### **Theory 5**

Sascha Pfeiffer

Managing Director
Lyo Engineering, Bad Endbach/Germany

Sascha.Pfeiffer@lyo-engineering.com





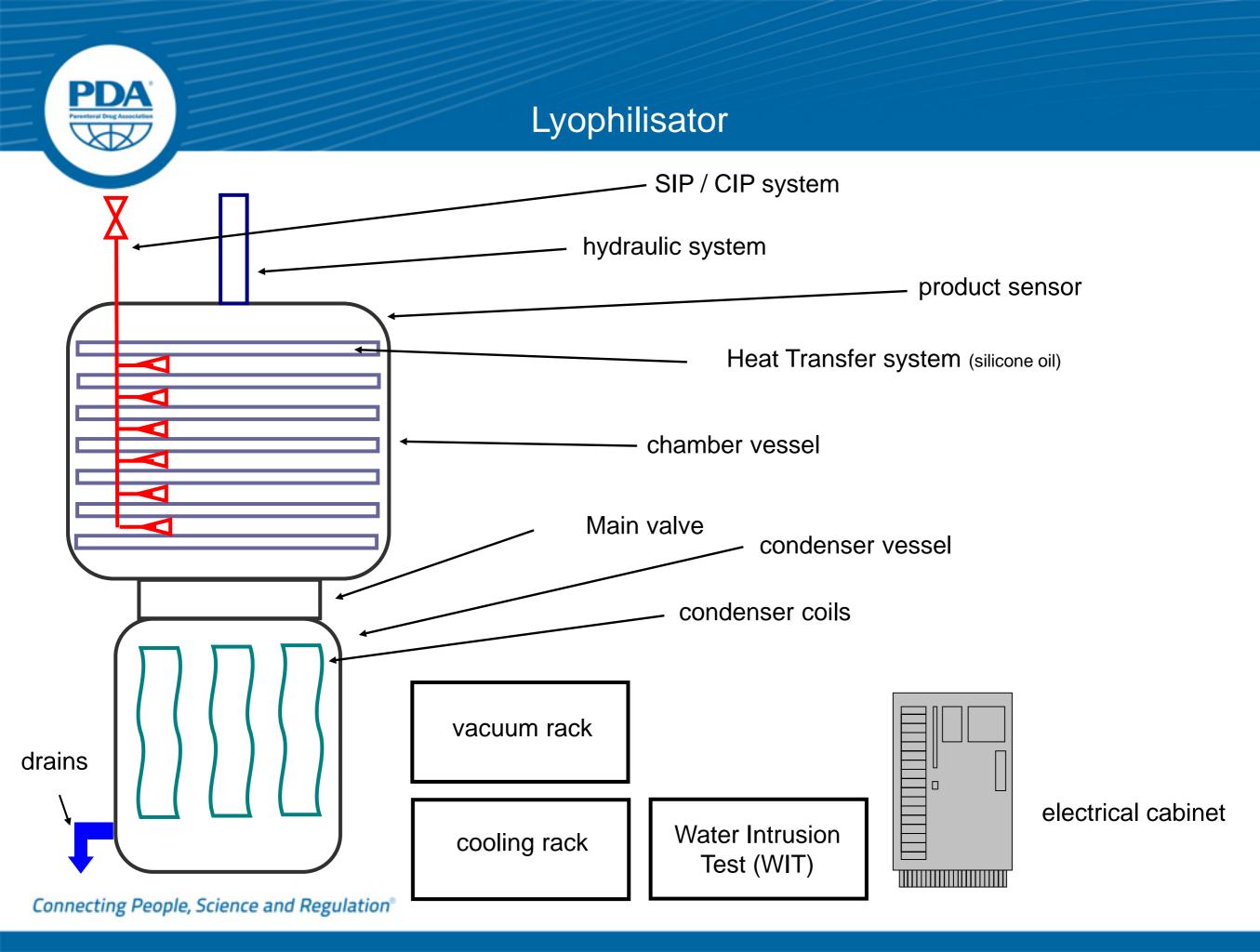




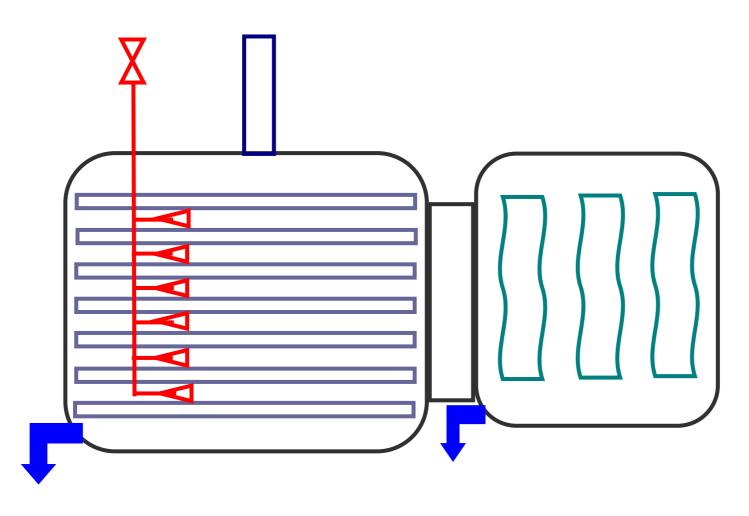
#### Theory 5:

Construction of freeze dryers

- construction of freeze dryers
- systems of freeze dryers
- different types of freeze dryers
