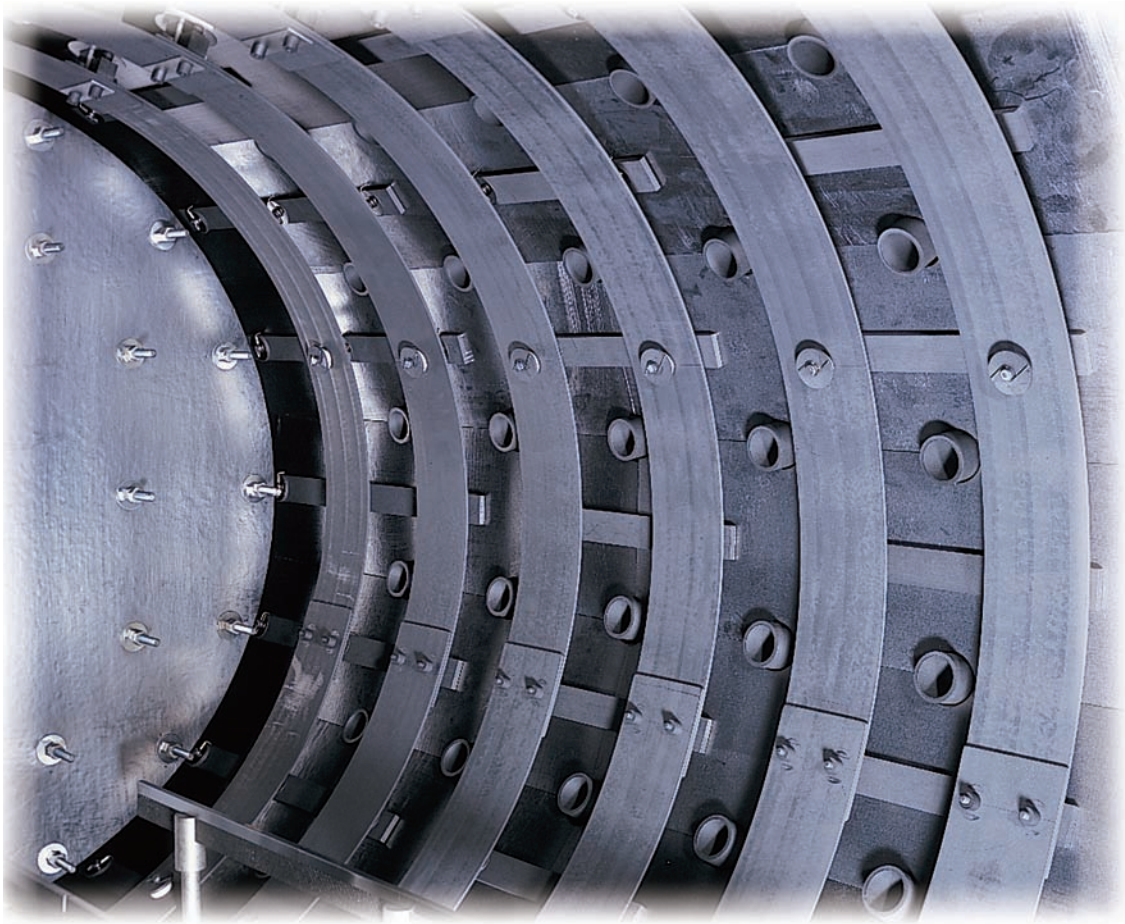


VFS Vacuum Furnaces
HEQ Series / HIQ Series



The VFS HEQ Series

The HEQ (Horizontal External Quench) is a horizontal loading vacuum furnace with an external gas quench system.

