



RAVI ENGINEERING WORKS

innovative engineering solutions

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Top Loading Kiln MANUAL



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THIS MANUAL IS APPLICABLE TO THE FOLLOWING RAVI TOP LOADING ELECTRIC KILNS ONLY:

DELIVERY NOTES:

MINIMUM WIDTH OF DOOR OPENING REQUIRED:

FOR 13" OPENING KILNS - 21"

FOR 18" OPENING KILNS - 25"

FOR 23" OPENING KILNS - 30"

FOR 27" OPENING KILNS - 34"

WARNING: NEVER INSTALL THE ELECTRIC KILN ON UNEVEN FLOOR.

SPACE REQUIREMENT & SELECTION:

Room Area Should Be Minimum of 10 x 10 sq. ft. with Proper Ventilation and Exhaust Fans.

18" SHOULD BE CLEAR FROM THE ALL SIDES OF THE KILN & WALLS.

DO NOT OPERATE KILN WITHOUT OPERATOR IN ANY CASE.

UNPACKING:

Step: 1 Once Transporter Comes at your Gate or Building, Please Take Images when Kiln is in Vehicle and Inspect the kiln. If you noticed that Wooden Crate or Pallet of the kiln damaged immediately report to the RAVI ENGINEERING WORKS.

Step: 2 Advise To Unload the kiln from Vehicle through Forklift or Hand Pallet. If lifting services are not available in your area then arrange for Manpower to unload the kiln. (Min. 5 Person who can handle it easily to avoid any damage during unloading & take all images while its in tempo. (Inside & Outside) LIFTING HANDLES ON ALL SIDES GIVEN ON KILN BODY EXCEPT PANEL BOARD SIDE.

Step:3 Remove the all the Packing Materials and Checking the Kiln(Inside & Outside), Shelves, Posts, Gloves and Kiln Wash & Take Images for Reference and Records.

Step:4 Now Place the kiln in the Studio Kiln Room.

Be Aware:

With a good understanding of your kiln and a little common sense, you can avoid any accidents. Please observe the following safety recommendations:

- The Stainless-Steel Body and some of the other fixtures surrounding the kiln will get hot enough to burn your skin when the kiln is heated. Therefore, it is important to be extremely careful when working close to the kiln. We recommend posting warning signs of this potential hazard in the kiln room.
- Keep anyone who cannot understand warning signs such as small children and pets away from the kiln when it is firing.
- Be careful when opening the kiln door while the kiln is heated. We recommend you use fire rated gloves to protect your skin and make sure clothing is kept well away from any kiln opening or hot kiln surface.
- The elements inside the kiln chamber will cause an electrical shock if touched. Never insert metal instruments or place any part of your body into the kiln while it is firing.
- Always be sure to unplug the kiln before working on the electrical components. If the kiln is hard wired, turn off the circuit breaker (MCB).
- Remove all potentially combustible materials from the kiln area.
- Do not place combustibles in your kiln, such as: paper (except specific shelf liner fiber-paper used for glass applications), cardboard, wood, plastic, etc.
- Long term viewing inside the kiln chamber can cause damage to your eyes. Therefore, it is recommended that you use UV protective glasses when looking into the kiln for extended periods of time. or welders green or gray glasses will protect your eyes.
- Be cautious of intense heat around the peep holes when peep plugs are removed.
- In the event of a severe storm, unplug your kiln. Exposure to static shock or electrical surges can damage the circuit board in the controller.
- The kiln lids on many models are heavy. Make sure the lid brace is secure before releasing the lid. Make sure the hardware that secures the lid brace is secure and not corroded.
- Do not place anything in the kiln you are unsure of. Certain items may potentially melt, explode, or release toxic fumes. Items that may be damp (i.e. greenware, kiln shelves) have the potential to crack or explode inside the kiln when the moisture trapped inside them turns to vapor when heated.
- Never allow your kiln to exceed the temperature rating listed on the serial plate.
- For your safety, the protection of your kiln, and the protection of your ware inside the kiln, we recommend that you avoid unloading the kiln when it is above 50°C.
- The controller is a temperature control device. It is not a safety device.

