

EUROPEAN HYBRID SPECTROMETER (EHS)

Status Report on the Wire Chamber Detectors

Ia) Parameters of the Wire Chamber Detectors.

At present it is planned to have the following chambers in the set-up called Part A of EHS¹):

<u>Name</u>	<u>Position*</u>	<u>Size</u>	<u>Type</u>
BC1,2,(3),4	beam upstream of RCBC and one at ~ 30 m	$\sim 100 \times 250$ mm ²	MWPC
W0	~ 0.9 m	$\sim 0.6 \times 1.1$ m ²	MWPC
W1	~ 1.6 m	$\sim 1.0 \times 2.1$ m ²	MWPC
D1,D2,D3	3.7, 11, 14 m	2x4 m ²	Drift chambers
D4,D5,D6	17, 23, 30 m	1.3x2 m ²	Drift chambers

Ib) Comments on the Parameter of the Chambers.

1. B1,2,(3).
The definite size and the wire spacing can be defined after the final layout of the beam-line is known.
2. W0,W1.
These chambers are proposed to have 2 mm wire spacing and 3 planes each. The decision on the dimensions can not be taken at the moment, because other components in this region of the detector are not yet precisely defined, namely the cryostat of the RCBC and the Cerenkov counters behind chamber W1. We feel that this decision is not urgent as the chambers are of moderate size and the technology is well known.
3. D1-D6.
The size of the sensitive area of these seems to be settled and the sense wire-spacing will be about 50 mm. The number of planes per module is proposed to be four (U,Y,V,Y_{stag}).

* The origin of the coordinate system is the center of RCBC. The x-axis is in the direction of the beam, the y-axis is vertical and z horizontal.

Nevertheless, we would like to study if it is not worthwhile to equip module D1 in a restricted area (~ 1 m height) with 2 additional planes. This might ease the pattern recognition for jet like events with high multiplicity. On the inclination of the U.V wires no final decision is taken, the original proposal was $\pm 10^\circ$ against y . Monte Carlo calculations²⁾ show that the resolution in z could be improved by using $\pm 30^\circ$ inclination. This would imply to use wires of unequal length. This problem was investigated by a group at Daresbury³⁾. The preliminary results look very promising, no special tuning seems to be necessary and the loss of sensitive area is in the order of some centimetres. The NIKHEF and Vienna group wants to study this problem with a prototype.

II) Schedule Estimates for Design, Construction and Installation.

It is felt that it is sufficient to start the design and construction of the BC's and W0,W1 chambers by mid 1977. These chambers should be ready by spring 1979 for testing.

For the drift chambers a more detailed planning can be given.

	<u>NIKHEF</u> <u>(D1,D2,D3)</u>	<u>VIENNA</u> <u>(D4,D5,D6)</u>
prestudies (Monte Carlo studies, other constructions)	1976	1976
orders for special equipment	1976	end 1976
construction of a prototype chamber	1977 ($\sim 1 \times 2$ m ²)*	1977 full size
final specifications	end 1977	end 1977
construction of the final module	Sept. 1978- June 1979	1978
final tests	Summer 1979	Spring 1979
installation	Sept. 1979	mid 1979

In addition we intend to have tests in a beam early 1978.

The Vienna group intends to develop a new readout system. Test modules will be available by spring 1977.

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References:

- 1) W.W.M. Allison et al., CERN/SPSC/76-43, SPSC/P42/Add.2 Rev.
- 2) D. Toet, CERN-EP/RCBC/76-11
- 3) Private communication E. Gabathuler and internal report Daresbury Laboratory.

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2m sense wires