



**NOVA
CHINA
PAINTERS
KILN**

**WARNINGS
OPERATING INSTRUCTIONS
AND
PARTS LIST**

Model KL22320	Series 256	240 Volt
Model KL22324	Series 256	100 Volt
Model KL22325	Series 256	120 Volt

UL & CSA Listed

WARNINGS:

1. WARNING: READ ALL WARNINGS AND INSTRUCTIONS BEFORE OPERATING KILN.
2. WARNING: READ THE WARNING AND INSTRUCTION BOOKLET BEFORE USING. The Kiln reaches high temperatures and it will be dangerous unless the operator is thoroughly familiar with the manual.
3. WARNING: NEVER PROBE INTO KILN WHILE PLUGGED IN. ELECTRIC SHOCK COULD OCCUR.
4. WARNING: NEVER REMOVE THE GROUNDING PLUG (third wire). It is there for your safety.
5. WARNING: The Kiln must only be plugged into a GROUNDED 100/120/240 Volt AC electrical outlet. See specification plate for proper voltage.
6. WARNING: NEVER OPERATE KILN on or near a WET SURFACE.
7. WARNING: Don't use other appliances on the same electrical outlet as this Kiln. It is a high wattage unit and requires an entire outlet to itself.
8. WARNING: NEVER PUT SEALED CONTAINERS IN KILN—EXPLOSION MAY OCCUR.
9. WARNING: NEVER PUT FLAMMABLE MATERIALS IN OR NEAR KILN.
10. WARNING: NEVER ATTEMPT TO MOVE, CARRY, OR SEPARATE COMPONENTS OF THE KILN WHEN IT IS HOT. Serious injury or fire could occur from a tipover or contact with heated parts.
11. WARNING: DON'T USE EXTENSION CORDS WITH KILN. This is to prevent accidental entanglements or tipping of the Kiln.
12. WARNING: OPERATE KILN ON CLEAN, FLAT, NON-FLAMMABLE AND STABLE SURFACE so as to avoid tipover and fire hazards.
13. WARNING: NEVER LEAVE THE UNIT ACCESSIBLE TO OR IN THE PRESENCE OF ANYONE UNFAMILIAR WITH ITS EXTREME TEMPERATURES, ESPECIALLY A CHILD, AND ESPECIALLY WHILE IT IS IN OPERATION OR WHILE IT IS HOT.
14. WARNING: NEVER IMMERSER ANY PART OF KILN INTO WATER OR ANY OTHER LIQUID.
15. WARNING: ALWAYS ALLOW KILN TO COOL TO ROOM TEMPERATURE BEFORE REMOVING WORK.
16. WARNING: The manual accompanies every Kiln and all of its instructions and warnings must be read before anyone can safely operate this Kiln. ALWAYS RETAIN THE MANUAL IN A SAFE PLACE NEAR THE KILN, AND REQUIRE EVERY PERSON WORKING WITH THE KILN TO BE FAMILIAR WITH ALL ASPECTS OF THE MANUAL.

OPERATING INSTRUCTIONS:

Your new Nova China Painters Kiln consists of the Kiln itself plus a two-piece hearth plate, two vent plugs, plus one peep-hole plug.

The China Kiln is shipped with a three-wire cord and plug which can be plugged into any standard 120V or 240V, 15 amp outlet (see Warning #5 & #7).

Prior to operating your new Kiln, take time to look over the entire Kiln to thoroughly familiarize yourself with all of its features. The Kiln contains a self-aligning lid which, when opened, is correctly balanced to prevent unintentional closure. Care must be exercised so as not to damage the lid insulation. Although quite rigid, sharp objects can puncture it.

A two-piece hearth plate is included which is to be placed on the bottom of the Kiln chamber. Coat the hearth plate with standard Kiln wash. Kiln wash **should not** be applied to either the walls or lid, only the hearth plate.

Kiln shelves, both half and full size, are available from our factory.

