BCE APPLICATION NOTE

ELECTRIC HEATING ELEMENTS

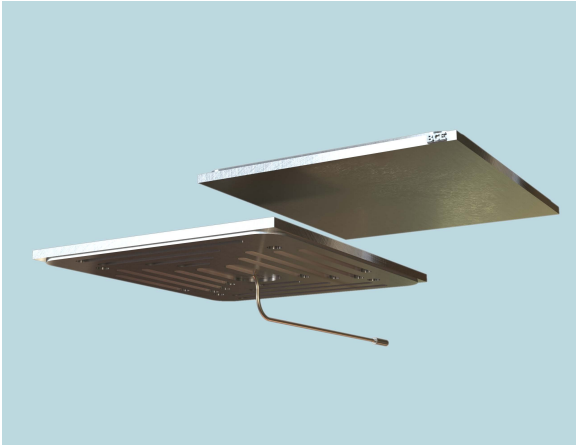
VACUUM FEEDTHROUGHS

CUSTOM THERMAL SYSTEMS

VACUUM HEATER PLATEN 350mm

BACKGROUND

Find a solution in a Vacuum Chamber for the testing and processing of silicon and glass components ~650^{0}C. The heater surface, 350mm x 300mm x 12.7mm thick, was flat with no lift pin holes or gates to hold the product in place. The long length cold pin section exiting from the center of the heater to the flange, needed to be long enough to exit into the atmosphere. A slotted designed bottom plate was welded to keep the heat source in place and increase heater efficiency.



SCOPE:

The Vacuum Heater Platen:

- Temperature 650^{0}C-700^{0}C
- 18" Long cold pin section with CF Vacuum Flange on the bottom
- Helium Leak rate of 1 x 10^{-9} cc/sec He on CF Flange only
- 300mm x 350mm x 12.7mm thick for silicon and glass products
- Thermocouple built-in for over-temp protection or control
- 2,400 Watt (± 10%) , 240 Volt
- Mounting threads on the bottom of the assembly
- Material: 304 Stainless Steel

OUTCOME

The Vacuum Heater Platen was ramped to 650^{0}C at 75% of power (1800 watt) in atmosphere with a ceramic fiber insulation cover. After a 1 hour ramp, the heater reached 650^{0} C and was turned off to let cool. There was discoloration on the top surface, however this is expected in atmosphere at this temperature. The electrical specifications were checked again and the heater was cleaned & packaged for delivery.

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