Placing kiln shelves

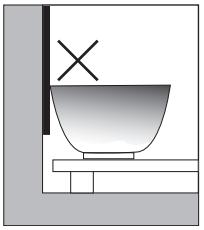
Please remove foreign objects inside the kiln.



(2) Caution for loading pottery into kiln

[1] Place work and kiln shelves into kiln being certain that they do not be in contact with the heating elements. Heating elements may be damaged if work or shelving be in contact with them during firing.

[2] Keep all items clear of the kiln wall when putting work into the kiln and removing it from the kiln. Heating elements are weak under high temperature.



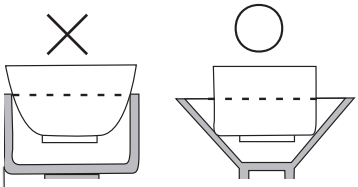
《Bisque firing》

*You can lay works since they are not glazed for bisque firing.
However, please be careful to lay works since they might be difficult to come out after drying out.

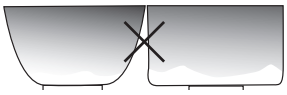
《Glaze firing》

*Please be careful not to let the glazed parts be in contact with other work, thermocouples, or kiln wall during glaze firing.

Be careful when placing work.

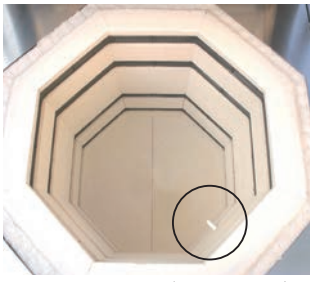


Separate work from each other.



(3) Caution for unloading pottery from kiln

*Open the door after switching the power off.
*Unloading pottery out from kiln after the kiln temperature becomes normal.
It may cause a burn injury or crack work if you unloading a pottery out at the high temperature inside kiln.



Thermocouples

2 How to remove moisture

Please remove all moisture inside furnace from the moisture venting hole.
If you do firing without ventilation, the kiln will rust.

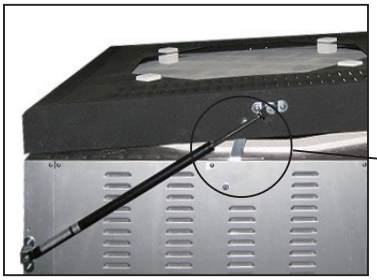
Take the moisture venting tap off until the temperature becomes from 200 to 300℃ after firing and remove the moisture inside a work.

↓

Install the moisture venting tap once moisture is removed (when the temperature is from 200 ～ 300℃ .)

(1)Preperation of moisture removal

Open the door slightly by using the stay, and remove moisture.



Open the cover slightly, and hung the cutout portion of the stay.

Opening and closing of the doorslightly

How to open the door slightly

① Open the door approx. 5cm, and close the door slowly with pushing the stay.

Open the door

① Open the door slowly.
② Get your hands off of the door after making sure that the door is fixed with the stay.

How to fix the door slightly opened

① Push up the door while pulling the stay, then close the door slowly.

Close the door.

① Raise the handle and open the door slightly.
② Close the door slowly while pulling the stay.

(2) Remove moisture

Start firing until it reaches 200 to 300℃ .

Please be careful about the hot air.

(3) Finish the mosture removal

The moisture inside the kiln will be removed by firing at 200 to 300℃ .

(4) Close the gas drain.

*Wear gloves

⚠ Make sure the following points in the same way as firing.

- Good ventilation
- No burnable objects
- Connection of the earth wire

⚠ DANGER

There is a possibility of hurting your hand between the upper door and the kiln itself.

⚠ DANGER

It is dangerous to heat up the kiln with the door open. Close the door before the temperature becomes over 300℃ . If the error "F1" is displayed, close the door.

⚠ DANGER

Close the door and the gas drain

After removing the moisture, close the door and gas drain. Be careful the inside of the kiln is very hot.

The handle above the door is very hot, so do not touch the handle by hand directly. Use something else such as wood piece to open it.

4 Functions of controller

1 Variations of programs

Basic program A Basic Prog.	Installing 10 functions including Raku firing, bisque firing, glaze firing which are often used. Easy operation only to put the 3 keys
Self-produced program B Self Prog.	You can make your own program based on the basic program (Possible to memorize 20 variations)
Continuing programs More than 5 seconds B Self Prog. + Lock	You can make processes having 16 stages at maximum. It is convenient when you want to set the temperature more minutely.

