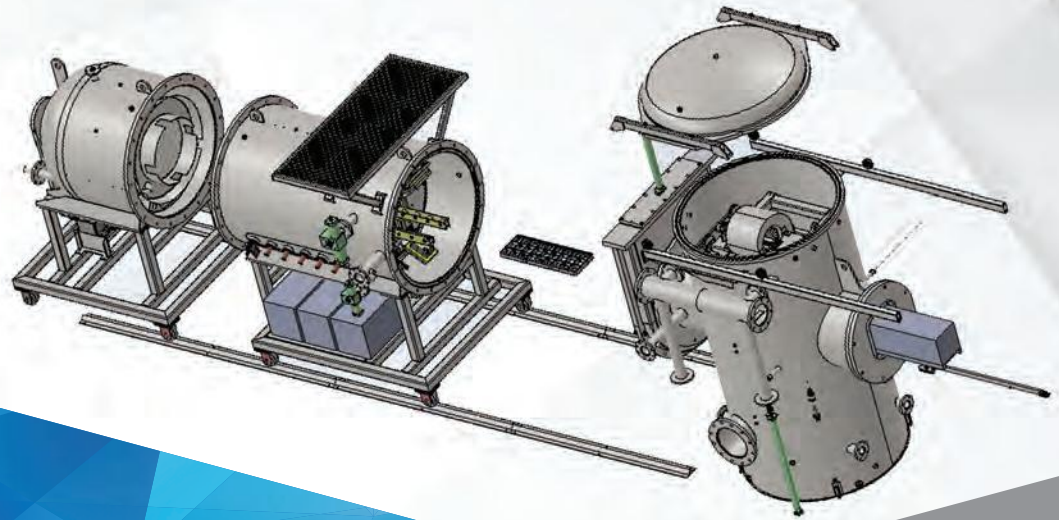


*Oil quench module
with heat module and
gas quench module*



C.I. HAYES MODULAR VACUUM FURNACE

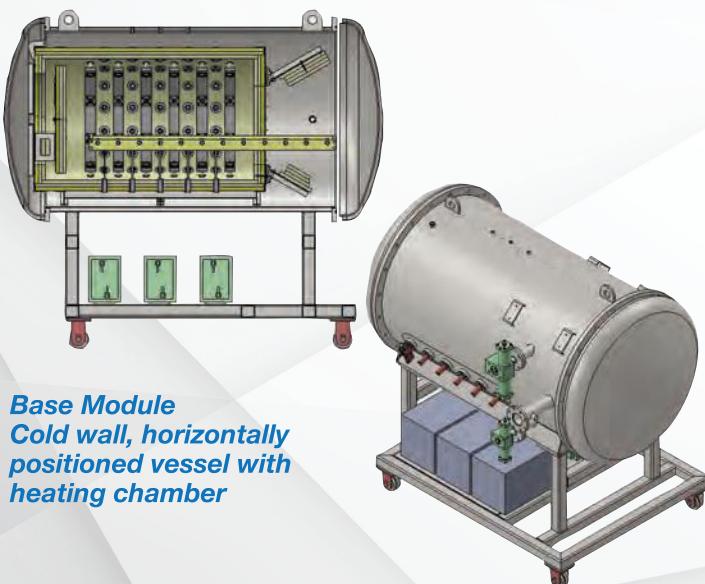
24/7 CUSTOMER SUPPORT
ON-SITE SERVICE

Expandability and versatility make the modular vacuum furnace an attractive selection for many thermal processing needs with growth in mind.

BASE MODULE

A base vacuum modular vessel is the initial building block. It includes a cold wall, horizontally positioned jacketed steel vessel that houses a heating chamber. Machined flanges are designed for attachment to an external door on the load side and a dished/flanged head on the rear side. This combination establishes the batch vacuum or single chamber vacuum furnace.

The heating chamber features a graphite insulation package, machined graphite heating elements, optional atmosphere ports (360°) for cooling purposes, and a roller rail hearth assembly. It is available up to 3000°F (1650°C) temperature capability.

