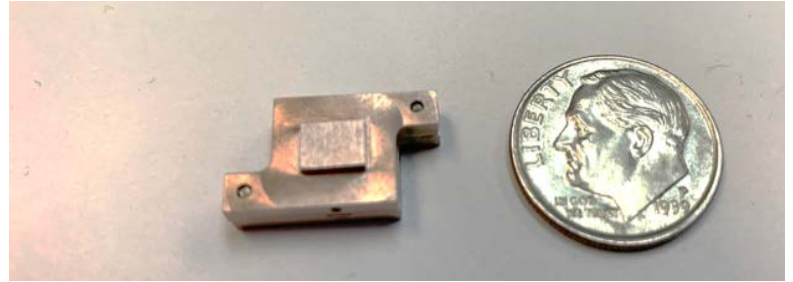


BCE APPLICATION NOTE

Molybdenum – Copper Stage Heater

BACKGROUND

An analytical company approached BCE for their small space and high temperature heated gas requirement.



They needed to reduce the length and diameter of the current heat source to be able to fit into a more compact design for their next generation mass spectrometry tool.

SCOPE:

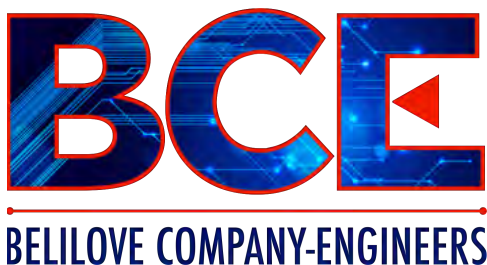
Molybdenum-Copper Stage Heater needed to satisfy the following:

- Temperature <math><201^{\circ}\text{C}</math>
- Internal element must be able to withstand temperature <math><210^{\circ}\text{C}</math>
- A cold section was not needed
- Molybdenum-Copper (Moly-Copper) base 65% Moly and 35% Copper
- 12Volt, 3Watt (Max)
- Two thermocouple type "K" external
- M1 threads

OUTCOME

BCE produced a highly effective assembly which reached the temperature of 200°C in under 1-Minute utilizing only 2.6 watts. Because of the low mass and high conductivity of the copper-moly base, reaching the target temperature and cooling down was highly efficient.

There were two thermocouples which were used to verify the test temperature. One was an exposed bare-bead TC 36 AWG, with the second TC being a 0.062°Ø probe style unit. The M1 threads were challenging, however our process was able to make this happen.



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