P.13 Basic program
P.15 Self-produced program
P.17 Continuing programs

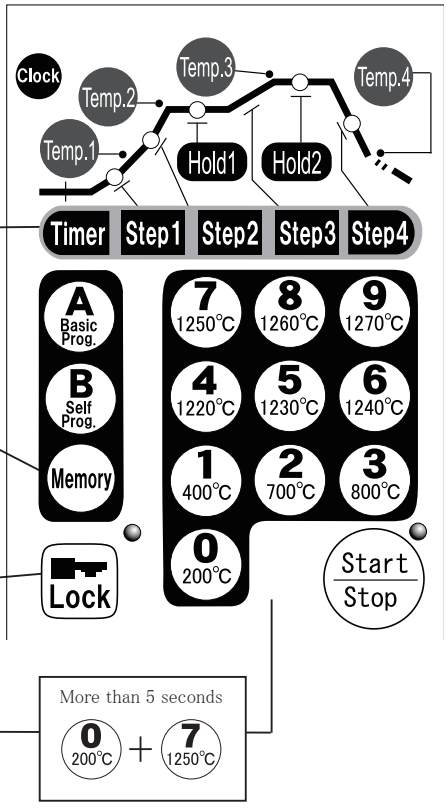
2 Convenient and safe functions

Timer — You can set
① Starting time of firing
② After how many minutes you start firing

Memory — Preserve the program you make

Lock — Prevent improper key operations after setting the program.

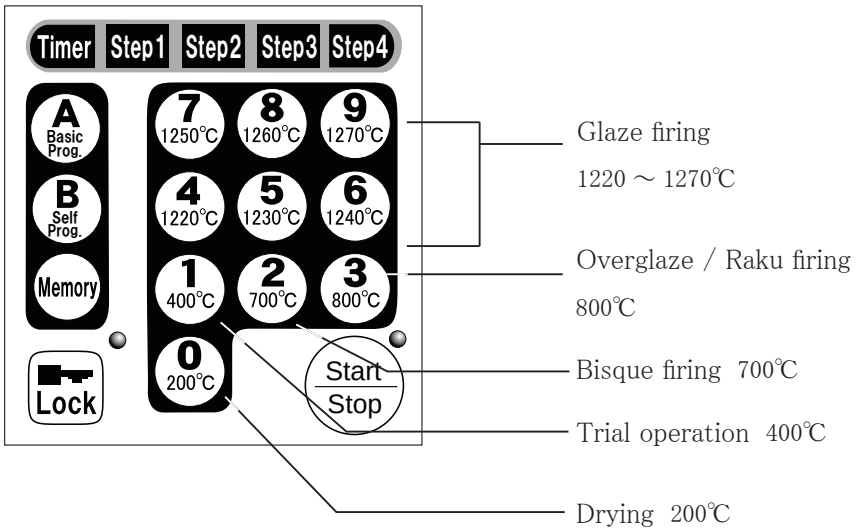
Buzzer — You can ring a buzzer at
① set-up temperature in
② set-up process



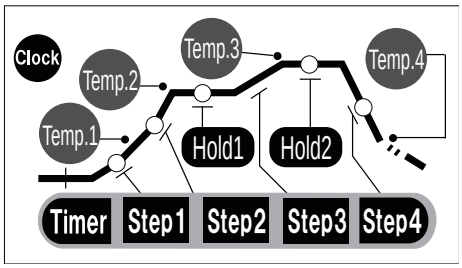
P.19 Timer
P.20 Buzzer
P.21 Lock

1 Firing by “Basic programs”

1. Variations and contents of basic programs



< Contents of basic program >



< Temperature list of basic programs >

Firing	Key	Timer	Step 1	Temp.1	Step 2	Temp.2 《Hold1》	Step 3	Temp.3 《Hold2》	Step 4	Temp.4	Total time
Drying	0 200℃	0 min.	300 min. (5h.)	200℃	0 min.	200℃ 〈0 min.〉	0 min.	200℃ 〈0 min.〉	0 min.	120℃	300 minutos (5h)
Trial operation	1 400℃		270 min. (4.5h)	400℃		400℃ 〈0 min.〉		400℃ 〈30 min.〉			
Bisque	2 700℃		420 min. (7h.)	560℃	90 min. (1.5h)	700℃ 〈10 min.〉		700℃ 〈0 min.〉			520 minutos (8h 40 min.)
Overglaze / Raku	3 800℃		210 min. (3.5h)			800℃ 〈0 min.〉		800℃ 〈0 min.〉			300 min. (5h)
Glaze	4 1220℃	0 min.	210 min. (3.5h)	560℃	120 min. (2h)	900℃ 〈10 min.〉	210 min. (3.5h)	1220℃ 〈20 min.〉	0 min.	120℃	570 min. (9.5h)
	5 1230℃							1230℃ 〈20 min.〉			
	6 1240℃							1240℃ 〈20 min.〉			600 min. (10h)
	7 1250℃							1250℃ 〈20 minutos〉			
	8 1260℃						240 min. (4h)	1260℃ 〈20 min.〉			
	9 1270℃							1270℃ 〈20 min.〉			

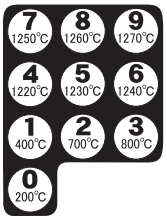
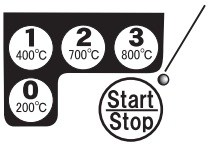
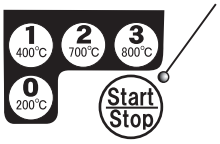
※ Total firing time includes up to Hold2

※ Firing time may be longer by contents or variations of the kiln, compared with those of the above list.

