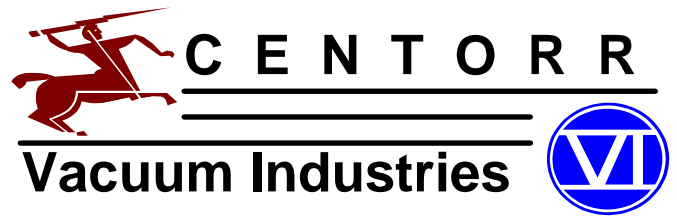


PRODUCT Information



HIGH TEMPERATURE VACUUM or CONTROLLED ATMOSPHERE GRAPHITE FURNACE

SERIES 46 Bottom Loading Graphite Furnace

APPLICATIONS

Annealing
Brazing
Crystal Growth
Ceramic Firing

Degassing
Heat Treating
Melting
Sintering

MAIN FEATURES

Low initial cost
Efficient, inexpensive to use
Uncomplicated design, easy to operate.
Clean, compact, vacuum-tight construction
Use in vacuum, inert, nitrogen atmospheres
Low thermal mass—rapid heating and cooling
Accurate and uniform temperature control

HEAT ZONE SIZE

From 9" dia. x 12" high
to 36" dia. x 36" high

TEMPERATURE

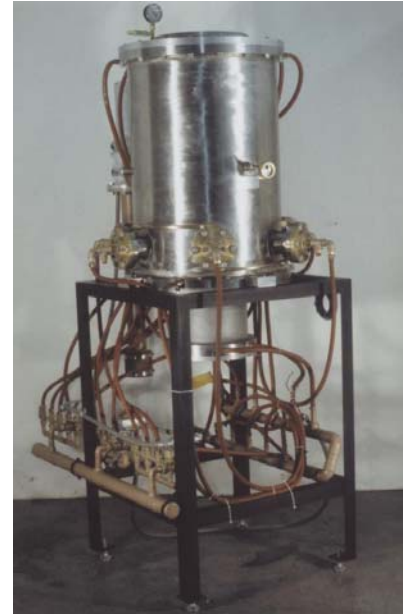
Up to: 1000°C (2012°F)
1650°C (3000°F)
2000°C (3632°F)
2500°C (4532°F)
2800°C (5072°F)

OPERATING PRESSURE

2 psig to 10-50 Microns

PROGRAMMER

Micro Processor
Accuracy: +/- 10°C



GENERAL

The Centorr Vacuum Industries Series 46 High Temperature Vacuum or Controlled Atmosphere, Bottom Loading, Cold Wall, Graphite Furnaces are simple and easy to operate.

A furnace system typically consists of the Basic Furnace Chamber Assembly, Work Elevator Assembly, the Evacuation System, the Process Gas System, the Power Supply, the Temperature Control Instrumentation, and the Furnace Mounting Assembly.

These furnaces can be built having Heat Zone sizes of 9" ID x 12" High to 36" ID x 36" High; and capable of operating up to 2800°C (5072°F) in Vacuum, in Inert Gas, or in Nitrogen. The Evacuation System is capable of attaining 10—50 microns. The Furnace Chamber may be backfilled to 2 PSIG

The Furnace is mounted on an open frame with the Evacuation System immediately behind (or to one side) for maximum efficiency. The Power Supply and Control Console are also located as close as possible to the Furnace Chamber.

The unit is ready to operate as soon as power is connected to the main circuit breaker, and water inlet and drain connections are made.

The Furnace is completely assembled and thoroughly tested prior to shipping. A copy of test results will accompany shipment.



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Basic Furnace Chamber Assembly

The Basic Furnace consists of a double wall, all stainless steel (304L), water-jacketed chamber, inside of which is the Heat Zone. The Heat Zone is resistance heated. The Heating Element is made of Solid Graphite. Heat shielding is by Graphite Felt pressed into solid form. Heat Zone components are readily accessible for inspection or maintenance. A graphite hearth is provided for work support.

The entire inside of the furnace chamber is designed to conform to the best High Vacuum Practice. Particular attention is given to the choice of heat zone materials and to surface finishes. Ports are provided for Sighting, Thermocouples, Evacuation, Inert Gas inlet and exit, Gauges, etc. Centorr Vacuum Industries' proprietary Rotatable Sight Window with gas port is included as standard equipment.

Loading is done by means of the hydraulically operated Furnace Base. Work is placed on top of the hearth and raised up into the heat zone. Clamps are provided for operation to slightly above ambient pressure.

Evacuation System

For operation in the 10—50 Microns range of vacuum or for evacuation prior to backfilling with Inert Gas or Nitrogen, we include an Evacuation System. This includes a Mechanical Vacuum Pump, Vacuum Valve, and Manifold. Line Filter ahead of the vacuum pump, and Thermocouple type Vacuum Instrument are optionally available.

Process Gas System

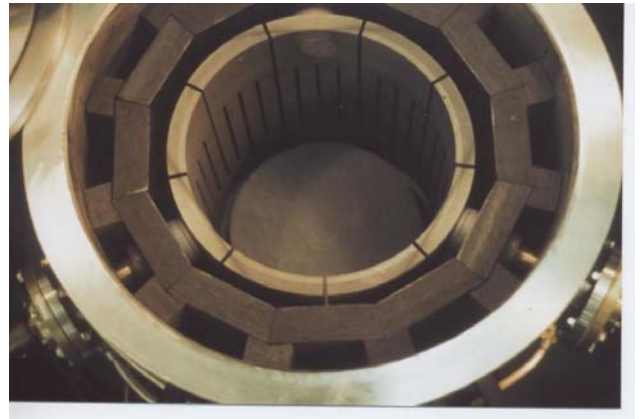
Process Gas System consists of Vacuum-tight Gas Inlet Valve and Relief Valve, Bourdon-type Pressure Vacuum Gauge, and Manifold.

Power Supply System

Power Supply Systems consist of Silicon Controlled Rectifier Power Controller (Saturable Core Reactors also available) with Current Limit, Step-down Transformer, Circuit Breaker, Contractor, Control Transformer, Ammeter, Voltmeter, Push-buttons, Indicator Lights, Water Interlocks, all completely wired and packaged in an attractive floor standing cabinet.

Utility requirements are given in KVA at customer's Primary Voltage, Single or Three Phase, and 50 or 60 Hertz.

Centorr Vacuum Industries Manufactures a complete line of High Temperature Vacuum and Controlled Atmosphere Furnaces for the Research and Development Laboratory, the Materials Testing and Evaluation Laboratory, and for Production.



Temperature Control Instrumentation

Centorr Vacuum Industries can supply from the simplest Manual Power Control to the most elaborate instrumentation. This can include Automatic closed loop control utilizing Thermocouples, Power Transducers, or Optical Pyrometers for sensing; and incorporating Indicator Controllers, Recorders, and Programmers. Various types of Micro-processor Programmers are now available and extremely popular.

Furnace Mounting Assembly

The Furnace Chamber is mounted on an open support frame. Legs are provided with Leveling Pads. It is also possible to lag the support frame to the floor.



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