

BCE APPLICATION NOTE

HK 300mm Compressed Heater Chuck

BACKGROUND

In an effort to reduce the overall cost for an existing application, BCE developed a 300mm aluminum heater chuck that is un-brazed utilizing the compression of two plates with counter sink set screws.



The heater surface specs were 0.003" flatness at a 0.005" parallelism. Using a 208 volt power supply at 9.7ohm, start @ 25°C temperature and ramped from 100°C to 465°C in 23 minutes.

SCOPE:

Aluminum Heater Chuck needed to satisfy the following:

- Achieve temperature up to 435°C @ +/- 2% or better
- Internal element must be able to withstand temperatures up to 600°C
- Anodized surface for electrical isolation
- 208 Volt, 9.7 Ohm, 4,460 Watt (+5% / - 10%)
- Thermocouple bore hole to be placed at the center (variable)
- 4 point temperature profile on the top surface of the heater
- Used an infrared sensor for each 4 point locations
- FINISH: Hard coat anodize per MIL-A-8625F, Type 3 Class1 Hard-coat thickness

OUTCOME

BCE produced a highly effective high 300mm heater with exceptional uniformity better than the proposed 435°C (+/-2%). After the initial ramp, the heater maintained 435°C (+/- 1%) as per the chart below (Temp profile #5).