P.28
〈Note for “Self-produced programs” 〉

2. Firing by “Basic programs”

: : shows flashing.

Operating procedure		Display panel
(1) Switch the power (breaker) on.		It is showing the kiln temperature. 
(2) Push the “Basic program” key. A Basic		
(3) Select the program and push the key. ※ Please decide the temperature by the characteristics of glaze.		 For example 
(4) Push “Start” key.		The indicator lights up. 
— During firing —		
(5) Firing finishes when the display shows “End”.		
(6) Push “Stop” key.		The indicator lights off. 
(7) Switch the power (breaker) off.		

P.10

Please be sure to read 『Before Firing』 before firing.

*If you do not operate any keys for 10 seconds, the display goes back to show the kiln temperature.

DANGER

Do not touch the kiln for high temperature.

▶ After finishing <Hold 2>, it moves to natural cooling. The display panel flashes on and off showing “End” once the kiln temperature drops down to 120℃ .

DANGER

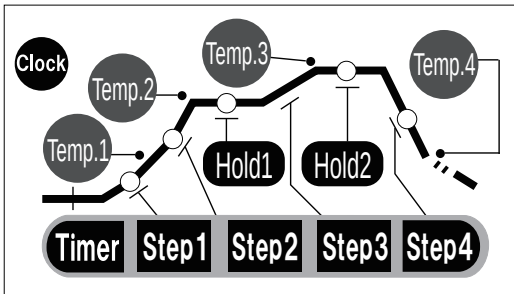
Be sure to switch the power (breaker) off when you open the door.

2 Firing by “Self-produced” programs

1. About self-produced programs

You can change a program into your own specification based on “Basic program” . It is possible to memorize 20 variations.

*Self-produced programs are not registered with shipment.



Step1 ····Time from starting to Temp.1
Step2 ····Time from Temp.1 to Temp.2
Hold1 ····Time for holding at Temp.2
Step3 ····Time from Hold1 to Temp.3
Hold2 ····Time for holding at Temp.3
Step4 ····Time from Hold2 to Temp.4

2. How to make self-produced programs

: : shows flashing.

Operating procedure		Display panel
(1) Call up a “Basic program” similar with the program which you want to make.	A Basic Prog. → 7 1250℃ / 8 1260℃ / 9 1270℃ / 4 1220℃ / 5 1230℃ / 6 1240℃ / 1 400℃ / 2 700℃ / 3 800℃ / 0 200℃	It is showing the kiln temperature. Pr-A_ Pr-A7 For example 7 1250℃
(2) Set Temp.1 ① Push Temp.1	Temp.1	:560℃
② Input the temperature which you want to set into Temperature 1	6 1240℃ 0 200℃ 0 200℃ For example 600℃	:600℃
(3) Set Step1 ① Push Step1	Step1	:2 10'
② Input the time which you want to set into Step 1	3 800℃ 0 200℃ 0 200℃ For example 300min.	:300'
(4) Continue setting Temp.2 → Step2 → Hold1 → Temp.3 → Step3 → Hold2 → Temp.4 → Step4		

→ In the event that you continue the program to firing, please go to
“When you start the program you make without registering (preserving)” of the next page.

→ In the event that you register the setting, please go to
“When you start firing by the program you register (preserve)” of the next page.

P.13 / 28
Refer for “Basic-programs”

P.28
<Note for “Self-produced programs” >

P.27
<Examples of “Self-produced programs” by controller>

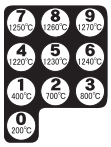
Range possible to input temperature setting

Maximum 1310℃
Minimum 0℃
Unit: 1℃

*If you do not operate any keys for 10 seconds, the display goes back to show the furnace temperature.

3. Registration (Preservation) of “Self-produced programs”

: : shows flashing.

Operating procedure		Display panel
(1) Push (Memory) after making self-produced programs.		
(2) Number the programs which you register (preserve). Input any numbers (1 ～ 20).		 For example 
(3) Push (Memory) again and fix it.		
(4) Registration finishes when buzzer rings.		

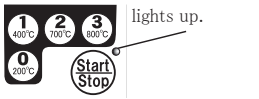
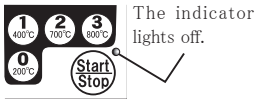
◀ You can register 20 self-produced programs. Number the program number from 1 ～ 20.

P.28
<Note for “Self-produced programs” >

4.Firing by “Self-produced programs”

When you want to start firing by self-produced programs you make without registering (preserving).

: : shows flashing.

Operating procedure		Display panel
(1) Push “Start” key after making programs (continuing of P.15).		 The indicator lights up.
— During firing —		
(2) Firing finishes when the display shows “End” .		
(3) Push “Stop” key.		 The indicator lights off.
(4) Switch the power (breaker) off.		

