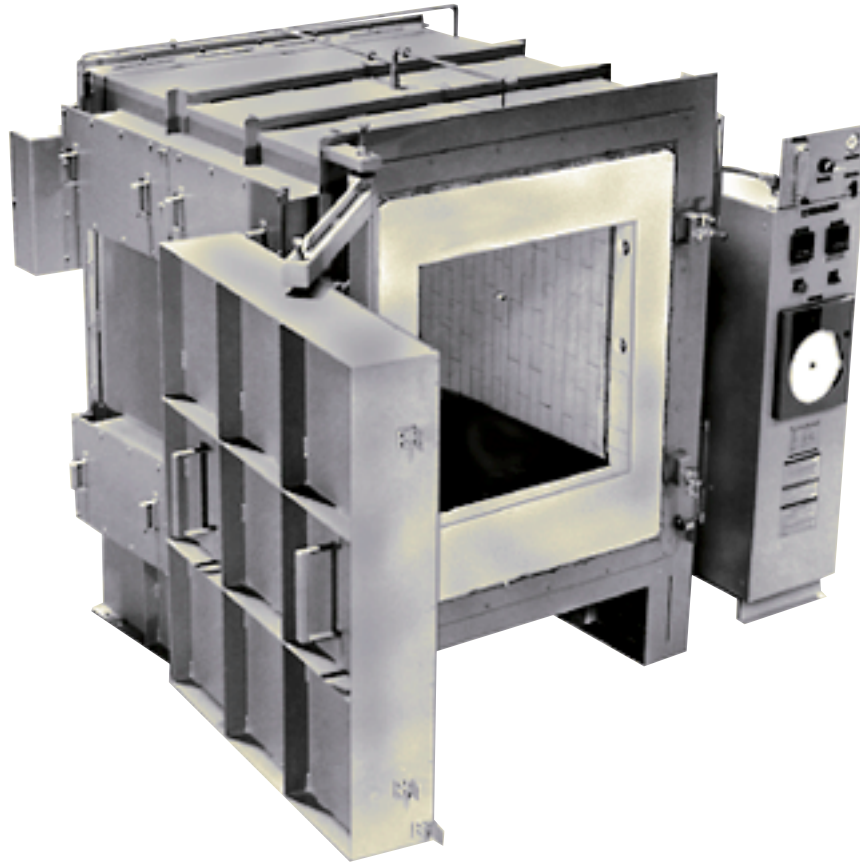




# SPECIAL FURNACE CO INC

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## GF SERIES



### APPLICATIONS

The GF SERIES Electric Furnaces feature 2800°F (1535°C) operation. Silicon carbide elements are controlled with a phase angle fired SCR. The door features a deep plug for minimal heat loss around the door. Because this door must be opened horizontally the furnace can not be loaded and unloaded easily at high temperatures. These furnaces are excellent for long high temperature cycles. They are used mostly in ceramics but find application in chemical processing and other fields.

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**SILICON CARBIDE ELEMENT ELECTRIC  
FLOOR STANDING BOX FURNACES  
2800°F (1535°C)**

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### FEATURES

#### SILICON CARBIDE HEATING ELEMENTS

Silicon carbide heating elements are mounted over and under the hearth for even heating. All element connections are on the sides. Watt density is between 30 and 39. Elements are rated for 3000°F (1650°C).

#### FLOOR STANDING CASE CONSTRUCTION

The case is reinforced 10 gauge and 3/16" sheet steel with an integrated floor stand and lifting rings. The entire case is primed with 800°F silicone paint and finished in machine enamel.

#### MULTILAYERED INSULATION; CERAMIC FIBER ROOF AND DOOR PLUG

There is 4-1/2" of 3000°F (1650°C) insulating firebrick backed up with 4" of 2300°F (1260°C) ceramic fiber. The roof and door are made from 2850°F (1565°C) ceramic fiber modules. All insulation is available in preshaped sections for easy maintenance. As an option the entire insulation can be ceramic fiber modules for fast heat up and cool down. No asbestos is used.

**DEEP PLUG DOOR WITH VESTIBULE AND DOUBLE PIVOT HINGE FOR EXTREMELY TIGHT SEAL**

The horizontally opening door features a 2” deep plug for excellent heat blockage even at elevated temperatures. Double pivoting of hinge allows parallelogram opening of the plug door. This keeps the hot face from the operator and allows tight sealing of the door. A vestibule around the perimeter of the door reduces heat loss when the door is opened. This also aids temperature uniformity while protecting the elements from physical damage.

**TEMPERATURE UNIFORMITY OF +/-25°F (+/-15°C)**

Uniformity of +/-25°F (+/-15°C) is normal above 1600°F (870°C) within 2/3 of the working dimensions.

**1-1/2” THICK SILICON CARBIDE HEARTH**

The hearth is a 1-1/2” thick silicon carbide hearth plate for strength and excellent heat transfer. Height from floor to hearth is 32”.

