THE BRIGHTEST SOLUTIONS THROUGH INGENUITY

SOLAR MANUFACTURING

VBL-EQ Series

Vertical Vacuum Heat Treating & Brazing Furnace

VBL-Series Features and Benefits

- Vertical Bottom Loading design with integrated heavy-duty support structure
- The bottom head is designed for motorized operation in/out – up/down and offers easy, convenient unobstructed loading/unloading of work loads and fixtures
- Autoclave ring closure eliminates door seal problems
- Typical work zone sizes: Diameter x Height
  48″ x 48″ 3500 pound capacity
  60″ x 60″ 4500 pound capacity
  60″ x 72″ 4500 pound capacity
  72″ x 72″ 5000 pound capacity
  80″ x 60″ (Shown in photo at right)
- Available in energy efficient graphite insulation or all metal radiation shielded design
- Thin profile, curved graphite resistance heating elements for rapid, uniform radiant heat up and cool down
- High performance external gas quenching for rapid cooling at positive pressures up to 15 PSIG
- Fully automated and programmable industrial controls package
- Designed for easy maintenance and minimal downtime

Solar Manufacturing designs and manufactures vacuum heat treating and brazing furnaces with a focus on energy efficiency and durability. As a team of specialists with many collective years of experience in vacuum furnace and hot zone design, we are committed to our objectives of providing vacuum furnaces with the lowest cost of ownership achieved through state-of-the-art materials, high performance operation and robust design.

Vertical Bottom Loader

Solar Manufacturing is part of Solar Atmospheres, Inc., a progressive company and one of the largest independent commercial heat treaters in the USA. This background affords us a distinct advantage in the industry to assist you in choosing the right vacuum furnace for your application.

Specifications

The VBL-EQ model is a vertical bottom loading, external quench, vacuum heat treating and brazing furnace generally designed for high production commercial, aerospace, and captive heat treating shops. It is a high temperature, high vacuum, batch-type furnace with electric resistance heating elements.

VBL-EQ Series

Vertical Vacuum Heat Treating & Brazing Furnace

Hot Zone

- Operating temperature: 2400°F (1315°C)
- Maximum temperature: 2500°F (1371°C)
- Temperature uniformity: approx ±10°F (±5°C)
- Hearth: moly pins and graphite rails
- Heating elements: curved graphite bands or moly
- Insulation: Four layers of ½" high purity graphite felt
- Hot Face: .047" (5mm) thick Flex Shield carbon fiber reinforced graphite foil sheet
- Insulation and heating elements mounted on heavy duty 0.090" stainless steel support structures

Vacuum Chamber

Double wall, water cooled, vertical bottom loading vacuum chamber. Bottom head with pneumatically operated, autoclave-type locking ring to permit the furnace to safely quench at positive pressures up to 15 psig (2 bar). Oversized water inlets and outlets assure maximum water flow.

Gas Quenching System

The external gas quench system provides the lowest resistance, highest efficiency gas flow in the industry. An appropriately sized motor drives a high-speed radial fan to recirculate the quench gas straight through the water-to-gas heat exchanger and then into the hot zone at high velocity. The tapered graphite gas nozzles are specifically directed at the work load for optimum cooling.

Vacuum Pumping System

- Mechanical Pump: Edwards Stokes
- Vacuum Booster Blower: Edwards Stokes
- Diffusion Pump: Varian
- Holding Pump: Alcatel
- High Vacuum Valve: Right angle poppet valve

Power Supply

Hunterdon VRT or Magnetic Specialties angle fired SCR power supply; 460 volt/3 phase/60 Hertz

Control Cabinet and Instrumentation

All industrial controls and instrumentation are housed in a suitable NEMA 12 control cabinet.

The SolarVac™ interactive control system enables the operator to monitor, control, record and display information graphically to quickly understand the status of the furnace.

- Programmable Logic Controller: Allen-Bradley
- Programmable Controller: Honeywell Model DCP551
- Overtemperature Controller: Honeywell Model UDC2500
- Graphic Video Recorder: Eurotherm Model 6180 utilizing a 12" color touch-screen monitor
- Operator Interface: Allen-Bradley PanelView Plus 1500 utilizing a 15" color touch-screen monitor
- Vacuum Gauge Controller: Televac MC300
- Control Thermocouples: Type "S"
- Work Thermocouples: Type "K"

Standard Optional Equipment and Energy Saving Options

- ConserVac™ energy saving pump control system
- Variable frequency drive for quench motor
- Gas backfill reservoir
- A330 and molybdenum work grids

Additional options are available upon request.

For more information or to request a proposal, contact the vacuum furnace specialists at Solar Manufacturing.

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