- As with all electrical products there is danger of electrical shock. Use only properly sized and rated copper wire when installing the power supply for your kiln. We recommend this work is done by electrician.
- Kilns should always be located in a dry place to prevent electrical shock and corrosion.
- Ravi Engineering Works will not assume liability for injury or damages caused by variations from the instructions put forth in this manual.
- Kilns get hot. Observe all instructions to ensure proper clearances from flammable or temperature sensitive objects and living things.
- Ventilation is key to maintaining a healthy work environment and proper room temperature. With Proper Ventilation all clear potentially harmful fumes from the room will be removed & To ensure proper room temperature is maintained.
- The power cord is sized correctly to handle the power for your particular kiln. Never use an extension cord.
- Make sure the power cord is routed in such a way as to not touch any portion of the kiln that gets hot.
- Always unplug the kiln before performing any repairs or general maintenance. If your kiln is wired direct, turn off the MCB.
- Never modify your kiln without first consulting RAVI ENGINEERING WORKS. Improper modifications may pose a hazard to you and your kiln and void your warranty. Items such as alternative thermocouples, controllers, elements may ruin your kiln if improperly installed or applied.
- Replace any electrical components that are discolored, brittle, or corroded.

Tips for Wiring for Kiln:

- Please consult & check the Local Electricity board & your Studio Electrician regarding the Power for your kiln.
- Please check Voltage with Electrical Professional to run smoothly. E.g.230 Volts
- Earthing should be required at your place.

Wirings Suggestions from Your Electrical Meter/ Board/ to Wall MCB:

For 1 Phase Kilns

Kiln Power	Wire (Any Reputed ISI Brand)	Wall MCB
Upto 3.5 KW	3 Core Copper PVC Insulated Wire , 2.5 Sq mm	2 Pole , 20 AMP
From 4 to 6 KW	3 Core Copper PVC Insulated Wire , 4 Sq mm	2 Pole , 25 AMP
For 6.5 KW	3 Core Copper PVC Insulated Wire, 6 Sq. mm	2 Pole, 32 AMP
For 8 KW	3 Core Copper PVC Insulated Wire, 10 Sq. mm	2 Pole, 50 AMP

For 3 Phase Kilns

Kiln Power	Wire (Any Reputed ISI Brand)	Wall MCB
Upto 6 KW Kilns	5 Core Copper PVC Insulated Wire , 2.5 Sq mm	4 Pole , 16 AMP
Upto 8 KW	5 Core Copper PVC Insulated Wire, 4 Sq. mm	4 Pole, 20 AMP
Upto 12 KW	5 Core Copper PVC Insulated Wire, 6 Sq. mm	4 Pole, 25 AMP
Upto 15 KW	5 Core Copper PVC Insulated Wire, 10Sq. mm	4 Pole, 32 AMP

Supply Cable comes with the kiln is 4 Mtr.

For Keys Description for SelecIn 4 Keypad Controller:

Functions	Key Press
To enter or exit program mode	∇ + ▲ together for 10 Seconds
To change levels	✓ + ∇ or ▲ to increase or decrease the level. (Level 0, 1, 2,3,4,5,6 are read only)
To view function on the same level and to display the current option.	∇ + ▲ key once to view the next/previous function.
To increase or decrease the value of a particular function.	✓ + ▲ to increase and ✓ + ∇ to decrease the function value.
To view add change parameters online	○ key to view the parameter and ○ + ▲ / ∇ to scroll through the parameters. Press ✓ + ∇ / ▲ to change parameter value.

Program Setup for SelecIn 4 Keypad Controller:

2 Profile Program already Saved for your kiln.

Prfl- 1 For Bisque Firing

Ramp 1	225°C
T-1	1.45 Hrs.
Ramp 2	550°C
T-2	4.00 Hrs.
Ramp 3	925°C
T-3	7.30 Hrs.

Prfl- 2 For Glaze Firing

Ramp 1	200°C
T-1	1.30 Hrs.
Ramp 2	550°C
T-2	3.30 Hrs.
Ramp 3	975°C
T-3	7.15 Hrs.
Ramp 4	1100 °C
T-4	8.30 Hrs.
Ramp 5	1215 °C
T-5	9.45 Hrs.

If you want to hold at target temp. then go into the program and add Step-6 With Target temp. and add time to earlier step. So you can change in STEP Display from 5 to 6, So Now total no. of Step should be 6. If you want to hold for 15 min. then,




Ramp 6	1215
T-6	10.00 Hrs.

You can save Maximum your 10 Profile with max. 16 Ramp in each Profile. So when you want to do firing just select the PRFL Number only, if already saved.

How to Check / Edit / Add Profile Program?

