

## Type 300 Series Electrode Stabilization Ovens



MODEL	PART #	DESCRIPTION (All 50-60 Cycles)	TEMP RANGE**	INSULATION	CHAMBER SIZE	CAPACITY	WEIGHT & DIMENSIONS
<b>120/240 Volt Models with 10' Grounded Heavy-Duty Cord*</b>			100° to 550°F (38° to 288°C) +/-25°F (14°C)	2" fiberglass	18" diameter x 19" deep	400 lb (182 kg) of 18" electrodes	90 lb
16C	1200200	120/240V AC @ 1000 watt					
16C	1200201	120/240V AC @ 1000 watts with door mounted thermometer installed					
16CST	1200202	120/240V AC @ 1000 watts with top stacking lugs installed					
16CST	1200203	120/240V AC @ 1000 watts with door mounted thermometer and top stacking lugs installed					
<b>240/480 Volt Models with 10' Grounded Heavy-Duty Cord (No Plug)*</b>			Adjustable Thermostat Control with Indicator Light	2" fiberglass	18" diameter x 19" deep	Accepts electrodes up to 18"	29½" x 22½" x 22½"
15D	1200100	240/480V AC @ 1000 watts					
15D	1200101	240/480V AC @ 1000 watts with door mounted thermometer installed					
15DST	1200102	240/480V AC @ 1000 watts with top stacking lugs installed					
15DST	1200103	240/480V AC @ 1000 watts with door mounted thermometer and top stacking lugs installed					

\*Operation on Direct Current (DC) will damage oven and void warranty.

\*\*Average stabilized temperature @ 70°F ambient temperature.

# OVEN DESCRIPTION

## WIRING

Identify type and voltage on nameplate.

- Type 300, Models 16C & 16CST (120/240V AC only) single phase
- Type 300, Models 15D & 15DST (240/480V AC only) single phase

**Note:** 120/240 volt models are wired at the factory for 120 volts. For 240 volt use, change heating element jumper connections. Refer to wiring diagrams.

240/480 volt models are wired at the factory for 240 volts. For 480 volt use, change heating element jumper connections. Provide a plug of the corresponding voltage rating for connection to the power supply. Refer to wiring diagrams.

## GROUNDING

- The 120/240 volt ovens have a three blade plug with grounding prong (NEMA 5-15P) attached to a 10 foot power supply cord. When used with a grounded receptacle, these ovens meet all local electrical code requirements and are ETL listed.
- The 240/480 volt ovens have a 10 foot power supply cord. When used with a grounding plug and a grounded receptacle, these ovens meet all local code requirements and are ETL listed.

## ELECTRODE PLACEMENT

DryRod ovens have divided shelves to allow storage of more than one group of electrodes. It is recommended to store different electrodes in separate ovens to avoid contamination. Spread the electrodes evenly, allowing space over each shelf for air circulation required to remove excess moisture. The maximum suggested layer depth on any shelf is 5 inches.

## GUIDE TO STORAGE

Electrodes should be stored according to electrode supplier recommendations. In the absence of detailed storage information from your electrode manufacturer, the *Guide To Electrode and Flux Stabilization* section in this manual may be used as an approximation of temperatures.

## ACCESSORY NOTE:

**A Door Mounted Thermometer (Part #1250300) is available for Type 300 Series ovens and can be easily installed in the field. Factory installation is available with original order (see chart on cover). This thermometer indicates internal temperature range of 100° to 700°F with an accuracy specification of +/-10°. Product accuracy testing is conducted using standards traceable to the N.I.S.T., USA.**

*A laminated version and poster size version of the Guide To Electrode and Flux Stabilization is available by contacting Phoenix International, Inc.*

## VENTING

For normal holding operation, set easily adjustable vent on the door about ¼ of the way open. For replacement vents, see *Replacement Parts* section in this manual.

## TEMPERATURE SETTING

Temperature range is 100°F (38°C) to 550°F (288°C). The thermostat dial (at rear of oven) is calibrated from 100° to 550°F. Obtain required oven temperature setting by rotating dial to line up desired temperature with indicator light in the thermostat housing.

