

# High-Temperature Molten-Salt Storage for Brayton Cycles



A joint India-U.S. research consortium funded under the *Joint Clean Energy Research & Development Center (JCERDC)*

## Scientific Achievement:

Design and develop a research (laboratory) molten-salt-loop system for storage for Brayton cycles in concentrating solar power.

## Significance and Impact:

### Research system

- Provides for assessing the feasibility of the thermocline concept
- Visualizes the flow pattern and temperature distribution profile of the molten salt
- Checks the thermal stability of the loop under normal operating conditions
- Identifies the thermal abnormalities within the loop

## Research Details:

- Thermal stratification is affected by a number of factors:
  - Mixing due to the inlet and outlet streams and tank configuration
  - Initial melt temperature profile of the salt
- The height-to-length ratio (AR) influences stratification, which may be enhanced by the proper design of tank parameters.

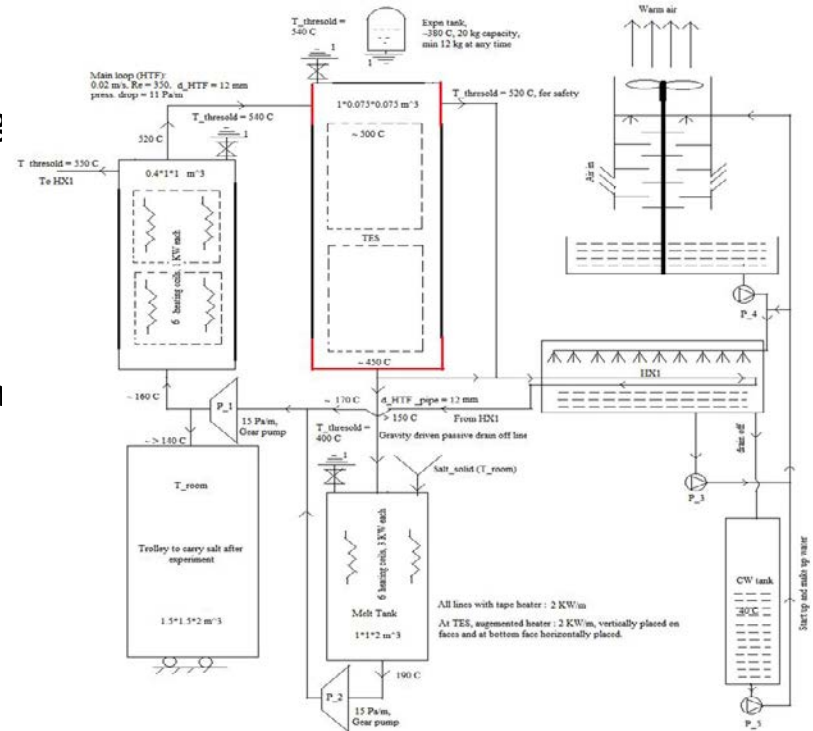


Fig. 1. Molten-storage loop design

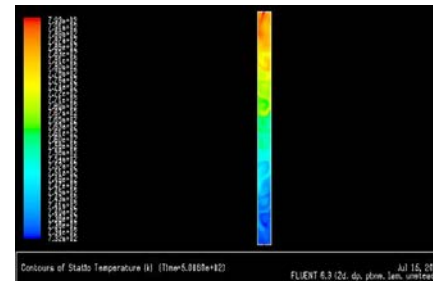


Fig. 2. Static temperature distribution

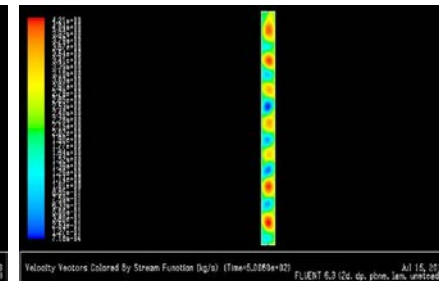


Fig. 3. Stream function

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