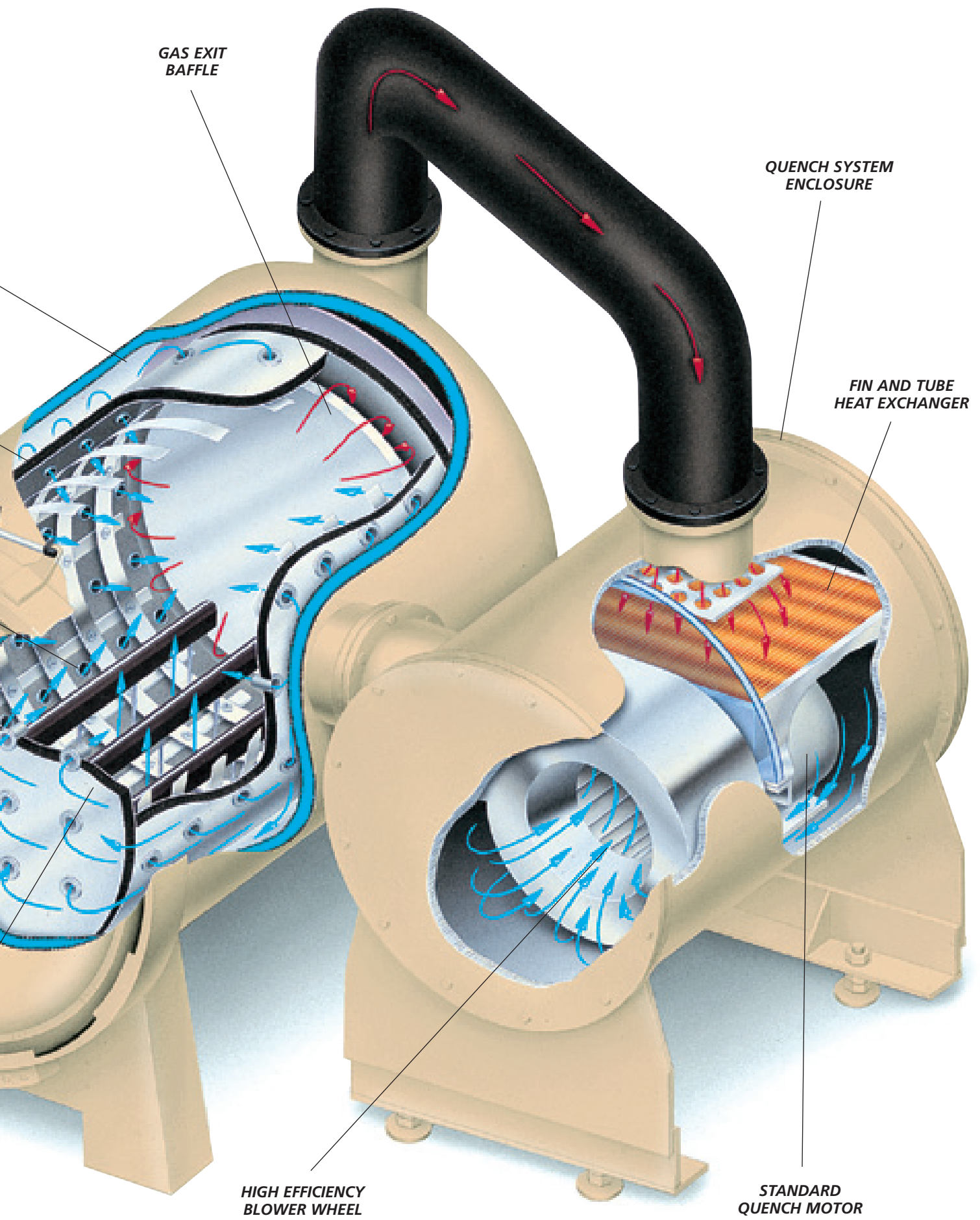
The HEQ is loaded with innovative features that make it an outstanding performer and an exceptional value. Its external quench system allows for easy maintenance of the heat exchanger and quench motor. ThreadFast graphite gas quench nozzles are mounted 360° around the hot zone for uniform gas distribution. In addition, gas quench nozzles can be mounted on the front door to further enhance gas flow.

External Gas Quenching

The external gas quench system consists of a drive motor, high-efficiency blower, and a water-to-gas, fin-and-tube heat exchanger — all mounted in a single space-saving enclosure. Front and rear heads can be removed for easy access to all components.

- Standard quench motor for easy replacement
- High-efficiency blower and motor recirculate nitrogen or argon gas back into hot zone, where it surrounds the work load 360° through gas quench nozzles
- Fin-and-tube heat exchanger provides quick cooling of hot exhaust gas





**GAS EXIT
BAFFLE**

**QUENCH SYSTEM
ENCLOSURE**

**FIN AND TUBE
HEAT EXCHANGER**

**HIGH EFFICIENCY
BLOWER WHEEL**

**STANDARD
QUENCH MOTOR**

The VFS HIQ Series

The HIQ (Horizontal Internal Quench) is a horizontal loading vacuum furnace with an internal quench system. The improved internal quench design of this compact furnace provides the least restrictive gas flow path through the hot zone and multi-row, fin-and-tube heat exchanger. The result is greater efficiency and faster quenching capability. As with all VFS vacuum furnaces, the HIQ comes fully assembled with all interconnecting wiring, cabling, conduit and plumbing.

