Leak and pressure tests in magnets production chain

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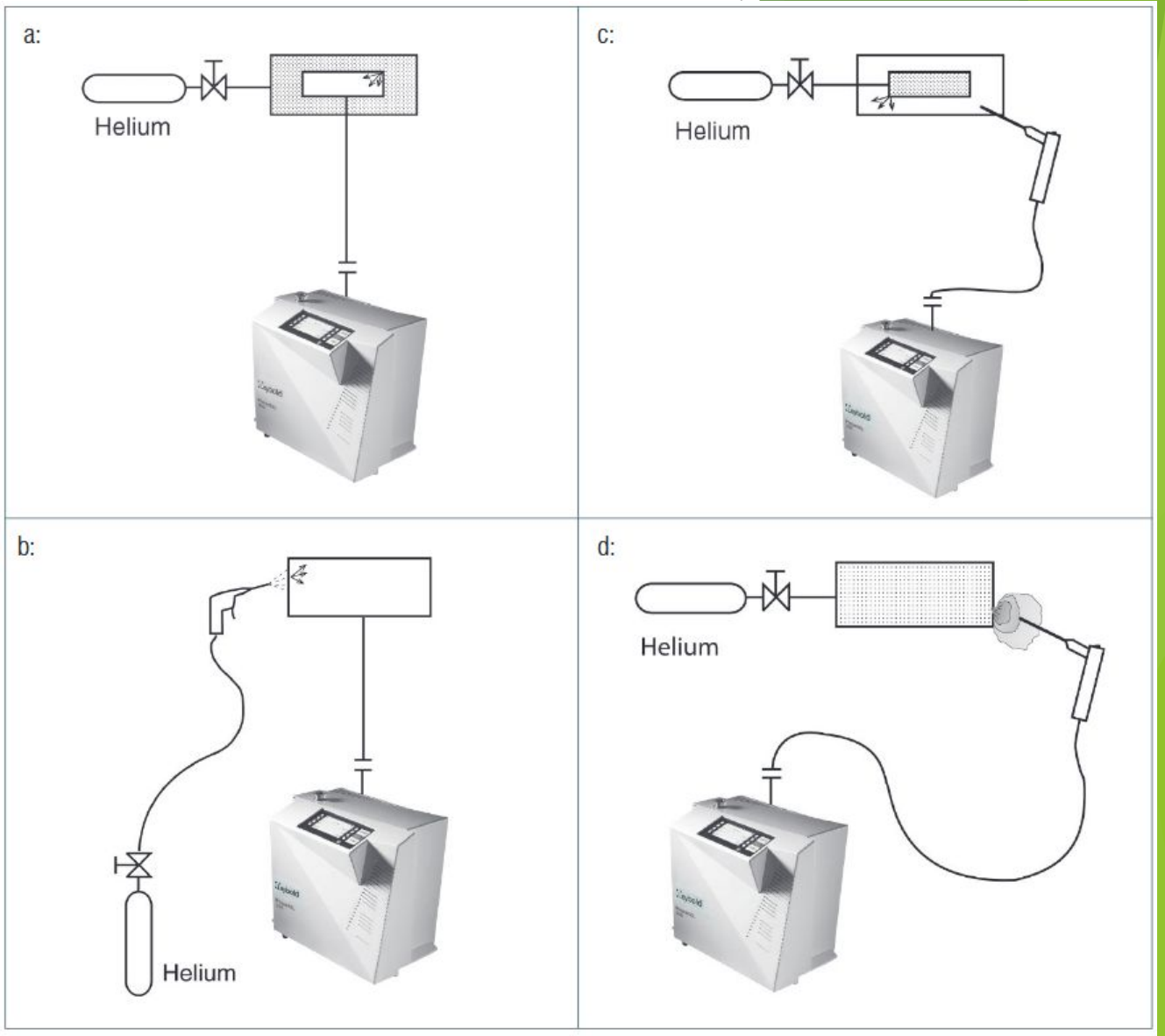
Applied helium leak test methods

- A) Enclosure test (integral leak detection);
- B) **Spray technique (local leak detection);**
- **C) Enclosure test (integral leak detection);**
- D) Sniffer technique (local leak detection)
- E) Bubble test

