



VSQ VACUUM SEALED QUENCH FURNACE

RELIABILITY, EXPERTISE,
SERVICE & SELECTION

The Vacuum Sealed Quench Furnace, or VSQ, for short, brings vacuum oil quench and vacuum carburizing together into one compact, precisely controlled system employing the latest technology for temperature uniformity, atmosphere control, and material handling.

HEATING CHAMBER

The heating chamber consists of a stainless steel supporting structure which surrounds the insulation. The modular ring design of the element/insulation system in the heating chamber provides a hot zone construction that can expand uniformly under temperature while utilizing a structural support assembly that has the strength to withstand elevated operating temperatures. This entire assembly is designed to slide out of the chamber using a bridge to ease maintenance.

INSULATION

The inner surface of the insulation assembly is a CFS composite flex shield, backed by 1" high purity graphite felt and 1" of high purity ceramic insulation designed to minimize thermal losses and insure uniform temperature control. The outer supporting surface of the insulation assembly is a sheet metal, stainless steel cage. Extremely rapid heating and cooling cycles are possible due to the low heat storage of the graphite material.

HEATING ELEMENTS

The furnace is heated with machined graphite segmented elements which surround the work area in a 360 degrees arrangement. The evenly positioned elements provide optimum heat transfer to the workload. The heating elements extend past the workload at each end and are configured in three (3) circuits (front, center, and rear) with current to each zone that may be trimmed. These features allow the ability to maximize temperature uniformity in the work area. Power to the elements is regulated by SCR's and voltage transformers that receive proportioning signals from the programmable control system.

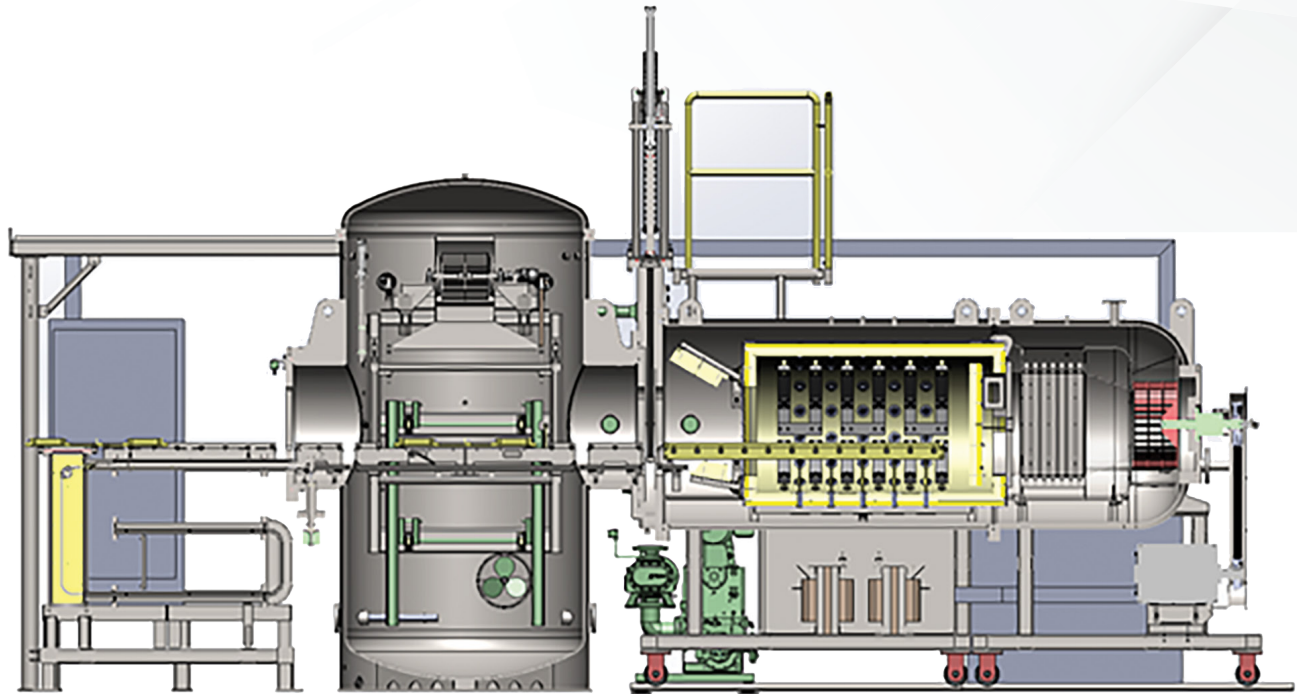


QUENCH CHAMBER

The quench module consists of an upper transfer vessel and the lower oil tank which form a vertical cylinder. The upper vessel and lower oil tank are of mild steel construction and are water jacketed. The upper vessel contains the external loading door, an elevator mechanism, and a top flanged and dished lid for maintenance access.

OPTIONAL INNER DOOR

An inner door can be provided to isolate the heating chamber from the quenching chamber. Inner doors allow for the heating chamber to stay at temperature and under vacuum while loading and unloading the furnace, which improves floor to floor times, keeps the heating chamber extremely pure, and reduces maintenance costs. Inner doors can also allow for greater process flexibility for pressure quenching in the heating chamber if oil quenching is not required.



Contact Gasbarre for standard or customizable equipment sizes.