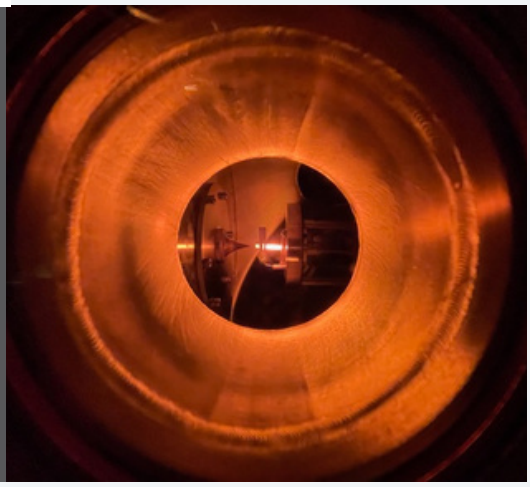
CALIX
CERAMIC SOLUTIONS

CASE STUDY

The Labbe Lab
University of Colorado - Boulder



Challenges

The Labbe Lab's end customer urgently needed an advanced ceramic supplier capable of manufacturing incredibly complex SSiC components. The key challenge was twofold: meeting the intricate design specifications while also adhering to unwavering high-quality material requirements for SSiC. This meant the chosen supplier, Calix, had to develop a specialized SSiC manufacturing process that ensured stringent material properties (purity, density, mechanical integrity) and allowed for the successful production of the complex designs. Ultimately, these components had to survive a rigorous testing process within combustion experimentation to qualify the SSiC material for its critical application.

Solution

Leveraging its specialized expertise in advanced ceramics, Calix successfully rose to the challenge. Through dedicated efforts in process development and precision manufacturing, Calix successfully manufactured and supplied the required SSiC components. This achievement not only met the stringent quality demands for the Siliconized Silicon Carbide material but also accurately produced the highly complex component designs.

Benefits

- Vastly Improved Performance: Calix's high-quality SSiC components directly led to a vast improvement in the end customer's combustion equipment performance.
- Pioneering Fabrication: The project drove Calix's development of a new digital ceramic fabrication process for microscale applications, advancing their manufacturing capabilities.
- Accelerated Innovation: This enabled the end customer to accelerate their combustion experimentation with reliable, extreme-condition-ready components.

""Calix Ceramics has been a research collaborator with the University of Colorado Boulder since 2019. The team at Calix has always been willing to tackle the toughest challenges, bringing their expertise in ceramics manufacturing to combustion experimentation. It has been a pleasure working with Nik Ninos whose dedication and prompt communication has contributed to the development of a new digital ceramic fabrication process for microscale applications."

Jatinder Sampathkumar, Ph.D.