VECTOR HV
Single-chamber High Vacuum Furnace for multipurpose and dedicated applications
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Single-chamber High Vacuum Furnace for multipurpose and dedicated applications

**INDUSTRIES:**
- Aerospace - Energy - Nuclear
- Heat exchanger - Automotive - Electronic
- Science - R&D - Metallurgy - Commercial
- heat treatment - Special applications

**MATERIALS:**
- Alloied steels - Stainless steels - Alloys and superalloys - Titanium and titanium alloy - Metals - Ceramics - Composites - Coatings

**PROCESSES:**
- Brazing - Annealing - Normalizing
- Homogenizing - Stress relief - Solution heat treating - Aging - Quenching - Diffusion bonding - Outgassing - Sintering
- Tempering - Special

Vector HV is a horizontally or vertically oriented single-chamber high vacuum furnace using gas cooling which can be used for a wide variety of heat treating processes and applications. It provides important capabilities for producing high-uniformity in heat-treated parts, high process cleanliness, high consistency in workloads, and efficient processing with low consumption of power and process gases.

Vector HV furnaces are equipped with round graphite or metal hot zone and are the ideal solution for highly demanding heat treating in terms of high process purity and part’s surface quality. With hundreds of systems installed worldwide, SECO/WARWICK’s high vacuum furnaces have a proven record of high-performance technology.

**FEATURES**
- high vacuum processing – up to $10^{-6}$ mbar
- operational temperature – 1450 °C / 2640 °F
- temperature uniformity +/-6 °C / +/- 10 °F
- uniform and efficient radiation heating 360 °
- partial pressure control
- controlled, forced convection cooling
- cooling gases: $N_2$, Ar, He up to 15 bar
- computer control system (PLC+IPC), operator-friendly
- remote control and monitoring
- NADCAP and AMS specifications readiness
- global industrial standard compatible
### BENEFITS
- wide range of heat treatment processes and applications
- high quality and ideal parts surface protection
- guaranteed and repeatable process results
- low consumption of energy, process gases, and other utilities
- environmentally friendly with low emissions
- predictive maintenance support
- compact, modular design
- fitted and adjusted to plant conditions
- fast delivery and easy installation
- customizable

### FURNACE OPTIONS
- vertical or horizontal
- metal or graphite, cylindrical heating zone
- high vacuum by diffusion, cryogenic, or turbomolecular pumps
- higher temperature operation
- improved temperature uniformity to class 1 (AMS2750)
- multi-zone temperature control
- convection heating

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#### FURNACE OPTIONS

<table>
<thead>
<tr>
<th>Type</th>
<th>VP - horizontal</th>
<th>VVP - vertical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working zone</td>
<td></td>
<td>Other sizes available</td>
</tr>
<tr>
<td>mm inch</td>
<td>WxHxL</td>
<td>(DxH)</td>
</tr>
<tr>
<td>Load kg/lb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>446</td>
<td>646</td>
<td>669</td>
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<tr>
<td>400x400x600</td>
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<td>16x16x24</td>
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<td>800</td>
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<td>440</td>
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<table>
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<th>Type</th>
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<tbody>
<tr>
<td>Working zone</td>
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<td>Ø1500x1500</td>
<td>Ø1800x1800</td>
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<tr>
<td>mm inch</td>
<td>Ø52x52</td>
<td>Ø60x60</td>
<td>Ø72x72</td>
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<tr>
<td>Load kg/lb</td>
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<td>2000</td>
<td>2500</td>
</tr>
<tr>
<td>3500</td>
<td>4400</td>
<td>5500</td>
<td></td>
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Graphite heating chamber

Metal heating chamber
SECO/WARWICK GROUP
a leading global manufacturer
of heat treatment furnaces and equipment

SECO/WARWICK is a technological leader in innovative heat treatment furnaces. Expertise includes end-to-end solutions in 5 categories: vacuum heat treatment, atmosphere, and aluminum thermal processing, controlled atmosphere brazing of aluminum heat exchangers and vacuum metallurgy. SECO/WARWICK Group with 9 companies located on 3 continents with customers in nearly 70 countries, has its production facilities in Poland and China. In addition, the Group operates a number of service and sales offices in countries such as Germany or Russia. The company provides standard or customized state-of-the-art heat processing equipment and technologies to leading companies in the following industries: automotive, aerospace, electronics, tooling, medical, recycling, energy including nuclear, wind, oil, gas, solar and production of steel, titanium and aluminum.

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