- existing lines of freeze dryers
- parameters of freeze dryers



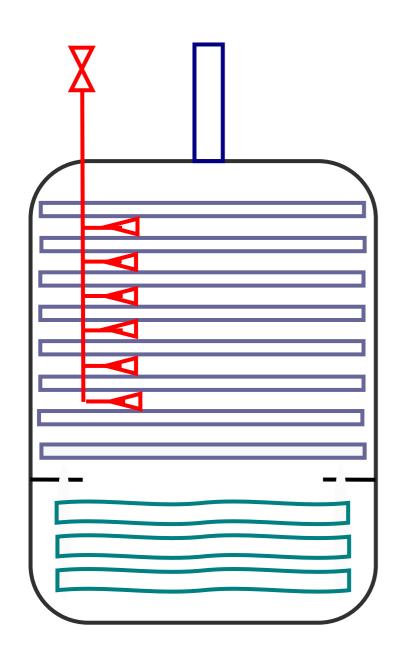




## Side mounting of ice condenser:

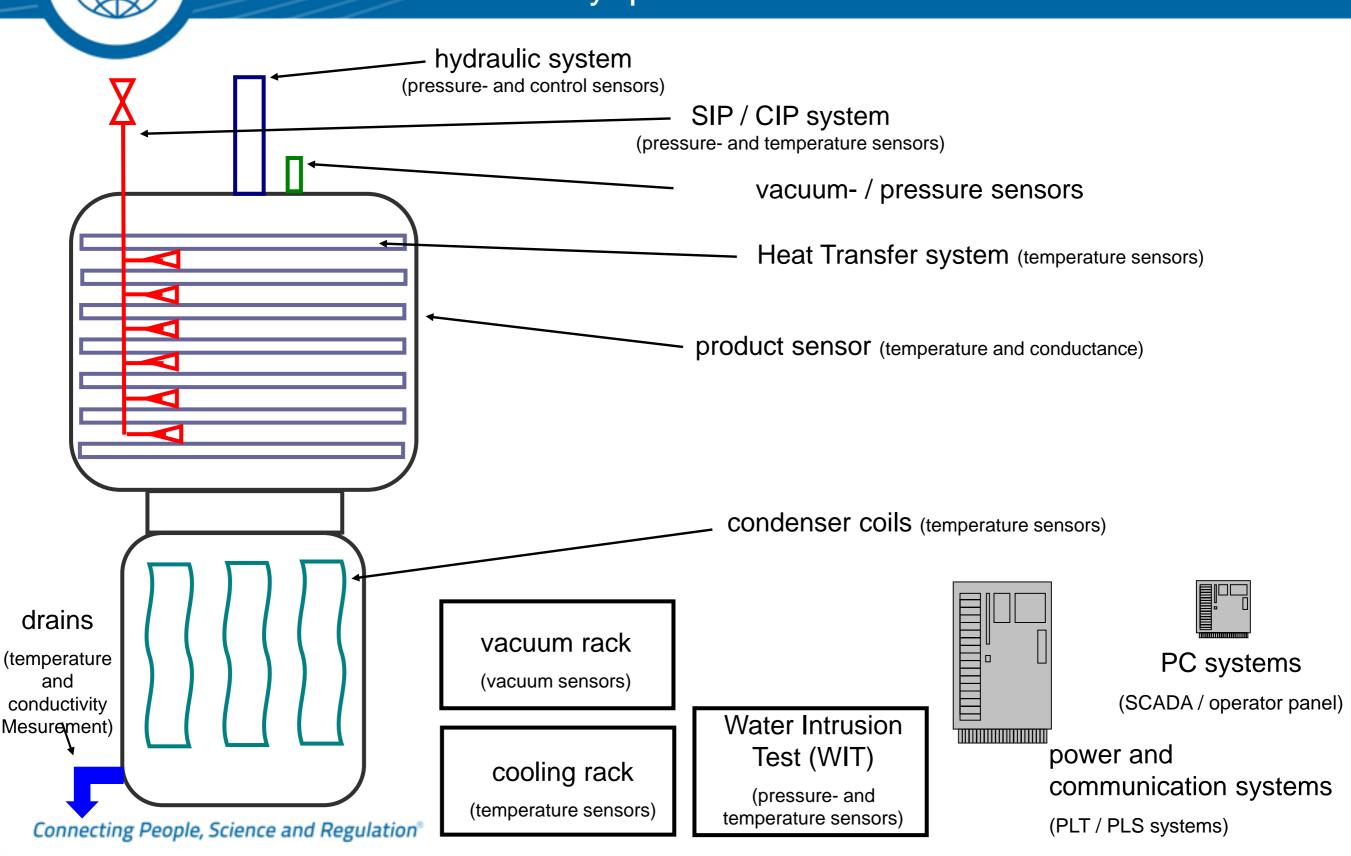
- installation on one level
- potential risks for are the Radiation effects of the condenser to the vials which stand nearby the Main Valve