Hold  +  Key together

It will show you Level 0: Hold  + Enter  till Level 9 Shows

Display	Name	Parameters	Note
PRPT	Full Profile Repeat Cycle Count	1	Always
PRFL	Profile Number	1 to 10	If you want edit/ add/ check the Program then change through  +  or 
REPT	Current Profile Repeat Cycle	1	Always
PDN	Power down resume details	RESU	Always
LINK	Link Profile	NO	Always
ALA.D	Alarm Display	1	Always
DEV.H	Deviation Hold	En	Always
STRT	Start from Steps Number	1	Always
STEP	Number of Steps in Current Profile	1 to 16	Based on No. of Ramps Required
A-1	Auxillary Output	NA	Always
R-1	Program Target Temperature	---	Ramp -1 Target
T-1	Program Ramp Time	---	To reach Ramp-1 Temp. in Hrs.& Min. 00.00

How to Run the Program?

- Load the kiln & Close the Lid.
- On the Main MCB & Kiln MCB.
- Display will show you the current inside temp.
- Now Press **O** + **^** will show prfl no. 1,2,3....
- Please select the correct prfl no. for firing with **✓** + **∨** or **^**
- After selecting the correct profile Just press **O** + **∨** will show you prfl Run/Hold/Stop
- Now Press **✓** + **∨** or **^** to select RUN
- Now your firing is start. It will show you Inside Current temp and “RUN”.
- Please cross check the again to ensure correct Prfl No. to taken **with same step ramp and time.** **O** + **^** will show you pr.no ,step, t.rer (profile time remaining), ELPS (Profile elapsed time) , A-1 , R-1 (Ramp -1 Temp.) , T-1 (Time given for ramp -1)
- After that press **O** + **∨** till it will reverse till prfl (it will show you run).
- Once program completed it will show you OVER. Natural Cool down process will start at its own.
- Don't off the any of the MCB till ambient temp. (its cooldown process)
- Once it reach ambient temp. like 40-50 °C off the MCB and Unload your wares.

Important Stages of Firing :

Temperature	Stage of Firing
100°C	Water boils causing wet greenware to explode
220°C	During cooling if cristobalite crystals are present in clay they rapidly shrink 3% potentially cracking ware.
350°C–500°C	Permanent dehydration of clay occurs. Clay is chemically changed.
573°C	Quartz inversion happens causing quartz in clay and glazes to expand when heating and contract during cooling.
600°C–900°C	Organic and inorganic matter is being burned off out of the clay.
1100°C	Mullite crystals begin forming in porcelain clays.

Tips for Panel Board:

- If light went off then immediately open the latch and panel. (from right side) .
- Do not pull any wire of elements which connected with panel wiring.

Tips for Elements/Coils/Heater:

- After Unloading every time clean your Elements & Kiln with Handheld or Car Vacuum System from 5 mm distance between both .
(Do not touch the Vacuum pump Nozzle to the Coil/ Heater/Elements, Thermocouple or Floor.)
- Do not touch elements with hands or any of the Pointed things.
- Don't try to pull out the Elements. After Firing its always brittle so don't try to pull them otherwise its broken immediately.

Tips for Shelves:

- Always keep at Wall. Never put on each other's.
- Always keep clean with Brush after Firings.
- Don't Wash with Water.
- If you want to remove the layer of kiln wash from Shelves then with the help of hand grinder you can remove it.
- If Glaze melted and stick to the shelve then with the help of Hand Grinder only try to remove it.

(Please wear the Safety Gears during Grinding or take professional service).

Tips for Thermocouple: R TYPE (PT-PT-RH)

- Shelves would not be touch while loading/ Unloading to the TC.
- Never touch the TC
- Never Pull the any of the Wire of TC From Panel Board
- Check the TC Wirings + - are place properly in Thermocouple Panel Side and also check in Controller also. (In SelecIN Controller: Output No.14: + & Output No.13: -), if error comes like 1 on main display.

Tips for Loading of Kiln:

- Shelves would not be touch while loading/ Unloading to the Thermocouple.
- While Loading of kiln if TC is coming on shelve height then either Increase or decrease the height using of Posts or Triangle Supplied Pieces.
- Your Ware or shelves Never touch the Thermocouple.
- Thick to Thin Loading would be advisable from bottom to top.
- Ware should not touch to the elements or Bricks.

Tips of Unloading of Kiln:

- Off the MCB.
- Taking the Ware from the Kiln around 35°C to 55 °C.
- To be perfectly safe, it is best to wait until you can hold the piece without gloves.
- Care in unloading is especially important when you are firing a new type of ware or firing in a kiln you have not used before. Particular care should be taken if you are using a new highly insulated kiln. Such kilns retain heat and may have a slower cooling pattern than the kiln you are used to.

