

Vacuum laboration

Material:

- Turbo pump with connections and vent
- T-tube
- End-flanges, copper sealings and bolts
- Rest gas analyser (RGA) (massspectrometer) and computer
- Cold tube vacuumeter

Process:

(The equipment might change between years, and the precise operation will be explained at each occasion).

1. Clean the tube ends and the copper seals and mount the tubes on top of the turbo pump. The supervisor shows you how. The copper seals are "one time only" so great precision is needed. Pull the bolt diagonally.
2. Connect the cold tube vacuumeter to the "box". See that the permanent magnet is mounted
3. Connect pressure air (thin blue tube) and cooling water to the turbo pump and connect to 220 V.
4. Start the turbo pump
 - a: "force" the opening of the vent to the pump.
 - b: press START-AUTO and START at the same time (turbo and prevacuum pump starts).
 - C: Let the turbo go up to 56.000 rpm, and it will go over into "normal operation".Close the vent
 - e: open the vent electrically.F: when the green light goes on the system is "guarded"
5. Start the cold tube vacuumeter. Press FUNCT and SENSOR simultaneously. Register a pressure curve. How does it look? Is the system tight? What is the final pressure (if the pressure does not reach below 10^{-6} ask the supervisor)
6. Connect the RGA to the electronics and the computer. Degas the filament in the RGA head.
7. Take a mass spectra.
8. Identify the peaks.
9. Make a "mini bakeout". Heat the system by the "hairdryer". Take a new spectrum. What is the difference?
10. Leak check. Set the computer to "leak check" and spray the system lightly by He at the joints.
11. Finish the work
 - close the RGA.
 - Shut off the electronics for the cold tube vacuumeter.
 - Force the vent to the turbo to OPEN.
 - Close the pump.
 - Disassemble the system.