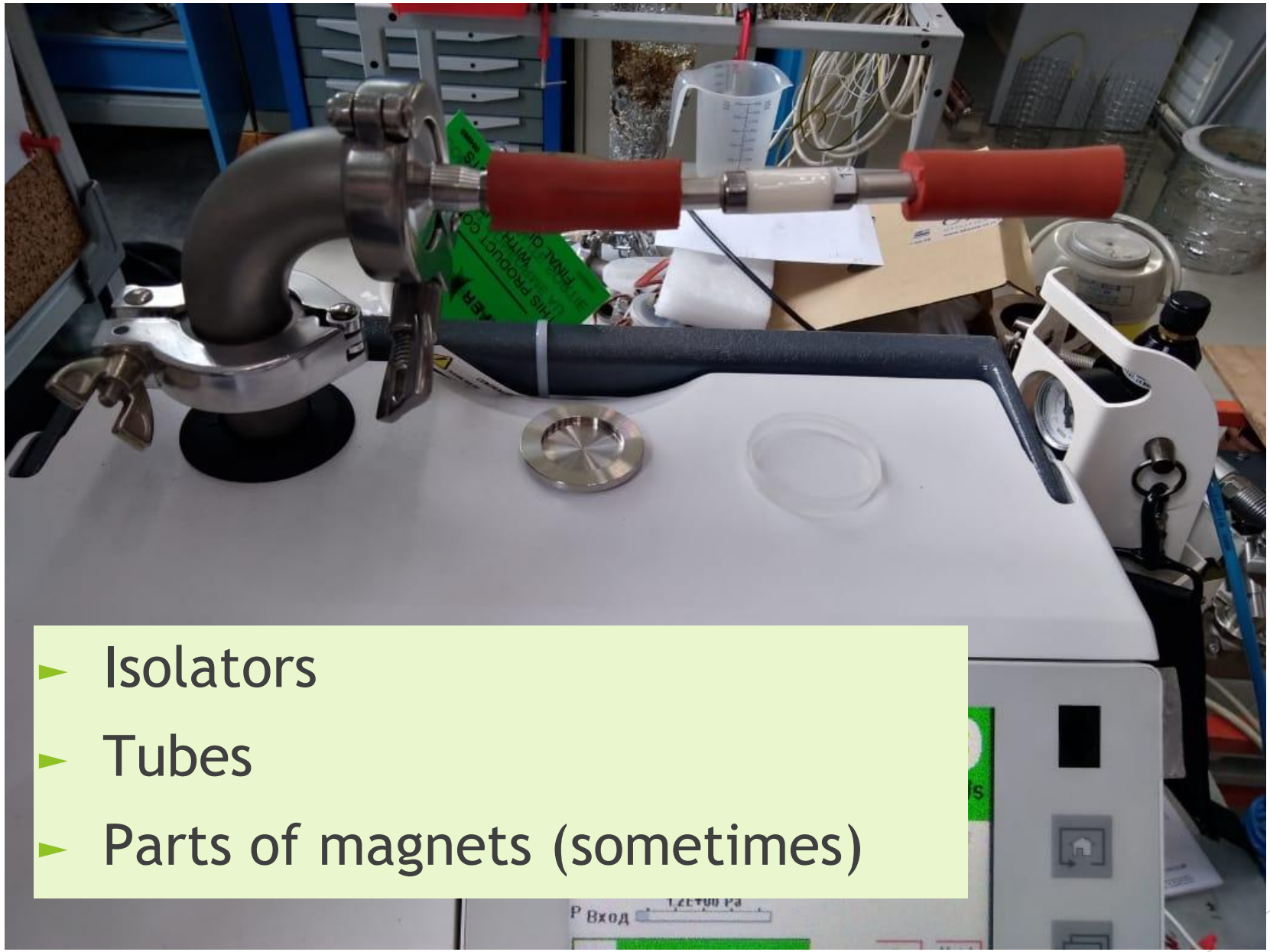
Leak detectors:

