

Profile LFR-74

LETEA

CHINA

GENERAL INFORMATION

NAME OF THE FACILITY	Lead-bismuth Eutectic Thermal-hydraulic Experimental Facility
ACRONYM	LETEA
MEDIUM (COOLANT(S)) OF THE FACILITY	LBE
LOCATION (address):	CNPRI, Shenzhen, China
OPERATOR	CNPRI
CONTACT PERSON(S)	Jiming Lin
(name, address, institute, function, telephone, email):	China Nuclear Power Technology Research Institute (CNPRI) 0086-755-88617716 linjiming@cgnpc.com.cn

STATUS OF THE FACILITY	In operation
Start of operation (date):	2018

MAIN RESEARCH FIELD(S)	<input type="checkbox"/> Zero power facility for V&V and licensing purposes
	<input type="checkbox"/> Design Basis Accidents (DBA) and Design Extended Conditions (DEC)
	<input checked="" type="checkbox"/> Thermal-hydraulics
	<input type="checkbox"/> Coolant chemistry
	<input type="checkbox"/> Materials
	<input checked="" type="checkbox"/> Systems and components
	<input type="checkbox"/> Instrumentation & ISI&R

TECHNICAL DESCRIPTION

Description of the facility

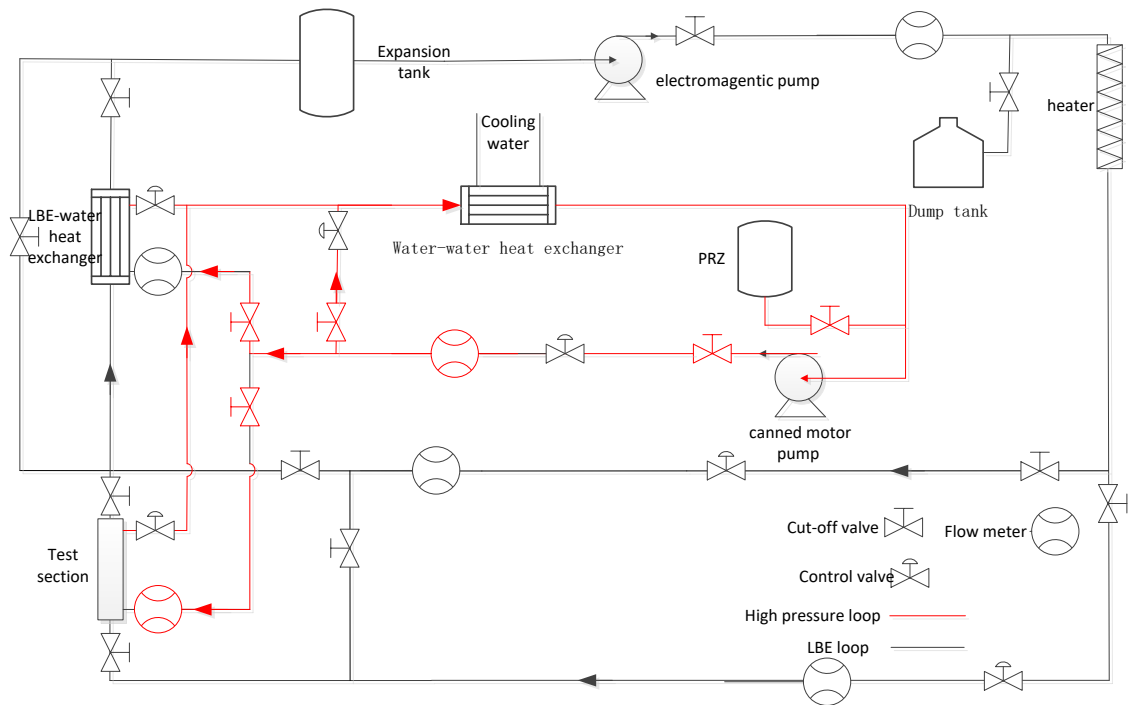
LETEA is a forced-convection loop for exposing thermal-hydraulics characteristics of LBE at temperatures between 180 °C and 450 °C. It basically consists of a heater, a test section, three magnetic flow meters, a heat exchanger, a dump tank, an expansion tank, and an electromagnetic pump. The medium of primary loop is LBE and the design flow rate is 10m³/h. The medium of the second loop is the high pressure water with 9.6MPa. The canned motor pump, the calibration test of flowmeter, the LBE-water heat exchangers, the water-water heat exchanger and some other thermal hydraulic tests are performed on the loop. Main research interests of LETEA are thermal hydraulic performance of fuel assembly, heat exchanger and other key components of LFRs.

