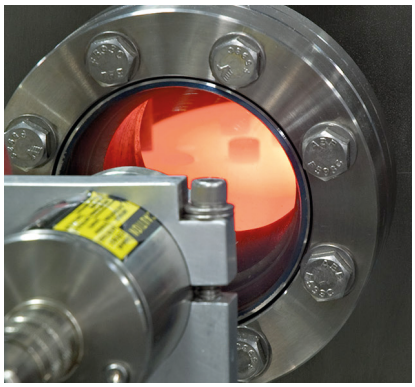
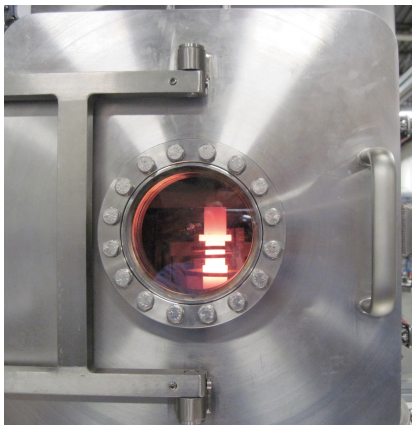
Heat treatment and brazing in vacuum & high temperature

Vacuum Furnace





GH Vacuum Furnaces are designed to heat parts of virtually any shape in a high temperature, high vacuum environment or in partial pressure of an inert gas.

GH Induction Vacuum Furnaces offers unique advantages in vacuum furnace applications that resistance heating cannot replicate as a lean concept design with short cycle times, small footprint and low Cost of Ownership.

Protected under US Patent 6,649,887 and 7724045. Other patents pending.

ADVANTAGES

REDUCED CYCLE TIME – LEAN FLOW
- Fast cycle times, approximately one hour for a nickel braze application.

COST SAVINGS
- Low cost of operation: optimized gas consumption & increased energy efficiency.
- 90% less maintenance intervention: average 1 hot zone replacement in a VF life cycle.

AMS2750E
- Equipment designed to meet AMS2750E requirements.

IMPROVED PROCESS CONTROL
- Vacuum base pressure in the -6/-7 Torr range and operates in -5 Torr range.
- Low leak up rate-Typical less than 0.5 micron/Hr
- Class 2 temperature uniformity: Typical +/- 7ºC.

innovativeheating

Hot zone

The vacuum chamber is made of stainless steel. The chamber is doubled walled with water cooling.

The hot zone is designed using a high purity graphite cylinder as a susceptor. The insulation is placed between the susceptor and induction coil to improve energy efficiency and produce a uniform temperature inside of the furnace.

The chamber is mounted in a heavy duty frame that houses all the required equipment for vacuum, atmospheric and system control, as well as the induction heating station.

Temperature uniformity

Standard furnace models are offered with 3, 5, or 8 workload thermocouples (Type-K or N).

The furnace has two Type-S thermocouple that enter from the top. One Type-S is used for closed loop temperature control and the other is tied to an over-temperature latch for furnace thermal interlocking.

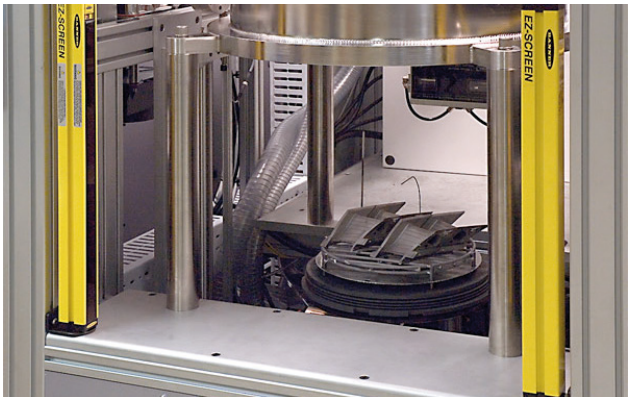
Process parameters control

The standard thermocouple controls record all chamber temperatures; individual part temperatures may be controlled and monitored with the optional optical pyrometer.

With the optional LAN interface or digital chart recorder data may be stored and sent directly to your desktop. Real time monitoring and SPC are other system features.

Parts loading system

To permit easy loading, the part handling mechanisms open at the base of the system, then automatically raise the parts up into the vacuum chamber and heating coil, and finally lower the parts back down to base level for unloading.



Technical data

SPECIFICATION	VF - 20	VF - 30	VF - 40	VF-50	VF-70
Hot Zone Size - id x h (mm)	250 x 250	300 x 300	400 x 400	500 x 500	700 x 700
Hot Zone Volume (l)	10	20	30	100	270
Max. Operating Temperature (°C)	1800	1800	1200	1200	1200
Temperature Uniformity °C	+/- 5	+/- 7	+/- 7	+/- 7	+/- 7
Time to 1038 °C (min)	12	15	15	30	40
Max Parts Weight (kg)	20	30	50	125	400
Power Usage (kWh)	12	17	33	85	235
Gas Usage (l)	230	340	450	1700	5000
Dimensions; W x D x H (m)	1,5 x 1,5 x 2,5	1,8 x 1,5 x 2,5	2,2 x 2,2 x 2,8	2,5 x 2,5 x 2,75	3 x 2,5 x 3,25
Water Required (lpm @ 117 kg/sq cm. differential)	75	95	114	300	600
Circuit Breaker Size (amp)	100	100	150	400	800
Shipping Weight (kg)	900	900	1600	2500	4500

CE

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