



FIRED UP KILNS

firedupkilns.com.au



Owner's Manual

Top-Loading models: FTS1.0, FTS1.5, FTS1.5W, FTS2.2, FTS2.9, FTS3.7
Front-loading models: FFL1.7, FFL2.7, FFL3.4, FFL5.2

Congratulations and thank you for purchasing a Fired Up Kiln.

Our kilns are built from the highest quality materials by expert craftsmen to ensure you have many years of trouble free operation.

The following are your kilns details.

Kiln Model: _____

Date of Manufacture: _____

Kiln Serial Number: _____

Controller Serial Number: _____

Electrical Details: _____

Contents:	Page Number:
Special Notes	3
Locating your kiln	4
Health and Safety	4
Electrical Connections	5
The Firing Chamber	5
Elements	6
Thermocouple	7
Kiln Controller	7
Loading your kiln	8
Loading and Firing Bisque ware (920c-1060c)	9
Loading and firing Earthenware (1040c-1080c)	10
Loading and firing Mid-fire – Stoneware (1220c-1280c)	10
Cooling the kiln	11
Maintenance	11
Warranty	12
Disclaimer	12

Please take special note of the following;

- Read this manual and the corresponding VT36 controller manual **before operating your kiln.**
- **Contact us** if you have any questions or queries. We are always happy to help.
- **Do not exceed 1300°C** in your kiln. Doing so will lead to severe damage not covered under warranty. To extend element life, avoid exceeding 1280°C.
- Never alter or interfere with your kilns **electrical connections**, there is the risk of electrocution.
- Be careful when working near an operating kiln as the **external casing temperature can cause injury.**
- **Never** leave a firing kiln unattended.
- **Use pyrometric cones**, they provide invaluable information, particularly when glaze firing.
- **Don't let ware touch the thermocouple** as this can lead to disastrous over firing.
- **Treat your kiln with care** and make sure element channels are clear of debris before firing.
- **Have fun and enjoy** using your kiln safely and creating wonderful pieces of art!!

1. Locating your kiln

The location of your kiln is important and there are certain precautions that must be observed when choosing a suitable position for your kiln. Accessibility and safety are primary considerations.

- a. Select a dry, well-ventilated area that has good access to allow for easy loading and unloading. Ensure that the kiln is placed on a flat, solid surface that allows air circulation beneath and around the kiln.
- b. Ensure there is 400mm of clearance around the sides of the kiln and at least 1000mm of clearance above the kiln.
- c. Position the kiln with spy-holes visible and the VT36 controller within easy reach.
- d. Ensure all combustible and flammable materials such as curtains, plastic, paper etc. are well removed from the kiln. Do not rest anything against the kiln or place objects under or on top of the kiln.
- e. Keep children well away from the kiln.
- f. If you are positioning your kilns in an outdoor area, such as verandah, outdoor shed or carport, ensure it is shielded at all times from rain. A heavy duty BBQ cover placed over the kiln when not in use is a good idea. It is vital that the kiln not be exposed to water. This will damage the electrics, leading to an electrocution risk and can lead to brick damage, as the kiln bricks will absorb moisture and crack on firing.

2. Health and Safety

Kilns use a considerable amount of current and generate significant heat when operating. As a result, please ensure you operate your kiln with due care and attention.

- a. Always use appropriate protective clothing when operating or working with heat and near the kiln. The outside of the kiln will be hot when the kiln is operating so treat the kiln with caution. Avoid looking into the kiln without protective eyewear when the temperature exceeds 1000c and NEVER put your hand or face within 500mm of either the vent or spy-hole when the kiln is operating.
- b. Your kiln uses high voltage and the control box has been labelled with a warning notice to advise you of this. Only suitably qualified electricians should access the control box.
- c. Please ensure you read both this manual and the VT36 Controller manual before operating the kiln. Please contact us if you have any questions or queries.
- d. Do not attempt any repair work on the kiln.
- e. Our recommendation is that you avoid leaving a kiln that is operating unattended.

3. Electrical Connections

The following applies to our single phase kilns.