The China Kiln can be fired using either of the following three methods or combination of the three:

1. Use the Time Chart found on page 3.
2. Use pyrometric cones plus the Time Chart. Observe the cones through the peephole provided in the front of the kiln.
3. A pyrometer with thermocouple can be used to actually measure chamber temperatures—very advantageous when working with decals. A hole is provided in the rear of the Kiln (through the back leg) through which the thermocouple may be inserted. At least 1" of the thermocouple tip should be extended within the chamber.

TWO PROPOSED FIRING SCHEDULES KL-22325, KL-22324, & KL-22320 **CHINA KILN* MAXIMUM RATED TEMPERATURE—2000°F (CONE 04)**

1. Start kiln fully vented. (All three plugs removed)
2. After 45 minutes, close one lid vent hole.
3. By checking the time-temperature chart, under the desired cone listing, you can determine the APPROXIMATE Firing Time. (1)
4. If your desired firing cone is between 022 and 012, leave kiln in this condition until cone bends, or the desired temperature is reached.
5. If your desired firing cone is higher than 012 proceed under one of the two following schedules.

SLOWER FIRING (2)

6. 90 min. into firing, put in peephole plug and leave until desired temperature is reached.

FAST FIRING (2)

6. 90 min. into firing, put in both the peephole plug and the other lid vent hole, leave until desired temperature is reached.

7. AT SHUT-OFF, IT IS RECOMMENDED THAT ALL HOLES BE PLUGGED UNTIL KILN COOLS.

EXCEPTIONS: DECALS—DO NOT CLOSE ANY VENT OR PEEPHOLE.

REDS—WE SUGGEST THAT THE SLOWER FIRING SCHEDULE BE USED.

CAUTION: LID VENT PLUGS GET HOT WHEN KILN IS IN OPERATION. DO NOT REMOVE WHEN FIRING KILN.

- (1) Times are actual for the below stated test conditions, however, voltages, mass of pieces being fired, humidity, and ambient temperature will change these times. Be sure to check actual chamber temperatures by cone, pyrometer, or both.
- (2) Both of these schedules exceed the maximum rise rate of 540°F per hour for last several hours of firing for Junior (small) Cones. It is then recommended that the Junior Cones be used, one cone lower than manufacturer specified.

***This schedule was determined by testing under the following conditions: Power Supplied 120V V.A.C.—Room Ambient 72°F—Full Dummy Load—Pyrometer Readings.**

**PROPOSED FIRING SCHEDULE FOR KL-22325, KL-22324,
& KL-22320 CHINA KILN — START KILN FULLY VENTED**

<u>(2) 540°F Rise Rate</u>	<u>Time</u>
022 1121121	40 min. 10 sec.
021 1189189	45 min. 10 sec.
020 1231231	50 min. 10 sec.
019 1333333	57 min. 15 sec.
018 1386386	62 min. 30 sec.
017 1443443	68 min. 15 sec.
016 1517517	77 min. 30 sec.
015 1549549	81 min. 30 sec.
014 1596596	87 min. 10 sec.
013 1615615	90 min. 19 sec.
012 1650650	93 min. 10 sec.
011 1680680	96 min. 30 sec.
010 1686686	97 min. 15 sec.
09 1751751	107 min. 15 sec.
08 1801801	115 min. 15 sec.
07 1846846	123 min. 30 sec.
06 1873873	131 min. 15 sec.
05 1944944	148 min. 30 sec.
04 2008008	176 min. 10 sec.
03 2068068	

**PROPOSED FIRING SCHEDULE FOR KL-22325 CHINA KILN
ALTERNATE — FAST FIRING**

NOTE: From 022 to 013 SAME TIME-TEMPERATURE RATE AS OTHER TABLE

013 1615615°F	90 min. 10 sec.
012 1650650	91 min. 10 sec.
011 1680680	91 min. 45 sec.
010 1686686	92 min. 10 sec.
09 1751751	95 min. 10 sec.
08 1801801	98 min. 30 sec.
07 1846846	104 min. 15 sec.
06 1873873	109 min. 30 sec.
05 1944944	125 min.
04 2008008	135 min.