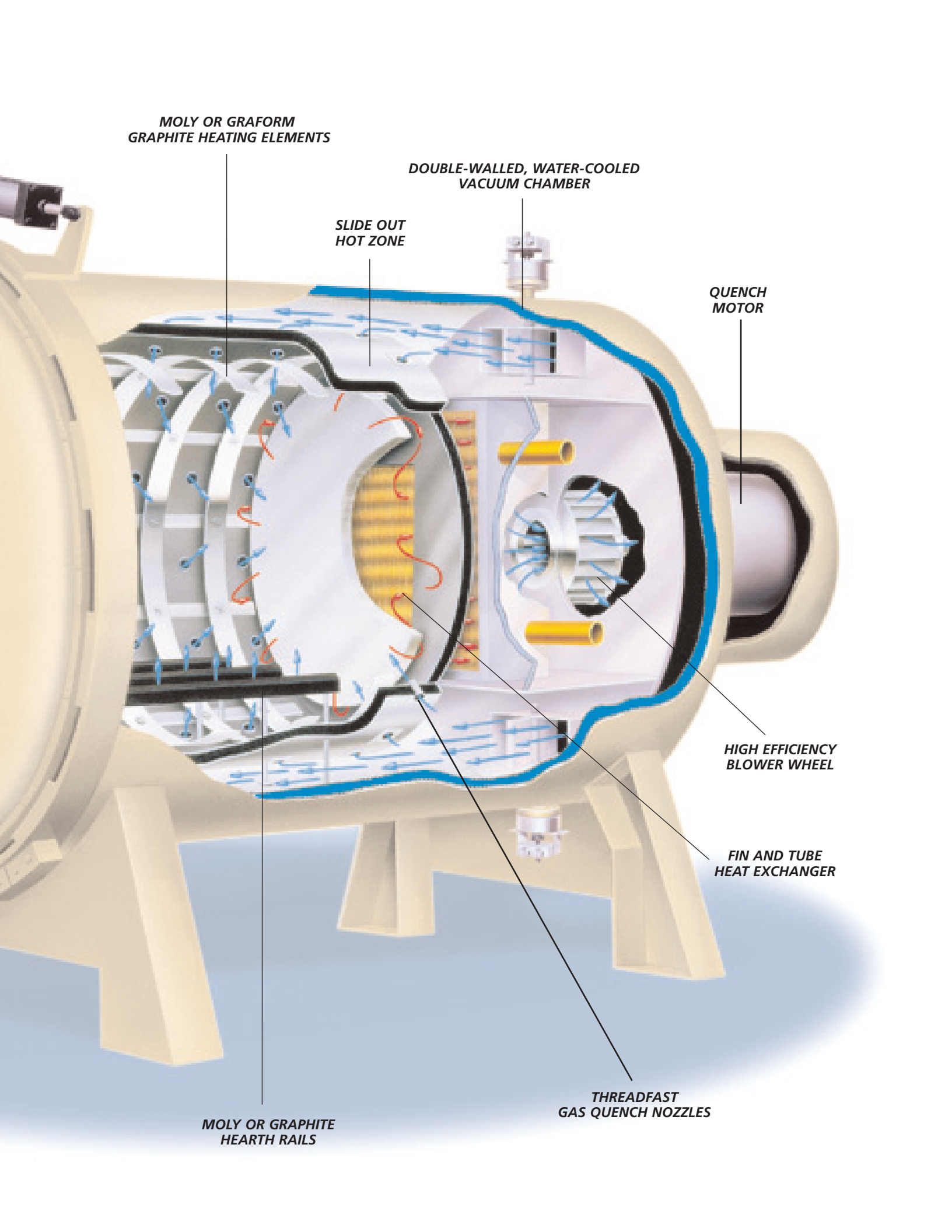
Internal Gas Quenching

The internal quench system is engineered to provide the least restrictive gas flow path through the hot zone and heat exchanger for unexcelled performance and efficiency. All components are readily accessible for easy maintenance and repair.