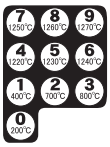
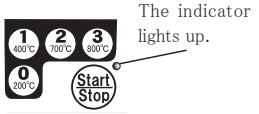
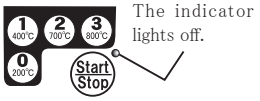
P.10
Please be sure to read 『Before Firing』 before firing.

DANGER
Do not touch the kiln during firing.

DANGER
Be sure to switch the power off when you open the door.

When you want to start firing by self-produced programs which you register (preserve).

: : shows flashing.

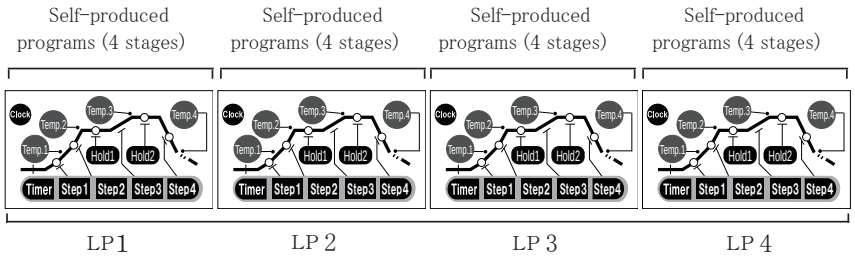
Operating procedure		Display panel
(1) Push “Self-produced program” .		
(2) Input the program number which you register (preserve).		 For example 
(3) Push “Start” key.		 The indicator lights up.
— During firing —		
(4) Firing finishes when the display shows “End” .		
(5) Push “Stop” key.		 The indicator lights off.
(6) Switch the power (breaker) off.		

3 Firing by “Continuing programs”

1. About continuing programs

You can set the temperature in 16 stages at maximum by combining 4-stages firings based on “Self-produced programs” .

*Self-produced programs are not registered with shipment.



2. How to make continuing programs

: : shows flashing.

Operating procedure		Display panel
(1) Enter into continuing program mode. More than 5 seconds	More than 5 seconds: B Self Prog. + Lock	LP-b_ _
(2) Set the continuing programs.	7 8 9 / 4 5 6 / 1 2 3 / 0	
① Call up the original self-produced program.		LP-b_5 For example 5 (1230℃)
② Change the contents of the self-produced program you call up in your preference.		
Set Temp.1	Temp.1	
Push Temp.1		560℃
Input the temperature which you want to set into Temperature 1.	6 (1240℃) 0 (200℃) 0 (200℃) For example 600℃	600℃
Set Step1	Step1	
Push Step1		2 10'
Input the time which you want to set into Step 1.	3 (800℃) 0 (200℃) 0 (200℃) For example 300min.	300'
Continue setting Temp.2 → Step2 → Hold1 → Temp.3 → Step3 → Hold2 → Step4		
Push Lock when setting finishes Step4. Input again and again since the display moves to the next LP inputting.		LP-1 ～ LP-4

◀ If you push B Self Prog. + Lock for more than 5 seconds again, the display turns back.

*If you do not operate any keys for 10 seconds, the display goes back to show the kiln temperature.

◀ If you do not want to set 16 stages and stop in the middle, input 0 ℃ into the temperature in the next stage you want to stop.

◀ If you want to change the program you input, move to the stage you want to change and input again.

→ In the event that you continue the program to firing, please go to
“When you start the program you make without registering (preserving)” of the next page.

→ In the event that you register the setting, please go to
“When you start firing by the program you register (preserve)” of the next page.

3. Registration (Preservation) of "Continuing programs"

: : shows flashing.

Operating procedure		Display panel
(1) Push Memory after making continuing programs.	Memory	LP-b_ _
(2) Number the programs which you register (preserve). Input any numbers (1 ～ 20).	7 8 9 / 4 5 6 / 1 2 3 / 0	LP-b_5 For example 5 1230℃
(3) Push Memory again and fix it.	Memory	LP-b_5
(4) Registration finishes when buzzer rings.		

◀ You can register 20 self-produced programs. Number the program number from 1 ～ 20.

P.28
Use < Note for "Self-produced programs" >

4. Firing by "Continuing programs"

When you want to start firing by continuing programs you make without registering (preserving).

: : shows flashing.

Operating procedure		Display panel
(1) Push "Start" key after making programs (continuing of P.17)	Start Stop	1 2 3 / 0 Start Stop — The indicator lights up.
— During firing —		
(2) Firing finishes when the display shows "End" .		End
(3) Push "Stop" key.	Start Stop	1 2 3 / 0 Start Stop — Switch the power (breaker) off.
(4) The indicator lights off.		

P.10
Please be sure to read『Before Firing』before firing.

DANGER
Do not touch the kiln for high temperature.

DANGER
Be sure to switch the power off when you open the door.

When you want to start firing by the continuing program which you register (preserve).

