Thermal Cure Module (TCM) Oven

IR/convection oven for conformal coating applications in non-European regions

Features and Benefits

- Flexibility is increased with three different lengths available to match your production requirements
- Unique downdraft exhaust design provides an efficient, safe path for VOCs removal
- Exhaust sensor prevents heaters from turning on without proper exhaust ventilation enabled
- Control your process with individual heating zones that can be programmed for specific drying or curing profiles
- Increase productivity with a fast warm-up and cool-down
- Easy access to interior subassemblies aids preventive maintenance and cleaning
- Integrated board profiling capability with no external hardware required

The in-line Thermal Cure Module oven is ideal for mid-to-high volume. Available in three different lengths, they provide the flexibility to match your production requirements and feature robust construction and a streamlined appearance.

The oven chamber achieves a thermally uniform atmosphere with IR heat panels and consequent convection by the induced exhaust draft. In a CE-compliant package, process uniformity is assured with precise, independent temperature-controlled heat zones. Rapid response times, a closed-loop conveyor and Windows®-based software are an integral part of the thermal cure control process.

The TCM oven is equipped with a unique downdraft exhaust design. Plenums below the conveyor rails, close to the coated substrate remove volatile organic compounds (VOCs) efficiently. This provides a safe operating environment when coupled to an external, customer-supplied exhaust system.

Designed for easy integration with all Nordson ASYMTEK conformal coating systems, the TCM oven includes operation friendly features like motorized width adjustment of the chain conveyor, SMEMA compatibility, and ample clearance above and below for tall and complex PCB architectures. In addition, the oven comes with two of the most popular temperature profiling software tools in the industry (KIC and ECD).
Thermal Cure Module (TCM) Oven Specifications and Configurations

**Heating Area**
- Heater control stability: ±1 °C (±1.8 °F)
- Cross conveyor temperature tolerance: ±5 °C (±9 °F)
- Profile change time: 5-15 min.
- Typical cold start heat-up time: 30 min.

**Conveyor**
- Board width: 51-508 mm (2-20 in.)
- Board clearance (above and under): 89 mm (3.5 in.)
- Standard speed: 100-600 mm/min. (3.9-23.6 in./min.)
- Conveyor height: 940 mm ± 51 mm (37 in. ± 2 in.)
- Conveyor-edge clearance: 4.8 mm (0.187 in.)

**Safety Features**
- Exhaust monitoring sensor, start-up delay, and downdraft exhaust design

**Other Standard Features**
- Flat panel monitor, computer with Windows® operating system, KIC/ECD profiling software, 3-color light tower, auto-lubrication, SMEMA compatible, CE compliant, board drop sensor; board counter; casters (for easy maneuvering), entry and exit conveyor extensions with cooling module on exit side

**Oven Configurations**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>TCM-2200</th>
<th>TCM-3300</th>
<th>TCM-4600</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of heating zones</td>
<td>7</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>Heating length</td>
<td>2184 mm</td>
<td>3251 mm</td>
<td>4623 mm</td>
</tr>
<tr>
<td>Overall length</td>
<td>3404 mm</td>
<td>4445 mm</td>
<td>6045 mm</td>
</tr>
<tr>
<td>Overall width</td>
<td>1372 mm</td>
<td>1372 mm</td>
<td>1372 mm</td>
</tr>
<tr>
<td>Height excluding light beacon</td>
<td>1600 mm</td>
<td>1600 mm</td>
<td>1600 mm</td>
</tr>
<tr>
<td>Typical new weight (approx.)</td>
<td>1600 kg</td>
<td>1970 kg</td>
<td>2280 kg</td>
</tr>
<tr>
<td>Voltage (1)</td>
<td>480 VAC, 3-phase, 50/60 Hz</td>
<td>480 VAC, 3-phase, 50/60 Hz</td>
<td>480 VAC, 3-phase, 50/60 Hz</td>
</tr>
<tr>
<td>Typical run current at 480 VAC continuous</td>
<td>12 - 16 Amp</td>
<td>17 - 21 Amp</td>
<td>23 - 28 Amp</td>
</tr>
<tr>
<td>Exhaust requirements (3)</td>
<td>0.35 m³/s (750 CFM)</td>
<td>0.35 m³/s (750 CFM)</td>
<td>0.40 m³/s (850 CFM)</td>
</tr>
</tbody>
</table>

(1) Field configurable to 380, 415, 440 and 480 V/AC.
(2) Typical start-up current is 1.5 times maximum run current. Recommended breaker size is 100 Amp.
(3) Customer-supplied exhaust requirements @ 38.1 mm (1.5 in.) water column

For more information, visit our website to locate your local representative or contact your regional office:

nordsonasymtek.com
info@nordsonasymtek.com

North America
Headquarters
Carlsbad, CA

China
Shanghai
Beijing
Guangzhou
Taipei

EMEA
Deurne, Netherlands

S.E. Asia/Australia
Singapore

Korea
Seoul

Japan
Tokyo

India
Chennai

Nordson ASYMTEK
+1.760.431.1919
2747 Loker Avenue West
Carlsbad, CA, USA 92010-6603

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