



# SPECIAL FURNACE CO INC

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## B 86



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**ECONOMICAL  
BENCH MOUNTED 2000°F (1100°C)  
ELECTRIC BOX FURNACE**

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### APPLICATIONS

The B86 Bench furnace is an excellent general purpose bench mounted box furnace. The door is a simple horizontal single pivoted door with a clamping latch. Elements are located on the sides in two element plates. The furnace features a digital PID tuning control for automatic temperature control. It reaches 2000°F (1100°C) with nickel-chrome elements. The B86 is designed to provide a quality furnace at an economical price.

## FEATURES

### NICKEL-CHROME ELEMENTS

The elements are coiled nickel-chrome 80-20 alloy. These will resist wax burn out applications and oil from machined parts. A low watt density (9 watts per square radiating inch) is used for long element life.

### CERAMIC ELEMENT HOLDERS

The elements are supported in ceramic element plates located on the sides of the furnace. These provide perfect support for the coiled element as well as excellent radiating characteristics. The smooth surface prevents premature failure of the element as it expands and contracts. Element replacement is easy.

### EFFICIENT MULTILAYERED INSULATION

The furnace is insulated with 2-1/2" of low K factor refractory firebrick as the primary insulation. This is backed up by 2" of very low K factor mineral wool board on all surfaces except the bottom which has 2" of hard calcium silicate back up for solid hearth support. This yields an excellent combination of strength, insulating quality and fast heat up and cool down time. All refractory is coated with a special facing that prolongs firebrick life and helps prevent spalling and dusting. The refractory sections are available completely shaped for easy replacement without cementing. All sections fit together with engineered heat locks which improve the insulating integrity of the furnace. No asbestos is used.

### FAST HEAT UP AND COOL DOWN TIMES

An empty B86 bench furnace will heat up to 2000°F (1093°C) in less than 2 hours. The furnace will cool down from 2000°F to 1100°F in 3 hours and to 500°F (260°C) in another 7 hours. Venting options will speed cooling.

### GOOD FURNACE UNIFORMITY

The temperature uniformity +/-50°F (+/-27°C) when measured 2" in from all corners. Uniformity is +/-20°F (+/-11°C) within 12" space front to back (5" from front and 1" from back.)

### HEAVY DUTY BENCH MOUNTED CASE

The furnace case is constructed of 14 and 16 gauge steel. The entire case is primed with 800°F silicone paint and finished in machine enamel.

### CERAMIC HEARTH INCLUDED

The standard hearth is a 3/4" thick ceramic plate elevated on ceramic standoffs 1/2" above the bottom firebrick. This air space aids uniformity. The hearth is 8" wide by 16" deep.

### SINGLE PIVOTED HORIZONTAL DOOR

The furnace door is a single pivoted horizontally opening door with a heavy duty hinge mounted on the left. A De-Sta-Co latch closes the door tightly. There is a 1/2" refractory plug which protrudes into the furnace chamber and provides an effective heat lock. There is a 2" refractory to refractory seal around the perimeter of the door.

### DIGITAL PID CONTROL SYSTEM

The standard control is a Honeywell UDC 2300 digital PID 3 mode tuning control. All contactors and controls are located in a side mounted NEMA 1 panel. Power control is with mechanical power contactors. The thermocouple is Type K. Thermocouple break protection is included. Limit switches shut off furnace power if the door is opened or the power panel back is removed. Customer must connect fused power supply to panel. In addition, there is a separate 120 volt power supply with supplied plug for the controls.

### TESTING AND INSTRUCTIONS

The furnace is power tested to insure proper operation. A complete instruction manual includes easy start up instructions, theory of operation, maintenance instructions, parts list, and a detailed trouble shooting guide. A ladder logic wiring diagram and panel layout are prepared on CAD for easy readability.

### WARRANTY

The furnace is warranted for one year except for elements and thermocouples (warranted for 6 months.)

## OPTIONS

- **OVERTEMPERATURE SYSTEM:** Honeywell UDC 2300 digital high limit back up control with manual reset, back up contactors and separate thermocouple.
- **2200°F OPTION:** Iron-Aluminum-Chrome alloy elements are used instead of nickel-chrome.
- **RAMP/SOAK PROGRAM CONTROLS**
- **TEMPERATURE RECORDERS:** Round and strip
- **MERCURY POWER CONTROL:** For faster cycle times, longer contactor life, and quieter operation.
- **SEALED CASE FOR INERT ATMOSPHERE:** Case is sealed and inert atmosphere is introduced into the furnace chamber and through the element connection area. A flowmeter/regulator is provided.
- **VENT HOLES:** Various diameter vent holes with or without ceramic plugs are available per special request.
- **ANGLE IRON FLOOR STAND:** Hearth level is approximately 40" from floor with this stand.



## SPECIFICATIONS

MODEL NUMBER	INSIDE DIMENSIONS			OUTSIDE DIMENSIONS			STAND K.W.	AMPS AT 240	MAX LOAD LBS	SHIP WGHT
	IW	IH	ID	OW	OH	OD				
B86	9 1/2	8	17 1/2	40	24	36	4.0	16.7	75	250

Dimensions are in inches. Weight is in pounds. Standard voltage is 240 volt single phase. Separate 120 volt line is necessary for control circuit (plug is included). 208 volts is available but reduces power (K.W.) by 25%. Working dimensions should be approximately 2" less in each direction than inside dimensions. Specifications subject to change without notice.