

Profile LFR-80

LEMETS

CHINA

GENERAL INFORMATION

NAME OF THE FACILITY	Lead-bismuth Eutectic Mechanical Testing Stand
ACRONYM	LEMETS
MEDIUM (COOLANT(S)) OF THE FACILITY	Lead-Bismuth Eutectic
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	Under Design
Start of operation (date):	2020

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 type="checkbox"/> Thermal-hydraulics
	<input checked="" type="checkbox"/> Coolant chemistry
	<input checked="" type="checkbox"/> Materials
	<input type="checkbox"/> Systems and components
	<input type="checkbox"/> Instrumentation & ISI&R

TECHNICAL DESCRIPTION

Description of the facility

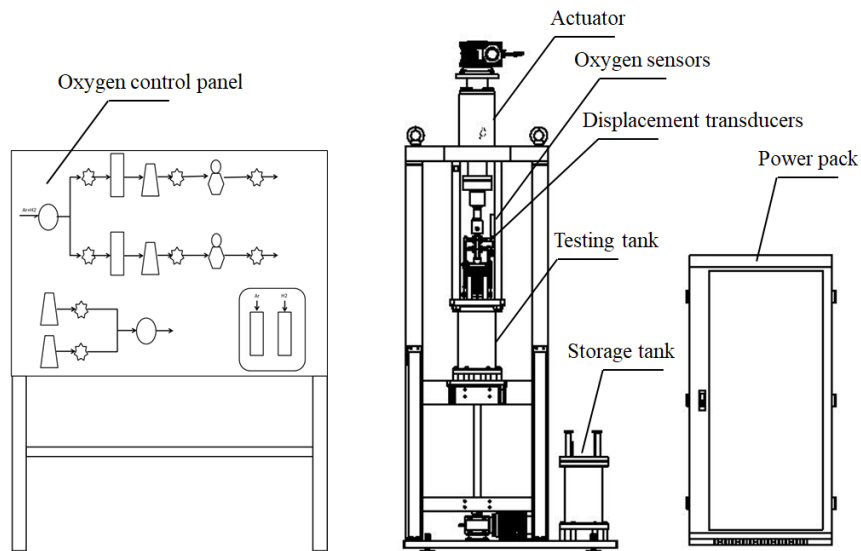
LEMETS is a multi-functional experimental system for testing mechanical behaviour of materials exposed to heavy liquid metal (LBE) at temperature up to 600 °C, including slow strain rate tensile test, low cycle fatigue test, creep-fatigue test, in-situ crack prefabricating, fracture toughness test and et al. The oxygen control systems are equipped in the testing system to regulate the oxygen concentration in LBE.

Acceptance of radioactive material

No

[Click here to enter text.](#)

Scheme/diagram



3D drawing/photo

N/A

Parameters table

Medium (Coolant) inventory	15L
Power	30kW
Test sections	
TS #1	<u>Characteristic dimensions</u> Testing tank $\phi 250 \times 320$ mm
	<u>Static/dynamic experiment</u> dynamic
	<u>Temperature range in the test section (ΔT)</u> 200°C-600°C (400°C)
	<u>Operating pressure and design pressure</u> ambient
	<u>Flow range (mass, velocity, etc.)</u> N/A
Medium (Coolant) chemistry measurement and control (active or not, measured parameters)	Gas and solid oxygen control system
Instrumentation	Hydraulic actuator, displacement transducer, oxygen sensors, thermal couple

COMPLETED EXPERIMENTAL CAMPAIGNS: MAIN RESULTS AND ACHIEVEMENTS

N/A

PLANNED EXPERIMENTS (including time schedule)

Experiments will be carried after construction finished in 2020.

2020-2021: Slow strain rate tensile test, in-situ crack prefabricating and fracture toughness test

2021-2022: Low cycle fatigue test and long term creep-fatigue test

TRAINING ACTIVITIES

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

REFERENCES (*specification of availability and language*)

No