

In today's demanding market, it is vitally important to keep your systems running safely, reliably, and efficiently. Centorr Vacuum Industries offers cost effective plans to help you do this. Our team of highly skilled field service engineers are dedicated to helping our customers achieve this by offering flexible plans that range from simple repairs to full system upgrades. Our Aftermarket Support group will help you identify what is needed and plan the installation to work with your production schedules. With over 65 years of producing vacuum furnaces CVI can also provide support and replacement of hot zones produced by other manufacturers. Call or email our team today to find out how we can make your job easier.

## Preventative Maintenance Plan

<p><b><u>CHAMBER AND HOT ZONE:</u></b></p> <ul style="list-style-type: none"> <li>• Examine elements and feedthroughs for damage.</li> <li>• Examine heat shields for damage or severe distortion.</li> <li>• Check thermocouples and insulators for damage, heavy vapor deposits. Replace, as necessary.</li> <li>• Remove heat exchanger/fan assembly <i>annually</i>, remove debris, examine for damage. Clean &amp; reassemble.</li> </ul>	<p><b><u>PNEUMATIC SYSTEM:</u></b></p> <ul style="list-style-type: none"> <li>• Verify Operation of Pneumatically controlled valves.</li> <li>• Check for and repair leaks in system.</li> <li>• Clean inline filter and drain water trap.</li> <li>• Check operation of optional emergency air backup.</li> </ul>
<p><b><u>PUMPING SYSTEM:</u></b></p> <ul style="list-style-type: none"> <li>• Drain mechanical pump and replace oil.</li> <li>• Check Vacuum Sensors functionality and accuracy.</li> <li>• Drain diffusion pump &amp; check condition – Replace if contaminated.</li> <li>• Lower diffusion pump &amp; clean – <i>Quarterly plan</i> if excessive use is involved.</li> <li>• Dismantle &amp; clean hi-vac roughing &amp; backing valves –</li> <li>• Replace seals as necessary.</li> </ul>	<p><b><u>WATER AND GAS SYSTEMS:</u></b></p> <ul style="list-style-type: none"> <li>• Inspect water system for leaks.</li> <li>• Verify loss of water flow Interlocks.</li> <li>• Check gas system for leaks.</li> <li>• Check for correct gas control operation.</li> </ul>
<p><b><u>TEMPERATURE CONTROL &amp; MEASUREMENT:</u></b></p> <ul style="list-style-type: none"> <li>• Validate Temperature Sensors and Calibration Services.</li> <li>• Verify functionality of Temperature Control Loops and wiring.</li> <li>• Check all safety interlocks and alarms.</li> </ul>	<p><b><u>VACUUM AND POSITIVE PRESSURE LEAK CHECKING:</u></b></p> <ul style="list-style-type: none"> <li>▪ Mass Spectrometer Helium leak check of entire system.</li> <li>▪ Carry out rate of rise and ultimate vacuum testing.</li> </ul> <p><b><u>CUSTOMER MODIFICATIONS:</u></b> Note all Customer specifications.</p>
<p><b><u>POWER SUPPLY:</u></b></p> <ul style="list-style-type: none"> <li>• Inspect all relays.</li> <li>• Inspect all contactors for excessive wear – Replace where necessary.</li> <li>• With clean compressed air, blow down transformers.</li> <li>• Run power supply and check out SCR controllers.</li> </ul>	<p><b><u>Optional: MIIM-Vac™ SYSTEM:</u></b></p> <ul style="list-style-type: none"> <li>▪ Inspect retort and shielding for damage. Note discrepancies.</li> <li>▪ Inspect retort and hot zone supports for damage or distortion.</li> <li>▪ Inspect elements for distortion and possible grounding.</li> <li>▪ Check gas inlet/binder exhaust tubes for damage or blockage</li> <li>▪ Inspect manifold insulation and heat tape and thermostats.</li> <li>▪ Check vacuum valves/throttle valves for operation.</li> <li>▪ Run mass flow controllers to verify control.</li> <li>▪ Check all Hydrogen safety interlocks and alarms.</li> </ul>
<p><b><u>EXAMINE CUSTOMERS FAULT RECORDER SHEET:</u></b></p> <ul style="list-style-type: none"> <li>• Upon service completion, carry out a full furnace cycle in conjunction with user &amp; check operation of equipment. If possible, record data for future comparison.</li> <li>• Notify user that service is complete &amp; obtain signature on service report.</li> </ul>	<p><b><u>Optional: HYDRAULIC SYSTEM:</u></b></p> <ul style="list-style-type: none"> <li>• Inspect for leaks.</li> <li>• Operate to ensure correct operation.</li> </ul> <hr/> <p><b>This listing is not inclusive of all the CVI Field Service can offer. Contact Aftermarket Services for a customized service plan.</b></p>

To discuss your requirements or customize the above plan, please email us directly at: [fieldservice@centorr.com](mailto:fieldservice@centorr.com) or call us at 603-595-7233 x 270