

BCE APPLICATION NOTE

ELECTRIC HEATING
ELEMENTS

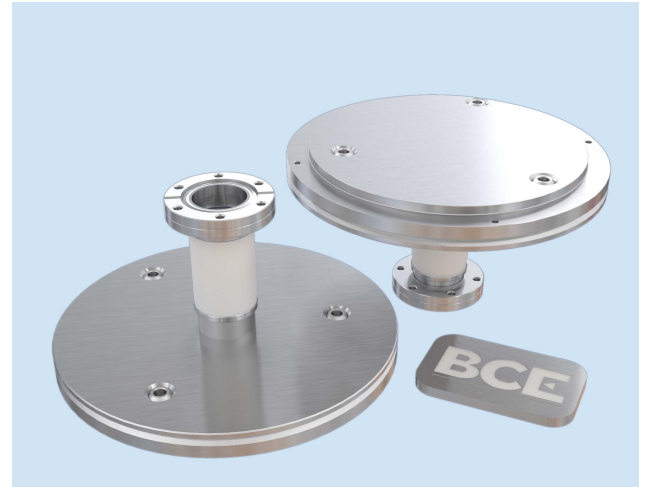
VACUUM
FEEDTHROUGHS

CUSTOM THERMAL
SYSTEMS

High Temp Heater Chuck – 200mm

BACKGROUND

A semiconductor equipment company in the Atomic Layer Deposition (ALD) market approached BCE in need of a custom high temperature heater solution. Their application involved a thin-film deposition using a sequence of various chemical processes. Repeating these processes results in a thin film being slowly deposited.



SCOPE

The High Temperature Heater Chuck needed to satisfy the following:

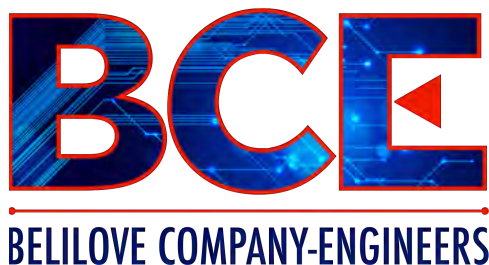
- Temperature <math><700^{\circ}\text{C}</math>
- Internal element must be able to withstand higher than - Thermal break between flange and base reducing heat transfer to flange area
- 316 Stainless steel base, sleeve, and flange must pass all required vacuum specifications
- 240 Volt 1450 Watt
- Built-in thermocouple type "K" inside internal element grounded with RF screening

OUTCOME

BCE produced a highly effective high temperature heater with exceptional uniformity.

The design was able to compress the internal element enough to allow for optimal temperature transfer.

The weld around the outside periphery of the base plate and the (3) lift-pin-hole-standoffs were essential in the design for vacuum integrity, ramp rate, and temperature stability.



BCE | 21060 Corsair Blvd.
Hayward, CA 94545
Phone: (510) 274-1990
www.bcemfg.com