: : shows flashing.

Operating procedure		Display panel
(1) Enter into continuing program mode.	More than 5 seconds B Self Prog. + Lock	LP-b_ _
(2) Input the program number which you register (preserve).	7 8 9 / 4 5 6 / 1 2 3 / 0	LP-b_5 For example 5 1230℃
(3) Push "Start" key.	Start Stop	1 2 3 / 0 Start Stop — The indicator lights up.
— During firing —		
(4) Firing finishes when the display shows "End" .		End
(5) Push "Stop" key.	Start Stop	1 2 3 / 0 Start Stop — The indicator lights off.
(6) Switch the power (breaker) off.		

1 Timer

You can set the timer in the following 2 ways.

1 In how many minutes you start firing after pushing Start/Stop key.
2 What time you start firing

P.8
Setup of Timer

1. In how many minutes you start firing after pushing Start/Stop key.

: : shows flashing.

Operating procedure		Display panel
(1) Push Timer after inputting the program.	Timer	0'
(2) Input time.	7 8 9 / 4 5 6 / 1 2 3 / 0	65' For example 65min.
(3) Push Start/Stop	Start/Stop	1 2 3 / 0 Start/Stop The indicator lights up.

Unit of time is "minute"
(Maximum 9999 minutes (6.9 days)
Minimum 0 minutes)

2. What time you start firing

: : shows flashing.

Operating procedure		Display panel
(1) Push Timer after inputting the program.	Timer	0'
(2) Push Clock	Clock	00. 00
(3) Input the starting time of firing.	7 8 9 / 4 5 6 / 1 2 3 / 0	13. 34 For example 13:34
(4) Push Clock	Clock	13. 34
(5) Push Start/Stop	Start/Stop	1 2 3 / 0 Start/Stop The indicator lights up.

Time shows 24 hours a day.
Range to input
Within 23 hours and 49 minutes

*If you do not operate any keys for 10 seconds, the display turns back to show the kiln temperature.

When you want to cancel the timer you set

Operating procedure	
(1) Push Start/Stop and input another program.	A Basic Prog. / B Self Prog. → 7 8 9 / 4 5 6 / 1 2 3 / 0

2 Buzzer

You can set buzzers in the following 3 ways.

Buzzer rings for 20 seconds.

1. You do not ring buzzers.	[AL-0]
2. You ring the buzzer at the designated temperature in the process you specify.	[AL-1]
3. You ring the buzzer after the designated process finishes.	[AL-2]

Note:
Once you set the buzzer, the setting continues in the next firing unless you change.
If buzzers are unnecessary, please set back to "No buzzer(AL-0)".

1. You do not ring buzzers.

: : shows flashing.

Operating procedure		Display panel
(1) Enter into buzzer setting mode.	More than 5 seconds 0 200℃ + 7 1250℃	AL 1
(2) Set the buzzer "0" and " AL-0".	0 200℃	AL 0
(3) Register (Preserve) the setting.	Memory	AL 0 . . .

*If you do not operate any keys for 10 seconds, the display turns back to show the kiln temperature.

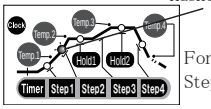
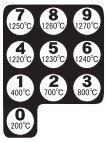
When you want to confirm the buzzer you set.

Go back to the buzzer setting mode and confirm the contents of the display.

More than 5 seconds 0 200℃ + 7 1250℃

2. You ring the buzzer at the designated temperature in the process you specify.

: : shows flashing.

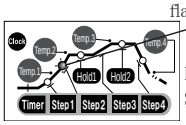
Operating procedure		Display panel
(1) Enter into the buzzer setting mode.	More than 5 seconds 0 200℃ + 7 1250℃	AL 0
(2) Enter into the buzzer setting mode "AL-1".	1 400℃	AL 1
(3) Push the key of the process which you want to ring the buzzer.	Hold1 Hold2 Step1 Step2 Step3 Step4	The indicator flashes.  For example Step2
(4) Input the temperature you want to ring the buzzer.		1275℃ For example 1275℃
(5) Register (Preserve) the setting.	Memory	1275℃

*If you do not operate any keys for 10 seconds, the display turns back to show the kiln temperature.

Note:
If you set the buzzer during hold, it often rings.

3. Ring the buzzer after finishing the designated process.

: : shows flashing.

Operating procedure		Display panel
(1) Enter into buzzer setting mode.	More than 5 seconds 0 200℃ + 7 1250℃	AL0
(2) Enter into the buzzer setting mode"AL-2".	2 700℃	AL2
(3) Push the key of the process which you want to ring the buzzer.	Hold1 Hold2 Step1 Step2 Step3 Step4	The indicator flashes.  For example Step2
(4) Register (Preserve) the setting.	Memory	AL2. . . .

3 Lock

You can lock input keys to prevent operating mistake of the program during firing or the registered program.

*You can confirm the process, setting temperature, and program number during firing even if key input is locked.