- a. Ensure that all electrical connections are performed by a qualified electrician. NEVER attempt to perform this yourself. There is a considerable risk of electrocution. It is critically important that your kiln is connected to power in full compliance with all your local electrical regulations.
- b. Never attempt to alter the kiln wiring, electrical circuits or controller wiring. Doing so will void the warranty.
- c. Our recommendation is that all kilns that draw greater than 20A are hard-wired through an isolator switch (as per AS3000) direct to your power supply. This is the most efficient and safest means of powering your kiln. In this instance your kiln will not be supplied with a plug.

For our smaller kilns the following applies;

FTS1.0 is supplied with a standard 10A plug that can be plugged directly into a standard household power point without the need for power point modification.

FTS1.5/1.5W are supplied with a 15A 3-pin plug that will require the fitting of a corresponding 15A power point by a registered electrician.

FTS2.2 and FFL1.7 can be supplied for hard-wiring or with a 20A 3-pin plug that will require the fitting of a corresponding 20A power point by a registered electrician.

4. The Firing Chamber

The interior of your kiln is constructed using Morgan JM23 light insulating firebricks. They have been selected for their quality as well as their excellent insulating properties. They are a very porous brick, filled with many air pockets. It is these numerous air pockets that make the bricks light and allow for their excellent insulation capabilities.

- a. Kiln bricks are fragile in nature and should be handled with great care. After a few firings you may notice hairline cracks in some of the bricks. These are simply expansion cracks and in no way affect the functioning of the kiln.
- b. It is important that you take care when loading and unloading your kiln so as not to bump the bricks with kiln furniture. Always close the kiln door gently.
- c. NEVER open the kiln when the interior temperature is greater than 200°C. Doing so may cause thermal shock to the bricks and shearing of the surface as well as injury to you.

5. Elements

Your kiln is fitted with high quality Kanthal A1 (or equivalent) elements. These elements are fitted into element grooves in the bricks and pinned in place to prevent contraction, collapse and intrusion into the firing chamber.

- a. Over time kiln elements become brittle, as a result they can fracture if knocked whilst packing/unpacking the kiln.
- b. When you first turn the kiln on, you may notice a “hum” for a short time. This is normal as the elements begin to heat up.
- c. Element lifespan is directly related to the temperature that you are firing to. The higher the firing temperature, the shorter the lifespan. You may expect 350 firings from a set of elements to 1050°C but only 100 firings when firing to 1280°C. Our kilns have an absolute maximum firing temperature of 1300°C, however we advise NEVER exceeding 1280°C to maximize element lifespan.
- d. Element lifespan is shortened considerably if the metal element comes into contact with glass, clay, glaze or kiln wash. As such always place ware 40mm from the elements and ensure that all element channels are vacuumed out prior to each firing.
- e. If your kiln is failing to reach temperature, it is likely that you have either a failed or compromised element.
- f. Elements will need to be replaced from time to time. We recommend this be performed by a registered electrician or kiln technician. We carry replacement elements for all of our kilns.



6. Thermocouple

The thermocouple measures the temperature in the kiln and feeds this information to the controller thus allowing it to manage the selected firing program.

- a. Your kiln is fitted with either a K-type or R-type thermocouple. K-type thermocouples have a finite lifespan when used over 1100°C. As a result they will need to be replaced periodically, depending on the temperature you fire to and the frequency of use. They are relatively inexpensive. R-type thermocouples are suited to continual high temperature use and should not require replacing unless broken by impact with kiln shelves etc..
- b. In order to read the temperature in the kiln accurately, it is important that the thermocouple protrudes about 40mm into the kiln chamber. **Be careful** when loading the kiln that you do not push the thermocouple into the kiln wall. This will lead to the controller registering a lower temperature than the actual kiln temperature and can lead to over-firing that can damage the kiln beyond repair.
- c. Your VT36 kiln controller can accept, K, S and R type thermocouples. If changing the thermocouple type be sure to alter the setting in the system program of the controller.

