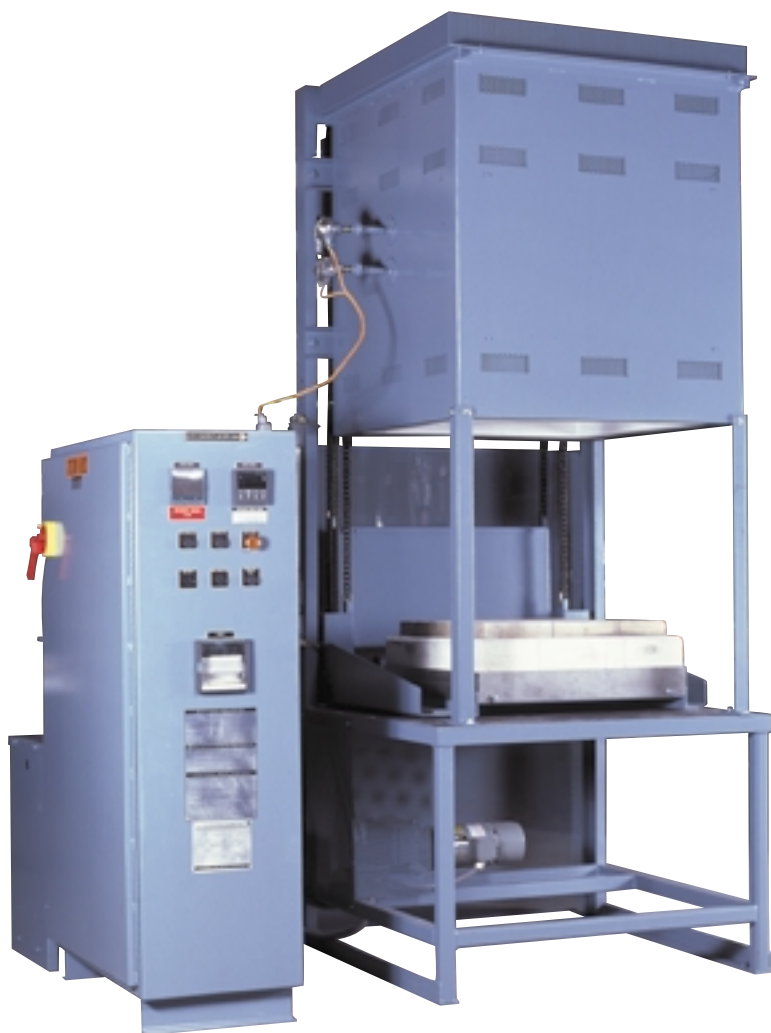




# SPECIAL FURNACE CO INC

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

## GHE SERIES



Model GHE24

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**MOLYBDENUM DISILICIDE ELEMENT  
BOTTOM LOADING ELEVATOR  
FURNACES 3100°F (1700°C)**

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### APPLICATIONS

The GHE SERIES Ultra High Temperature Bottom Loading Elevator Furnaces feature lightweight ultra high temperature ceramic fiber insulation system for fast heat up and low BTU input requirements. The load is placed on an elevator that moves up into the bottom of the fixed furnace. Elements on all four sides provide superior uniformity. The GHE series achieves 3100°F (1700°C) under continuous operation. The insulation system, which is the most fragile and difficult aspect of this type of furnace, is uncompromised in quality and detail. It is guaranteed for one full year, unlike much of the competition where you can expect insulation failure fairly quickly.

### FEATURES

#### MULTILAYERED, EFFICIENT FIBERBOARD INSULATION

The furnace is insulated with multi-layered high alumina and alumina-silicate ceramic fiber board. The hot face is prefired ceramic fiber board made by Zircar or Rath. Two back up layers of fiber insulation are also used. Triple heat locks are designed into the system for extra protection at high temperatures. A vestibule protects the molybdenum disilicide elements, and prevents excessive heat loss when the bottom is opened. No asbestos is used.

#### MOLYBDENUM DISILICIDE ELEMENTS

The elements are molybdenum disilicide Kanthal Super 33 U-shaped elements. These will withstand (3275°F) 1800°C in air. All electrical connections are at the top, and the elements are suspended from the roof. The electrical resistivity of these elements remains constant over time with little aging. This allows replacement of one element without changing all elements, a distinct advantage over silicon carbide elements. Low watt density is designed into the elements for maximum element life. All aluminum element connection hardware is used to prevent galvanic corrosion. Elements are on all four sides.

