Applications

Simple and multi-metallic oxides
Metals, nitrides and alloys
III-V, wide band gap semiconductors
2D and 3D materials
Etc.

Specifications

The Annealsys MC-050 system is a 2-inch DLI-CVD / DLI-ALD reactor developed to meet the requirements of research and development units.

The infrared lamp furnace in association with the direct liquid injection vaporizers provide unique multi process capabilities inside the same process chamber: CVD, ALD, MOCVD, RTP and RTCVD.

The Direct Liquid Injection (DLI) vaporizers provide perfect control of precursor flow and allow utilization of low vapor pressure and diluted chemical precursors. The fast switching of the precursor vapor flows associated with the by-pass valve provide perfect interface control for deposition of nanolaminates.

The MC-050 is the perfect machine for the development of new materials and nanolaminates using the widest range of solid and liquid organometallic precursors.
### Basic features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Substrate size</td>
<td>Up to 2-inch diameter</td>
</tr>
</tbody>
</table>
| Process chamber                 | Quartz tube with water cooled stainless steel flanges  
                                    | Infrared lamp heating system  
                                    | Counter tube for easy cleaning of the process chamber |
| Temperature range                | From room temperature up to 1100°C                                                                      |
| Temperature control             | Thermocouple and pyrometer temperature control  
                                    | Fast digital PID / RTP temperature controller                                                          |
| Vapors, gas and vacuum          | Up to 6 direct liquid injection vaporizers  
                                    | State of the art liquid panels with full rising capability  
                                    | Up to 8 process gas lines with digital mass flow controllers  
                                    | Vacuum valve, vacuum gauge and automatic pressure control                                             |
| Control                         | Full PC control, up to 400 operations or loops per recipe  
                                    | Human interface designed in respect of SEMI E95-0200  
                                    | Full data logging and process historicals                                                               |

### Optional features

- Pyrometer temperature control
- Rough vacuum pump, Turbo pump
- Glove box interface and glove box
- Remote plasma
- Ozone generator

### Customer support

- Outstanding customer support for hardware, software and process
- Efficient remote support using software diagnostic capabilities
- High expertise in CVD / ALD processes and of chemical precursors of our process engineers
- Capability to support customer for process optimization

### Physical specifications

- **Voltage**: 3x400V+N+Gr / 3x220V+Gr
- **Power**: 21 kW
- **Water**: 2 to 4 bars, pressure drop 1 bar, 8 l/min
- **Compressed air**: 6 bars (valve actuation)
- **Process gas fittings**: VCR ¼

<table>
<thead>
<tr>
<th>Feature</th>
<th>Width</th>
<th>Depth</th>
<th>Height</th>
<th>Mass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>955 mm</td>
<td>1,604 mm</td>
<td>1,812 mm</td>
<td>400 kg</td>
</tr>
<tr>
<td></td>
<td>37.6&quot;</td>
<td>63.2&quot;</td>
<td>71.4&quot;</td>
<td>882 lbs</td>
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Specifications are subject to change without notice. Non-contractual document - AS40B15

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