The indicator light illuminates only when voltage is being applied to the heating elements. Momentary rotation past desired temperature setting may be necessary to activate the indicator light in order to locate it for indexing purposes.

Thermostat is accurate to +/-25°F (14°C) at the sensing bulb; however, temperature may vary slightly at different areas in the oven chamber since this is a convection type oven.

At the maximum setting, the actual temperature in portions of the oven near the heating elements may reach approximately 660°F (349°C).

*Temperatures over 550°F (288°C) are not recommended. They may cause oven damage and/or unacceptably high exterior surface temperatures.*

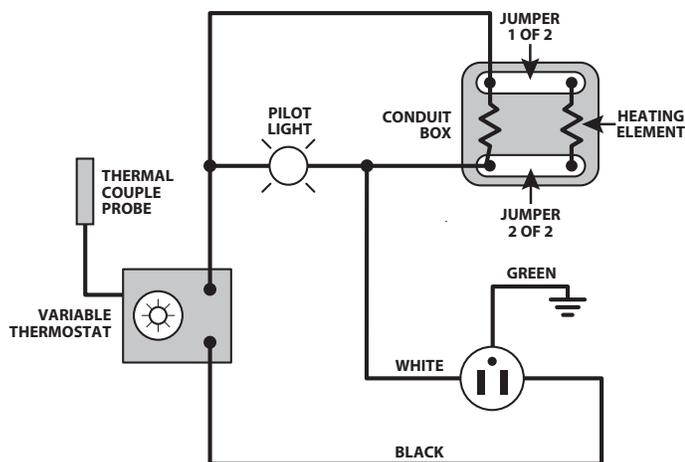
## REPAIR: SPARE PARTS

These instructions contain wiring diagrams and a repair parts list for your DryRod oven. For critical welding operations requiring continuous holding, we would suggest carrying all the parts listed in the *Suggested Spare Parts* section of this manual. (*Spare parts are available at [www.phx-international.com](http://www.phx-international.com) or by contacting your local distributor.*)

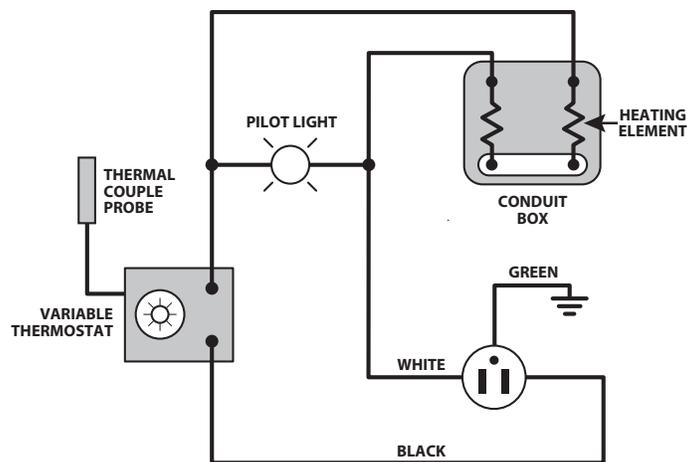
## AMP DRAW

120V = 8.3 amps  
240V = 4.0 amps  
480V = 2.0 amps





**WIRING DIAGRAM FOR:**  
 Type 300 Series Model 16C 120V  
 Type 300 Series Model 15D 240V



**WIRING DIAGRAM FOR:**  
 Type 300 Series Model 16C 240V  
 Type 300 Series Model 15D 480V



## CAUTION:

All wiring should be done by licensed electricians in accordance with state and local codes, as well as the NEC (National Electrical Code) Standards. Improper installation or use may result in serious injury. Always remove oven from power source before troubleshooting or repairing.



## NOTE:

Jumper wires must be installed outside of insulation.

Thermometer probe wire (not shown) must be installed outside of insulation.