- ASM310
- ASM380
- HLT575
- ASM340

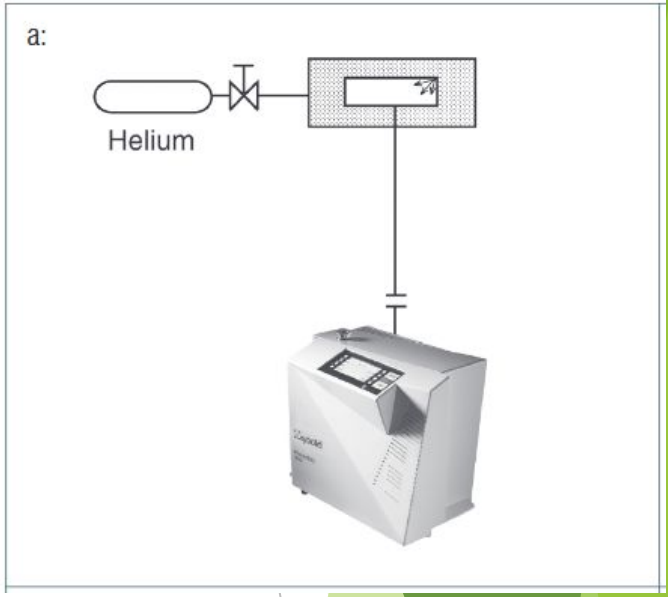
Maximum sensitive:
5×10^{-13} Пам^3/с (5×10^{-12} mbar•l/c)



