



SPECIAL FURNACE CO INC

20 Kent Road • PO Box 2129 • Aston, PA 19014 • 610.459.9216 • Fax: 610.459.3689 • Web: hotfurnace.com

HB SERIES



APPLICATIONS

The HB Bench furnaces are good general purpose bench mounted box furnaces. The door is an easy to operate spring loaded vertical plug door. Elements are located on the sides. They feature a digital PID tuning control for automatic temperature control. They reach 2200°F (1200°C) with the iron-aluminum-chrome elements or 2100°F (1150°C) with the optional nickel-chrome elements. Many options are available such as special hearths, inert atmosphere operation, stands, and special controls and recorders.

BENCH MOUNTED GENERAL PURPOSE 2200°F (1200°C) ELECTRIC BOX FURNACES

FEATURES

FAST HEAT UP AND COOL DOWN TIMES

An empty HB furnace will heat up to 2000°F (1093°C) in approximately one hour. The higher K.W. option will trim this. Cool down to 500°F (260°C) is approximately 10 hours. The venturi option speeds cooling.

FURNACE UNIFORMITY

The temperature uniformity inside approximately 2/3 of the furnace chamber is in the range of +/-25°F (+/-13°C) at 1800°F (975°C).

HEAVY DUTY BENCH MOUNTED CASE

The case is constructed of 10, 14 and 16 gauge steel with stiffeners. The entire case is primed with 800°F silicone paint and finished in machine enamel. Lifting rings are provided.

IRON-ALUMINUM-CHROME ALLOY ELEMENTS

The elements are coiled iron-aluminum-chrome alloy. A low watt density is used for long element life at high temperatures.

Nickel-chrome alloy elements are available as a no charge option for wax burn out or resistance to oil fumes.

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. Elements are easy to replace.

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. Top is 4-1/2" firebrick for strength. 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.

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.

SPRING LOADED VERTICAL PLUG DOOR

The furnace door is a spring loaded swing up vertical door. The spring holds the door tightly closed, counterbalances it while opening, and holds it up while open. The hot face of the door is kept from the operator. 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 fuses, transformers, contactors, and controls are located in a NEMA 1 panel. Mechanical power contactors are standard; mercury contactors and SCR power controls are optional. 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. Control voltage is 120 volts. A NEMA 13 lighted On/Off switch is included. The control circuit and each power branch circuit are fully fused. Customer must connect fused power supply to single point on panel.

TESTING AND INSTRUCTIONS

The furnace is power tested to insure proper watt ratings. 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 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.
- **JIC CONTROL OPTION:** This includes a NEMA 12 control cabinet, all oil tight switches and a panel mounted fused disconnect switch.
- **HIGH K.W.:** Increases K.W. by 50%. This adds another element plate in the bottom of the furnace. Reduces furnace working height by 2 inches.
- **INERT ATMOSPHERE CONTROL**
- **RAMP/SOAK PROGRAM CONTROLS**
- **TEMPERATURE RECORDERS:** Round and strip
- **MERCURY POWER CONTROL:** For faster cycle times, longer contactor life and quieter operation.
- **SCR POWER CONTROL:** For greater precision
- **SPECIAL HEARTHS:** Silicon Carbide or alloy hearth increases maximum load capacity by 1-1/2 times.
- **ANGLE IRON FLOOR STAND:** Hearth level is approximately 40" from floor with this stand.

SPECIFICATIONS

MODEL NUMBER	INSIDE DIMENSIONS			OUTSIDE DIMENSIONS			STAND K.W.	HIGH K.W.	AMPS AT 240	MAX LOAD LBS	SHIP WGHT
	IW	IH	ID	OW	OH	OD					
HB 9	12	8	12	45	38	28	4.0	6.0	16.7	75	270
HB 29	12	8	24	45	38	40	8.0	12.0	33.4	150	400
HB 39	12	8	36	45	38	52	12.0	18.0	50.1	225	550

Dimensions are in inches. Weight is in pounds. Working dimensions should be approximately 2" less in each direction than inside dimensions. 240 or 480 volts are normal. 208, 380 and 575 volt are optional. Single phase is normal although 3 phase is available. Most 3 phase systems are unbalanced. 480 volt amps are 1/2 of 240 volt amps. Specifications subject to change without notice.