DISSERTATION

Cool Science

ausgeführt am Atominstitut

der Technische Universität Wien
Fakultät für Physik

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"The Setesh guard's nose drips."
Teal'c

Contents

1 Vacuum test chamber

Vacuum chamber -> Frank
Kurz: Wie sieht die Kammer aus, ev. Wie ist die CRT drinnen gemountet
CRT Mount ??

2020-08-30 leak rate 2020-09-27 set voltages 2020-09-30 first successful external run 2020-10-07 spot vs pressure 2020-10-22 current measurement aluminum foil 2020-11-05 forgot to turn off filament heating 2020-11-14 assemble chamber with copper rings

1.1 First iteration

A vacuum test chamber (fig. 1.1) was build to run opened CRTs. In order to be able to fit the CRT screen, CF160 flanges were chosen. The center piece consists of a 6-way cross with view ports at the front and bottom . A valve was installed at the back in order to flood the chamber with nitrogen when installing a new CRT. On the right side, a HiCube 300 Eco turbo pump was installed and on the left side a wobble stick attached with a wire. A nipple fitting was installed at the top with a 5 port cluster flange, each being of type CF63. In the middle port a VSH vacuum transducer was installed to measure the pressure. This needs a 24 V dc power supply. On the left, a 19 pin connector was installed to supply the necessary voltages to the CRT. A flange with four BNC feedthroughs was installed at the front. One of them was connected to the wire installed on the wobble stick while another one was connected to some aluminum foil on the CRT screen (fig. 1.2). The other two ports were capped off by blank flanges.

pure nitrogen name?

length

find exact mod https://ww manualslib com/produ Thyracont- html

how many pins model name?

Before inserting a CRT, a leak test was performed. First, the chamber was set to a pressure of 10^{-5} mbar after which the pump was turned off. The pressure was measured once a minute for 3 h. The plot is shown in fig. 1.3.

Figure 1.1: 3D rendering of test chamber.

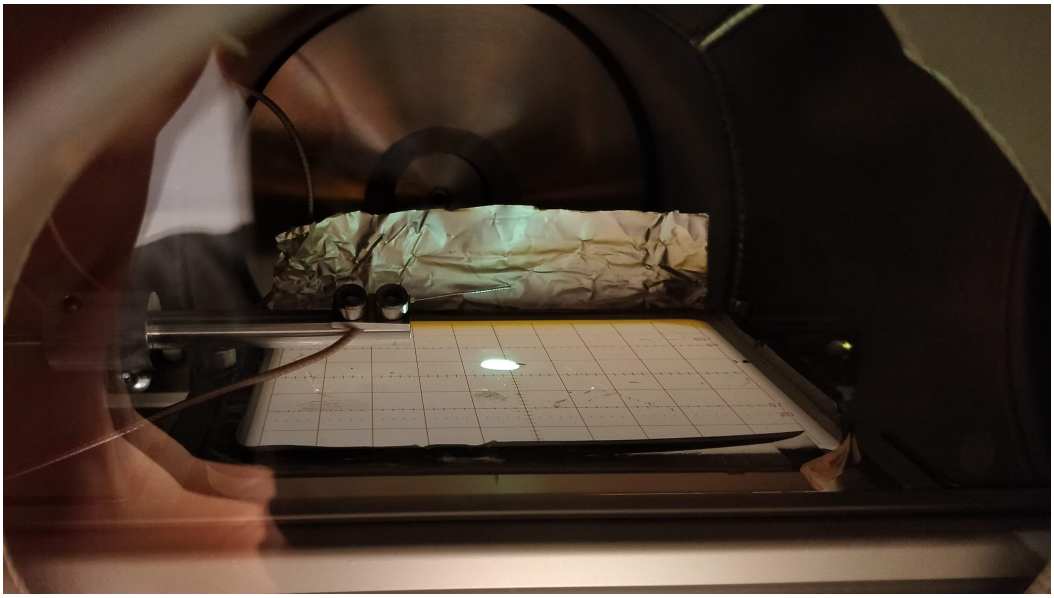

Figure 1.2: Wire on wobble stick and aluminum foil.

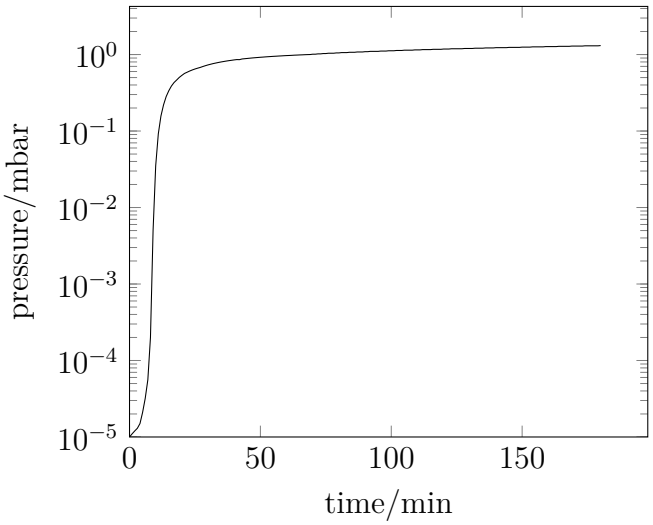

Figure 1.3: Leak rate of test chamber after turning off pump.

Todo list