Tips for Bisque Firing:

- Before you begin the bisque firing you must make sure that the ware is bone dry dry to avoid cracking and shattering. Make sure as well, that enclosed forms have a pinhole for heated air and steam to escape.
- While loading the ware, place it at least 1 inch away from the coils. Ware in the bisque firing may touch or even be stacked on top of each other.
- If stacking; place similar clay bodies together and heavier pieces directly on the bottom working up to lighter pieces to avoid breakage.

Tips for Glaze Firing:

- Before you begin the final firing make sure the glazes are dry.
- Wet or moist glazes will often flake or crawl if heated too quickly.
- While loading the ware, place it at least 1 inch away from the heating coils. Glazed ware may not touch and cannot be stacked.

Kiln Wash Application:

- Kiln Wash should be mixed to the consistency of heavy cream.
- Apply on shelves an even thickness.
- If you are coating the whole shelf, use a 3” or 4” painting brush.

LOCATE AND SET ASIDE THE Shelves Packing, Box WHICH CONTAINS THE FOLLOWING:

- KILN
- SHELVES & POSTS
- GLOVES SET
- KILN WASH
- PEEP HOLE PLUGS
- EXTRA FIBER BLANKETS
- No.7 SPANNER

YOUR KILN IS FACTORY-ALIGNED, HOWEVER, IT CAN BECOME MISALIGNED DURING SHIPMENT. PRIOR TO USE, WE RECOMMEND CHECKING THE ALIGNMENT TO ENSURE IT IS PRECISE.

WARRANTY COVERAGE:

THE OBLIGATION OF THIS WARRANTY SHALL BE LIMITED TO REPLACING ANY PART OF THE KILN WHICH, AT THE DISCRETION OF THE COMPANY, SHALL BE PROVEN DEFECTIVE IN MATERIALS OR WORKMANSHIP UNDER NORMAL USE AND SERVICE DURING OF 12 MONTHS THE TIME PERIOD COMMENCING WITH THE DATE OF PURCHASE. ALL EXPENSES RELATED TO REPLACING OR REPAIRING A DEFECTIVE PART UNDER THIS WARRANTY SHALL BE ASSUMED BY REW & PAY BY CUSTOMER. THE LIMIT OF THIS WARRANTY INCLUDES THE PRODUCT EXCEPT ELECTRICAL PARTS, CONTROLLER AND ELEMENTS & NOT ANY LOSS OF WORK TIME OR CONTRACT DUE TO INABILITY TO USE THE KILN.

WARRANTY EXCLUSIONS:

THIS WARRANTY DOES NOT APPLY TO ANY COSTS, REPAIRS, OR SERVICES FOR THE FOLLOWING:

- SERVICE CALLS TO CORRECT THE INSTALLATION OF THE KILN, OR TO EXPLAIN THE USAGE OF THE PRODUCT TO THE BUYER.
- REPAIRS NECESSITATED BY USE OTHER THAN NORMAL USE.
- DAMAGE RESULTING FROM MISUSE, ABUSE, ACCIDENTS, OR IMPROPER INSTALLATION.
- CORRECTIVE WORK NECESSITATED BY REPAIRS MADE BY ANYONE OTHER THAN REW.
- DAMAGE EXCEEDING THE PURCHASE COST OF THE PRODUCT.
- DAMAGE BY EXTREME CIRCUMSTANCES, SUCH AS FLOOD, LIGHTING, OR NATURAL DISASTER, WAR DECLARED OR UNDECLARED.
- DAMAGED DUE TO ELECTRICITY FLACKCHATE.
- REW SHALL HONOR ELECTRICAL CLAIMS IF SUCH IS WITHIN 6 MONTHS OF DATE OF SUPPLY, IF ALL PRESCRIBED CONDITIONS FOR STORAGE, INSTALLATION, ELECTRICAL & USAGE AS SPECIFIED IN THIS MANUAL HAVE BEEN FOLLOWED.

FOR TECHNICAL SUPPORT:

:

WHATSAPP VIDEO CALLING – +91- 7043733247 (PRIOR TO APPOINTMENT)

WORKING HOURS : 9 AM TO 12 AM , 1.30 PM TO 5 PM

EMAIL [_INFO@RAVIENGG.COM](mailto:INFO@RAVIENGG.COM)

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Result Notes:

Peephole Plug Note:

During Firing Note:

Glaze Note:

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