1. Lock

Operating procedure		Display panel
(1) Push Lock for more than 5 minutes.	More than 5 seconds Lock	The indicator lights up. Lock
(2) Buzzer blips.		

2. Cancel the lock.

Operating procedure		Display panel
(1) Push Lock for more than 5 minutes.	More than 5 seconds Lock	The indicator lights off. Lock
(2) Buzzer blips.		

1 About controller

Error message

Error message : The error shows the problems of the kiln during firing.

Please correspond to the error message, push Start Stop and cancel the error.

Display	Name of errors	Reason	Countermeasure
F1	Inability to raise the temperature	・Thermocouples are forgotten to be set in kilns.	・Install the thermocouples into the kiln.
		・The temperature setting is beyond the heating ability of the kiln.	・Set the suitable temperature.
		・The hot wire of the kiln is disconnected.	・Stop firing, and change the hot wires after cooling the inside of the kiln sufficiently.
		・Door is opening during firing	・Close the door paying close attention to the heat of the kiln.
F3	Disconnection of thermocouples and electrical conductors or Detection of abnormal high temperatures	・Disconnection of the thermocouples or electrical conductors Loosening of connection ・Abnormal high temperature inside the kiln	・Repair and change the thermocouples or electrical conductors by the condition of heat insulation. Tighten the connection if it is loose. ・Please consult Nidec Drive Technology ceramics department in the event that the display still shows F3 even if you try the above countermeasures
F4	Reverse connection of thermocouples	・Polarity is reversely connected in connection of thermocouples.	・Shift the polarity of wire connection.
F5	Abnormal temperature of microcomputers or breakdown of temperature censors	・High abnormal temperature inside the microcomputer ・Breakdown of the temperature censor	・Please consult Nidec Drive Technology ceramics department when it occurs.

When you want to make sure the content of the program you set

: : shows flashing.

Operating procedure		Display panel
(1) Push the key of the process you want to confirm.	Hold1 Hold2 Step1 Step2 Step3 Step4	560℃ Temp.1 For example 5 1230℃
(2) The display automatically turns back to show “In operation” in about 5 minutes.		

When you want to make sure if the firing mode is on or off

Confirmation if the microcomputer is in firing mode or not after starting firing

: : shows flashing.

Operating procedure	Display panel
(1) Make sure if the display panel shows the furnace temperature and the maximum setting temperature. *This shows time (minutes) to start firing in the event that you set timers.	The kiln temperature 30℃ Shows alternately The maximum setting temperature 1275℃

*The maximum setting temperature It flashes on and off for 3 seconds every 20 seconds.

Display panel does not light up.

Contents to confirm	Countermeasure
(1) Make sure if the power (breaker) is on or off.	Switch the power (breaker) on if it is off.
In the event that the power (breaker) shuts down.	Make sure if the power cord reaches to the kiln itself.
The display shows an electrical leak.	Do trial operation (dry operation).
In the event that the power (breaker) shuts down not because of an electrical leak, but because of an electrical short.	Contact of hot wires may be the one of the reasons. Repair is necessary. Please consult "Nidec Drive Technology" ceramics department.
(2) Confirm if the connection of hot wires is correct or not.	

Please consult "Nidec Drive Technology" ceramics department when the above countermeasures are not effective.

P.10
Please be sure to read『Before Firing』before firing.

P.7
Please be sure by『 Electrik works』

P.20
About Buzzer

Buzzers do not ring

Problems	Countermeasures
The buzzer rings even if you do not set it.	Confirm if the buzzer setting which you set last time does not remain or not. *If you set buzzers in the process of holding, the buzzer responding to the change of the temperature in often rings.
	In continuing program, buzzer settings do affect even when you use other programs. If buzzer settings are unnecessary, please set "No buzzers (AL-0)" .

2 Others

Blackout

Power supply is restored within 10 minutes : Firing continues in the process before blackout.
Blackout takes more than 10 minutes : Firing automatically stops.

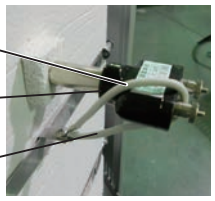
1 How to exchage each

Parts of electric kiln burn out due to long periods of use, frequency in use, and how to use. Please contact our distributor when you have trouble in operation with the below contents and the condition of the kiln.

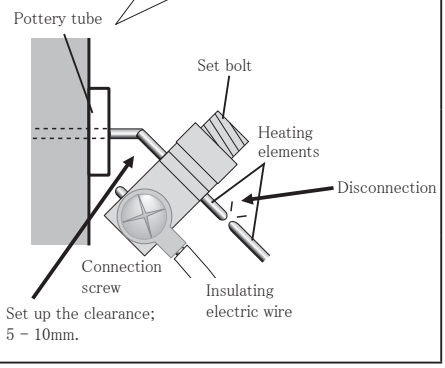
① Model of the electric kiln	DUB－(　　)
② Serial Number	(　　)
③ Year, month and day of purchase	(　　)

▶ Please be sure the model and manufacturing date described in serial number of the door.