7. Kiln Controller

Our VT36 programmable controller has been specifically designed to offer flexibility, accuracy and easy management of the process of firing your kiln.

- a. A display guides you through every stage of the programme cycle. The settings and progress are displayed in a graph format.
- b. This controller has the facility to hold up to 36 individual programmes. Pre-set programmes (1 to 12) are loaded into the unit, these should be considered as guides and may be changed or removed depending on your requirements.
- c. The ability to program in delays, temperature ramps-ups and downs, including soaks, make your firing schedule much simpler and easy to manage.
- d. Please refer to the separate VT36 Controller manual for comprehensive information.
- e. The VT36 controller can be retrofitted to any kiln.

8. Loading your kiln

Generally kilns will fire more evenly when they are packed well and a full load is fired. It is advisable to ensure your kiln is loaded evenly both across the width/depth and height of the kiln.

- a. Always ensure that your kiln is switched off at the isolator switch or unplugged whilst loading or unloading.
- b. Make sure that all element channels are clear of any debris and have been vacuumed out. Take adequate precautions when vacuuming, be gentle and don't knock the elements and always wear a mask.
- c. Check that your kiln shelves and props are sound and have no cracks that can cause them to collapse in the firing.
- d. If large flat pieces are being fired, the edges should be placed between the elements. This may eliminate possible cracking caused by uneven heating.
- e. Place the shelves in the kiln carefully so that the walls of the kiln are not bumped or damaged. Use 3 props per level, as this is the most stable configuration.
- f. Ensure all ware and furniture is completely dry. If they are wet, then as they heat up steam forming can lead to explosion of items.
- g. It is advisable to put a shelf on the floor of your kiln before placing your props in the kiln, especially if you are packing to capacity as this will protect the soft insulation bricks on the floor of your kiln. In addition it protects the floor of the kiln from possible glaze spills.
- h. Do not jar or shake the kiln after loading has started since your products on the shelf could be knocked down or your shelves may collapse.
- i. Keep shelves and wares at least 30mm from the thermocouple probe in the kiln and 30 mm from the wall of the kiln.

WARNING: CONTACT BETWEEN WARE AND THE THERMOCOUPLE CAN CAUSE DISASTROUS OVERFIRING.

- j. Avoid positioning your shelves in line with the elements, as this can increase the risk of thermal shock.
- k. NEVER attempt to unload your fired items until the kiln is cool enough (below 100°C), as serious burns could result.

9. Loading and Firing Bisque ware (920°C-1060°C)

Refer to VT36 manual (page 15) for specific firing patterns .

When firing your bisque ware it is essential that all items are “bone” dry. If they are not, then as the kiln heats up and moisture in the ware converts to steam you may experience explosion of your ware. If your ware feels cool then it is probably damp. To minimize damage to greenware , it is best to use a temperature rise of no more than 60c/hr over the first 2 hours of the firing to allow any moisture to escape gradually.

- a. Generally when packing "greenware" in your kiln, items can touch each other and items can be packed inside one another.
- b. It is best to fire a piece in its natural position, however, large flat items such as wall plaques or clocks should be fired on a flat side to prevent warpage.
- c. Thin cups may be fired upside down or stacked lip to lip, if the rim is strong enough.
- d. Cannisters and other pieces with lids should be fired with the lids in place to ensure a good fit.
- e. Always leave your kiln bungs out until you have reached a temperature of 250°C-300°C. This will allow all the moisture to escape from the kiln. They can be replaced for the rest of the firing.



10. Loading and firing Earthenware (1040°C-1080°C)

Refer to VT36 manual (page 15) for specific firing patterns .