## OVEN FAILS TO OPERATE: NO HEAT/OVERHEATS

1. If the indicator light does not illuminate, check power supply.
2. Check plug at outer end of power cord and run continuity check on complete power cord. If defective, replace cord assembly.
3. Check indicator light for continuity. If defective, replace indicator light.
4. Check thermostat at rear of oven. If indicator light illuminates, power is being supplied through thermostat to dual heating elements. Turn knob from low to high setting and return. Definite "snap" should be heard at low temperature end and indicator light should turn off and on with each "snap" cycle. If "snap" is not heard and indicator light fails to operate, replace entire thermostat. (See *Replacement Parts* section in this manual.)
5. If thermostat operates satisfactorily, check continuity of dual hairpin style heating elements at bottom center of oven. Failure of one element will prevent oven operation on 480 volts. If operating on 120 or 240 volts failure of one element will cause very slow heating.
6. If thermostat operates satisfactorily, recalibrate thermostat. (See *Checking Thermostat Calibration* section in this manual.)

## DOOR WILL NOT CLOSE PROPERLY

1. Use screwdriver to adjust door latch.
2. If latch is broken, replace with Door Latch & Strike (Part #1252200). (See *Replacement Parts* section in this manual.)



## NOTE:

When replacing heating elements, always replace both elements. Pairing of one new element with an old element will cause rapid failure of old element.



# CHECKING THERMOSTAT CALIBRATION

Each thermostat is adjusted at the factory and calibrated on precision instruments to control temperatures accurately. Adjustment or re-calibration is not needed unless the thermostat has been mishandled in transit or changed or abused while in service.

### To Check Calibration:

1. Use a high grade mercury thermometer to check temperature. For griddle control, use a disc type thermocouple. Drop a couple drops of oil on griddle surface plate and place thermocouple disc flat into the oil.
2. Turn the dial of the thermostat to the 325° mark.
3. Allow enough time for temperature to stabilize or until several temperature readings are identical.

### To Calibrate:

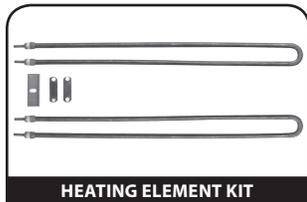
1. Remove knob from dial shaft by pulling knob straight out.
2. With screwdriver, turn screw clockwise to decrease and counter-clockwise to increase temperature. Do not allow dial shaft to turn during this operation. A 1/4 turn of the screw equals approximately 35°.
3. Replace knob or control dial.
4. After calibrating, let the appliance operate until the temperature has stabilized, then recheck to determine if the calibration has been successful.

## SUGGESTED SPARE PARTS

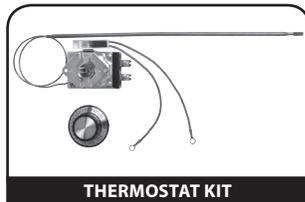
### 120/240 VOLT MODELS

For normal daily operation, the following spare parts and quantities are recommended to have inventoried for every 10 units of Type 300 Series Model 16C ovens in use.

SUGGESTED SPARE PART	QUANTITY PER 10 OVENS	PART #
Heating Element Kit	1	1250500
Thermostat Kit	1	1251100
Cord Kit	1	1257120
Door Latch and Strike	1	1252200
Insulation Block	1	1252400



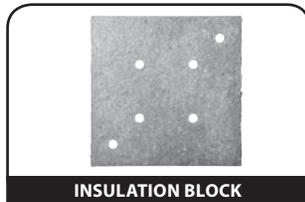
HEATING ELEMENT KIT



THERMOSTAT KIT



DOOR LATCH AND STRIKE



INSULATION BLOCK

### 240/480 VOLT MODELS

For normal daily operation, the following spare parts and quantities are recommended to have inventoried for every 10 units of Type 300 Series Model 15D ovens in use.

SUGGESTED SPARE PART	QUANTITY PER 10 OVENS	PART #
Heating Element Kit	1	1250600
Thermostat Kit	1	1251200
Cord Kit	1	1257121
Door Latch and Strike	1	1252200
Insulation Block	1	1252400



### NOTE:

For users of large oven quantities, or users not in North America, we recommend keeping an inventory of additional spare parts to support day to day operation.



### ACCESSORY NOTE:

Model ST Stacking provision for Type 300 ovens is available with original order. Stacking permits two Type 300 ovens to occupy the same floor space as one. For each stack, only ONE oven needs to be ordered with the stacking lugs. Stacking lugs (factory installed only) on lower oven bolt to feet of any Type 300 oven, whether in the field or newly ordered.