Enclosure test

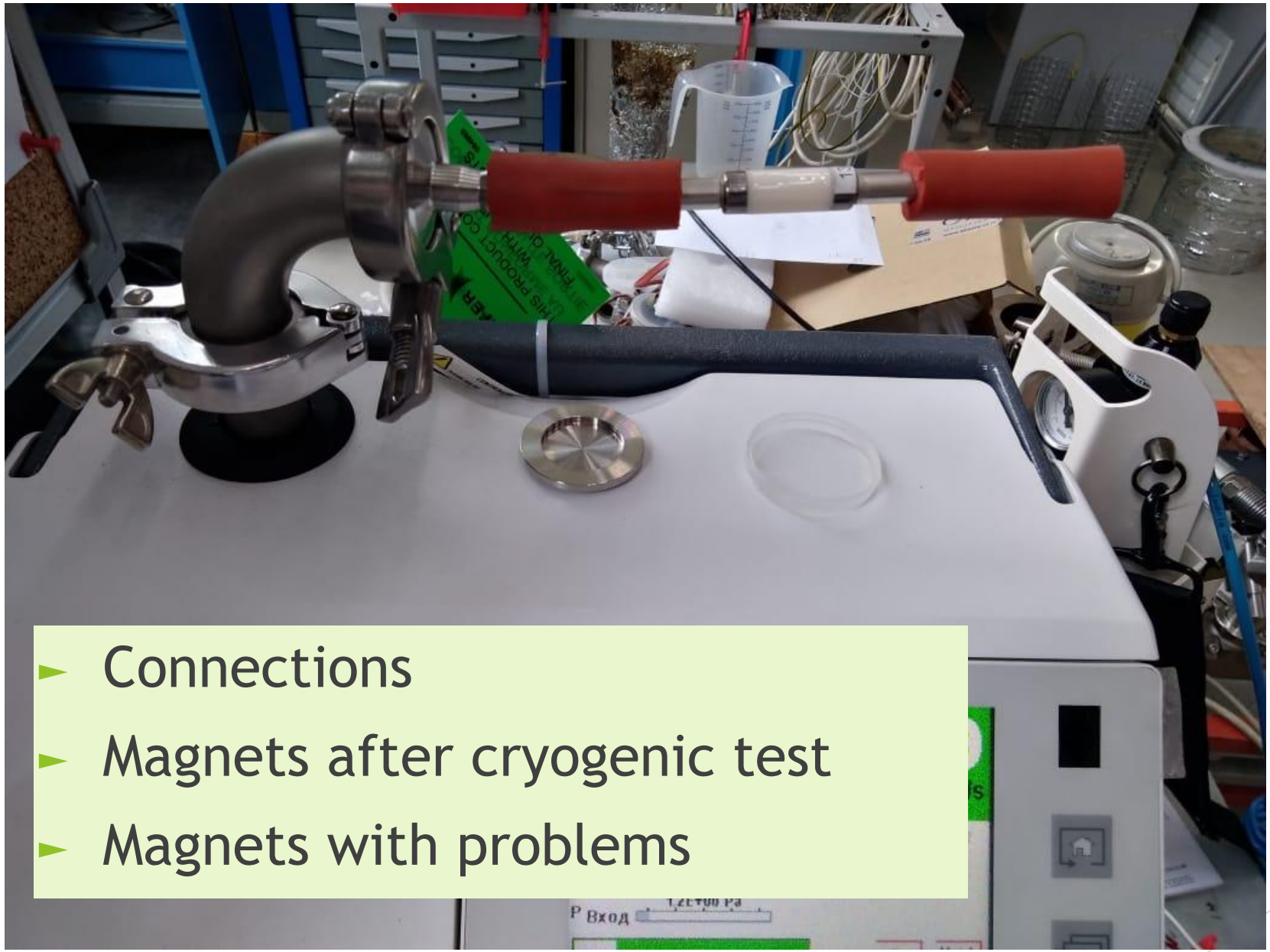


- Isolators
- Tubes
- Parts of magnets (sometimes)

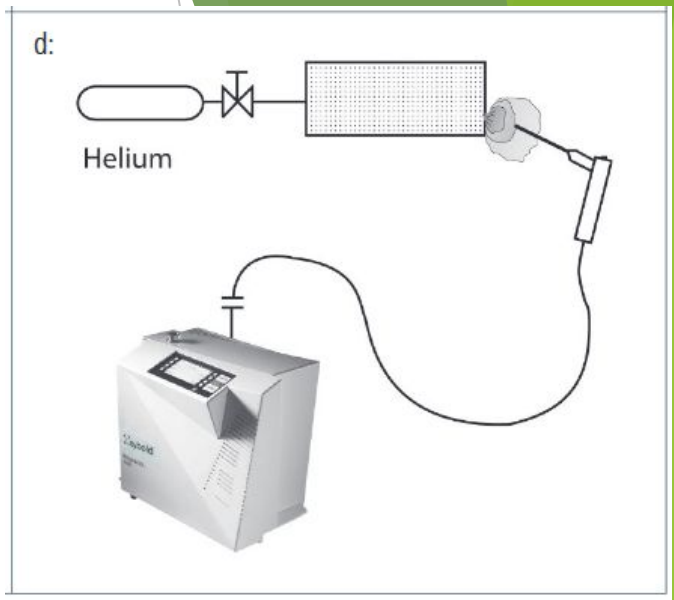


- Sensitive: 5×10^{-13} Пам^3/с
- Summarize leak

Sniffer test



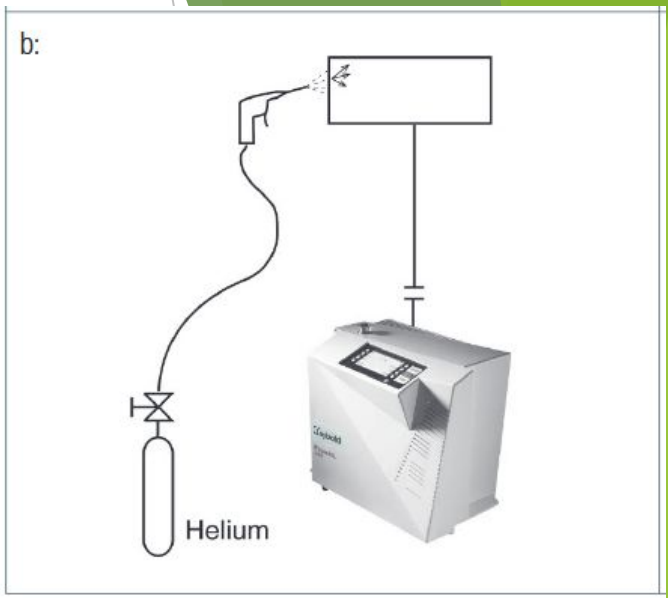
- Connections
- Magnets after cryogenic test
- Magnets with problems



