Choice of the cleanroom

Laser specifications $\rightarrow$ class 10,000

a) Hard wall cleanroom

Entire room = cleanroom

- Special hard wall,
- Powerfull filter,
- Special clothing

b) Softwall cleanroom

Laser size = cleanroom

- Movable: used in H4/USC55
- best control
Main problem: safety agreement for curtain

TIS approval for one industrial product (non-transparency)

One company agree to apply it.
Fan filter unit (FFU): 2 choices, dependent on air-conditioning

Old air-unit from Aleph

OK

a) Standard FFU, Standard softwall, installation?

NO

b) FFU with air-conditioning included softwall: special design

Question: air renewal inside each room?
Air-conditioning

Laser specifications $\rightarrow$ $\pm 1 \degree C$

HEPair $\rightarrow$ Class 10,000 & $\pm 0.5 \degree F$ ($\pm 0.28 \degree C$)

- 208vac, 50Hz

- Cooling capacity: 9050 BTU/H

- Temperature: 0.6/2.0 kW
  - Type: PID
  - Accuracy: $\pm 0.5 \degree F$

- Condenser:
  - Flow rate: 1-2.5 GPM ($0.3 - 0.68 \text{ m}^3/\text{h}$)
  - Water temperature maxi: 85 °F (29 °C)
  - Water side pressure drop: 0.8-3.4 psi (55-234 mbar)
**Old air-unit from Aleph: (R. Pintus)**

12kW, Chilled water air-conditioning unit. → Temperature ~ 6°C

Control? (PID, thermostat)…

USC55: mixed water, 16°C for each laser enclosure
Cost estimation

**Softwall:**

*Solution handling, Germany*

3 softwalls with special curtain

~ 12 000 €

*+ Fan Filter Unit:*

3 units MAC 10XL

~ 2 200 €

*+ Old air-unit*

Cost installation & test, H4?

*+ HEPair:*

~ 13 000 €

*+ Cost installation H4?*