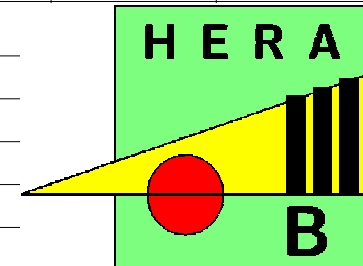


## z -positions of the detector components



All coordinates are given in the HERA-B coordinate system (dimensions in mm).

The z-axis is parallel to the proton axis, which is rising with respect to the horizontal floor of the hall by 8,03 mrad.

z=0 is about the position of the target wires. The exact position is defined with respect to the coordinate system

of the HERA ring:  $HERA-B(z=0) = HERA(s=WR\ 9000)$

MS01 - MS15: Inner tracker modules

MC, PC, TC: Outer tracker modules

### Modifications:

07.04.1998	Position of MC chambers updated according to A. Donat						
02.10.1998	Position of PC2, PC3, TC1, TRD and TC2 corrected (H.B. Peters)						
05.10.1998	Position of MC chambers updated according to A. Donat						
25.08.1999	ITR cut-outs and Vertex positions updated						
20.01.2000	Shift of vertex vessel (Dec '99) by -2 mm to allow for Si layer 8 installation					-2	
	Upper beams of PC1,2,3,4 shifted by -30, -20, -10, +5 mm respectively						
01.02.2000	Target positions and Si detectors updated						
	Results of valid detector survey added. The deviations from the ideal detector positions are not taken into account in this table.						
09.02.2000	All PC positions corrected according to survey results.						
24.02.2000	Dimensions of ITR chambers in PC area updated according to S. Hennenberger						
22.06.2000	The following detectors mentioned in this list are <b>not</b> installed up to now:						
	PT2 outer; MS14+ and MS15+.						
18.07.2000	Positions of targets and VDS detectors corrected. Position of VDS flanges relativ to vessel were wrong.						
	Position of Si 8 updated based on M.B. alignment.						
08.05.2001	Orientation of ITR layers corrected						

<b>Tracker element</b>		<b>Detector element</b>	<b>dZ</b>	<b>Zbegin at beam axis</b>	<b>Zend</b>	<b>Z of center of</b>			
						<b>superlayer</b>	<b>top&amp;bottom</b>	<b>left&amp;right</b>	
<b>Vertex vessel</b>		Rotated with respect to the floor by 8 mrad							
	<b>Vertex front flange A</b>	251	-895	-644					
	<b>Vertex front flange B</b>	32	-644	-612					
	<b>Vertex vessel</b>	2612	-612	2000					
	<b>Center t&amp;b target flange</b>		-158						
	<b>Center l&amp;r target flange</b>		-138						
<b>Layer 1</b>	<b>s.s.; d.s.</b>	s.s. = single sided Si-strip detectors			86	76	96		
<b>Layer 2</b>	<b>s.s.; d.s.</b>	d.s. = double sided Si-strip detectors			139	129	149		
<b>Layer 3</b>	<b>s.s.; d.s.</b>				208	198	218		
<b>Layer 4</b>	<b>d.s.; d.s.</b>				382,5	372,5	392,5		
<b>Layer 5</b>	<b>d.s.; d.s.</b>				620,5	610,5	630,5		
<b>Layer 6</b>	<b>d.s.; d.s.</b>				998	988	1008		
<b>Layer 7</b>	<b>d.s.; d.s.</b>				1519	1509	1529		
	<b>Vertex exit flange</b>	55	2000	2055					
	<b>Screws of flange</b>	13	2055	2068					
	<b>Al beam pipe</b>	12343	1927	14270					
<b>Layer 8</b>	<b>d.s.; d.s.</b>				2037	2044	2030	Si8 pos. is not well known	
<b>z-coordinate in</b>		<b>Dist. to entrance</b>		<b>HERA-B system</b>		<b>Target wire (µm)</b>			
<b>Target station: I inner</b>		628	-25	-9	Ti, 50 * 500				
<b>Target station: I outer</b>		627	-25	-10	Ti, 50 * 500				
<b>Target station: I above</b>		619	-23	-16	Ti, 50 * 500				
<b>Target station: I below</b>		621	-23	-14	Ti, 50 * 500				
<b>Target station: II inner</b>		589	-25	-48	C, 50 * 1000				
<b>Target station: II outer</b>		586	-25	-51	Ti, 50 Ø				
<b>Target station: II above</b>		579	-23	-56	Al, 50 * 500				
<b>Target station: II below</b>		578	-23	-57	W, 50 * 500				

## Magnet platform

Rotated with respect to the floor by 8 mrad

All detectors are oriented perpendicularly to the beam line, i.e. they are rotated by 8 mrad with respect to the floor,  
Y accept. = dimensions of active volume.