# Compact design / one-chamber design:

- installation on one level
- compact design
- The Main Valve ist mounted on the Shelf Stack



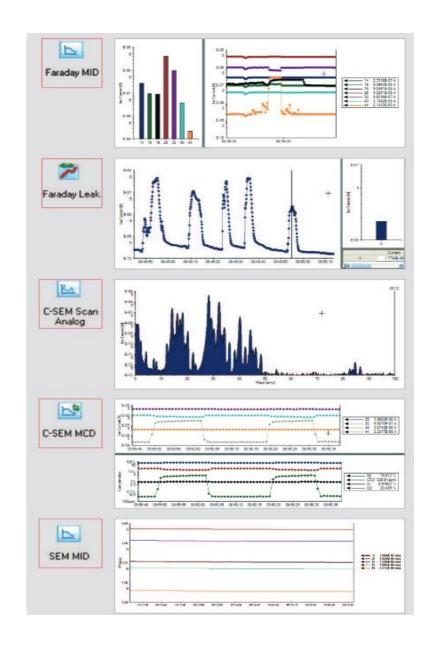


#### **Special Sensor**

Mass spectrometer Sensors for silicone oil detection

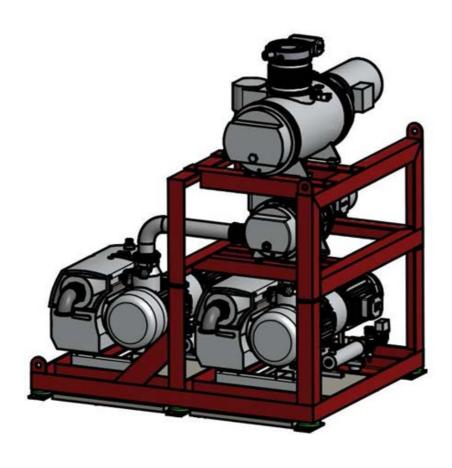
mounted in the Main Valve

