Vacuum incident on MKB - Implication on HV performance and tests foreseen

MPP meeting

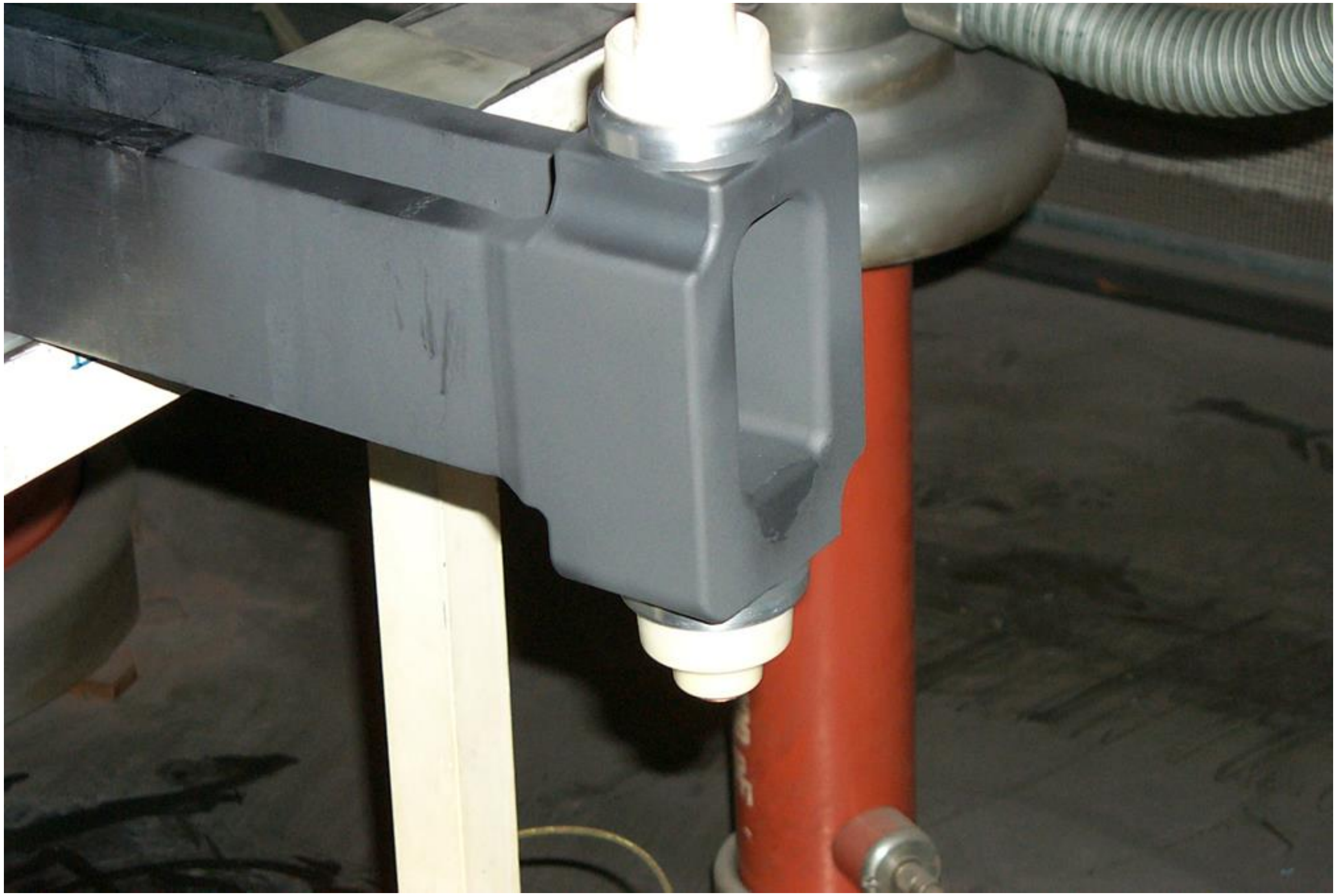
Viliam Senaj,25/10/2013

MKB tank view

