

# BCE APPLICATION NOTE

ELECTRIC HEATING  
ELEMENTS

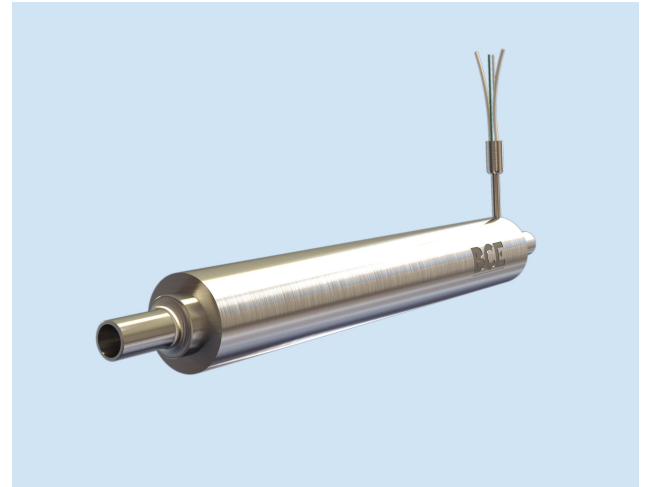
VACUUM  
FEEDTHROUGHS

CUSTOM THERMAL  
SYSTEMS

## Mini Clean Flow – Stream Heater

### BACKGROUND

A biotechnology company approached BCE in need of a custom heating solution. Their application required that the media must be heated to 75 °C in order to eliminate any pathogenic bacteria that may be present. Their current system was not heating the medium efficiently requiring a high watt density solution causing heater failure and carbonization of the material.



### SCOPE

The **BCE Mini Clean Flow – Stream Heater** needed to satisfy these customer driven criteria:

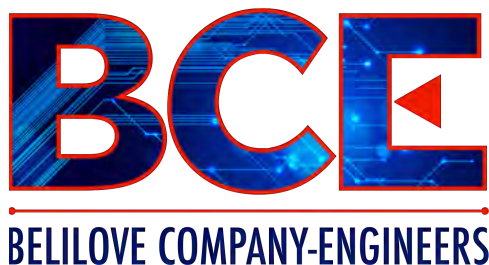
- Outlet of temperature of 75 °C ( $\pm 2$  °C) to eliminate bacteria
- Ability to place heater in a series flow configuration if necessary
- Built in thermocouple for accurate temperature measurement
- 185 Watt, 120 Volt
- All wetted surfaces must be 304 Stainless Steel
- Watt density below 30 WSI to avoid damage to the fluid or system

### OUTCOME

BCE designed a double wall inline heater with exceptional heat uniformity and reduced heat losses.

The Mini Clean Flow Stream heater was built with internal components designed to turbulate the medium to increase efficiency and minimize watt density. This compact, low mass heater had the ability to precisely control the inner temperature for either over-temp or process medium control.

The Mini Clean Flow – Stream was the ultimate solution for this application resulting in a more efficient process to eliminate pathogenic material.



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