

## HS-360D

## SPECIFICATIONS

Max Temperature	
Upper	2000°F (1093°C)
Lower	600°F (315°C)
Input Voltage	120V
Hz	60
Amp Circuit Required	20 Amp
Power	
Upper	1800W
Lower	400W
Controller	Programmable PID
Volume	360 in <sup>3</sup>
Internal Dimensions	6" wide x 6" tall x 10" deep
Max Ambient Temperature	95°F (35°C)

# HOT SHOT®

The Hot Shot 360D Oven is a state of the art, table-top, heat treating oven capable of reaching and holding temperatures up to 2000°F. Heat Treating Ovens can be used to heat such things as glass, cylinder heads, welded and carbon steel joints, pumps, various mechanical plates, ceramics, etc.

## IMPORTANT SAFEGUARDS

### READ ALL INSTRUCTIONS

#### POTENTIAL HAZARDS

- **Electrical shock hazard** – unplug the kiln from the electrical service before cleaning or servicing
- **Burn hazard** – Always wear protective clothing, gloves, and eyewear when working around the kiln. Use special care when opening a hot kiln as the escaping heat can cause severe burns. Keep unsupervised children away from an operating kiln
- **Fire hazard** – Do not place the kiln on a combustible surface. Allow at least 3 inches of airspace around the kiln and do not store any flammable or combustible materials nearby

Fumes and/or smoke may be present during the kiln break-in period or during heating of certain materials. Be sure to provide adequate ventilation

Locate the kiln in a covered but well-ventilated area. Do not operate the kiln outdoors or in wet conditions

#### CLEANING

The inside of your kiln can be vacuumed using a soft brush attachment to remove dust and debris. A vacuum with a HEPA filter is recommended. The outer surfaces can be wiped clean with a damp cloth or sponge. Do not use harsh cleaning chemicals on the painted surfaces of the kiln.

#### USER MAINTENANCE

The floor of your kiln is removable to allow for replacement due to wear and tear or to aid in set up of materials that will be fired in the kiln.

Servicing of any other components shall be done by an authorized Hot Shot Oven & Kiln service representative.

#### SAVE THESE INSTRUCTIONS

# HOT SHOT®

## HOT SHOT 360D ELECTRICAL FEATURES

- Novus 480D process controller (upper).
- Novus 1030T PID controller (lower).
- USB port for programming.
- Failsafe overtemp manual reset thermostat.
- 40 amp rated SSR with convection heat sink.
- Kiln type "K" thermocouple.
- Door limit switch.
- Easy to read slant top control panel.
- Heavy Duty cord with 20 amp plug.
- Fully grounded control and oven shell.

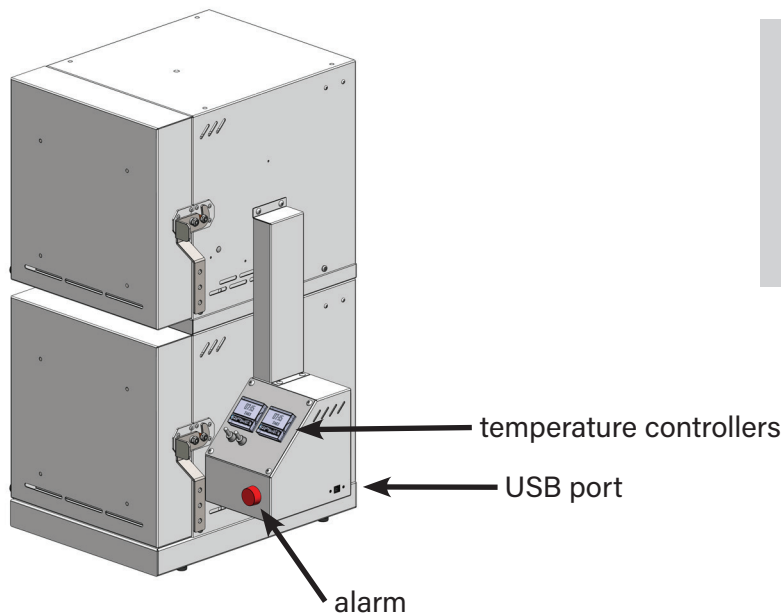
## HOT SHOT 360D MECHANICAL FEATURES

- Dual layer air plenum for external heat management and precise temperature control.
- 20 Gauge 304 Stainless steel core construction.
- Powder coated exterior shell.
- Two-inch Kaowool insulation in door.
- 16 Gauge Kanthal A-1 heating element.
- 6H x 6W x 10D working chamber / 360 cu-in.