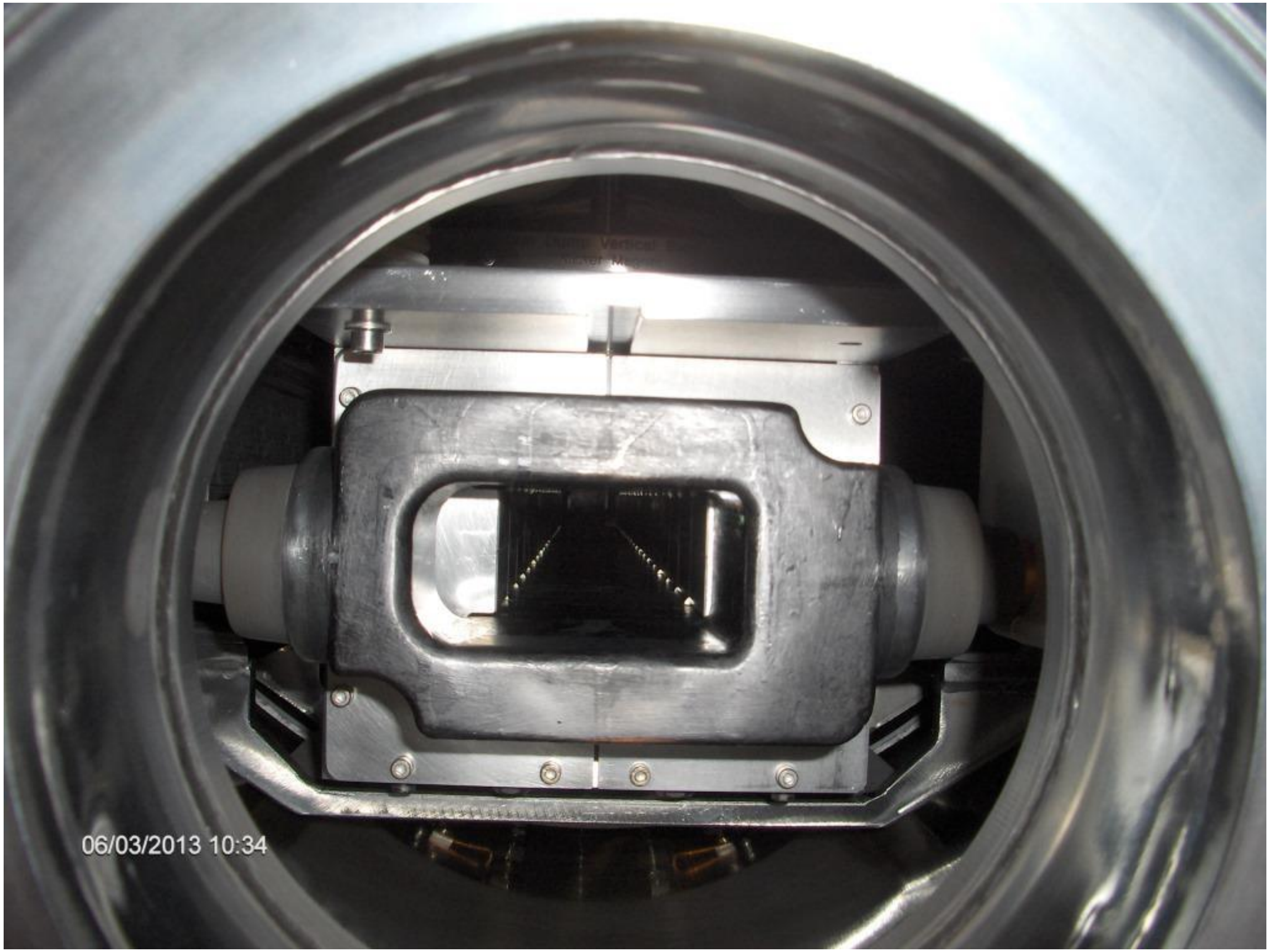
- Common tank for 2 magnets (MKBH or MKBV)
- Pumping by 2 sputtering pumps in the middle plus turbo pump
- Up to 29 kV and 24 kA per magnet

