

VH-HV Flipper™ Vacuum Furnace System

It's Vertical - It's Horizontal...It Flips!

The T-M Vacuum VH-HV Flipper furnace is the first of its kind, remarkable versatility for all of your developmental and production needs. Within its all-stainless steel chamber is a horizontal 6" x 6" x 12" deep work zone that can also be flipped vertically for an 8" x 12" work zone. With capabilities of up to 50 pounds of material for brazing, tempering, austenitizing, hardening, stress relieving, sintering, bonding, and many other custom processes.

With its standard all metal hot zone a precision heating environment of up to 2,000°C can be achieved with precise temperature uniformity.

The specially designed hot zone to chamber ratio enables a faster pump downtime utilizing its standard turbo-molecular pumping system. Add the inert gas on-board quick cool system and your process times can be remarkably fast!

Once you have determined your specific process parameters, enter it into the touch screen PLC control system and you have a completely automated process with data logging!

The VH-HV Flipper furnace is a completely self-contained unit, requiring no reassembly at your facility, and it is compact for floor space economy! Simply plug connect your electrical service, water, gas, and air and away you go!

If the VH-HV Flipper furnace is not large enough for your needs please ask about our Super Series Vacuum furnace system.



HIGH-TEMPERATURE –
HIGH-VACUUM SYSTEMS

T-M Vacuum Products, Inc.

856.829.2000 • www.tmvacuum.com • info@tmvacuum.com • 630 S. Warrington Street, PO Box 2248, Cinnaminson, NJ 08077 USA

Temperature Capabilities and Controllability

- | | |
|-------------|-------------------|
| 13 series | 1,315°C (2,400°F) |
| 16.5 series | 1,650°C (3,000°F) |
| 20 series | 2,000°C (3,632°F) |
- ± 1 degree controllability
 - 1-zone heat control with independent PID loop control

Vacuum Pumping System

- Standard pump downtime

Atm. 0.1 Torr	7 minutes
10 ⁻⁵ Torr Scale	15 minutes
- Mechanical pump – net pumping speed: 6.9 cfm
- Turbo pump – net pumping speed: 270 l/s

Optional Inert Gas Quick Cool System

- Free air displacement gas/water heat exchanger
- Frame mounted heat exchanger

Available:

- Multiple process gas capability
- Controlled cooling

System Controls

State-of-the-art PLC control system with automatic control and data logging of all system functions. System operation is defined by user created recipes stored on the system. More than 20 user friendly screens display all set points and operating data. Process parameter can be accessed and stored on the system in real time for historical reference or as customer required documentation. A GUI 6" touch screen display provides ease of operation.

- Independent over-temperature control
- Digital vacuum display on PLC screen
- Center of load thermocouple
- Standard Emergency Stop

Available:

- Multiple-survey thermocouples
- Multiple mass flow controllers
- Hydrogen operation

Operating Pressure Range

- High-vacuum to 1 bar
- Working pressure at maximum temperature: high-vacuum to 1 Torr (higher pressures available)

Hot Zone Construction

- Horizontal usable work zone 6" W x 6" H x 12" D, (0.25 ft³)
- Vertical usable work zone 8" dia. x 12" D, (0.84 ft³)
- Work load capacity 25 lbs. vertical and 50 lbs. horizontal
- Cylindrical, hot zone comprised of six (6) high temp/low resistance molybdenum band heater elements
- Heat shielding is composed of molybdenum layers in stainless steel containment
- Complete hot zone is easily removed as a unit for fast maintenance and less downtime
- Horizontal molybdenum hearth assembly is 6" W x 12" D
- Vertical molybdenum hearth assembly is 8" dia.

Available:

- Tungsten insulation
- Graphite and tungsten heating elements
- Graphite insulation

Chamber

- All stainless steel construction including head-end closure and water-jacketing
- Dual-wall chamber configuration designed to allow complete water-to-surface contact
- Stainless steel dual-wall, water-cooled door
- Water cooling for power feed-thru is external to vacuum chamber, eliminating the possibility of water leaking into the chamber
- Four clamp over center manual clamp/locking door
- Working pressure: Full vacuum to 1 bar

Safety Features

All T-M Vacuum Products, Inc. products are equipped with standard safety features to ensure safe operation.

Please contact T-M Vacuum Products, Inc. at 856.829.2000 for availability and pricing of these or any other option requirements

*All times and pressures are for clean, dry, empty, out-gassed furnace, starting from ambient pressure and temperature and may vary. Times and pressure subject to pump size and maximum temperature.