- Sensitive: 5×10^{-9} Пам^3/с
- Place of leak;
- Leak can be calculated

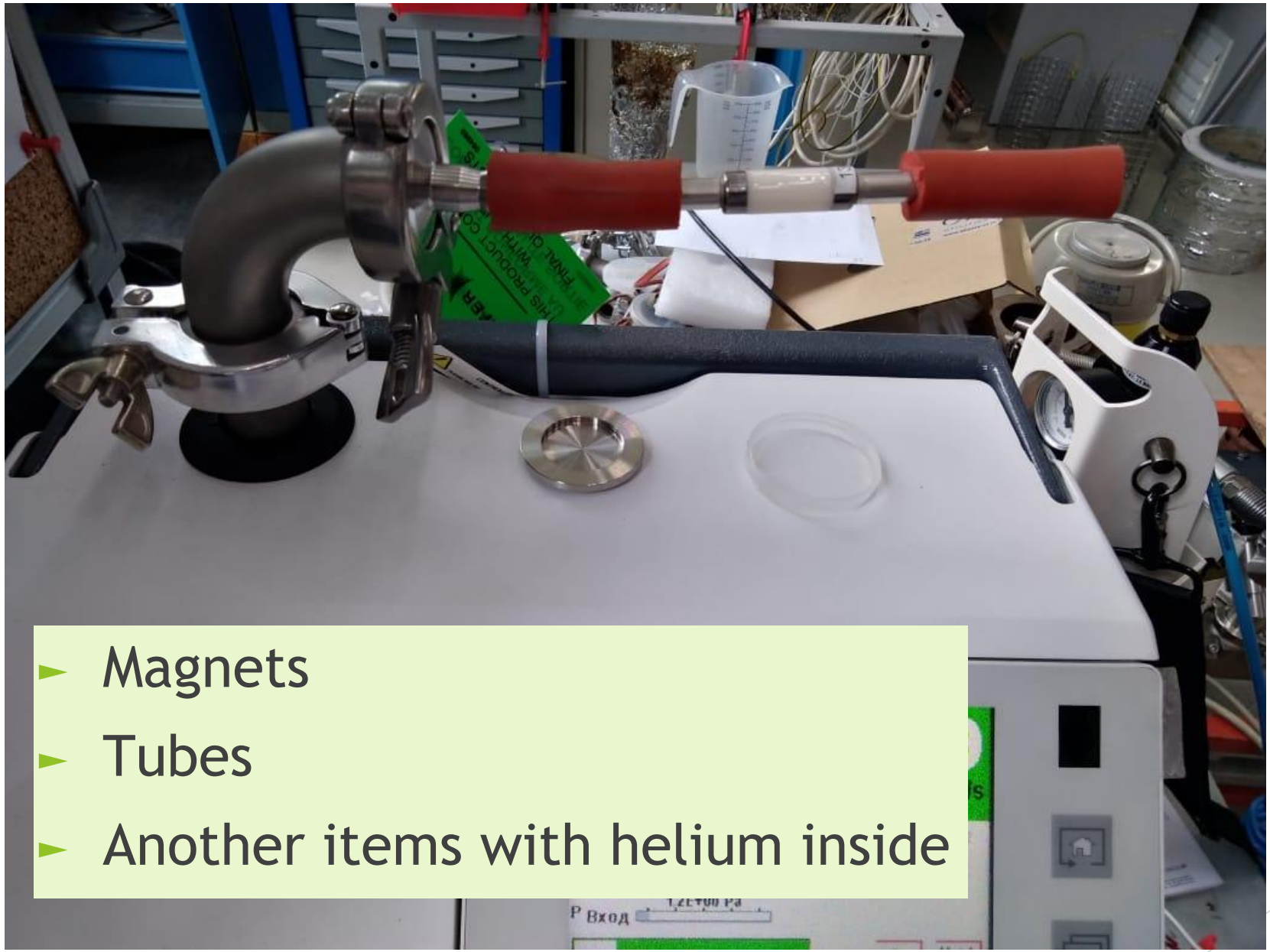
Spray technique

- Parts of magnets before cryotest
- Magnets before cryotest
- Another items for vacuum