**DOUBLE WALL CASE CONSTRUCTION**

The insulation module has its own rigid refractory board exterior. This insulation module is inserted into a ventilated steel casing leaving an air space between the exterior case and the insulation module. This allows for cooling of the insulation, important in long insulation life, and helps maintain a cool external case temperature. The case is primed with 800°F silicone paint and finished in machine enamel.

**DEEP PLUG BOTTOM CONSTRUCTION**

The bottom features a deep plug type seal with triple heat locks. A vestibule around the bottom opening reduces heat loss and helps protect the elements.

**ELECTRIC ELEVATOR**

The bottom rises and lowers into the furnace by means of an electric gear motor.

**TEMPERATURE UNIFORMITY OF +/-10°C ( +/-18°F)**

Uniformity of +/- 10°C (+/-18°F) is normal above 1200°C (2200°F) within 2/3 of the working dimensions. The fact that the elements are on all four sides makes the uniformity particularly good.

**ALUMINA HEARTH SUPPORTED FROM COLD FACE**

The hearth is a series of flat alumina plates supported by a series of insulating alumina posts which transfer the weight of the hearth all the way to the bottom of the cold face of the bottom insulation.

**FAST HEAT UP AND COOL DOWN**

The all fiber insulation and Kanthal Super 33 elements provide fast heating and cooling response.

**PID DIGITAL CONTROL , HIGH LIMIT CONTROL AND SCR POWER CONTROL**

The standard control used is a Honeywell UDC 2300 digital PID 3 mode tuning control. All fuses, transformers, contactors, and controls are located in a NEMA 1 panel. A matched transformer and phase angle fired SCR controls power to the elements. This insures even, precise control and long element life. The thermocouples are Type B. The control voltage is 120 volts. A NEMA 13 lighted On/Off switch and NEMA 13 door power cut off switch are included. A Honeywell UDC 2300 digital high limit back up control with manual reset, back up contactors and separate thermocouple is standard. Customer must connect fused power supply to single point on panel.

**TESTING AND INSTRUCTIONS**

The furnace is tested to insure circuit integrity. 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 system for easy readability.

**WARRANTY**

The furnace and insulation module are warranted for one year except for elements and thermocouples (warranted for 6 months.)

**OPTIONS**

- **JIC CONTROL OPTION:** This includes a NEMA 12 control cabinet, all oil tight switches and a panel mounted fused disconnect switch.
- **RAMP/SOAK PROGRAM CONTROLS**
- **TEMPERATURE RECORDERS:** Round or strip chart
- **DIFFERENT TEMPERATURE RATINGS:** The same design is available in reduced temperature ratings at a lower cost. There are various grades of elements and insulation that can be used.



*Shows the inside of a GHE24*

**SPECIFICATIONS**

MODEL NUMBER	WORKING DIMENSIONS			INSIDE CHAMBER DIMENSIONS			OUTSIDE ELEMENT DIMENSIONS			NO & SIZE	K.W.	MAX LOAD WGHT	SHIP WGHT
	W	H	D	IW	IH	ID	OW	OH	OD				
GHE 12	12	12	12	16	14	16	33	90	39	8 <sup>6</sup> / <sub>12</sub>	8	60	1500
GHE 15	15	15	15	19	17	19	36	96	42	12 <sup>6</sup> / <sub>12</sub>	16	100	2000
GHE 24	24	24	24	28	26	28	45	114	51	16 <sup>6</sup> / <sub>12</sub>	40	200	3000
GHE 36	36	36	36	40	38	40	57	138	63	24 <sup>6</sup> / <sub>12</sub>	80	500	5000

Weight is in pounds. All dimensions are in inches except size of elements which are in millimeters (i.e. 6/12 means 6 mm for main body of element and 12 mm for terminal end). Outside dimensions shown do not include control panels. Hearth height is 42" from floor. Control panel is 17" wide by 60" high by 36" long. 240 or 460 volts is normal. 208, 380 and 575 volts are optional. Larger sizes are available by special quote. Heavier hearth loading is optional. Load weight must be evenly distributed. Specifications subject to change without notice.