

## VTL-Series

# Laboratory Heat Treating & Brazing Vacuum Furnace

### Features and Benefits

- Vertical, top-loading design with swing out top cover for convenient, unobstructed loading / unloading of work loads and fixtures
- Work Zone Size: Diameter x Height: 7.5" (191 mm) dia. x 14" (355.6 mm) high 100 pound (45 Kg) capacity
- Hanging heating elements of graphite or molybdenum for rapid, uniform, radiant heat up and cool down
- Entire furnace system is mounted on a compact, heavy duty, steel platform for space restricted laboratories
- Fully automated and programmable industrial controls package
- Designed for easy maintenance and minimal downtime

### Specifications

The VTL model is a vertical, top-loading, vacuum heat treating and brazing furnace generally designed for research and development applications in laboratory and university settings. It is a high temperature, high vacuum, batch type furnace with electric resistance heating elements.

### Hot Zone

- Operating temperature: 4000°F (2204°C)
- Maximum temperature: 4200°F (2316°C)
- Temperature uniformity: approximately  $\pm 10^\circ\text{F}$  ( $5^\circ\text{C}$ )
- Hearth: molybdenum or graphite rail
- Heating elements: graphite rods (molybdenum available)
- Insulation: High purity graphite felt (all-metal shields available)
- Hot Face: 0.040" thick, Flex Shield carbon fiber reinforced graphite foil sheet (molybdenum available)
- Insulation and heating elements are mounted on a heavy duty stainless steel support structure



### Vacuum Chamber

Double wall, water cooled, vertical top-loading vacuum chamber. A pneumatically operated, swing out, o-ring sealed top cover is secured during operation with door bolts. An optional vacuum tight, shuttered sight port allows observation of the work load and hot zone.

### Vacuum Pumping System

- Mechanical Pump: Edwards Stokes or equivalent
- Diffusion Pump: Varian
- Holding Pump: Alcatel or equivalent
- High Vacuum Valve: Poppet Type

### Power Supply

- Angle fired SCR, 460 volt, 3 phase, 60 Hz
- Air cooled for reduced maintenance

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### Control Cabinet and Instrumentation

All industrial controls and instrumentation are housed in a suitable NEMA 12 ventilated control cabinet. A graphic representation mounted on the control cabinet's front door provides operational status of the furnace systems.

- Programmable Logic Controller: Allen Bradley Micrologix 1500
- Programmable Controller: Honeywell Model DCP551
- Overtemperature Controller: Honeywell Model UDC2500
- Graphic Video Recorder: Eurotherm Model 6100 utilizing a DAQ 4" color touch-screen monitor
- Operator Interface: Allen-Bradley PanelView Plus 1000 utilizing a 10" color touch-screen monitor
- Vacuum Gauge Controller: Televac MC300
- Thermocouples: One (1) Control and One (1) Overtemp. See table below.

TYPE	MAX OP. TEMP.
S/R	2650° F
B	3100° F
W5	4200° F

- Work Thermocouples: Six (6) Type "K" (for operation below 2150°F)

Additional options are available upon request.

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, we are committed to our objective of providing vacuum furnaces and hot zones with the lowest cost of ownership achieved through state-of-the-art materials, high performance operation, and robust design.

Solar Manufacturing is a 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.

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



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