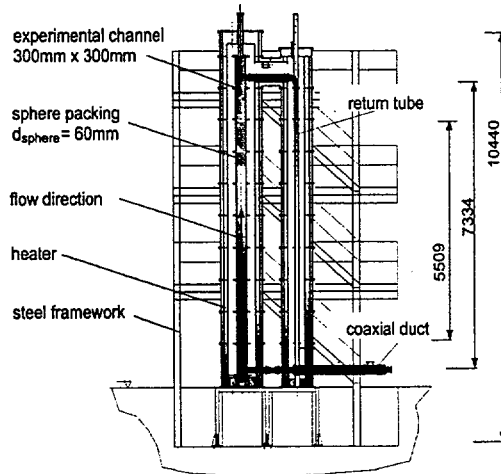
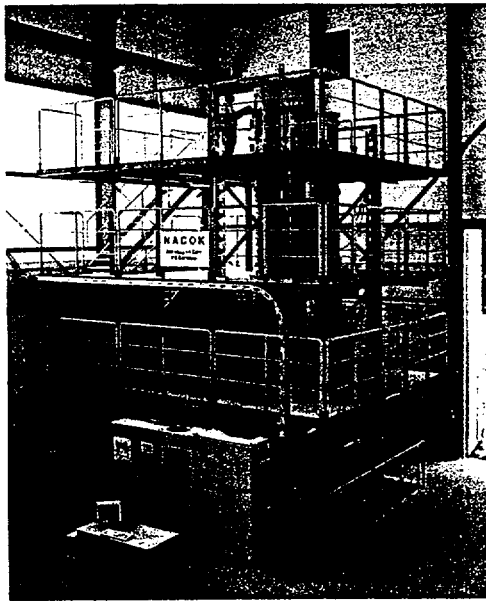




NACOK

Natural Conv. in Core with Corrosion



NACOK

NACOC – Main data:

Max. temp. in experimental channel	1200 °C
Max. temp. in return tube	800 °C
Max. through-put of air	17 g/s
Total number of thermo-couples	82
Total number of gas measurement points	26
Number of points to measure gas velocity	2
Max. heating power	147 kW

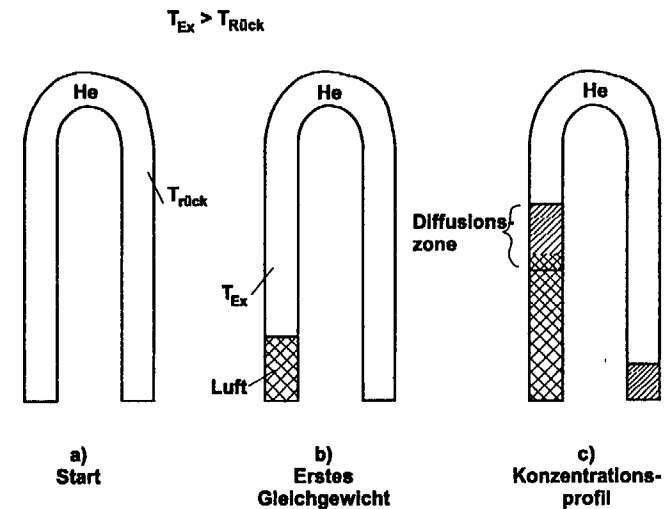
Grace Time Till Natural Convection Start

Forschungszentrum Jülich



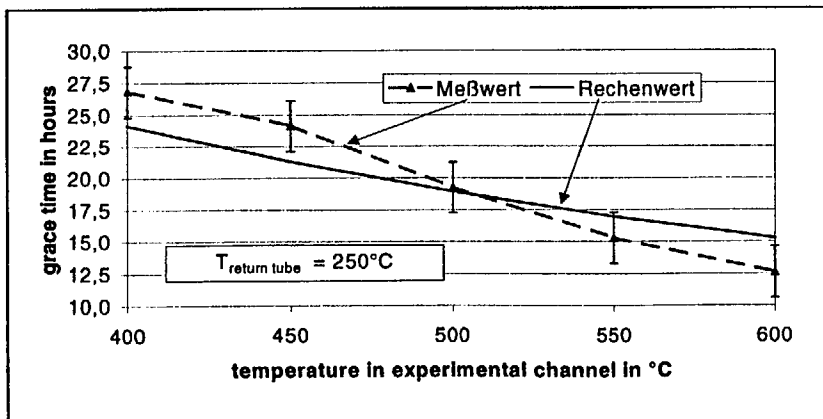
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grace time produced by diving bell effect



$$\Delta t = \frac{L^2}{4D}$$

- Δt = *grace time*
- L = *length of diffusion (height)*
- D = *coefficient of diffusion*



$\Delta t = 20$ h measurement NACOC

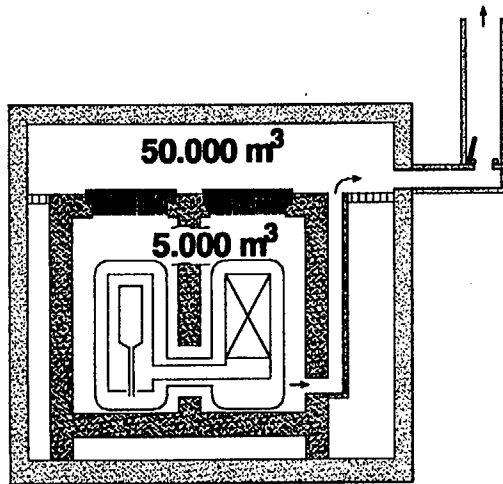
$\Delta t = 80$ h for HTR-Modul, resp. PBMR

Air Ingress and Corrosion Masses

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1. **At depressurization accident:
Helium from primary circuit (pushes“ air out of confinement.**

2. **Grace time till natural convection start
(due to diving bell effect): 80 h**

3. **In Confinement (50 000 m³) there is max. 16 000 Norm-m³
air mixed with helium.
This air corrodes about 1600 kg C (of in total 500 000 kg).
If less air, than less corrosion: Accident management
measures.**

