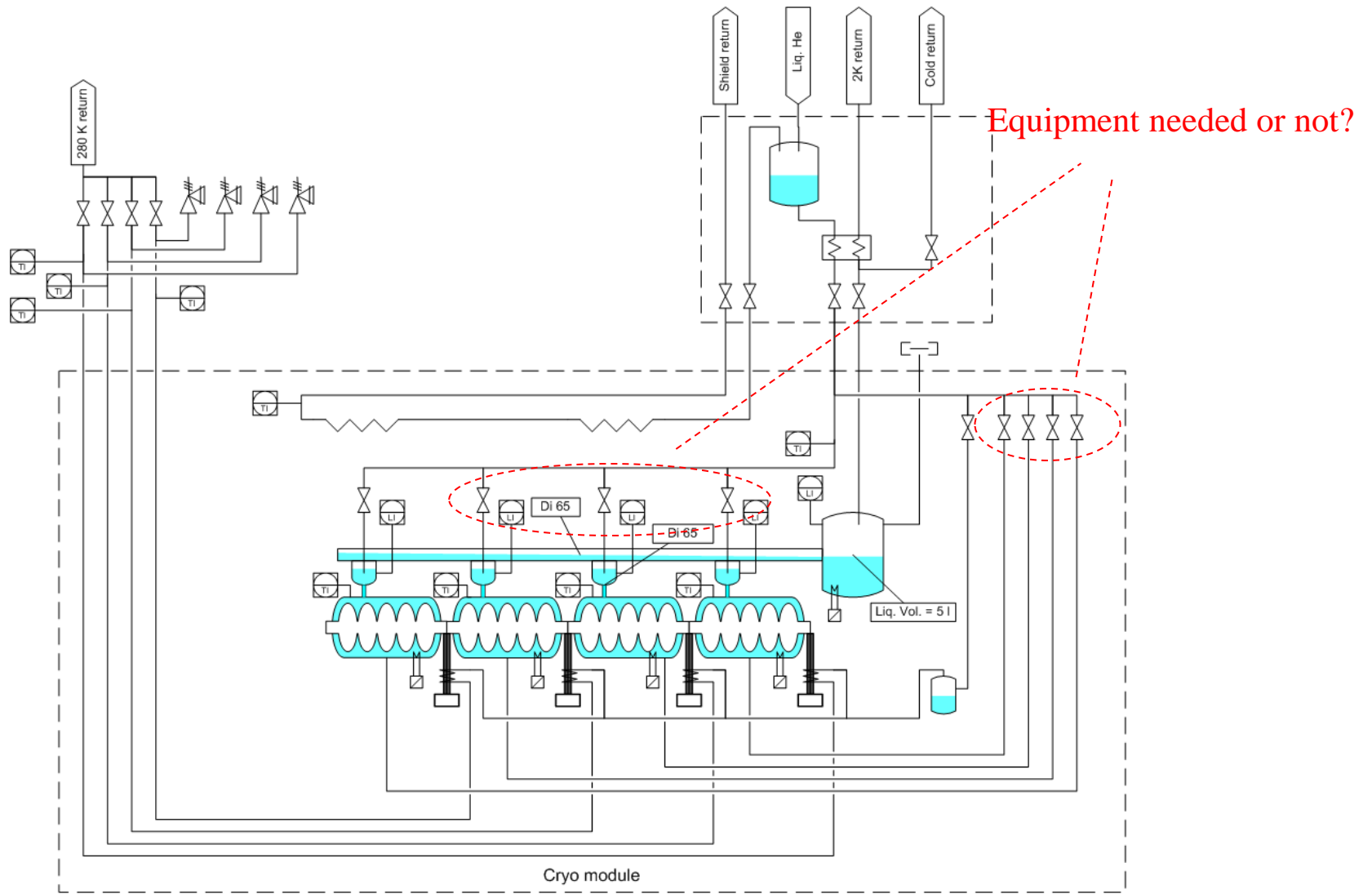# SPL short cryo-module Cryogenic requirements and test plans

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What is unknown

- **Cool down:**
  - Do we need one CD valve for each cavity?

- **Operation:**
  - Is one supply for a string of 4/8 cavities sufficient?
  - How will the distribution react on:
    - Single cavity quench
    - Start / Stop of RF power
  - Will the "inversed" coupler cooling work

Envisaged tests

- **Cool down**
  - Using the CD valves (this should work)
  - Using only the fill valves (uncertain if this works)

- **Operation**
  - Level control with one fill valve per cavity
  - Level control with one fill valve per string
  - Compensation of load variations by heaters
  - Reaction of single cavity quench
  - Cooling control of couplers

Static heat load measurements

- **Static heat loads are estimated at the range of 5% of dynamic loads**

- **Do we really care for precise measurements of the static cryostat losses at this stage?**
  - If yes, instrumentation has to be adapted.

- **Nota: the thermal shield will operate temperatures not representative for an eventual SPL project.**

Equipment needed or not?