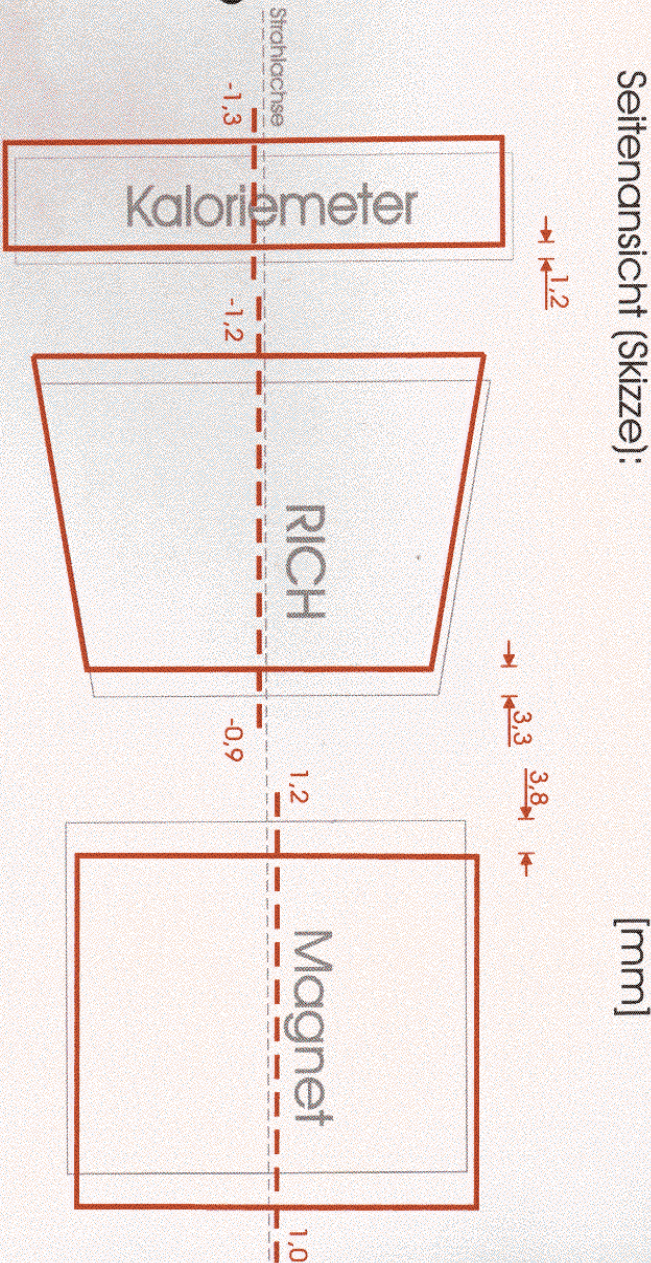
The coordinates at the beam axis include the CFK plates of the chambers

Tracker element	Detector element	dZ <sup>0</sup>	Z <sup>0</sup> <sub>begin</sub>	Z <sup>0</sup> <sub>end</sub>	Y accept.	Inner p cut-out	dZ <sup>F</sup>	Z <sup>F</sup> <sub>begin</sub>	Z <sup>F</sup> <sub>end</sub>
		at beam axis			z pos. of frame				
MS01	0 -5 0 +5	85	2091	2176	± 235	Ø 65			
MC1	+ 0 -	95	2186	2281	± 480		225	2075	2300
	Magnet front	300	2300	2600					
MC2	+ 0 -	96	2657	2753	± 560		365	2640	3005
MS03	0 -5	42	3098	3140	± 235	Ø 65			
MC3	+ 0 -	148	3151	3299	± 730		387	2941	3328
MC4	+ 0 -	148	3651	3799	± 730		387	3441	3828
MS05	0 +5	42	4153	4195	± 236,5	Ø 65			
MC5	0	50	4224	4274	± 800		396	3995	4391
PT1 inner		95	4618	4713		96x96			
PT1 outer		76	4730	4806	± 713		146	4729	4875
MC6	+ 0 -	181	5127	5308	± 1000				
MS06	0 -5	42	5318	5360	± 223,1	Ø 91			
PT2 inner		95	5558	5653		115,4x115,4			
PT2 outer		76	5673	5749			147	5673	5820
PT3 inner		95	5978	6073		133x126,4			
PT3 outer		76	6080	6156			147	6009	6156
MC8	+ 0 -	181	6207	6388	± 1160				
	Magnet end	400	6400	6800					