- a. Do not load families of red, green, yellow or yellow-green glazes or any metallic or lustre glazes with greenware. Allow a minimum of 50mm of space around red glazed pieces.
- b. If it is necessary to mix loads, always try to place the red glaze separately on a shelf below the items which it may contaminate.
- c. Glazed pieces must not touch or they will stick together. At least 15mm should be allowed between glazed pieces to prevent contamination from the release of bubbles and gases from other glazes.
- d. The tops of the shelves should have batt wash applied to protect against drops or runs of glaze. The kiln lid and the underside of the shelves should be clean to prevent dust particles from falling on the glazed ware.
- e. Glazed ware must be stilted (earthenware) or dry footed to prevent sticking to the shelves. For low fire glazes (cone 04,05,06) stiling is recommended.
- f. If a piece wobbles when stilted, it may fall during the firing, be sure all stilted pieces are solid.
- g. It is a good idea to soak the kiln at temperature for 30 min to allow the temperature to even up throughout the kiln.
- h. Orton cones provide invaluable information about “heat work” that cannot be provided by a controller and so we would always recommend doing a glaze firing with the guidance of cones.

11. Loading and firing Mid-fire – Stoneware (1220°C-1280°C)

Refer to VT36 manual (page 15) for specific firing patterns .

- a. Stoneware cannot be placed on stilts as the item is likely to slump at higher temperatures.
- b. For glaze firing, the top of the shelves must be coated with kiln wash and the ware should be dry footed (this involves removing all unfired glaze from the foot of the piece as well as a reasonable margin above the foot to prevent glaze running onto a shelf).
- c. Orton cones provide invaluable information about “heat work” that cannot be provided by a controller and so we would always recommend doing a glaze firing with the guidance of cones.

12. Cooling the kiln

As a result of the efficient insulating materials used in your kiln it may seem to take a considerable amount of time to cool sufficiently. Care should be taken when cooling any product, be it pottery, glass or metal.

- a. Do not open the kiln if the internal temperature exceeds 200°C. This can cause serious damage to the bricks through thermal shock.
- b. If you wish to speed up the cooling of the kiln, then bungs can be removed at 300°C, and the door opened by 5mm. Wait until the temperature is below 200°C before opening the door further. It is best to open the door slowly and in stages if the kiln has not cooled to room temperature so as to avoid thermal damage to your ware.
- c. Be careful when unpacking the kiln as the furniture and ware are often hotter than the interior temperature. Heat resistant gloves are advised.

13. Maintenance

The life of a kiln can be extended for many trouble-free years of service, if the kiln is treated with due care and routine maintenance is performed. These are but a few suggestions to ensure you get the most from your kiln;

- a. Examine the interior of the kiln to ensure it is clean and free of dust. Check the roof and walls for loose fragments of insulating firebrick which might fall onto your products. Vacuum the interior to remove all dust and any objects from around the elements.
- b. Check that kiln shelves are adequately coated with kiln wash.
- c. Check the condition of your shelves and props for warping or cracks.
- d. Remove glass or glaze spots from the walls, bottom, or shelves of the kiln prior to the next firing. If this is not done, glass will re-melt and spread with each firing. Elements can also be damaged by direct glass or glaze contamination.
- e. Avoid moving your kiln un-necessarily. Over time the bricks will “bed down”, and become brittle with firing. Constant movement may cause the bricks to break apart.
- f. Lid-stays on our top-loading kilns and hinges on both the top and front-loading kilns will benefit from lubrication with WD-40.
- g. Do not allow your kiln to get wet – moisture is your enemy!

14. Warranty

Your Fired Up Kiln is fully tested in the factory before being dispatched. It is fired twice. A test firing to 350°C, and a complete firing cycle to 1285°C.

Your kiln is guaranteed against faulty workmanship or materials for a period of one year from the date of supply and is subject to the kiln being used within its specified parameters.

Elements and thermocouples are excluded as they are considered consumables. Please refer to the separate warranty form for further details.

15. Disclaimer

Please note that your kiln has been designed and manufactured for precision work. Your kiln must be operated in accordance with both this operating manual as well as the manual provided for the VT36 controller.

Any unauthorized use that violates the above preconditions, shall immediately void all warranties.

Fired Up Kilns makes no representations, guarantees whether expressed or implied, other than those as contained within the respective operating manuals.



FIRED UP KILNS

firedupkilns.com.au

KILNS TO CREATE CERAMICS YOU CAN AFFORD