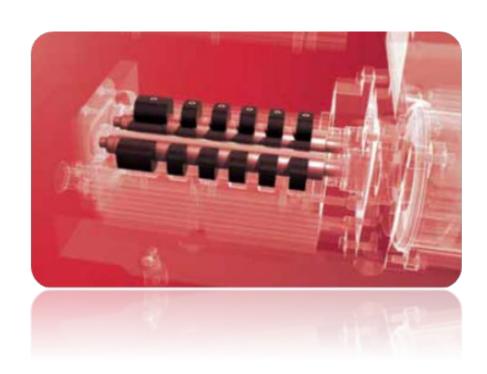






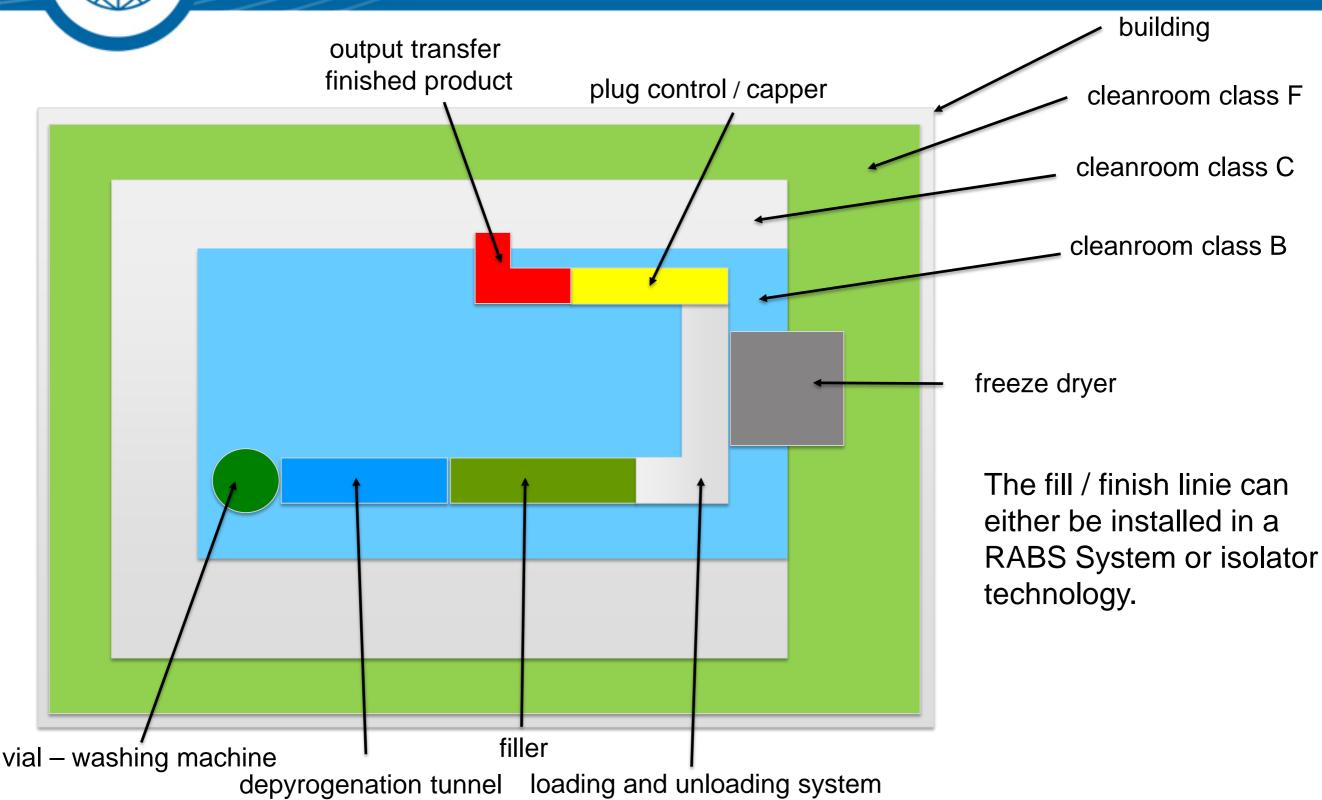
#### vacuum pump units







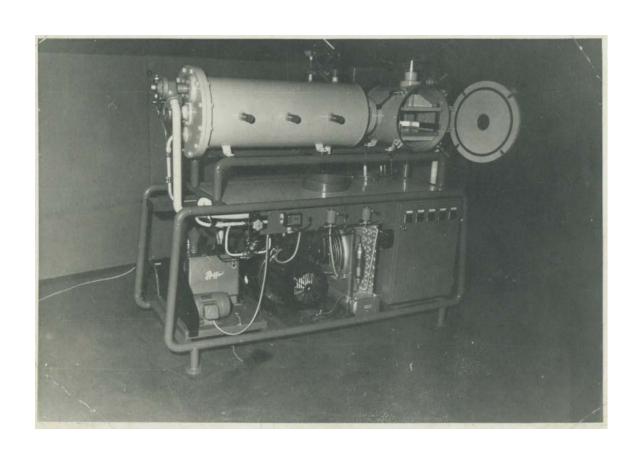
#### Exemplary construction of GT range

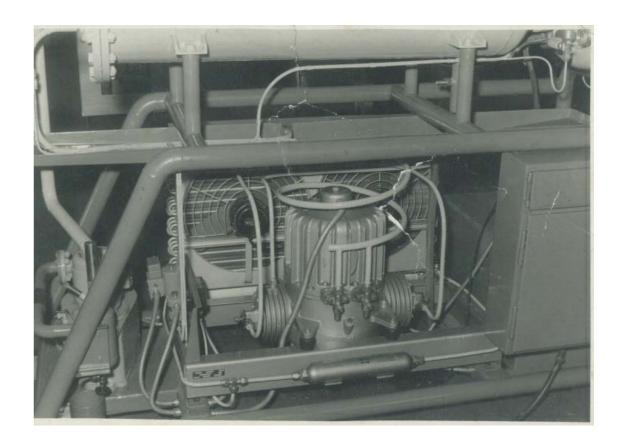


Connecting People, Science and Regulation®



#### Old treasures







# Lyo Engineering

GMP is our passion!