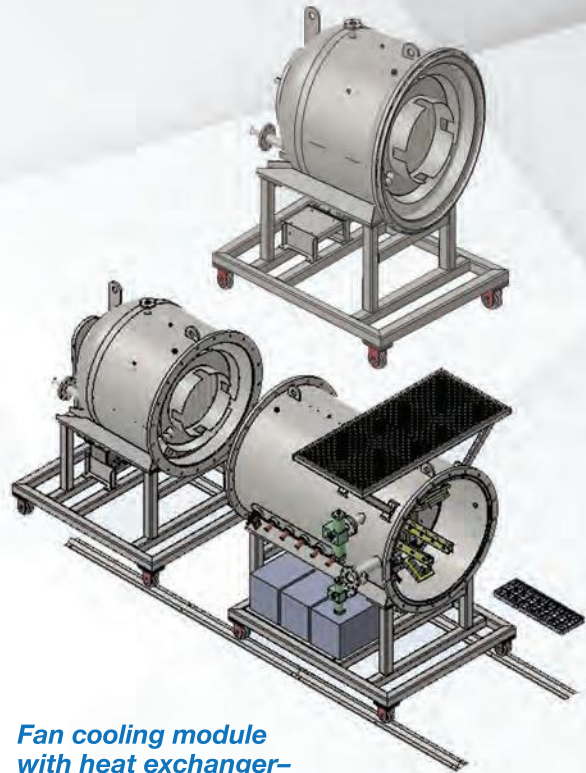


Base Module
*Cold wall, horizontally
positioned vessel with
heating chamber*

ACCELERATED COOLING

A fan assembly with heat exchanger may be positioned in a jacketed vessel supported on a steel saddle with casters. The mating flanges are machined and sealed for easy attachment to and removal from the heating module. This allows for ease of maintenance and expandability.

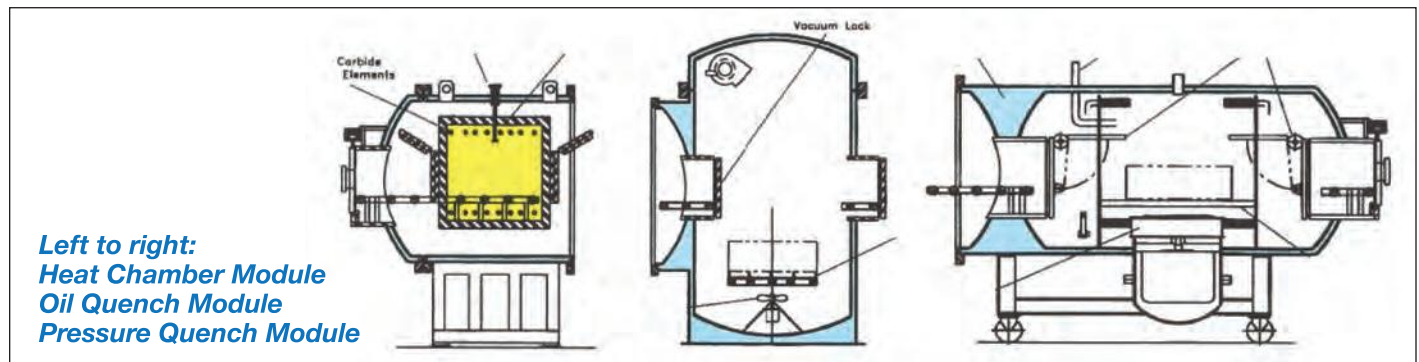
Other add-on modules include an isolated cooling chamber (oil, gas, pressure quench) or additional heating chambers. Each module consists of highly machined mating flanges with seals, internal isolation doors, casters (where applicable), and quick connects for ease of maintenance and trouble-shooting.



Fan cooling module with heat exchanger—removable for ease of maintenance

ATTACHMENT MODULES

Oil quench and/or pressure quench modules with an internal vacuum door may be combined with the heating module. The internal vacuum door is designed to isolate the heating module from the quench module. In most cases, the heat chamber remains under vacuum and at temperature. The heating chamber is therefore allowed to operate in a highly conditioned and pure state, protected from external room conditions (air and moisture).



Options include converting the furnace system from batch to continuous mode, allowing one workload to heat while one workload cools. Multiple heating modules may be combined for preheating purposes, for removing contaminants that are not desirable in the main heating module, or for increasing production capabilities. A benefit of separating the cooling from the heating is the avoidance of thermal cycling (expansion/contraction) of the elements, insulation, and hearth assembly. Only the workload is heated, and only the workload is cooled.