

## Solar Furnace Model HFL-3648-LT Vacuum Nitriding Furnace

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The Solar Manufacturing Model HFL-3648-LT is a horizontal front loading vacuum gas nitriding furnace with electrical resistance heating elements designed for commercial and captive heat treating shops. It is a vacuum, batch type furnace.

### Features and Benefits

- Horizontal, front loading design with hinged front door for easy, convenient, unobstructed loading/unloading of work loads and fixtures
- Work zone measuring 30"H x 36"W x 48"D
- Energy efficient graphite insulation for temperature applications to 1250°F
- Flat graphite resistance heating elements for rapid, uniform radiant heat up and cool down
- High performance external gas quenching for rapid cooling at positive pressures
- Fully automated and programmable industrial controls designed by Super Systems, Inc.
- A large spring loaded safety relief port in case of gas over pressure
- Designed for easy maintenance and minimal downtime
- Meets NFPA 86 safety standard and AMS 2750 D thermal standard

### Hot Zone

- Operating temperature: 1250°F
- Temperature uniformity: approx  $\pm 10^\circ\text{F}$
- Hearth: stainless steel pins and graphite rails rated to 2500 pounds
- Heating elements: flat graphite bands on sides
- Insulation: 2" thick high purity graphite felt surrounds the work zone on all sides, including the front and rear heads



- Hot Face: .040" thick flexible fiber reinforced graphite sheet
- Insulation and heating elements mounted in a heavy duty, square stainless steel enclosure
- Two 3 HP top mounted fan motor assemblies for atmosphere gas recirculation in the hot zone

### Vacuum Chamber

Horizontal front loading vacuum chamber. Hinged front door with captive bolts.

### Gas Quenching System

An external gas quench system will be provided to cool the work load in the hot zone using recirculated nitrogen gas to positive pressures. A 30 HP motor will drive a radial fan to recirculate the quench gas through a water-to-gas, stainless steel heat exchanger and then returning to the hot zone.

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## Vacuum Nitriding Furnace

### Controls Cabinet and Instrumentation

Controls and instrumentation, designed and provided by Super Systems, Inc., housed in a suitable NEMA 12 ventilated control cabinet.

- Programmable Logic Controller: Allen Bradley MicroLogix 1500
- Programmable Temperature and Process Controller: SSi Model 9210
- SSi Super Data Acquisition System
- SSi dual loop controller for % disassociation measurement and temperature control
- Overtemperature Controller: SSi Model 7SL
- Back up UPS power supply
- Vacuum Gauge Controller: Televac MC300
- Control Thermocouples: Two (2) Type "K"
- Work Thermocouples: Twelve (12) Type "K"



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Controls exclusively provided by SSi

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Super Systems, Inc. is a systems integrator serving the thermal process industry. Experience with protective atmosphere furnaces allows SSi to bring a full range of engineered systems and services to the marketplace. Systems are designed, engineered and built for carburizing, carbonitriding, annealing and vacuum heat treating.

To learn more about SSi, call 800-666-4330 or visit their website at [www.supersystems.com](http://www.supersystems.com).

### Vacuum Pumping System

Mechanical Pump: Stokes Model 212, 150 cfm or equal

### Power Supply

Magnetic Specialties angle fired SCR Power Supply rated at 100 KVA, 460 volt, 3 phase, 60 Hertz.

### Standard Optional Equipment

- Dedicated manual rail guided load truck
- RA330 work grids and multi-tier fixtures or work baskets
- ConserVac energy saving pump control system

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.

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.

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



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