

Vulcan Kiln Co.  
A Division of Williams Enterprises  
7623 Clyo Road  
Centerville, Ohio 45459, U.S.A.  
Website: [www.vulcankilns.com](http://www.vulcankilns.com)  
Phone (937) 433-1833  
Fax (937) 433-1833  
Email: [vulcankilns@sbcglobal.net](mailto:vulcankilns@sbcglobal.net)

**Model JK-1 and Model 111F  
Instruction Manual**

## Kiln Specifications

Model	Max. temperature	Volts	Amp	Watts	NEMA	Breaker size
JK-1	2250 <sup>0</sup> F	115	10	1150	5-15	15
111F	2250 <sup>0</sup> F	115	14	1610	5-15	15

## Kiln Description

Thank you for purchasing a Vulcan Kiln. Vulcan Kilns have been produced since 1958. We use the highest quality materials to provide years of reliable service. The JK-1 and 111F kilns are completely manual kilns. You are responsible to monitor and control kiln temperature. Please determine your firing plan before starting. JK-1 and 111F kilns are primarily used for firing ceramic (clay), glass and P.M.C. (metal Clay), up to 2250<sup>0</sup>F. They may also be used for other applications, such as heat treat and testing.

## Kiln Set-up and Safety

Please follow these steps for a safe kiln firing. Kiln exterior temperature could reach 350<sup>0</sup>F during operation, so use care when operating. Set kiln on heat resistant blocks or bricks during use. Keep kiln at least 12" away from any flammables. Keep cord away from side of kiln. Use kiln in a well-ventilated and dry area and keep children away. Closely monitor kiln temperature to avoid exceeding either kiln maximum temperature (2250<sup>0</sup>F) or desired firing temperature. Exceeding either may cause damage to the fired item or kiln. Do not leave kiln unattended during firing. Allow to cool before opening. Contact with heating elements is to be avoided, as elements carry live current when in operation. Always unplug kiln when not in use.

## Calibrating the thermocouple

The analog pyrometer on your kiln can be easily calibrated. Using a small flathead screwdriver, slowly turn the white screw hand on the pyrometer faceplate until the indicating needle is at the correct temperature. NOTE: a 75<sup>0</sup>F line is marked on the meter for use in calibrating at a normal room temperature, use this as your guide.

## Firing Directions

For best results, it is recommended to install a kiln shelf with 3 ½” posts underneath. This allows for a more successful firing as the kiln floor may be slightly cooler. Coat top of kiln shelf with appropriate surface treatment i.e. kiln wash or shelf paper as needed for the particular item being fired. The JK-1 and 111F are used to fire a number of different materials. *Please research each material to be fired and determine all firing times and temperatures before firing.*

Contact your material supplier if you are unsure as to what temperature or cone # to fire kiln. Test fire your kiln *empty* to desired temperature in order to determine firing times. The JK-1 and 111F are fast firing kilns, so acclimating yourself to the firing speeds will be very beneficial. This will help you to avoid over-fire. Your kiln has an analog pyrometer to indicate temperature and an infinite switch to control it. Once the kiln has been loaded, install lid and remove peephole plug for ventilation. Turn kiln on low for desired amount of time. As a general rule, the thicker the clay, the slower you would need to fire it. Handmade sculpture or thick pottery would need to be on low setting at least 2 hours. Next, turn kiln on medium setting (3-4) for approximately ½ hour. Heating items too quickly may cause cracking of your items. Install peephole plug when kiln reaches around 1100°F. Closely watch temperature and turn kiln to high temperature, if needed, until maximum firing temperature for your material is achieved. Shut kiln off, unplug and allow kiln to cool before opening.

## Kiln Characteristics

During initial firing some smoke may be seen emanating from the elements and infinite switch. This is normal. New elements have some oils from manufacture which will burn off quickly. Infinite switches pulse on and off. During this cycle, a “pop”, or visual spark, may be seen from the switch, due to switch contacts closing and opening, this is also a normal characteristic. During firing, cracks in the brick may occur during use and is a result of expansion and contraction, this too is normal.

## Warranty

The Vulcan JK-1 and 111F kilns have a 2 year limited warranty. This covers any defects in material or workmanship. This does not cover thermocouple or damage to the kiln from misuse or overfire. Please contact Vulcan Kilns or your distributor for warranty claims.

## Witness Cones

If your firing is to a cone number (#), use the following cone chart for guidance in determining what temperature to operate your kiln. *Remember a cone # is a combination of time and temperature and not just temperature achieved.* Using a large witness cone is a good way to assure your load has received the proper heatwork.

### Temperature Equivalents (°F) Orton Pyrometric Cones

Heating rate °F per hour (last 180°F of firing)

Self Supporting Cones

<b>Cone</b>	<b>108</b>	<b>270</b>
022	1087	1094
021	1112	1143
020	1159	1180
019	1252	1283
018	1319	1353
017	1360	1405
016	1422	1465
015	1456	1504
014	1485	1540
013	1539	1582
012	1582	1620
011	1607	1641
010	1657	1679
09	1688	1706
08	1728	1753
07	1789	1809
06	1828	1855
05 1/2	1859	1877
05	1888	1911
04	1945	1971
03	1987	2019
02	2016	2052
01	2046	2080
1	2079	2109
2	2088	2127
3	2106	2138
4	2124	2161
5	2167	2205
5 1/2	2197	2237
6	2232	2269

## **CAUTION**

- **Surface of kiln is HOT during use**
- **Support kiln with non-flammable materials (i.e. bricks or blocks)**
- **Keep at least 12” clearance around kiln**
- **Keep children away from kiln**
- **Use kiln in a well-ventilated and dry area**
- **Keep switch in “OFF” position when not in use and unplug kiln**
- **Never fire kiln unattended**
- **Closely monitor kiln temperature to avoid overfire**

**\*\*\*Please Post Near Kiln\*\*\***