Acceptance of radioactive material

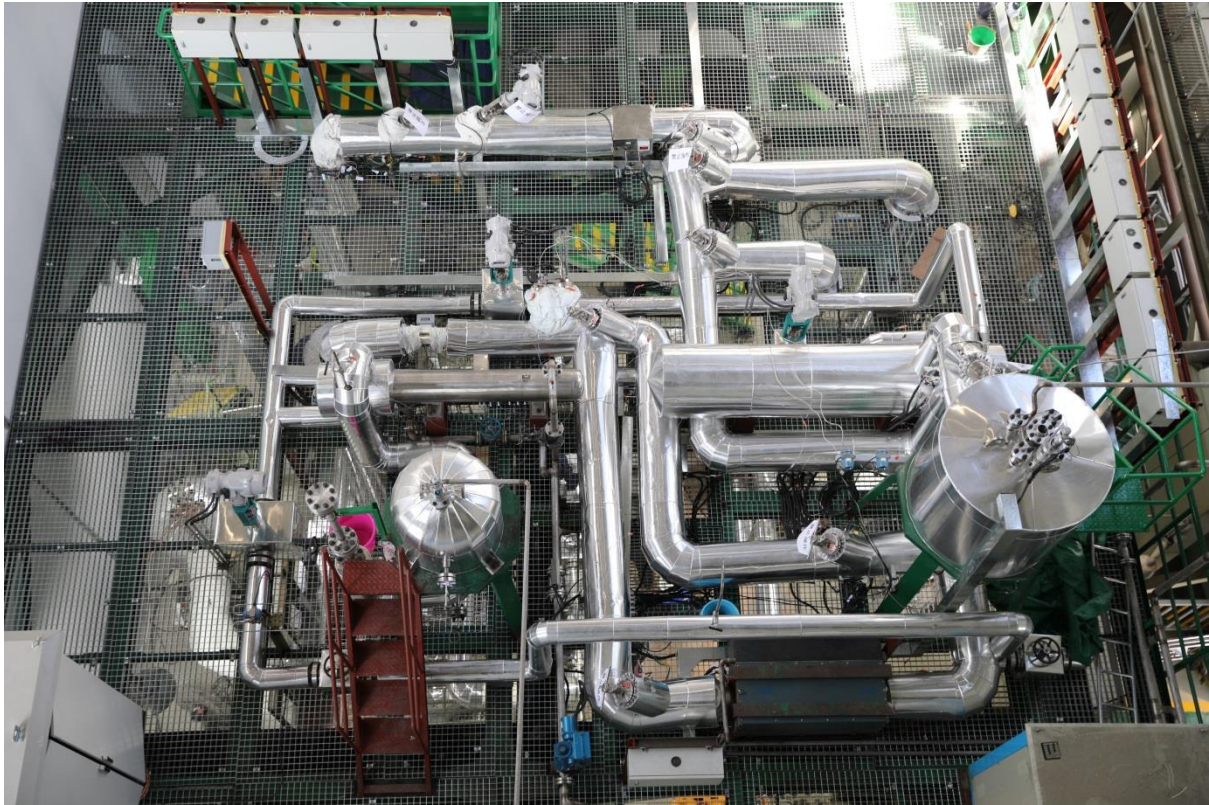
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Scheme/diagram



3D drawing/photo



Parameters table

Medium (Coolant) inventory	800L
Power	Heating power 400kW, cooling power 500kW
Test sections	
TS #1	<u>Characteristic dimensions</u> test section, 2mx2mx5m size can be adapted
	<u>Static/dynamic experiment</u> dynamic
	<u>Temperature range in the test section (Delta T)</u> 180°C-450°C (270°C)
	<u>Operating pressure and design pressure</u> <1MPa, 3.9MPa
	<u>Flow range (mass, velocity, etc.)</u> 10m ³ /h
Medium (Coolant) chemistry measurement and control (active or not, measured parameters)	With not Medium (Coolant) chemistry measurement and control
Instrumentation	Magnetic flow meter temperature sensors differential pressure transducers pressure transducers

COMPLETED EXPERIMENTAL CAMPAIGNS: MAIN RESULTS AND ACHIEVEMENTS

thermal-hydraulics performance test of a heat exchanger

PLANNED EXPERIMENTS (including time schedule)

fuel assembly thermal-hydraulics test in 2019-2020

TRAINING ACTIVITIES

Training activities are possible, depending on availability and after prior agreement under supervision of CNPRI.

REFERENCES (*specification of availability and language*)

None