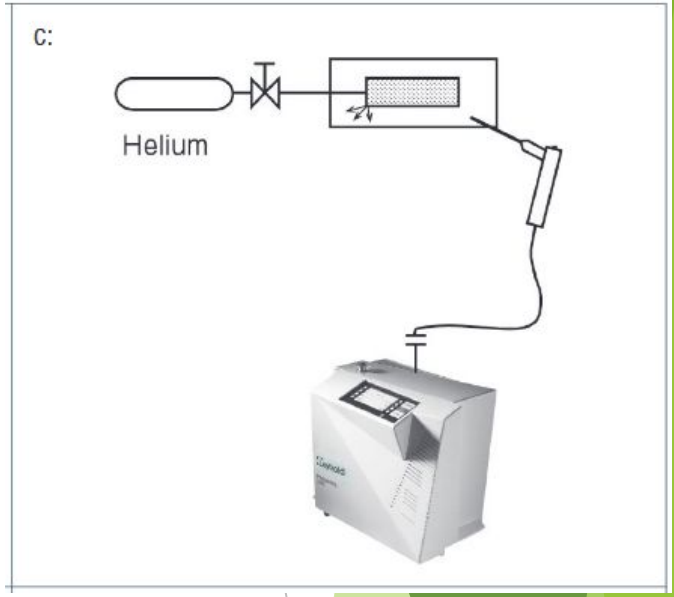


- Sensitive: 5×10^{-13} Пам^3/с
- Place of leak;
- Leak can be calculated;

Enclosure test (main test for magnets)