## HOT SHOT 360D PERFORMANCE

### Performance Features

- The Hot Shot oven is equipped with Cool-Touch Technology (patent pending). This provides a safe external temperature to allow for safer operation and protection of its surroundings.
- 120V 20-amp supply circuit required.
- 2200-watt heating element/18 amp total oven load.
- 2000°F/1093°C max operating temperature (upper).
- 600°F/315°C max operating temperature (lower).
- Ambient to 2000°F/1093°C in as little as 40 minutes (room temperature, empty oven).
- Maximum ambient room temperature of 95°F - (35°C).



Temperature Controller  
Programming Code:

**4912**

(Please keep with your  
Hot Shot Oven records)

## STARTING YOUR OVEN FOR THE FIRST TIME?

Please carefully remove all packing material from the inside of your oven. Visually check that the element hasn't been bumped or moved during shipping.

- DO NOT block any vents.
- Keep the back of the oven (fan unit) at least 3 inches away from a wall or other objects.
- DO NOT attempt to duct the exhaust of the fan unless the exhaust has a power vent compatible with the cfm of the fan.

### UPPER OVEN

Your temperature controller has been pre-programmed to outgas your oven automatically and anneal your heating element. Place oven on a level, non-combustible surface. Apply power.

Control power = on. Heat enable = on. Door = closed. Press "P" once, e-prog = yes. Press "P" again, run = yes. Press "P" again to return to the main screen.

Oven will start @ 400°F and will work its way up to 1800°F in timed segments, after 1800°F is reached, it will slowly cool down to ambient to anneal the heating element.

Run command will automatically be removed at the end of the sequence. Do not open the door until the process has ended and the oven has cooled.

If you are firing the oven for the first time, here's what you can expect:

**Important: Do these steps in a well ventilated area or outdoors if possible.**

**Note: The oven fan is regulated by the oven core temperature, therefore, it will not turn on immediately.**

- Run and heat soak for ½ hour @ 400°F - slight odor of burned anchor lube and assembly lubricants, small amount of smoke, kaowool board will turn chocolate brown and start outgassing.
- Run and heat soak for 45 minutes @ 800°F - odor from the insulating board will really begin to stink, you will wonder if this is actually normal, don't worry, it is. If you open the oven door, expect to see a fire show of outgassing contaminants & heavy smoke.
- Run and soak for 1 hour @ 1200°F.
- Run and soak for 1 hour @ 1600°F - your cooling fan should have kicked on by now, but the smell is still very strong, the inner insulating board of the oven is starting to cleanse itself and is turning white, there will be a brown ring around the door that will move away from the inner shell as temperature increases.
- Run and soak for 1 hour @ 1800°F - all downhill from here, you have burned off most of the impurities from the insulating board. Inner oven should be chalk white. The brown ring around the door should be fading.

2nd and 3rd firings: slight odor will be present, decreasing with each subsequent firing.

While it's not necessary to run your oven all the way up to the max temperature for the outgassing process, holding at 1500°F for 1 hour will remove 90% of the contaminants from the insulation. You will see steam escaping from the seams and even water forming at the feet of the oven from trapped moisture being burned away from the inner (hot) layer and condensing when it gets to the outer (cooler) layer.

### LOWER OVEN

- Press "P" until "run" appears.
- Change run command to "yes".
- Oven will heat up to 600°F.
- Allow oven to run for 4-5 hours.
- Allow oven to cool slowly with the door closed.
- The oven is now ready to use.

