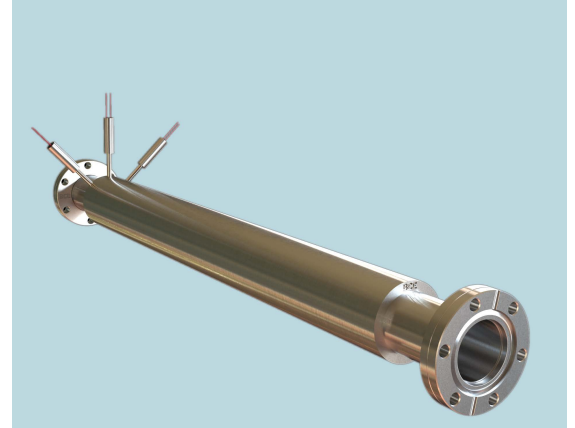


BCE APPLICATION NOTE

Mini Clean Flow (MCF) – Three Phase

BACKGROUND

The application requirement was a 2" Stainless Steel heater capable of 120 CFM with a 250°C outlet temperature. The inlet temperature was ambient air. The heater required two Conflat Flanges (CF2.75), which could be used in a parallel flow configuration at the customer site. The heater needed to be air tight.



SCOPE

MCF – Three Phase:

- 250°C @ 120CFM using (2) units in a parallel flow pattern
- Stainless steel 304, all wetted parts
- Pressure tested to 90 PSI (or equivalent 5×10^{-4} ATM, cc/sec or better)
- 3-phase with three heated zones
- (3) independent internal type "K" thermocouples for each zone
- 11KW ($\pm 10\%$), 240 Volt, 3-phase (or 1-phase optional)
- 36" Lead wires for each zone with 12" wire braid for strain relief
- 304SS CF 2.75 inlet and outlet flange
- Medium being heated: Air, ambient
- He Leak Tested = 5×10^{-4} ATM, CC/sec or better

OUTCOME

The heater was laser welded on the flanges and brazed on the heater zones. The heater helium leak test passed up to 1×10^{-8} cc/sec in during the testing phase. There were no problems heating ambient air at 2.5CFM to 200°C during the live power test at BCE. The part was cleaned and passed the required 700 Volt DC Hi-pot test for 5 seconds @ 0.5mA.



BELILOVE COMPANY-ENGINEERS

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

ELECTRIC HEATING
ELEMENTS

VACUUM
FEEDTHROUGHS

CUSTOM THERMAL
SYSTEMS