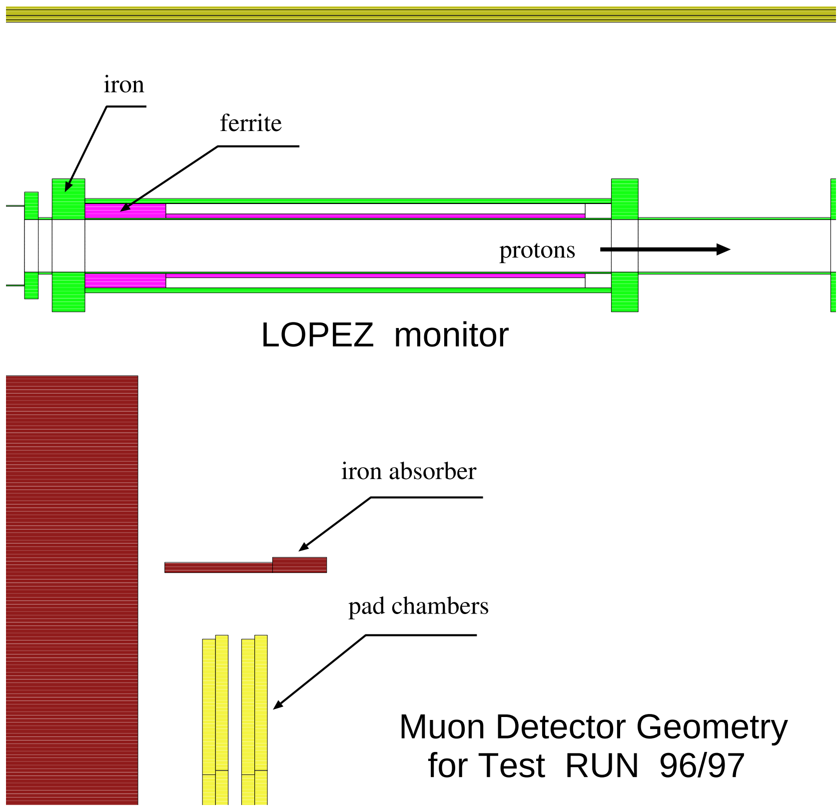

Figure 4: Top view (horizontal cut at y=0) of the RUN-96 muon detector in the region of Lopez-monitor.

of the block absorber in RUN-98 detector geometry are listed in table 4, where the X,Y positions and the X,Y sizes are shown for the largest layer of each absorber. The sizes of the other absorber layers are chosen roughly according to an opening angle of 220 mrad in x and 160 mrad in y.

- Three rectangular iron absorbers with a thickness of 5 cm each. They shield the chambers from the particles coming from the devices behind the detector. The positions and sizes of these iron absorbers in the RUN-98 geometry are shown in fig.1 and are listed in table 4. As seen in figures 2 and 3 only one small iron absorber is positioned between the Lopez-monitor and the pad chambers in the case of RUN-96 geometry.

- Cylindrical iron absorbers around the proton beam pipe. There are no cylindrical absorbers in the RUN-96 muon detector. In the case of RUN-98 geometry these absorbers are located near each muon chamber superlayer (see figures 6,7,8,9). The inner hole of these absorbers has a cone shape due to the cone shape of the proton beam pipe. The positions and the sizes of these cylindrical absorbers are listed in table 5, where (Z min) is the starting Z position, ΔZ is a length along Z, R1 is the inner radius at Z=Zmin, R2 is the inner radius at Z=Zmin+ΔZ and R3 is the outer radius of the absorber.

4 The Geometry of the Muon Chambers.

The design of the muon chambers is described in the HERA-B Proposal [1] and in the HERA-B Technical Design Report [2]. Tube, pad and pixel chambers are foreseen in the muon detector.

- Tube chambers. These are wire chambers made from 2 mm aluminium profile. One tube chamber has a width of 26.12 cm and a length of nearly 3 metres. The basic sensitive

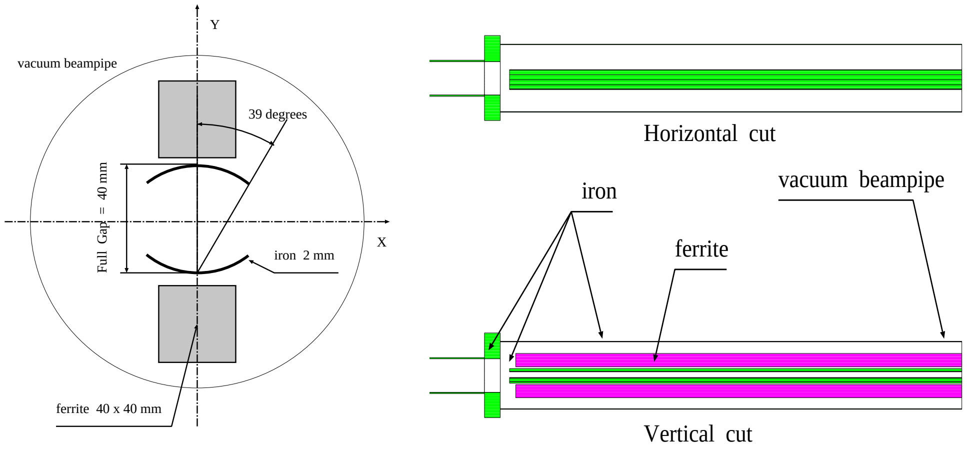

Figure 5: Cross section and vertical, horizontal cuts of the proton beam pipe with the Dump-Kicker inside.

	Z min (cm)	ΔZ (cm)	X min (cm)	ΔX (cm)	Y min (cm)	ΔY (cm)
1st block absorber	1490.	121.5	-375.	741.7	-256.	521.
2nd block absorber	1650.	88.5	-399.	798.	-279.	567.
3d block absorber	1770.	99.	-420.	840.	-294.	596.
1st 5-cm iron absorber	1905.	5.	-200.	400.	-150.	300.
2nd 5-cm iron absorber	1980.	5.	-20.	340.	-168.	400.
3d 5-cm iron absorber	1988.	5.	-287.	270.	-168.	400.

Table 4: Positions and sizes of the rectangular iron absorbers in the RUN-98 geometry.

element of a chamber is a 12x14.2 mm^2 drift cell. Each tube chamber contains 16 cells in a monolayer. All tube chambers layers are assembled of two such monolayers shifted by half of the drift cell size.

- Pixel chambers. In the inner region (closest to the proton beam pipe) of each of the four chamber superlayers the particles are detected by a single pixel chamber layer. Square chamber cells with a size of 9x9 mm^2 are formed by one sense wire and four potential wires with a length of 30 mm along the beam direction. Each of the four muon superlayers contains one pixel chamber layer divided into four independent quadrants (single pixel chambers) with a size of 33.2x43.1 cm^2. In the first and second superlayers two neighbouring wires in y-direction and in the third and forth superlayer four neighbouring wires in y-direction are combined into one readout channel.

- Pad chambers. They are assembled from aluminium profiles and the plates with two rows of copper pads(see [1]). The pad plates are inserted in the aluminium profile and used as one of the cell walls. The size of a drift cell is 12x13.9 mm^2. If a particle crosses the cell both a signal from the wire itself and an induced signal from the pad are registered. The x-coordinate is defined mainly by the position of the wire and the y-coordinate by the position of the hit pad. Each pad chamber has two monolayers of 16 cells. The width of a pad chamber is 26.82 cm and the length is about 3 metres.