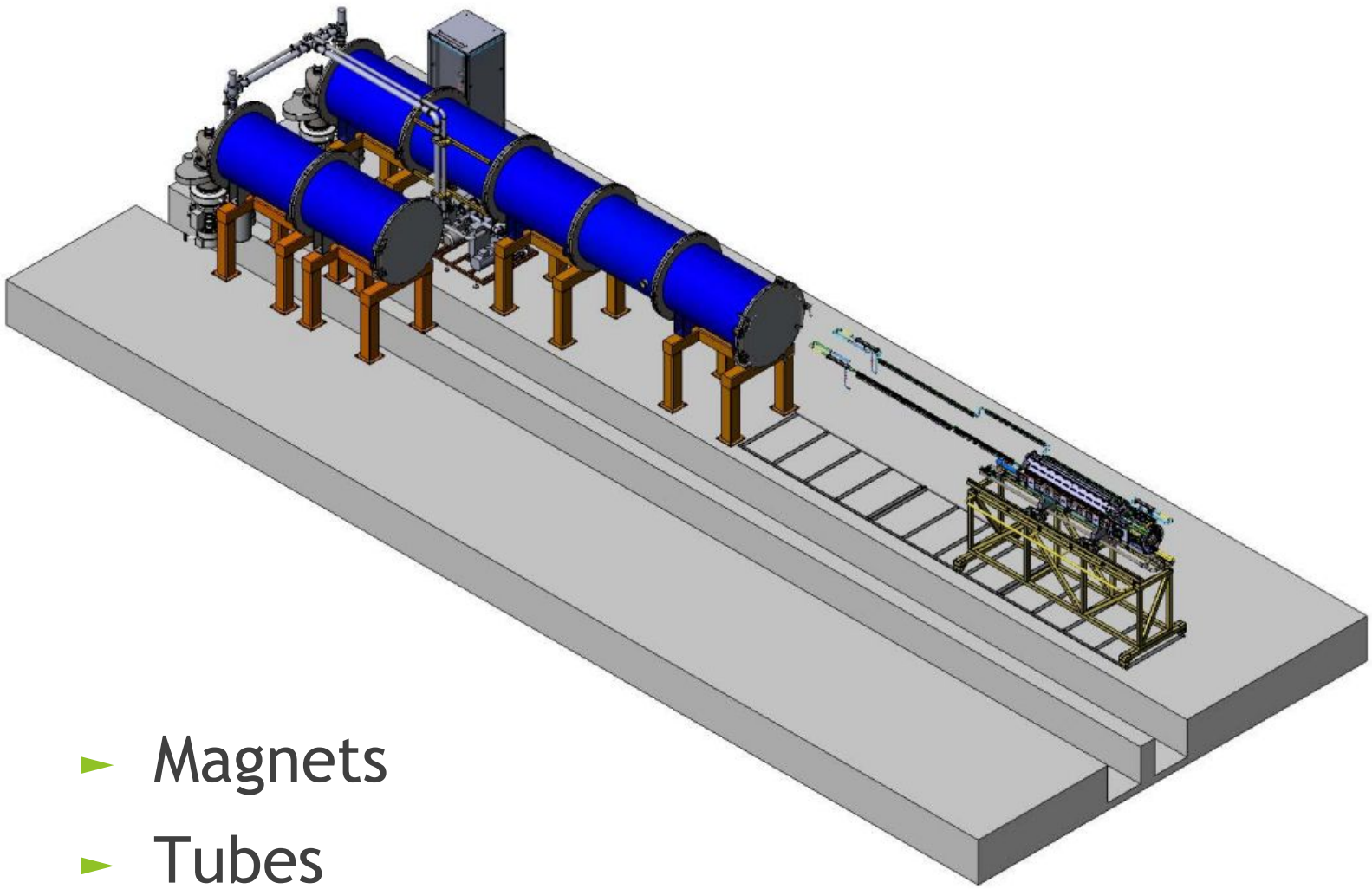


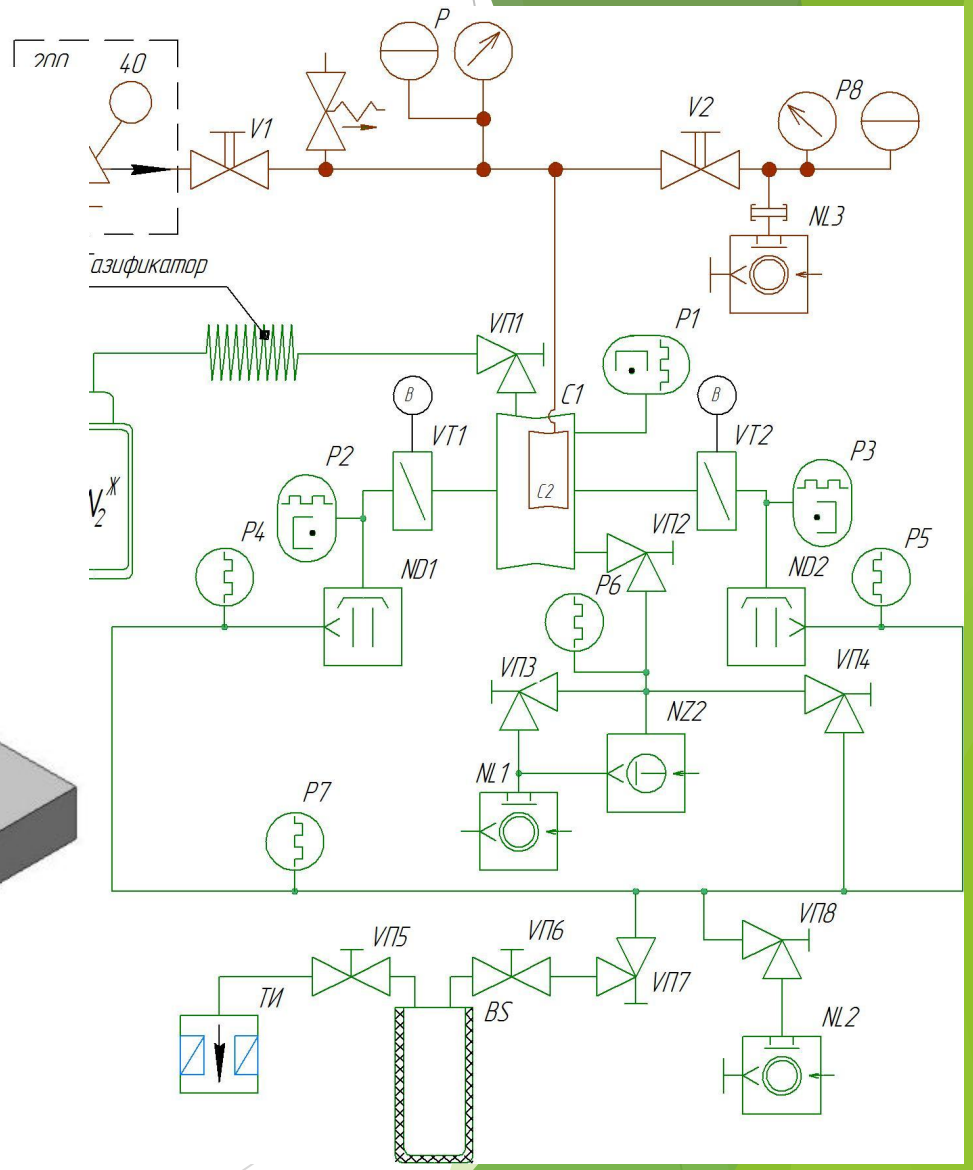
- Magnets
- Tubes
- Another items with helium inside