MKB coil construction

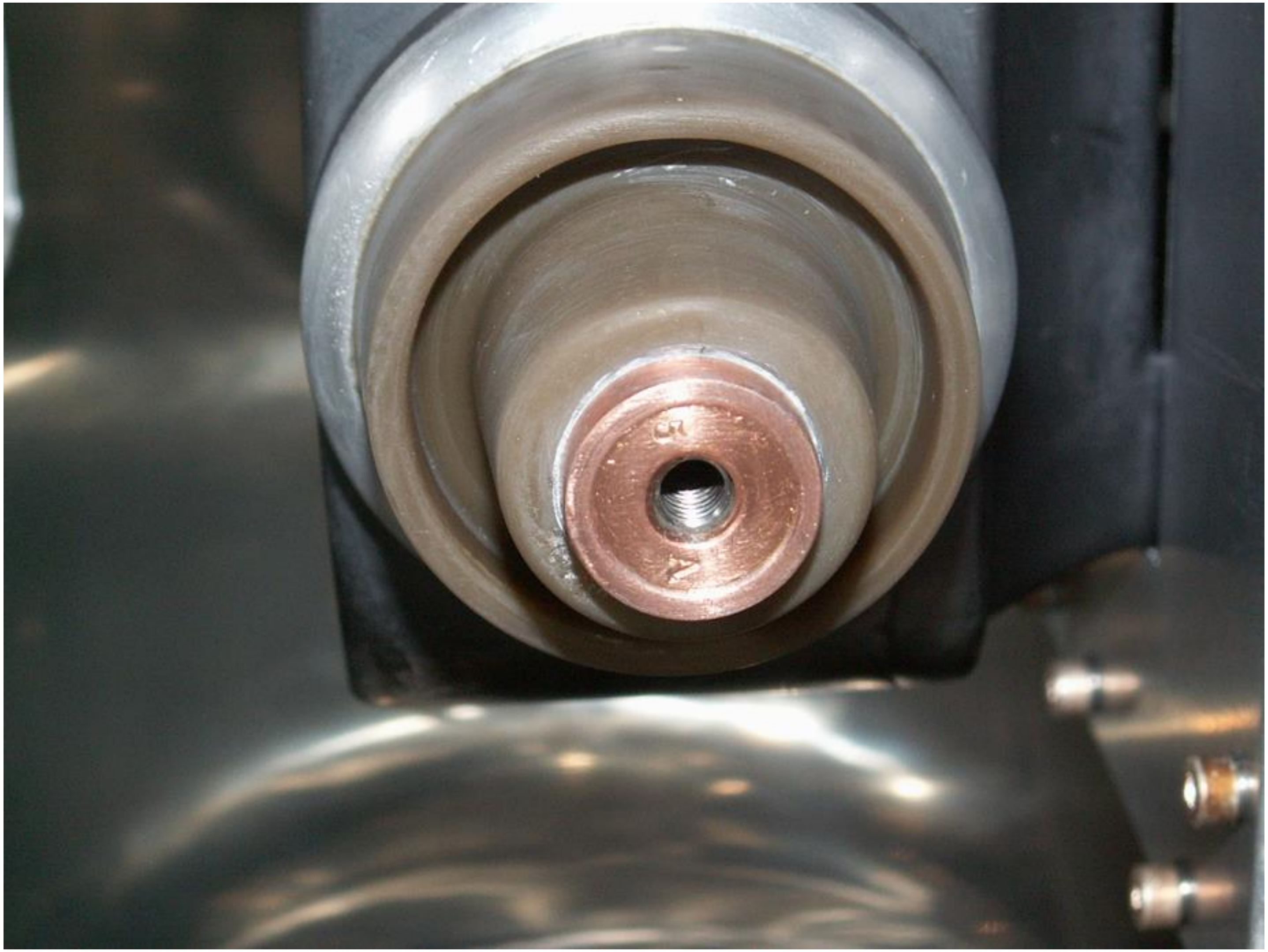
- Copper coil in short circuit. Coil insulated and surface painted by a conductive painting and grounded
- Parts with risk – coil contact (HV side), connecting plates spacer and tank feedthrough



MKBV magnet view with coil HV contact



Coil contact



Tank feedthrough and connecting plates spacer

LV side of the coil and its spacer

Conditioning and electrical tests

- Potentially risky places in case of Al pollution:
  - Tank HV feedthrough
  - Coil contact (HV side)
  - HV conductor spacer
- All risky places visually inspected (with some access limitations)
- Coil in short circuit mode and hence no possibility for DC conditioning
- Careful pulse conditioning with slowly increasing voltage and vacuum activity surveillance (~several weeks).
- As good vacuum as possible (< 10^{-6} mbar for full voltage) = lower risk of sparking and higher sensibility to a vacuum activity. Presently ~ 3.5×10^{-6} mbar; sputtering pumps off (?)
- Vacuum gage reading on recently installed tank not included into VAC application yet; Interlocking? Request submitted.