Annular Graphite Foam Heat Exchangers Were Developed for FASTER

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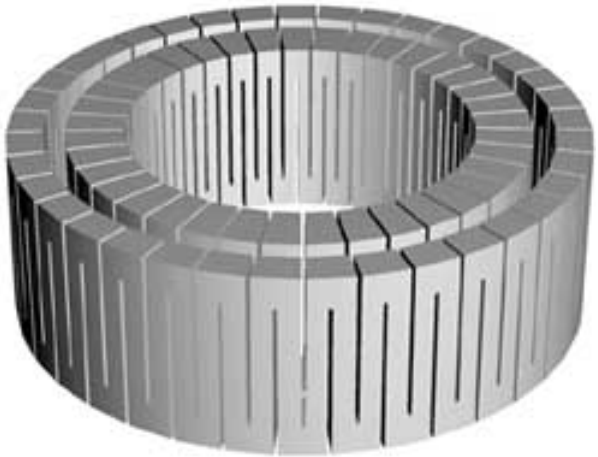
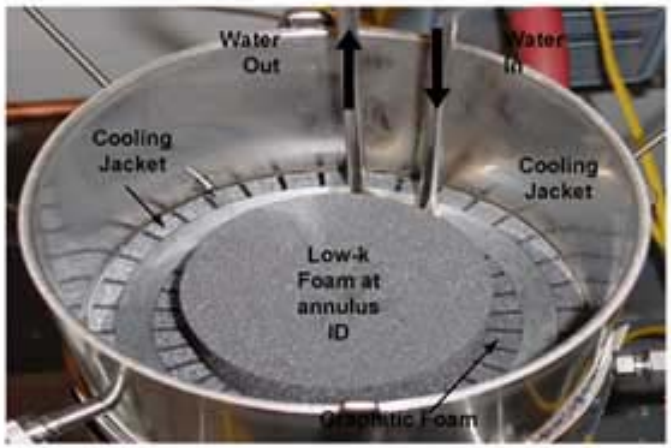
Objective:
To design and fabricate lightweight heat exchangers capable of handling a heat duty of 1KW. These heat exchangers must meet the operational and physical constraints of the FASTER system design for effective catalysis downstream.

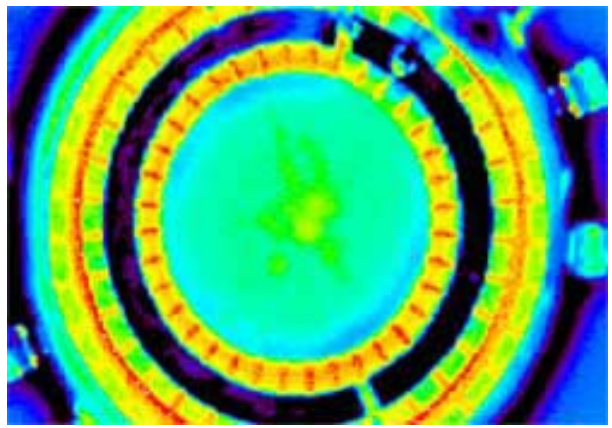


Performance Requirements

- Hot Gas : Flow = 300 slpm
- DT > 100°C (symmetric)
- DP < 0.1 psi
- Coolant : Water, 2-phase

Tests indicate that the heat duty is relatively constant for a given inlet gas temperature. Further, tests reveal that heat transfer through the graphite foam may be insensitive to water flow.





Early Results

- Hot Gas : Flow = 307 slpm
- DT ~200°C (symmetric)
- DP < 0.04 psi
- Coolant : Water, 2-phase