1.Replacement of Heating Elements

Operating Procedure	
① Take the front cover off.	
② Remove wire for compensation. Take the nuts off by hands.	Wire for fixing Thermocouple Wire for compensation 
③ Take the wire for fixing off and remove thermocouples.	Wire for fixing 
④ Let new thermocouple through holder and insert to the main body.	Holder 
⑤ Put the wiring for fixing back to the original position and install the nuts by hands.	Wire for fixing 
⑥ Install the front cover of the kiln.	

2. Replacement of Heating Elements

Operating Procedure	
(1) Take the heating elements off.	
① Take the front cover off.	
② Check the position of heating elements you want to exchange and take the connection screw off. Loosen set bolt with the attached L wrench.	
③ Remove pottery tube.	
④ Pull the heating elements slowly and remove it paying attention not to damage bricks.	
(2) Install new heating elements.	
① Insert the both sides of new heating element into the hole inside the kiln. Put the rest of elements to the ditch.	When closing the set bolt with the attached T wrench, please fix and close tightly by plyer. 
② Put the pottery tube into the original position. (Put the heating elements into the inside.)	
③ Connect with insulating electric wire with connection screw pulling the heating elements a little.	
④ Install stainless-steel cover.	

Caution)
Please be careful not to broke the U pin holding the heating elements inside the bricks.

Caution)
Please be careful not to damage bricks.

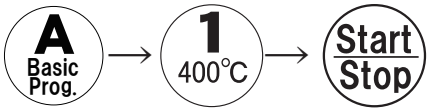
Caution)
Please be careful not to hit U pin too strongly since it tends to be broken easily.

Caution)
Please cut the leftover of the heating elements by plyer not to let heating elements be in contact with the outside boards.

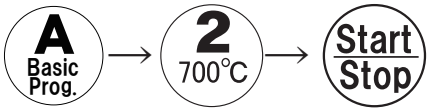
Appendix 〈Simplified chart to operate controller〉

Basic program

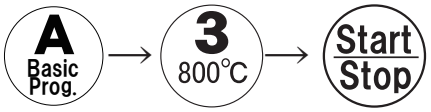
Trial operation basic



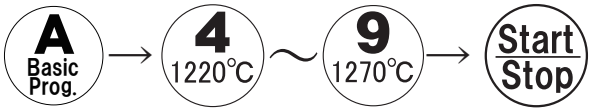
Bisque firing



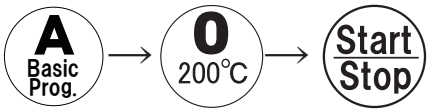
Glazing/Raku



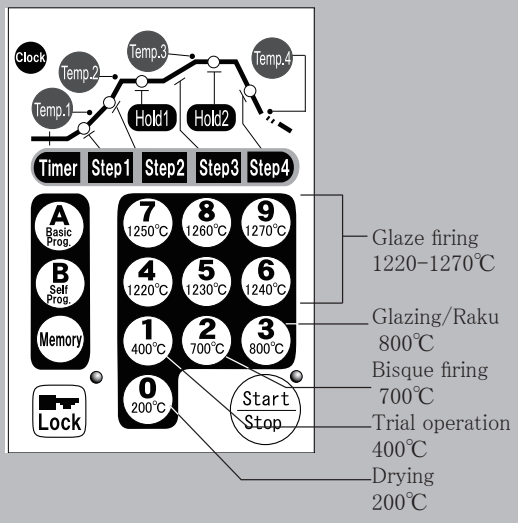
Glaze firing



Drying



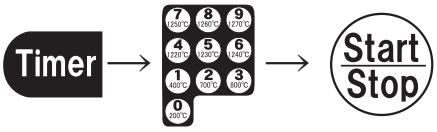
Variation and content of basic programs



Convenient functions

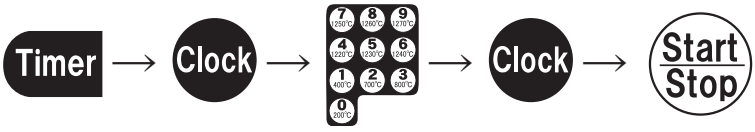
Timer

In how many minutes you start firing



1 ～ 9999 minutes

What time you start firing



Firing within 23 hours and 59 minutes

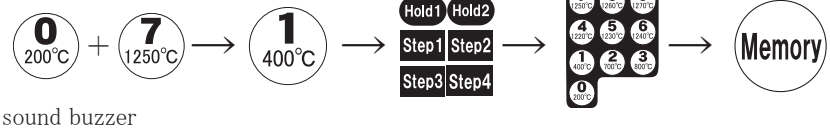
Buzzer

Sound buzzer after the designated process finishes.

