Das Simulatorzentrum

KSG | GfS

Horizon 2020
European Union Funding
for Research & Innovation

sCO2 HeRo

The supercritical CO_2 heat removal system

sCO2-HeRo Workshop
September, 1st 2017

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The simulation centre

The simulation centre

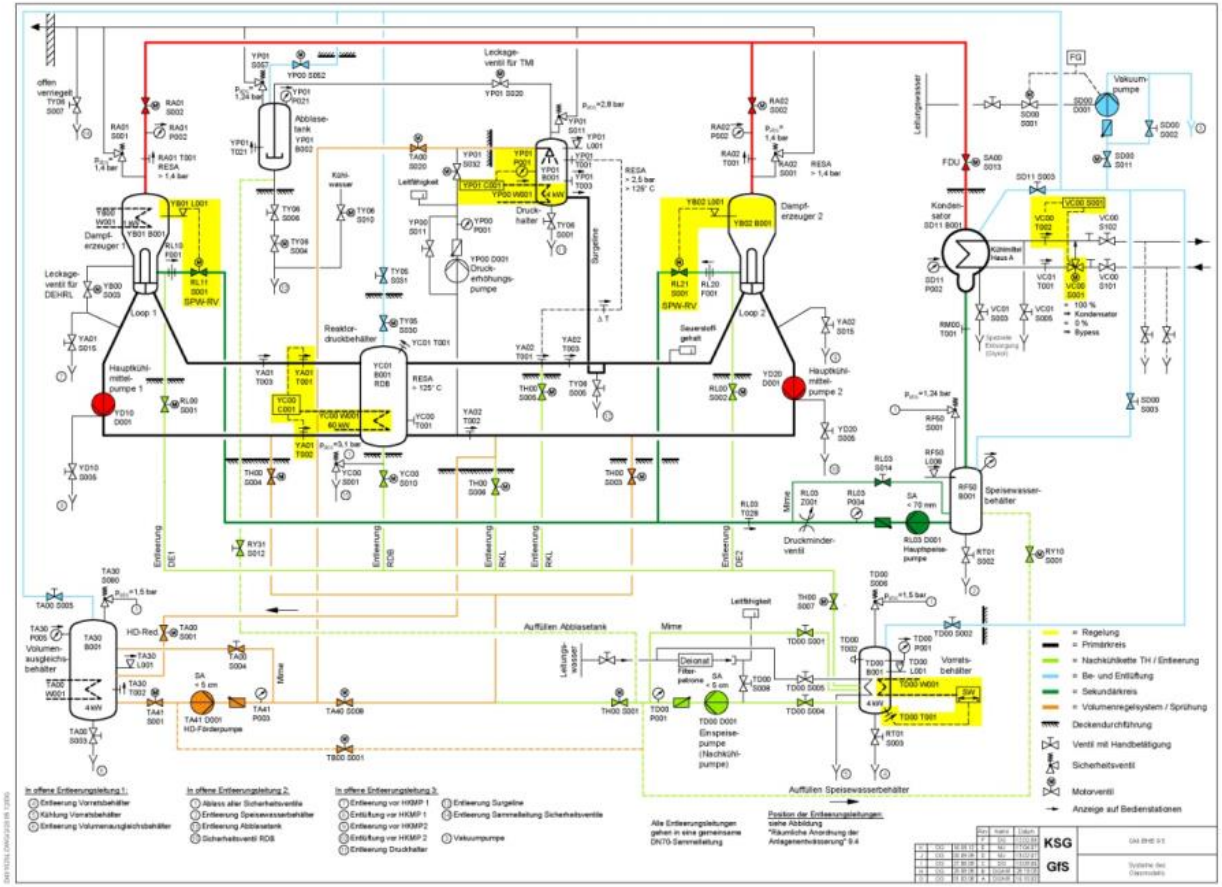
Task:	Simulator training for 10 nuclear power plant units
First courses:	1977
Shareholders:	E.ON, RWE, EnBW, Vattenfall, EPZ (NL)
Staff:	145 employees (50 certified trainers/instructors)
Equipment:	8 simulators in operation
	1 glass model
Courses:	approx. 400 / year (duration: 4-5 days)
Participants:	approx. 2,000 / year
Investment:	> €350m
Budget:	approx. €26m / year
Certificate:	DIN EN ISO 9001:2008