**DIGITAL PID CONTROL AND HIGH LIMIT SYSTEM**

The standard control is a Honeywell UDC 2300 digital PID 3 mode tuning control. All fuses, contactors, and controls are located in a NEMA 1 panel. The thermocouples are Type R. The control voltage is transformed to 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.

**SCR POWER CONTROL AND TAP TRANSFORMER**

The power control has a 6 position tap transformer with taps that are changed inside the control panel and a phase angle fired SCR. The SCR adjusts for most voltage changes automatically as needed, eliminating the need to manually change taps during operation.

**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 CAD for easy readability.

**WARRANTY**

The furnace is 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.
- **INERT ATMOSPHERE CONTROL:** The GF furnaces can be fitted for use with inert or combustible atmospheres. Inlet of the atmosphere is through the element connection chamber to maintain cool element connections. This system includes special all aluminum element hardware inside the sealed boxes. The door features a special tadpole gasket. A completely piped flowmeter and regulator with ball valve, pressure gauge and pressure relief valve is included. Complete safety systems for use with combustible atmospheres are available. Temperature is limited to 2500°F (1370°C) with nitrogen, to 2200°F (1200°C) with any hydrogen over 4% but can take the full rated temperature with argon.
- **HIGH DENSITY ELEMENTS:** These will provide greater element life than the standard silicon carbide elements, especially in atmosphere applications.
- **RAMP/SOAK PROGRAM CONTROLS**
- **TEMPERATURE RECORDERS:** Round or strip chart
- **VENTURI VENT:** A venturi can be provided for venting or quick cool down. This can be programmable.
- **COUNTERBALANCED VERTICAL DOORS:** Manual hand crank, pneumatic or electric operation.



**SPECIFICATIONS**

| MODEL NUMBER | WORKING DIMENSIONS |    |    | INSIDE DIMENSIONS |        |        | OUTSIDE DIMENSIONS |    |     | K.W. | MAX LOAD LBS | SHIP WGHT |
|--------------|--------------------|----|----|-------------------|--------|--------|--------------------|----|-----|------|--------------|-----------|
|              | W                  | H  | D  | IW                | IH     | ID     | OW                 | OH | OD  |      |              |           |
| GF 9         | 12                 | 8  | 10 | 14                | 15 1/2 | 11 1/2 | 36                 | 62 | 28  | 10   | 50           | 1400      |
| GF 29        | 12                 | 8  | 20 | 14                | 15 1/2 | 21 1/2 | 36                 | 62 | 38  | 20   | 100          | 1800      |
| GF 39        | 12                 | 8  | 30 | 14                | 15 1/2 | 31 1/2 | 36                 | 62 | 48  | 30   | 150          | 2200      |
| GF 524       | 15                 | 15 | 24 | 17                | 26 1/2 | 26     | 70                 | 61 | 54  | 33   | 125          | 2000      |
| GF 814       | 18                 | 12 | 24 | 20                | 23 1/2 | 26     | 73                 | 58 | 54  | 34   | 150          | 2200      |
| GF 824       | 18                 | 18 | 24 | 20                | 29 1/2 | 26     | 73                 | 64 | 54  | 41   | 150          | 2700      |
| GF 836       | 18                 | 18 | 36 | 20                | 29 1/2 | 38     | 73                 | 64 | 66  | 52   | 225          | 3400      |
| GF 236       | 24                 | 18 | 36 | 26                | 29 1/2 | 38     | 79                 | 64 | 66  | 60   | 300          | 4100      |
| GF 244       | 24                 | 24 | 24 | 26                | 35 1/2 | 26     | 79                 | 70 | 54  | 54   | 200          | 3900      |
| GF 246       | 24                 | 24 | 36 | 26                | 35 1/2 | 38     | 79                 | 70 | 66  | 66   | 300          | 4300      |
| GF 248       | 24                 | 24 | 48 | 26                | 35 1/2 | 50     | 79                 | 70 | 78  | 86   | 400          | 5900      |
| GF 3636      | 36                 | 36 | 36 | 38                | 47 1/2 | 38     | 91                 | 82 | 66  | 106  | 450          | 7400      |
| GF 3648      | 36                 | 36 | 48 | 38                | 47 1/2 | 50     | 91                 | 82 | 78  | 127  | 600          | 8600      |
| GF 3672      | 36                 | 36 | 72 | 38                | 47 1/2 | 74     | 91                 | 82 | 102 | 164  | 900          | 10000     |

All dimensions are in inches. Weight is in pounds. Typical floor standing control panel is 24” wide by 66” high by 36” deep. 240 or 460 volts is normal. 208, 380 and 575 volts are optional. Three phase is normal, although single phase is available. All circuits are balanced loads. Larger sizes are available by special quote. Specifications are subject to change without notice.