Push for more than 5 seconds

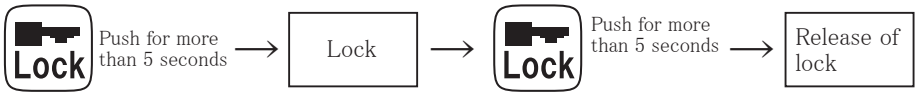
Sound buzzer at the designated temperature

Push for more than 5 seconds



Lock

Do not sound buzzer



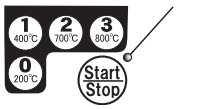
Appendix

〈Example of "Self-produced programs" by controller〉

You can change a program into your own program based on "Basic program" .
You can make your own program easily by changing the content based on "Basic program" which is similar with the one you prefer

*When you want to set maximum temperature at 1240℃

: : shows flashing.

Operating Procedure		Display panel
(1) Call up a "Basic program" similar with the program which you want to make. Choose [7] since you want to set maximum temperature at 1240℃ this time and the content is similar.	A Basic Prog. ↓ 7 1250℃	
(2) Push Temp.3 Display shows the temperature which is set in at present.	Temp.3	
(3) Input 1245℃ which you want to set. 〈In case of starting firing without registration 3 → 7〉	1 400℃ 2 700℃ 4 1220℃ 5 1230℃	
(4) Push Memory after making custom program in order to preserve the setting content.	Memory	
(5) Number the programs which you register (preserve). Input any numbers (1 ～ 20).	1 400℃	
(6) Push Memory again and secure it. Registration finishes when buzzer sounds.	Memory	
(7) Push「start」.	Start Stop	The indicator lights up. 

You can register 20 variations for custom programs. Please number program. (1 ～ 20).

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Please use 〈Temperature chart for basic program〉 to understand the content of basic program and 〈Note for custom program〉 to register your own program.

〈Temperature chart of "Basic program"〉

*Total time is to completion of《Hold 2》

Program \ Process Temperature		Timer	Temperature 1	Time 1	Temperature 2	Time 2	Hold 1	Temperature 3	Time 3	Hold 2	Temperature 4	Time 4	Total time
A-0	Drying	0	200	300	200	0	0	200	0	0	120	0	300
A-1	Trial operation	0	400	270	400	0	0	400	0	30	120	0	300
A-2	Bisque firing	0	560	420	700	90	10	700	0	0	120	0	520
A-3	Glazing Raku	0	560	210	800	90	0	800	0	0	120	0	300
A-4	Glaze firing	0	560	210	900	120	10	1220	210	20	120	0	570
A-5	Glaze firing	0	560	210	900	120	10	1230	210	20	120	0	570
A-6	Glaze firing	0	560	210	900	120	10	1240	240	20	120	0	600
A-7	Glaze firing	0	560	210	900	120	10	1250	240	20	120	0	600
A-8	Glaze firing	0	560	210	900	120	10	1260	240	20	120	0	600
A-9	Glaze firing	0	560	210	900	120	10	1270	240	20	120	0	600

〈Note for "Self-produced programs"〉

	Timer nim.	Temperature 1 ℃	Time 1 nim.	Temperature 2 ℃	Time 2 nim.	Hold 1 nim.	Temperature 3 ℃	Time 3 nim.	Hold 2 nim.	Temperature 4 ℃	Time 4 ℃	Total time nim.
B-1												
B-2												
B-3												
B-4												
B-5												
B-6												
B-7												
B-8												
B-9												
B-10												
B-11												
B-12												
B-13												
B-14												
B-15												
B-16												
B-17												
B-18												
B-19												
B-20												

Warranty Provision

*Nidec Drive Technology warrants, to the original purchaser of new products only, that this product shall be free from defects in workmanship and
materials under normal use following to the precautions of the instruction manual and label in the main body for one year from the date of original purchase.

*Expendables (Board shelf, post, brick, wool, heating elements, thermocouples, gas venting tap, peep hole, gas inserting tap etc) are not free.

*Minute cracks inside furnace or door, or let-go of wool are not free.

*The doneness of a work is out of our responsibility. (For example, firing irregularity of a work or cracks)

*The following matters are not for free despite of the warranty period.
*Breakdown or damages due to your wrong operation or remodeling.
*Breakdown or damages due to your drop after purchasing.
*Breakdown or damages due to firing, earthquake, flood damage, lightning stoke, public hazard, gas hazard, salt damage, or unusual power voltage.
*Changes of apparent condition such as scar while using or keeping

Disposal method

*Please consult with local government since the disposal method for the kiln is different in each local government.
*Please do not disassemble the kiln when you dispose of it. (Dust could occur.)

NIDEC DRIVE TECHNOLOGY CORPORATION

〈**Web Page Information**〉 Please scan the QR code or access the URL below.

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https://www.nidec.com/en/nidec-drivetechnology/inquiry/

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NIDEC DRIVE TECHNOLOGY CORPORATION

Nidec Shimpo Corporation change its company name to Nidec Drive Technology Corporation on April 1, 2023.