KEY FEATURES AND BENEFITS

- Cold Wall Vacuum furnace design with stainless steel inner and outer jackets with baffled water cooling.
- Operation to 2000°C. Temperature uniformity of +/- 5°C in uniform effective hot zone. Specials to 2800°C.
- Repeatable temperature profiles on every component produced.
- PLC with Industrial Programmable Controller or PC system using Intellution™ FIX32 HMI software customized by Centorr/Vacuum Industries for continuous furnaces, with extensive data acquisition, and remote operation capabilities.
- Patented Tungsten mesh belt design with Molybdenum, Tungsten, or Tantalum metal hot zones.
- Novel Silicon Carbide link belt design for use with Graphite Board hot zone.
- Inert gas system or positive pressure Hydrogen gas system with burnoff towers at entrance and exit tunnels for reducing atmospheres.
- Cold wall design offers rapid heat up and cool down times (2-3 hours from RT - 2000°C) compared with 3-5 days for heatup/cooldown of refractory hot wall units.
- Large cycle time reduction translating to excellent throughput. Typical 15 hr “door-to-door” batch furnace cycles can be reduced to 2-4 hr continuous furnace cycles with improved quality.
- Thin, low mass insulation system does not trap moisture while the system is cold, eliminating days of “conditioning” to control furnace dew point below -60°F.
- System designed for quick and easy access to the furnace hot zone for repairs and preventative maintenance.
- The smaller work cross section in a continuous furnace offers minimal thermal inertia compared to large batch furnaces, shortening cycle times.
Belt Furnace
Controlled / Atmosphere Furnace

- **Highest Product Consistency** is assured by the uniform belt speed and repeatable thermal cycle.
- **Lowest Cost Operation** is provided by the rapid process cycle and unattended operation.
- **Productivity** is advanced by the fast heat up and cool down cycles, and ability to shut the unit down over weekends (no need to run gas or idle temperature over the weekend).
- **Minimum Maintenance Cost** is assured by the heavy duty construction and ease of access to all components of the furnace.

<table>
<thead>
<tr>
<th>STD MODEL*</th>
<th>2BF</th>
<th>4BF</th>
<th>6BF</th>
<th>8BF</th>
<th>44BF</th>
<th>66BF</th>
<th>124BF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uniform Effective Hot Zone W x H x L in (mm)</td>
<td>2x0.5x8  (50x13x200)</td>
<td>4x0.62x8  (100x16x200)</td>
<td>6x1x36   (150x25x914)</td>
<td>8x1x48-72 (200x25x1220)</td>
<td>4x4x36-96 (100x100x914)</td>
<td>6x6x36-96 (150x150x2440)</td>
<td>12x4x36-96 (305x100x914)</td>
</tr>
<tr>
<td>Molybdenum Hot Zone</td>
<td>1550°C (2822°F)</td>
<td></td>
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<tr>
<td>Tungsten Hot Zone</td>
<td>1800°C (3270°F) Silicon Carbide Belt - 2000°C (3630°F) in Ar, N₂ / 1800°C (3270°F) in Hydrogen W Mesh Belt</td>
<td></td>
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<tr>
<td>Graphite Hot Zone</td>
<td>1800°C (3270°F) Silicon Carbide Belt - 2200°C (3990°F) Graphite Cloth Fabric Belt - Specials to 2800°C (5072°C)</td>
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<tr>
<td>Belt Speed</td>
<td>0.4” - 6”/min (10 - 152mm/min)</td>
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<tr>
<td>Inert Gas Flow (slpm)</td>
<td>14 28 70 90 140 160 220</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Approx. Power Supply Size Inert (Hydrogen)** KVA</td>
<td>25 (30)</td>
<td>30 (35)</td>
<td>120 (150)</td>
<td>200 (240)</td>
<td>200 (240)</td>
<td>240 (300)</td>
<td>350 (N/A)</td>
</tr>
<tr>
<td>Water Requirements gpm (liters)</td>
<td>7 (26)</td>
<td>9 (34)</td>
<td>35 (133)</td>
<td>55 (208)</td>
<td>55 (208)</td>
<td>68 (257)</td>
<td>80 (303)</td>
</tr>
<tr>
<td>Floor Space ft (m)</td>
<td>4x10 (1.2x3.1)</td>
<td>4x10 (1.2x3.1)</td>
<td>5x14 (1.5x4.2)</td>
<td>6x16 (1.8x4.9)</td>
<td>6x16 (1.8x4.9)</td>
<td>6x16 (1.8x4.9)</td>
<td>7x16 (2.1x4.9)</td>
</tr>
</tbody>
</table>

* Custom sizes available upon request.
** Power is for shortest hot zone listed.

**MISC. / OPTIONAL FEATURES**
- CE / VDE / TÜV / CSA approvals and other non-U.S. standards for compliance.
- Rigid or Flexible water cooled busswork for improved maintenance and best electrical efficiency.
- Manual rotameter or Mass Flow Controllers for precise, repeatable gas flow.
- Optional Binder Removal System consisting of thermal oxidizer in dedicated debind zone with inner retort designed for durability, ease of replacement and low cost for efficient binder removal.
- Automatic loading and unloading conveyor system with optical proximity switch sensors for notification of work boats exiting the furnace.
- Improved densification, minimized weight loss (dissociation), and preferred crystallinity are all benefits in ceramic processing.

**FURNACE APPROVALS**
Centorr/Vacuum Industries furnaces are designed to our own internal quality standards developed over our 45 year history, and are built to the following industry standards:
- ASTM
- NFPA 86D
- FM (for G-10503A Hydrogen Systems)

**MATERIALS PROCESSED**
- Refractory Metals
- Powders
- Si₃N₄
- Ceramics
- MIM components

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