

LIQUID LEAD TECHNOLOGY

Innovations and Benefits - Through the flowing liquid metal facilities CIRCE, NACIE and HELENA it is possible to realize and test trial sections in flowing heavy liquid metal. In particular, in the CIRCE and NACIE facilities it is possible to carry out integral tests with transitions from forced to natural circulation, while in HELENA the mechanical pump allows to reach high flow rates and speed.

In the CIRCE pool type facility it is possible to test 1: 1 scale components related to the lead technology: heat exchangers, circulation pumps and pin bundle simulators.

In addition, innovative instrumentation for heavy liquid metal is tested in all the three facilities.

Operating conditions

Fluids: CIRCE (LBE), NACIE (LBE), HELENA (Lead) heavy liquid metal

Maximum temperature: 550 ° C

HLM inventory (CIRCE): 70 tons

Installed power: 1 MW (CIRCE), 250 kW (NACIE)

HELENA maximum flow rate: 120 kg / s

Use - Lead technology development, including ad hoc components, systems and instrumentation.

Applications and ongoing Activities - - Characterization of instrumented test sections of Fuel Pin Bundle type;

- Ad hoc instrumentation test: Thermal Flow meter, absolute pressure transducers, differential pressure transducers;
- Integral tests of transition between assisted and natural circulation;
- 1: 1 scale tests of components
- Development of procedures for the management of heavy liquid metal plants.