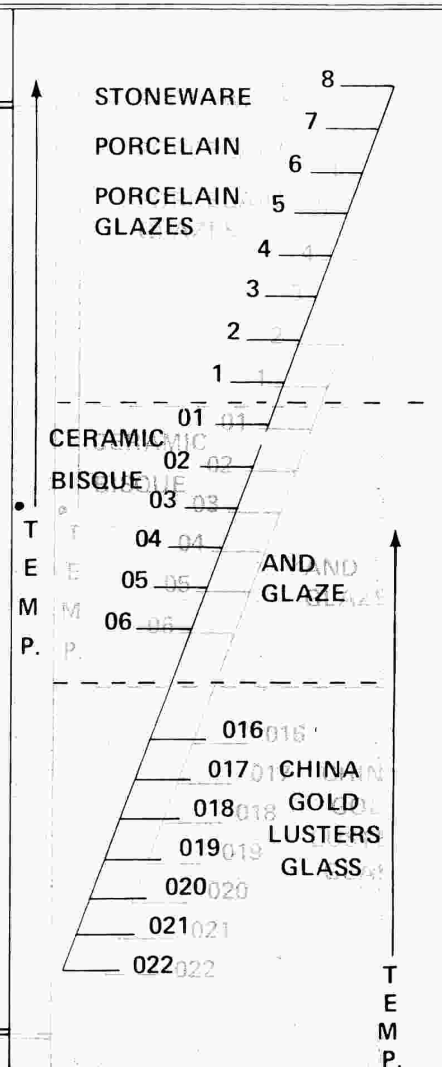
NOTE: A 540° firing rate in last hour is equivalent to 9° per minute firing rate.

NOTE: Variation from the time shown can occur if low voltage or a small load is placed within the kiln. A pyrometer is strongly suggested for accurate firing results.

**TABLE OF
ORTON PYROMETRIC CONE
TEMPERATURE EQUIVALENTS**

**FIGURE
QUICK REFERENCE CHART**

CONE No.	SENIOR CONES 270°F*	JUNIOR CONES 540°F*
022	1112	1165
021	1137	1189
020	1175	1231
019	1261	1333
018	1323	1386
017	1377	1443
016	1458	1517
015	1479	1549
014	1540	1586
013	1566	1615
012	1623	1650
011	1641	1680
010	1641	1686
09	1693	1751
08	1751	1801
07	1803	1846
06	1830	1873
05	1915	1944
04	1940	2008
03	2014	2068
02	2048	2098
01	2079	2152
1	2109	2154
2	2124	2154
3	2134	2185
4	2167	2208
5	2185	2230
6	2232	2291
7	2264	2307
8	2305	2372

