Brazing System for Controlled Atmosphere Brazing (CAB) Furnaces

For temperature profiling furnaces manufacturing aluminium radiators, condensers, etc. for automobile air conditioning and cooling systems.

PhoenixTM Thermal Profiling Systems are built for specific applications within a broad range of industrial processes, and care has to be taken in the design of the system to ensure all the requirements of the process are met. The paint finishing industry for example, requires the protective thermal barrier to be free of all traces of silicone. In the heat treatment industry profiling systems must be designed to operate in harsh furnace environments and to resist high rates of heating and cooling with minimum distortion.

All industrial processes requiring thermal profiling call for critical knowledge of both the process itself and how conditions within it can affect the performance of the profiling system components. PhoenixTM personnel have worked with these industries for many years and their experience is translated into the superior design of their thermal profiling systems for all industrial applications.

Brazing System for CAB Furnaces

Developed to withstand the harsh conditions in CAB furnaces while consistently collecting accurate temperature data from critical points around the product. The data logger at the heart of this system is protected in the furnace by the TS08 thermal barrier, which has been designed so that it will resist attack from hydrofluoric acid which destroys most thermal barriers used in these processes. The insulation inside the barrier is pre-filled with nitrogen to minimise oxygen levels inside the barrier, which may lead to the formation of moisture.

The Brazing System for CAB Furnaces combines the TS08-125-1 thermal barrier, the PTM1-006 data logger, and PhoenixTM Thermal View Plus software, together with a range of PhoenixTM mineral insulated thermocouples to give a robust, accurate, system which is ideal for everyday usage in CAB furnaces.
Brazing System for CAB Furnaces

System Components:

- Accurate and robust 6 or 10 channel data logger powered by ‘off the shelf’ AA alkaline batteries. Electronics and batteries sealed in moisture proof compartments.
- High grade Stainless steel thermal barrier with micro porous insulation and phase change heat sink. No insulating cloth exposed to the atmosphere and insulation, evacuated and filled with nitrogen. Data logger tray and inner cavity designed with ‘thermal break’ construction to minimise heat transfer.
- Full analysis software package.
- High specification mineral insulated thermocouples with Nicrobel sheath, to ANSI MC96.1 (special limits).

**DATA LOGGER (CHOICE OF):**

<table>
<thead>
<tr>
<th>Model Number</th>
<th>No. of channels</th>
<th>Thermocouple types</th>
<th>Measuring range</th>
<th>Accuracy</th>
<th>Resolution</th>
<th>Memory total</th>
<th>Max. operating temp</th>
<th>Sampling interval</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTM1-006</td>
<td>6</td>
<td>K</td>
<td>-100 to 1370°C</td>
<td>±0.3°C</td>
<td>0.1°C</td>
<td>200,000 data points NVM</td>
<td>+70°C</td>
<td>Adjustable 0.5s to 1 hour</td>
<td>200 mm</td>
<td>98 mm</td>
<td>20 mm</td>
<td>20 mm</td>
</tr>
<tr>
<td>PTM1-010</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</table>

**THERMAL BARRIER:**

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Suitable Data Loggers</th>
<th>Suitable Heat Sink</th>
<th>Thermal Duration at</th>
<th>Suitable Heat Sink (In Still Air)</th>
<th>500°C</th>
<th>600°C</th>
<th>700°C</th>
<th>Height</th>
<th>Width</th>
<th>Length</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS08-125-1</td>
<td>PTM1-006, PTM1-010</td>
<td>1 x TS00-502</td>
<td>1.25 hours</td>
<td>TS08-125-1</td>
<td>1.5 hours</td>
<td>1.25 hours</td>
<td>1.0 hours</td>
<td>125 mm</td>
<td>272 mm</td>
<td>516 mm (incl. handles)</td>
<td>12.5 Kg (incl. heat sink)</td>
</tr>
</tbody>
</table>

**THERMOCOUPLES**

Type K 1.6mm mineral insulated thermocouple. Nicrobel sheathed Insulated hot junction, terminating in miniature plug. Thermocouples conform to the ANSI MC96.1 special limits specification.

**SOFTWARE**

Thermal View Plus: SW15-ENG. A full function software package featuring enhanced analysis functions including Time above Temperature, Max/Min/Mean calculations, plus Slope calculations, Maximum difference, Area under Curve, Profile Tolerance etc. Full reporting facilities and Import/Export of data as standard.

Note: As products are continually improved, specifications may be changed without prior notice.

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