

Containment Cooling Condenser

Passive heat removal from the containment

Removes heat from the containment and ensures long-term building integrity even in case of station blackout

In case of a transient or a Loss of Coolant Accident (LOCA) with no active cooling systems available (e.g. station blackout, internal fire/ flooding), heat must be removed from the containment. The plant must be brought to a safe state and long term containment cooling must be ensured. A heat removal system is required which operates without any power supply.

The Containment Cooling Condenser allows passive heat removal from the containment to a water pool outside the containment. Steam inside the containment atmosphere condenses at the surface of the heat exchanger and heat

is transferred to the outside pool by single- or two-phase natural circulation. The Containment Cooling Condenser was successfully tested in full scale for containment pressures of up to 0.35 MPa. It showed heat transfer capacities of up to 11 MW, which are expected to even increase for higher containment pressures. With this component, the containment pressure is kept below the design pressure and maintains stable at low pressure even in the long term, as long as the water reservoir outside containment is available.



Containment Cooling Condenser

Key features of scope:

- Safety assessment and consulting
- System engineering
- Component design, scaling
- Procurement
- Installation
- Commissioning

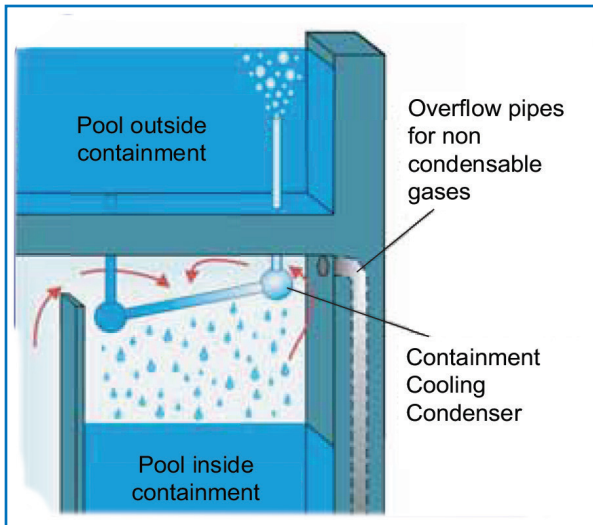
References:

- Full scale tests 2009-2012 at INKA test facility, Karlstein, Germany
- Development of KERENA reactor
- Component development in co-operation with Paul Scherrer Institut (PSI), Switzerland

Your performance
is **our** everyday **commitment**

High safety, low price

With the Containment Cooling Condenser, heat can be passively removed from the containment. The component shows a very high heat removal performance already at low primary side pressures. It requires no electrical power supply or any I&C control. The system is diverse to the active cooling systems, i.e. the core damage frequency is reduced significantly. The system has a robust and simple design which does not contain any auxiliary equipment except for containment penetrations.



Simplified principle of operation



INKA test facility, Karlstein, Germany

Your Benefits at a Glance

- Long term passive heat removal from containment even after loss of main heat sink and/or active cooling systems (e.g. station blackout, internal fire/flooding)
- No additional active containment cooling system necessary
- No power supply or I&C control necessary
- Simple, maintenance-friendly, scalable design without any active components

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