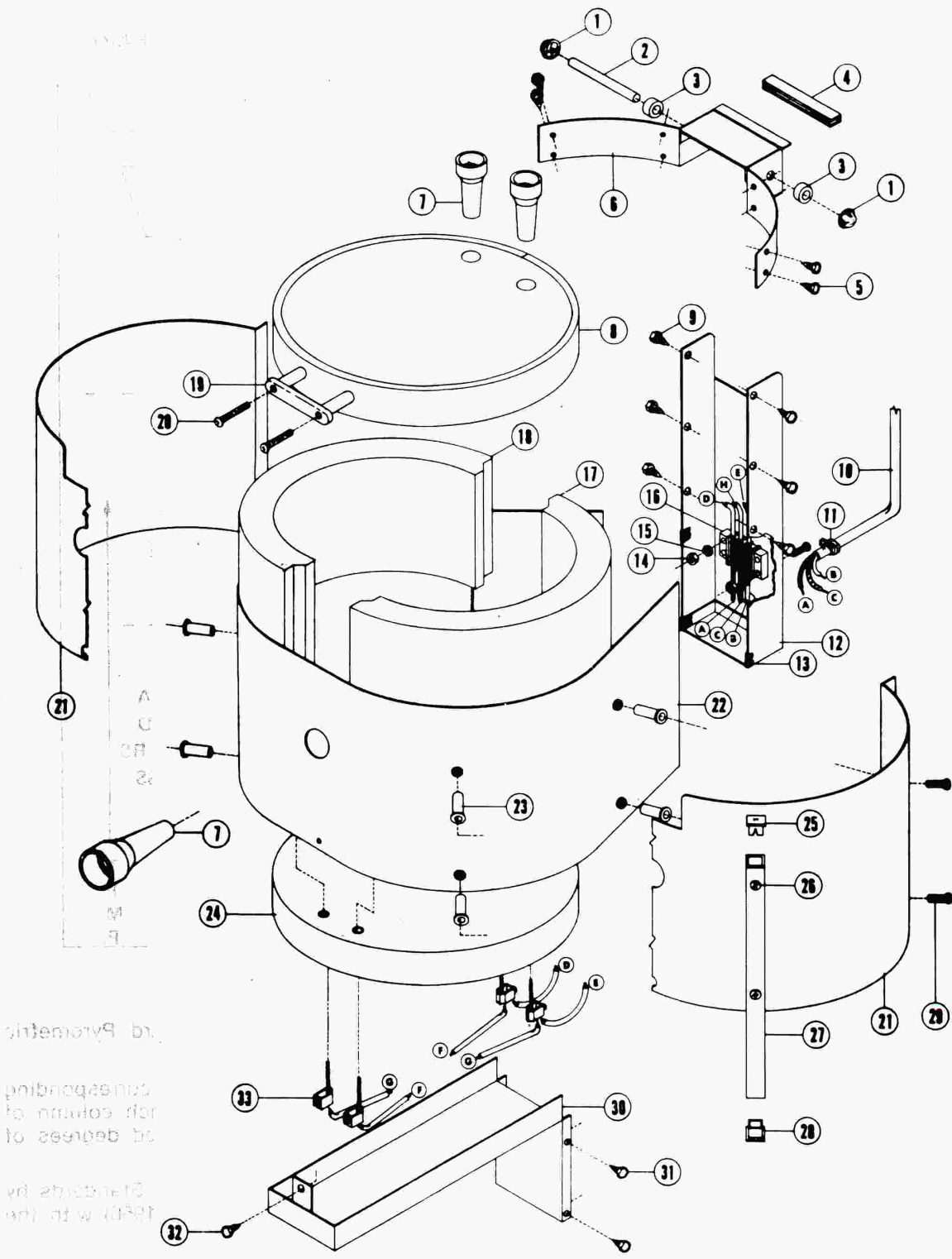


*TEMP. RISE PER HOUR

NOTES:

1. The temperature equivalents in this table apply only to Orton Standard Pyrometric Cones, when heated at the rates indicated, in an air atmosphere.
2. Temperature Equivalents are given in degrees Centigrade (°C) and the corresponding degrees Fahrenheit (°F). The rates of heating shown at the head of each column of temperature equivalents were maintained during the last several hundred degrees of temperature rise.
3. The temperature equivalents were determined at the National Bureau of Standards by H. P. Beerman (See Journal of the American Ceramic Society, Vol. 39, 1956) with the exception of those marked (*).
4. The temperature equivalents are not necessarily those at which cones will deform under firing conditions different from those under which the calibrating determinations were made. For more detailed technical data, please write the Orton Foundation.

EDWARD ORTON JR. CERAMIC FOUNDATION, 1445 SUMMIT ST., COLUMBUS, OHIO



and Pyrametric
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 standards by
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Order replacement parts by part number not by key reference number.

