EXPERTISE IN VACUUM APPLICATIONS FOR ALL TREATMENTS

Since 1964, ECM Technologies has been on the leading edge of vacuum furnace manufacturing. Today, there are over 1,500 vacuum furnaces in operation across the globe delivering high-quality results in a wide range of applications. ECM Technologies crafts its own molybdenum resistors to ensure an optimal radiating surface and unrivalled control, thereby guaranteeing the effectiveness of the heating performance.

BELL FURNACES FOR MOLECULAR VACUUMS AND CONTROLLED ATMOSPHERES

The furnace is fitted with a metallic insulation and a choice of heating element is offered: molybdenum or tungsten. It is the ideal system for clean high-temperature treatments. Its design allows precise positioning of the parts directly on the load carrier. The patented design of the heating element guarantees exceptional control over the process.

POSSIBLE APPLICATIONS

A great number of operations can be performed with these furnaces:

- Tempering
- Magnetic annealing
- Bright annealing
- Hyper-quench hardening under gas
- Degassing
- Sintering
- Glass-to-metal sealing
- Metal ceramic brazing: electronic, nuclear, and space applications
- Brazing under vacuum:
  - Stainless steel: heat exchangers, equipment parts, nuclear application, machines.
  - Aluminium alloys: car/vehicle radiators
  - Super alloys
  - Titanium alloys
  - Refractory metals
AVAILABLE FUNCTIONS

**Thermal**
- Molybdenum
- Graphite
- Tungsten

**Vacuum**
- Primary
  - Vane pump
  - Dry pump
  - Roots pump
- Secondary
  - Diffusion pump
  - Turbo pump
  - Cryogenic pump

**Gas**
- Nitrogen
- Argon
- Hydrogen

**Atmosphere management**
- Rotameter
- Mass flow
- Pressure regulation
- Humidity
- Dryer
- Purifier

**Standards**
- AMS 2750
- AMSH 61200
- AMS 28013
- ATEX

**Cooling**
- Forced convection
- Quenching
  - < 1.45 bar
  - 5 bar
  - 10 bar
- Speed variation

**Supervision**
- Process piloting
  - Production tracking
  - Process data backup
- Loading platform
- Handling tool

**Ergonomics**

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**INSIDE DIMENSIONS**

<table>
<thead>
<tr>
<th>Type</th>
<th>Ø * H (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cristal 15-20</td>
<td>150 * 200</td>
</tr>
<tr>
<td>Cristal 20-35</td>
<td>200 * 350</td>
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<tr>
<td>Cristal 29-40</td>
<td>290 * 400</td>
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<tr>
<td>Cristal 40-40</td>
<td>400 * 400</td>
</tr>
<tr>
<td>Cristal 50-60</td>
<td>500 * 600</td>
</tr>
</tbody>
</table>

**OPERATING TEMPERATURE**

Possibility to choose the type of heating elements and heat shields depending on the operating conditions and the treated materials.

- Graphite (operation up to 3,000 °C)
- Molybdenum (operation up to 1,600 °C)
- Tungsten (operation up to 2,350 °C)

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**SUPERVISORY SYSTEM**

**OUR REFERENCES**

*Non-exhaustive list*

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**EXAMPLES OF LOADS**

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**www.ecm-furnaces.com**