Your heating element is made from Kanthal Ni-Chrome wire, allowing cold air to enter a hot oven will harden your element and make it become brittle. Never use compressed air or fans to force cool the oven, always close the door and let the oven cool on its own, this will keep your heating element annealed.

Our cool touch technology, with the fan running, should keep the outer surface within 20°C of room ambient temperature.

## OVEN ON TEMP NOW?

Here's a few things to do after your oven has reached a stable operating temperature

1. Press and hold the "P" button until "ATUNE" appears, select yes and let your unit set its own PID's. Auto tune is complete when the "tune" light goes out on the main screen. Always auto tune +/- 200°F of your normal operating temperatures. Keep the door closed during this tuning; oven needs to be stable and have no cold air introduced during auto-tune.
2. Make certain that the cooling fan located in the back of your oven has engaged and the fans air movement is not impeded.

## SAFETY RECOMMENDATIONS

1. Do not use an extension cord.
2. Install on a 20 amp 120V circuit.
3. Do not use the oven to cure paint or any other solvent borne products.
4. Do not use the oven for powder coat.
5. Use in a well ventilated area.
6. Wear protective clothing and protect thyself from burns.
7. Turn off the "heat enable" when loading/unloading parts.
8. Do not unplug the unit till it has fully cooled down.
9. Do not EVER put magnesium in the oven.
10. Do not exceed 2000°F.
11. Do not block any vents
12. Keep the fan exhaust at least 3 inches from any wall or obstruction.
13. In the event the oven overheats, the oven will automatically shut down. Please contact our office at 262-361-4912 to work with our team on resetting your oven if shut down occurs.

## READY TO PROGRAM YOUR CONTROLLER NOW?

Novus 480D setting ramp and soak times, temps and events.

The oven comes with a factory installed USB port for programming the controller via a computer. Note: Disconnect oven from power source before plugging in USB.

Press and hold the "P" button till PTOL appears, then use the "P" button to scroll thru parameter group.

GROUP	PARAMETER
PSPO	starting temp (control temp starting pt)
Pt1	time 1 (set desired temp)
PSP1	temp 1 (set desired temp)
PE1	event 1 (off or A-1 for alarm)
Pt2	time 2 (desired temp)
PSP2	temp 2 (set desired temp)
PE2	event 2 (off or A-1 for alarm)
Pt3	time 3 (set desired time)
PSP3	temp 3 (set desired temp)
PE3	event 3 (off or A-1 for alarm)
Pt4	time 4 (set desired time)
PSP4	temp 4 (set desired temp)
PE4	event 4 (off or A-1 for alarm)
Pt5	time 5 (set desired time)
PSP5	temp 5 (set desired temp)
PE5	event 5 (off or A-1 for alarm)
Pt6	time 6 (set desired time)
PSP6	temp 6 (set desired temp)
PE6	event 6 (off or A-1 for alarm)
Pt7	time 7 (set desired time)
PSP7	temp 7 (set desired temp)
PE7	event 7 (off or A-1 for alarm)

GROUP	PARAMETER
Pt8	time 8 (set desired time)
PSP8	temp 8 (set desired temp)
PE8	event 8 (off or A-1 for alarm)
Pt9	time 9 (set desired time)
PSP9	temp 9 (set desired temp)
PE9	event 9 (off or A-1 for alarm)

Note: If any "PT" value is set to zero, the controller will stop and end the sequence at the point.

rPT.P = number of times the controller will repeat the sequence (after the Pt9 has timed out, it will return to Pt1 and repeat the sequence)

Running in manual set point mode.

Press "P" once, E-prog = no press, press "P" again, run = yes, you can manually adjust the green temp set point and oven is in "run hold" mode with no timers. Use the "^-v" keys to change set point.

N1030T controllers only

From the main start up screen, press "P" to cycle through time and run-hold options.

Press "P" once for timer display, twice for "T1" timer set, third time is run option.

On the "run" screen select "yes" to run hold, "no" to remove run command or "F" to enable the function key.

Once you have enable the "F" key, push and hold the F key for a 3 count, run command will applied and controller will run for the amount of time set on "T1", when this timer reaches zero value, the run command is removed from the controller.