- The internal quench design provides a compact furnace layout, saving valuable floor space
- Heat exchanger can be accessed through an available port on the side of the chamber
- Rear motor housing can be removed for easy access to the quench motor and blower wheel
- Service cart is available for fast and convenient removal/replacement of the motor housing

**TRULOCK
AUTOCLAVE DOOR**





**MOLY OR GRAFORM
GRAPHITE HEATING ELEMENTS**

**DOUBLE-WALLED, WATER-COOLED
VACUUM CHAMBER**

**SLIDE OUT
HOT ZONE**

**QUENCH
MOTOR**

**HIGH EFFICIENCY
BLOWER WHEEL**

**FIN AND TUBE
HEAT EXCHANGER**

**THREADFAST
GAS QUENCH NOZZLES**

**MOLY OR GRAPHITE
HEARTH RAILS**

HEQ & HIQ Both Offer Many Vacuum Furnace Innovations

The Hot Zone

VFS HEQ and HIQ furnaces are designed with no moving parts in the hot zone to minimize maintenance and downtime. Features of the hot zone include:

- Modular ring assembly with multiple heating zones — fabricated of stainless steel, not carbon steel — for superior longevity
- A variety of insulation designs — standard package is a superior Rigid Graphite Board, rated to 2500°F (available for operations up to 2650°F)

Moly Or GraForm Graphite Heating Elements

- Heavy-duty, wide band moly elements, the industry's proven standard!
- GraForm curved graphite heating elements — exclusive to VFS furnaces!
- Thin, low mass design assures quick response during heating and cooling
- Circular heating elements surround the workload for excellent heating uniformity (+/- 10°F or better, between 1000°F and 2500°F)
- Segmented for fast, easy repair and replacement



Heavy-duty, wide moly heating elements are the industry's proven standard for outstanding performance.

TruLock Autoclave-Type Door

- Pneumatically-operated
- Assures safety while maintaining positive pressure to 10 bar (135 psig)
- Hinged and flanged for easy opening
- Non-rotating door means no o-ring abrasion
- Improves o-ring seal life and preserves vacuum integrity



The TruLock autoclave-type door is safer and easier to operate than traditional bolted or clamped doors.



GraForm heating elements are considerably thinner than conventional straight segment graphite elements, providing more responsive and consistent heating and cooling cycles.

Double-Walled, Water-Cooled Vacuum Chamber

- Field-tested, low volume, high pressure water jacket design
- Meets ASME standards
- Helium mass spectrometer leak-tested
- Contains all necessary ports for gas quench system, vacuum pumping system and hot zone power feed-throughs
- Sight port on front door to accommodate available sight lens
- Water-cooled power terminals mounted on the chamber reduce the effects of excess heat on o-ring seals

Threadfast Gas Quench Nozzles

- Easy screw-in/screw-out design
- Available in graphite or ceramic — provides a lower cost, more durable alternative to conventional moly nozzles



Our patented ThreadFast gas quench nozzles improve gas flow.

Internal Gas Quenching

The internal quench system is engineered to provide the least restrictive gas flow path through the hot zone and heat exchanger for unexcelled performance and efficiency. All components are readily accessible for easy maintenance and repair.

- The internal quench design provides a compact furnace layout, saving valuable floor space
- Heat exchanger can be accessed through an available port on the side of the chamber
- Rear motor housing can be removed for easy access to the quench motor and blower wheel
- Optional SMARTFLOW quench dampers, located outside the high temperature areas, provide a controlled, alternating gas flow to top and bottom zones for selective quenching
- Service cart is available for fast and convenient removal/replacement of the motor housing

Instruments & Controls

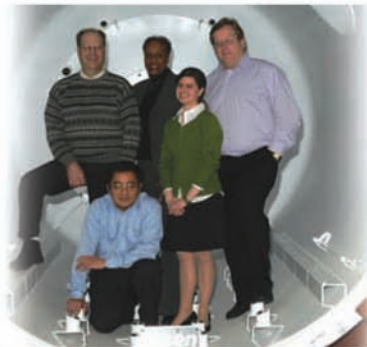
All controls are mounted in a ventilated enclosure with complete wiring, cabling and conduit provided according to your specifications. The standard package consists of:

- PC workstation with 17" color touchscreen monitor
- Completely configured Citect Scada software
- Allen Bradley SLC 5/05 programmable logic controller
- Honeywell UDC overtemperature controller
- Inficon vacuum gauges
- A discrete control package is also available in place of the standard CompuVac controller

About Ipsen

Ipsen is the largest manufacturer of heat treating equipment in the world. Our products include atmosphere and vacuum industrial furnaces and engineered ceramic components. Our aftermarket group provides replacement parts, hot zones rebuilds and retrofits, and exceptional technical support.

Togethjer with our sister company, Ipsen International, Kleve, Germany, we are at the forefront of providing our customers with the latest technologies and a fast expanding array of product solutions – all designed to meet the accelerating demand for more economy, efficiency and environmental safety.



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