

Tool Room™ Vacuum Furnace System

An Economical Vacuum Furnace System.

The T-M Vacuum Tool Room Vacuum Furnace System is the high temperature, technically advanced vacuum furnace to satisfy all your heat-treating needs. Within its all stainless steel chamber is a two cubic foot work zone capable of holding up to 200 pounds of material for tempering, austenitizing, hardening, stress relieving, brazing, sintering, bonding, annealing, and many other custom heat treating processes.

Obtaining perfectly heat-treated product is easy. With our standard electro-pneumatically operated "heat pack" door shield assembly, a precision heating environment is created for optimum temperature uniformity. With its inert gas on board quick cool system the metallurgical gas quench increases your cycle times by rapidly cooling the chamber and increasing your product output. And our specially designed Hot Zone-to-chamber ratio enables the pumping system to reach vacuum quicker, maximizing your productivity and work quality with a clean work environment.

The Tool Room Vacuum Furnace System is a cost cutting machine. The color touch panel PLC control technology, is a completely automated control system requiring an operator to only load and unload the system and press the start button.

The Tool Room System is completely contained unit with no exposed wires, cables or pumps. This saves you valuable floor space and provides a clean presentation in your facility. The Tool Room Vacuum Furnace System is easy to install and simple and fast to maintain with the fully removable hot zone.

If you are looking for higher vacuum level capability or the Tool Room Series work zone it not large enough for your application see our SUPER, PACER, or PERFORMER Series furnaces.



Above: The The Tool Room 12/24-13G



Above: The Tool Room 12" W x 12" H x 24"D Hot Zone



Left: "+" control system



HIGH-TEMPERATURE | HIGH-VACUUM SYSTEMS



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T-M Vacuum Products, Inc.

Temperature Capabilities and Controllability

10 series	1000°C (1832°F)
13 series	1315°C (2400°F)
14.5 series	1415°C (2650°F)
16.5 series	1650°C (3000°F)
20 series	2000°C (3632°F)

- +/- 1 degree controllability
- Nominally +/- 5°C temperature uniformity*
- SCR Power Supply regulation
- Single zone heat control with independent PID loop control

Vacuum Pumping System

- Standard pump down time*
 - To 0.1 Torr 7 minutes
 - To 10 microns 4.5 minutes with roots blower*
- 42.4 cfm mechanical pump

Available:

- Mechanical pump roots blower packages

Inert Gas and Quick Cool System

- 10 HP blower – 4,200 cfm free air displacement
- Gas/water heat exchanger
- 18 flow channels directing quick-cool gas onto workload
- Integral with furnace chamber, no externally mounted components

Available:

- Multiple process gas capability

System Controls

- Color Touch Panel Operator Interface. PLC allows programmable ramps and soaks, vacuum set points, gas back fills, and automatically executes system overhead functions such as pump downs and vents. Capable of data logging
- Over-temperature control
- Digital vacuum display
- Center of load thermocouple standard
- Emergency stop

Available:

- Multiple-survey thermocouples
- Uninterrupted power supplies (UPS)
- Multiple-channel color strip chart recorder

Operating Pressure Range

- High-vacuum to 2 bar (higher pressures available)
- Working pressure at maximum temperature: high-vacuum to 1 torr (higher pressures at temperature available)
- Capable of pressures between atmosphere and 2 bar (for quick cool use)
- 6 bar quench available

Hot Zone Construction

- Usable work zone 12" W x 12" H x 24" D
- Usable work zone volume of 2 cubic feet
- Work load capacity 200 lbs (higher capacity available)
- Round, horizontally-mounted hot zone, comprised of six (6) high temp/low resistance molybdenum 2" band heater elements
- Heat shielding is composed of graphite insulation in stainless steel containment and an electro-pneumatically operated "Heat Pack" door shield assembly
- Complete hot zone is easily removable as a unit for fast maintenance and less down time
- Molybdenum hearth assembly is 12" W x 24"D

Available:

- Graphite and tungsten heating elements
- Molybdenum insulation in stainless steel containment

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
- Six clamp over center pneumatic clamp/locking door
- Working pressure: Full vacuum to 2-bar (higher pressures available)

Safety Features

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

Please consult T-M Vacuum Products, Inc. at (856) 829-2000 for availability and pricing of these or any other option requirements.

*All times on process are for reference only. Actual process times may vary depending on part and load. Process times are based on maximum temperature and load. Times on process are for a single part size on maximum temperature.