**PARTS LIST AND PRICES
FOR
KL-22325 CHINA KILN**

KEY REF. NO.	PART NUMBER	DESCRIPTION
7	CV223X4	Lid Vent & Peephole Plugs
8	CV256X2B	Lid only w/stainless steel strap
10	CR178X1	3-wire Cord and Plug Set (100V, KL-22324, 120V, KL-22325)
	CR64X1A	3-wire Cord and Plug Set (240V, KL-22320)
11	SRX16	Strain Relief
16	TRX79	Terminal Strip
17-18	EL256X1	Element, half section
19	HNX8	Plastic Handle
21	CS223X2	Outer Case, vinyl-clad steel, full section
22	CS256X1	Inner Case, stainless steel
23	FRX27	Spacer
24	JC256X1A	Bottom Insulation
29	FSX188	Fastener, screw
33	TRX81	Terminal for element lead

All reference numbers
not listed above..... Contact factory for part number and current price.

ACCESSORY ITEMS

CP-21025	Control Unit with Pyrometer, to use for control firing of kiln on 120 V.
CP-21024	100V Operation
CP-21020	240V Operation
PM-19800	Pyrometer with thermocouple for chamber temperature measurement
PH223X1	Hearth Plate, half piece only (2 req'd)
JSX82	Porcelain Post for shelves
SHX1	Full Round Shelf (10" Round x 1/2" Thick full)
SHX2	Half Round Shelf (1/2-10" Round x 1/2" Thick half)

LIMITED WARRANTY

NOVA COMPANY warrants to the original purchaser of the NOVA that any part thereof which WITHIN ONE YEAR FROM THE DATE OF THE ORIGINAL NEW PRODUCT PURCHASE proves to be defective in material and workmanship under normal and proper use (as determined upon inspection by NOVA COMPANY) will be replaced or repaired as NOVA COMPANY elects. This warranty is expressly limited solely to such replacement or repair.

This warranty does not cover the following:

- Normal wear and tear from kiln operation.
- Damage due to alterations, accident or misuse.
- Commercial applications and use.
- Damage from Reduction or Salt firings.
- Damage resulting from exceeding maximum cone or temperature ratings.
- Improper installation or use of wrong electrical voltages for particular model involved.

This warranty extends only to the original purchaser of the NOVA and is solely for his benefit.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER EXPRESS WARRANTIES AND IS IN LIEU OF ANY EXPRESS OR IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE. NOVA HEREBY EXPRESSLY DISCLAIMS ANY SUCH WARRANTY EXPRESS OR IMPLIED.

This warranty does not cover any loss or damage arising out of the failure of the NOVA to operate for any period of time; special, indirect or consequential damage; or other economic loss caused by such failure.

This warranty does not include shipping cost to and from the NOVA Factory, at its address below, which costs shall be born by purchaser.

WARRANTY REGISTRATION:

This warranty shall be of no force and effect unless the enclosed warranty registration is completed, signed by the original purchaser and returned to NOVA within 30 days of purchase.

CONTROL THE NOVA

No serious ceramist would be without an indicating pyrometer/controller. A must for china painters and those who work with decals as well as all types of ceramic firing.

An invaluable aid in determining the progress of various types of firing. By adjusting the control knob to various settings, consistently good results can be obtained firing after firing. In decal work, it is of utmost importance to bring the piece up to certain temperatures and hold them in order to assure precise curing of the decal to the object surface. By using the NOVA pyrometer/controller in conjunction with the NOVA kiln, chamber temperature can be precisely reached and held from 1050°F (Cone 024) to 2250°F (approximately Cone 6).

Simple to operate—merely plug the kiln into the handy receptacle at the rear of the control, turn control knob to setting outlined in instructions to reach given temperature. Insert thermocouple into NOVA chamber, plug control into any appropriate A.C. outlet, then the percentage input controller takes over and brings kiln up to desired temperature. (Control brings kiln to temperature and holds it there, will not automatically shut off kiln). This insures that each piece being fired is properly cured at the desired temperature independent of size of object.

SPECIFICATIONS. 120V AC, 15 Amp or 240V AC, 7.5 Amp maximum current load, complete with 4' C/A thermocouple, pyrometer and 5' 3-wire cord and plug, pyrometer scale range 0-1371°C, 32-2500°F.

LT256X2



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