- Sensitive: 5×10^{-13} Пам^3/с
- Summarize leak;

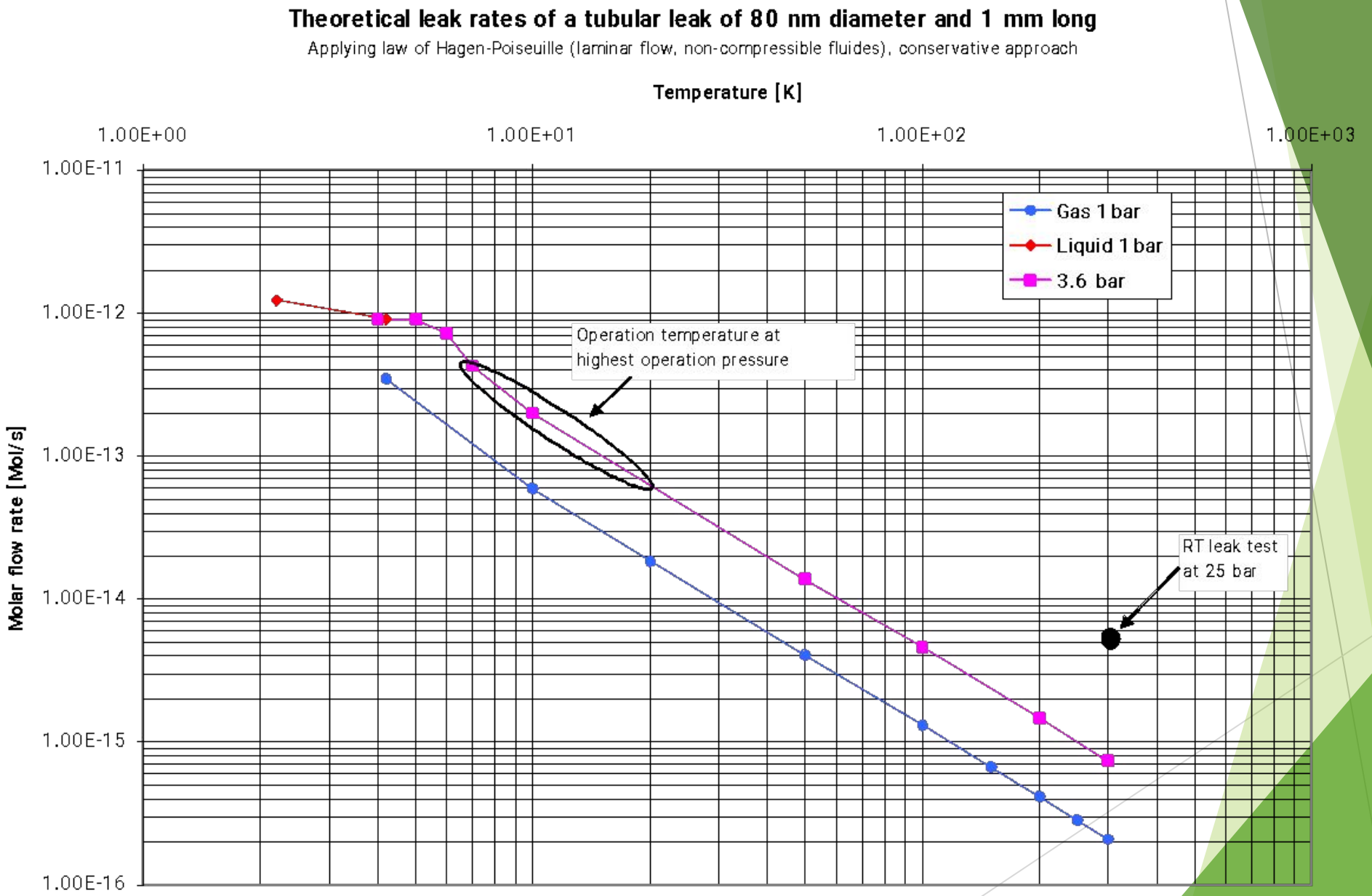
Test bench for enclosure test





- Magnets
- Tubes
- Pressure test is done last leak test

Enclosure test under the helium temperature



Enclosure test under the helium temperature

- Magnets

- Sensitive: 5×10^{-13} Пам^3/с
- Temperture;

Bubble test