# REPLACEMENT PARTS

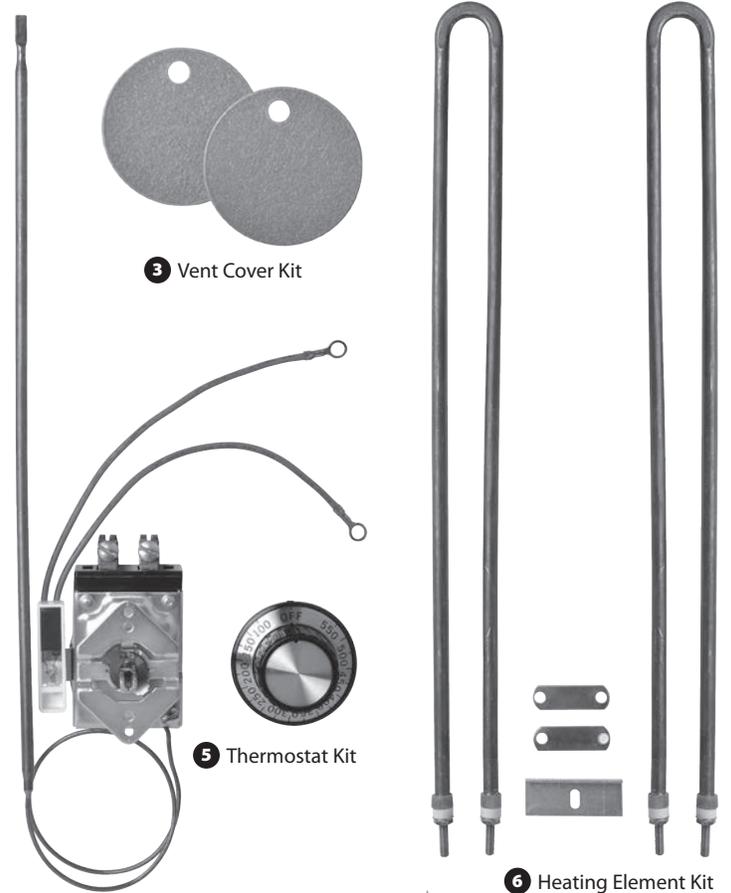
1 Thermostat Housing



2 Insulation Block



4 Door Latch & Strike



3 Vent Cover Kit

5 Thermostat Kit

6 Heating Element Kit

#	DESCRIPTION	QTY	OVEN VOLTAGE	
			120V (MODEL 16)	240V/480V (MODEL 15)
3	Vent Cover Kit (Includes two vent covers)	1	1257152	
4	Door Latch & Strike	1	1252200	
1	Thermostat Housing	1	2200200	
2	Insulation Block	1	1252400	
5	<b>Thermostat Kit</b>			
	Thermostat	1	1251100	1251200
	Thermostat Knob	1		
	<b>Cord Kit</b>			
	Connection Cord	1	1257120	1257121
	Cord Grips (7W-2)	1		
6	<b>Heating Element Kit</b>			
	Element	2	1250500	1250600
	Jumper	2		
	Retainer	1		
	<b>Lead Kit</b>			
	Lead	2	1257123	
7	<b>Shelf Assembly Kit</b>			
	Shelf Assembly	1	1255100	
	<b>Conduit Kit</b>			
	Conduit Box	1	1257151	
	Conduit Box Cover	1		
	Conduit (1/2")	1		
	Conduit Connectors (1/2")	2		
8	<b>Door Mounted Thermometer Kit</b>			
	Door Mounted Thermometer	1	1250300	
	Mounting Bracket	1		
	Cover	1		



7 Shelf Assembly Kit



8 Door Mounted Thermometer Kit



## ORDERING INFORMATION

To order spare or replacement parts please visit our website: [www.phx-international.com](http://www.phx-international.com).  
When ordering, please confirm that you are ordering parts for the correct oven model.

# GUIDE TO ELECTRODE & FLUX STABILIZATION

## Eliminate expensive rework and protect welding profits!

Recondition/rebake procedures for electrode coatings exposed to moisture

- Remove electrodes from cardboard containers before placing in ovens.
- Electrode coatings should not be exposed to the re-baking temperature without first being reconditioned at a lower temperature. Failure to do so may result in breakdown of electrode coatings. After re-baking, lower temperature to holding level until reissued.

