



# SMALL BATCH VACUUM FURNACES

*RELIABILITY, EXPERTISE,  
SERVICE & SELECTION*

The Gasbarre Model VCQ-ME Oil and Gas Quench Vacuum furnace is ideally suited for light production industries, toolroom applications and research projects.

The Gasbarre furnace combines flexibility with the ability to heat treat low, medium and high carbon steels, alloy steels in an all-in-one furnace system. In addition to rapid or ramped heating rates, three modes of cooling cycles are possible: fast or delayed oil quench and inert gas quenching.

The furnace can perform a wide range of processes including annealing, brazing, carburizing, carbonitriding, hardening, secondary P/M heat treatments and stress relief in single or multiple step cycles which can be automatically programmed.

## **HEATING CHAMBER**

The hot zone of the VCQ-ME furnace is constructed completely of graphite, including the heating elements and insulation. Graphite provides a sufficient quantity of carbon to allow a thermo-chemical reaction to occur as the chamber is heated. Thus, any oxygen or water vapor that may be present is rendered harmless to the work being processed. Due to the fact that there are low levels of oxygen and water vapor present, vacuum levels of less than 100 microns can be achieved by conventional mechanical vacuum pumps and result in performance equal to or superior to that of diffusion pumps without their associated high maintenance and cost.

## **QUENCHING CHAMBER**

By keeping the quench chamber under vacuum during the processing cycle, contaminants such as entrapped gases and water are removed from the oil while it is being mechanically agitated.

Prior to quenching, the total pressure over the oil is raised to improve the speed of quenching and prevent excessive oil volatilization during quenching. Varying the gas pressure over the oil has been shown to help minimize part distortion for many geometries.

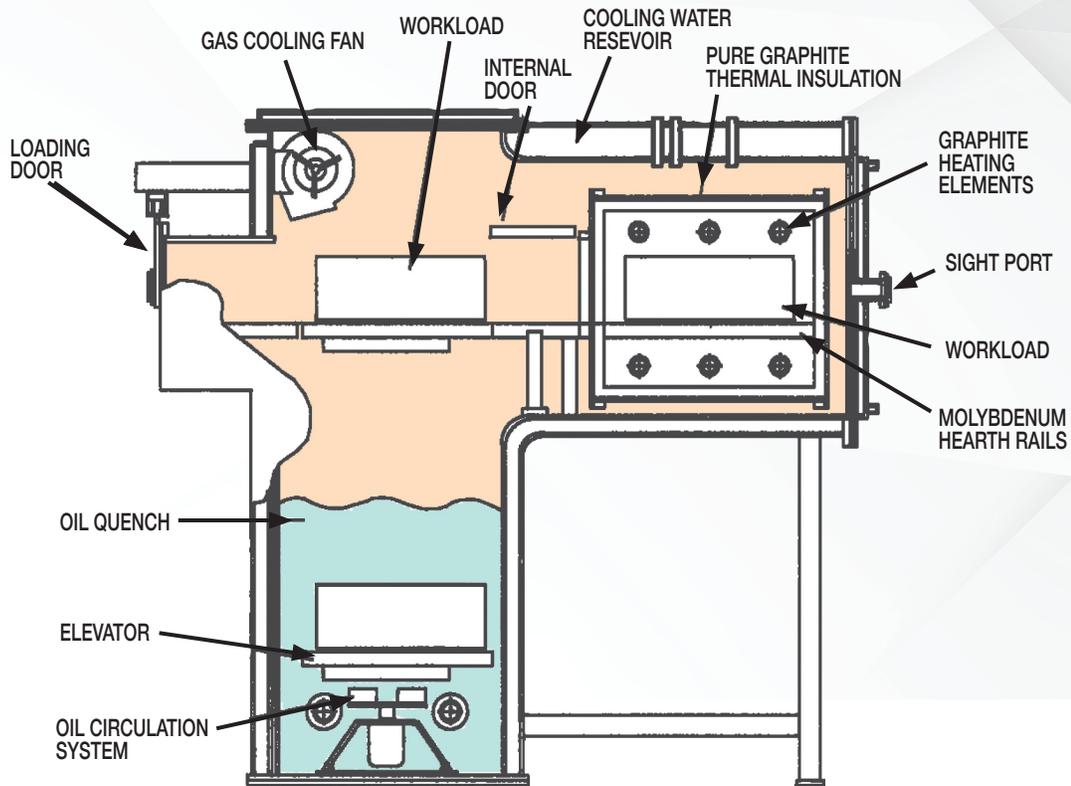
The Gasbarre small batch furnace incorporates a deep quench technique coupled with a high velocity downward oil flow pattern to achieve superior quenching.

## **COMPONENT DESIGN**

Each component section of the furnace has been engineered for ease of equipment operation, maintenance and long life under full production conditions.

The VCQ-ME furnace can be provided in a variety of standard sizes, heating chamber configurations and temperature ranges to meet a variety of production rates.

Standard options extend the performance of these units and provide additional operator convenience. Furnace operation is simple and Gasbarre's modular design assured year of dependable service life.



## MODELS

	VCQ-ME-060912	VCQ-ME-091224
<b>Working Dimensions:</b>		
<i>Height (above grid)</i>	6"	9"
<i>Tray Width</i>	9"	12"
<i>Tray Length</i>	12"	24"
<i>Hearth Level</i>	56"	56"
<b>Maximum Operating Temperature:</b>	2400°F	2400°F
<b>Heating Elements:</b>	4 Solid Graphite	6 Solid Graphite
<b>Connected Load:</b>	20 KW	45 KW
<b>Load Capacity (Nominal):</b>	50# @ 2000°F	100# @ 2000°F
<b>Transfer Speed (Heat Chamber to Quench):</b>	<10 Seconds	<10 Seconds
<b>Vacuum Level (Nominal):</b>	<100 Microns	<100 Microns
<b>Pumping Speed to 100 Microns:</b>	Approx. 5 Minutes	Approx. 7 Minutes
<b>Cooling Water Requirements:</b>	3-5 GPM	10-15 GPM
<b>Gas Backfill Requirements:</b>	20 ft <sup>3</sup>	45 ft <sup>3</sup>
<b>Floor Space Requirements:</b>	94"H x 78"W x 80"L	96"H x 84"W x 125"L