Glass model

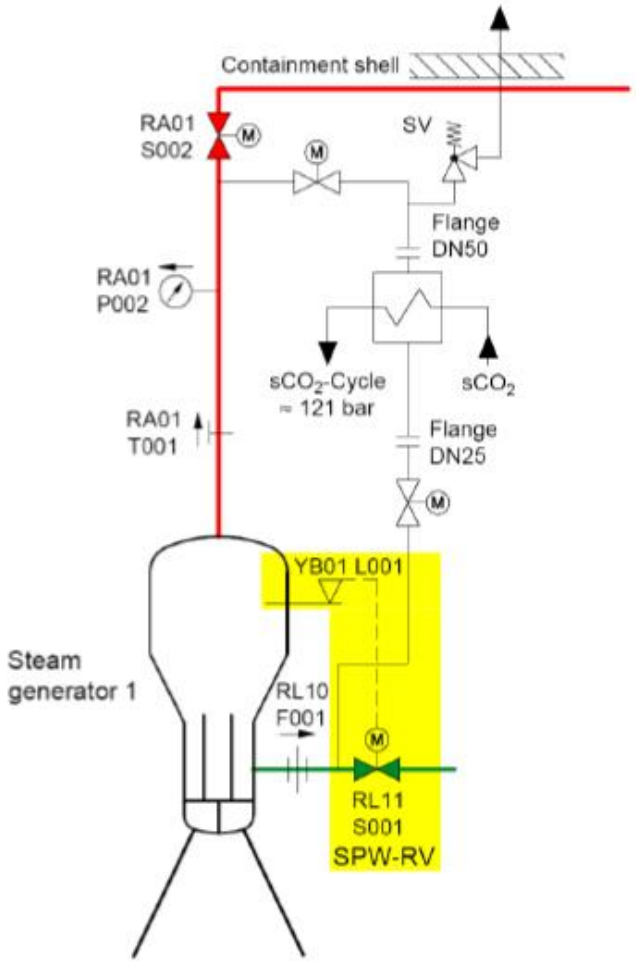
Glass model technical facts

- A two-loop pressurized water reactor (KWU production series)
- Deionized water (deionate)
- 1:10 scale
- The reactor cooling system
  - Pressurizer
  - Pressurizer relief tank
  - Steam generator
- The construction of the glass model is not based on the similarity theory!
- Maximum heat output of the reactor 60 kW
- Maximum temperature 130 °C
- Saturation pressure of 3 bar

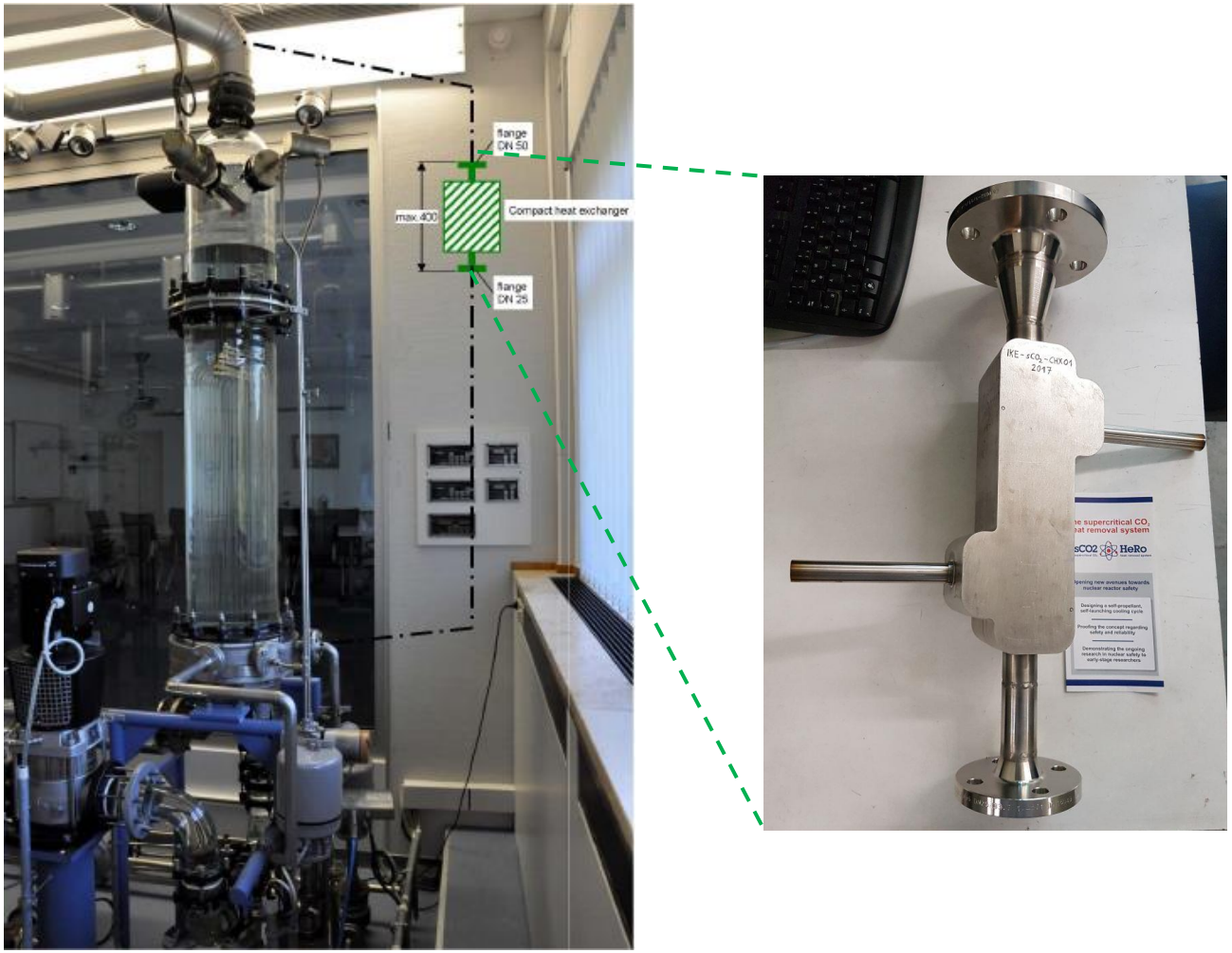
The glass model



Implementation of the sCO2-HeRo into the glass model



Compact heat exchanger (back view photo)



External heater

Heat sink

Heat sink,
during testing in Rez

Compact heat exchanger (back view photo)

- Status of the sCO2-HeRo-system:
  - Ground prepared for the external heat sinks
  - Slave electrical heater installed
  - Compact Heat Exchanger delivered
  - Turbo-Compressor System currently tested at CV Rez, Czech Republic
  - Auxiliary Systems (start-up system, filling system), piping, etc. under construction

- Next steps:
  - Installation of all components finished end of September 2017
  - Commissioning test from October 2017
  - Loop experiments will start end of 2017

Final slide

Thank you for your attention ...

... see you at the glass model

The project leading to this application has received funding from the *Euratom research and training programme 2014-2018* under grant agreement No 662116.