

LOCA QUALIFICATION FOR SMR

Loss-of-Coolant Accident (LOCA) qualification testing dedicated to Small Modular Reactor (SMR) conditions

Framatome's infrastructure provides several adequate solutions for testing and qualifying SMR equipment under unique LOCA conditions

Challenge

Compared to current Light-Water Reactors (LWR), SMR have a small containment in relation to the reactor pressure vessel volume. Hence, in the case of a LOCA, the containment pressure increases significantly beyond that of current large LWR. To qualify the SMR safety equipment under such conditions, specific thermal-hydraulic infrastructure is required since current LOCA chambers for LWR cannot cover the SMR specific conditions.

Solution

Framatome has a long and continuous experience in performing tests to qualify current LWR equipment under LOCA conditions. In addition, we operate several vessels and boilers that are able to reach the higher SMR containment pressure conditions, so that suppliers of qualified equipment can rely on our experience and infrastructure to qualify their SMR products.

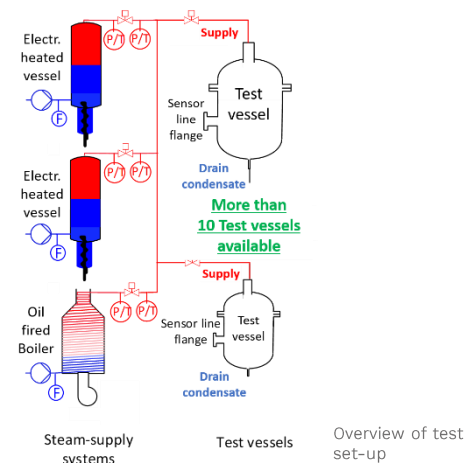
Depending on the specimen dimension and the specific transient conditions, Framatome will systematically:

1. Provide advice on the appropriate boiler / vessel combination
2. Prepare and validate the setup toward the transients and loads to be run
3. Perform a pre-test or study to validate the control system
4. Perform the qualification tests

Customer benefits

- Minimize qualification risk by relying on an experienced partner in the field of LOCA qualification for OEM and third-party products
- Get reliable test results through accreditation as test and inspection body in accordance with ISO 17025 and 17020, accepted by ILAC
- Secure time schedule benefiting from our know-how in the performance of such tests

Your performance
is our everyday **commitment**



Technical information

Different heat sources available to provide steam and super-heated steam:

- oil fired boiler,
- electrically heated vessels

To simulate the SMR containment in accidental conditions, steam can be injected in appropriate test vessels containing the test specimens.

Key Figures

Test vessels from 0.1 m³ (4 ft³) up to **130 m³ (4,592 ft³)**, available for test specimens

Pressure up to **185 bar (2,683 psi)**,

Up to **22MW** power available

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