AWS (TYPE)	Air Conditioned Storage Before Opening (RH=Relative Humidity)	DryRod Oven Holding Temp After Opening	Sufficient Amount of Time to Affect Weld Quality After Exposure to Moisture	
			Recondition Step #1	Rebake Step #2
<i>Cellulose</i> EXX10, EXX11, EXX20	70°–120°F (21°–49°C) 50% Max RH	100°–120°F (38°–49°C)	Not Recommended	Not Recommended
<i>Titania</i> EXX12, EXX13, EXX14	70°–120°F (21°–49°C) 50% Max RH	100°–120°F (38°–49°C)	180°–230°F (82°–110°C) ½ Hour	250°–300°F (121°–149°C) 1 Hour
<i>Iron Powder M.S.</i> EXX24, EX27	70°–120°F (21°–49°C) 50% Max RH	100°–120°F (38°–49°C)	180°–230°F (82°–110°C) ½ Hour	400°–500°F (204°–260°C) ½ Hour
<i>Iron Powder Low Hydrogen</i> EXX18, EX28 <i>Low Hydrogen</i> EXX15, EX16 <i>Low Hydrogen High Tensile</i> EXXX15, EXX16, EXXX18	70°–120°F (21°–49°C) 50% Max RH	250°–300°F (121°–149°C)	180°–220°F (82°–104°C) 1½ Hour	650°–750°F (343°–399°C) 1 Hour
<i>Stainless</i> EXXX-15, EXXX-16	40°–120°F (4.5°–49°C) 60% (+/-10) Max RH	250°–300°F (121°–149°C)	180°–220°F (82°–104°C) 1½ Hour	500°–600°F (260°–316°C) 1 Hour
<i>Inconel</i> <i>Monel</i> <i>Kickel</i> <i>Hard-Surfacing</i>	40°–120°F (4.5°–49°C) 60% (+/-10) Max RH	150°–200°F (66°–93°C)	180°–230°F (82°–110°C) ½ Hour	Not Recommended
<i>Brasses</i> <i>Bronzes</i>	40°–120°F (4.5°–49°C) 60% (+/-10) Max RH	150°–200°F (66°–93°C)	Not Recommended	Not Recommended
<i>Granulated Flux</i> <i>Agglomerated Flux</i>	40°–120°F (4.5°–49°C) 60% (+/-10) Max RH	100°–200°F (38°–93°C)	Contact Manufacturer for Specific Temperatures	
<i>Flux Cored Wire</i> EXXT-1, EXXT-2, EXXT-5, EXXT-G	40°–120°F (4.5°–49°C) 60% (+/-10) Max RH	250°–300°F (121°–149°C)	Contact Manufacturer for Specific Temperatures	

NOTE: Proper redrying temperatures depend upon the electrode type and its condition. Contact your electrode manufacturer for specific instructions involving critical operations. Phoenix International, Inc. does not accept liability for damage to electrodes and/or welded products resulting from the use of this table. Temperatures and times shown are recommended and are not guaranteed to be correct.

## The Guide to Electrode & Flux Stabilization

is also available as a laminated card and poster.

Please visit [www.phx-international.com](http://www.phx-international.com) or email [info@phx-international.com](mailto:info@phx-international.com) to receive yours FREE!

## WARRANTY

Phoenix International, Inc. warrants its products against defects in material and workmanship. The company will, at its discretion, repair or replace any properly installed Phoenix International manufactured product which fails under normal operating conditions within one year from date of receipt. Contact the factory for return authorization before returning the product to Phoenix International freight prepaid. If our inspection confirms that the product is defective under terms of this warranty, it will be repaired/replaced and returned freight prepaid.

This warranty applies only to products sold by Phoenix International, Inc. and specifically excludes installation or de-installation labor, transportation or equipment of another manufacturer used in conjunction with Phoenix International products. No other warranty, expressed or implied, exists beyond this warranty declaration.

Phoenix constantly strives to improve its products and therefore reserves the right to change design, materials and specifications without notice.