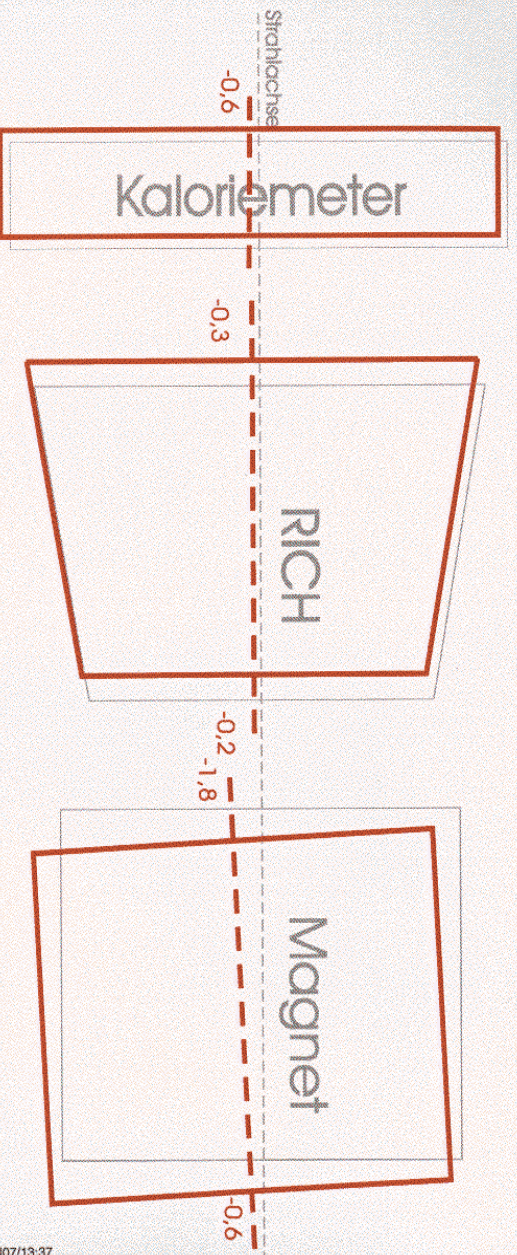
<b>Central platform</b>		Rotated with respect to the floor by 8 mrad							
All detectors are oriented perpendicularly to the beam line, i.e. they are rotated by 8 mrad with respect to the floor, even the inner and outer tracker superlayers.									
Tracker element	Detector element	dZ <sup>0</sup>	Z <sup>0</sup> begin	Z <sup>0</sup> end	dZ <sup>F</sup>	Z <sup>F</sup> begin	Z <sup>F</sup> end	Inner p cut-out	Inner e <sup>-</sup> cut-out
		at beam axis			z pos. of frame				
	<b>Platform</b>	8080	6600	14680					
<b>MS10</b>	0 0 -5 -5 0 +5 +5 0	158,4	6847	7005	170,6	6840	7011	Ø 115	
<b>PC1</b>	0 - 0 ++ 0 0 --	286	7021	7307	310	6972	7282		
<b>MS11</b>	0 -5 0 +5	72	7335	7407	84,8	7328	7413	Ø 115	
<b>PC2</b>	0 + 0 - 0 +	241	7423	7664	260	7403	7663		
<b>MS12</b>	0 -5 0 +5	72	7691	7763	84,8	7684	7769	Ø 115	
<b>PC3</b>	0 + 0 - 0 +	241	7779	8020	260	7759	8019		
<b>MS13</b>	0 0 -5 -5 0 +5 +5 0	158,4	8052	8210	170,6	8045	8216	Ø 115	
<b>PC4</b>	0 - 0 ++ 0 0 --	286	8226	8512	310	8177	8487		
	<b>RICH</b>				3217	8530	11747	Ø 240	Ø 120
<b>MS14</b>	0 0 -5 -5 +5 +5	128	11779	11907				Ø 206	
<b>TC1</b>	++ 0 0 --	195	11922	12117	350	11870	12220		
	<b>TRD</b>	740	12162	12902				Ø 210??	
<b>MS15</b>	0 0 -5 -5 +5 +5	128	12916	13044				Ø 206	
<b>TC2</b>	++ 0 0 --	195	13058	13253	350	12940	13290		
	<b>ECAL</b>	860	13310	14170	860	13310	14170	209,4x209,4	202,9x202,9

<b>Muon platforms</b>		Rotated with respect to the floor by 8 mrad					
<b>Attention:</b>	The following dimensions of the absorber plates are the design values. The slits for MU1 and MU2 frames as determined by the survey group are as follows:						
	MU1: 373 mm (design 385 mm)			MU2: 287 mm (design 315 mm)			
Muon Chamber	Absorber element	dZ <sup>0</sup>	Z <sup>0</sup> <sub>begin</sub>	Z <sup>0</sup> <sub>end</sub>	dZ <sup>0</sup>	Z <sup>0</sup> <sub>begin</sub>	Z <sup>0</sup> <sub>end</sub>
		Inner Platform (+x)			Outer Platform (-x)		
	Platform	3800	14900	18700	3800	14900	18700
	MA1-1 absorber	330	14900	15230	330	14900	15230
	MA1-2 absorber	330	15230	15560	330	15230	15560
	MA1-3 absorber	330	15560	15890	330	15560	15890
	MA1-4 absorber	225	15890	16115	225	15890	16115
MU1 tube		339	16138	16477	339	16138	16477
MU1 pixel					110	16367	16477
	MA2-1 absorber	225	16500	16725	225	16500	16725
	MA2-2 absorber	330	16725	17055	330	16725	17055
	MA2-3 absorber	330	17055	17385	330	17055	17385
MU2 tube		277	17404	17681	277	17404	17681
MU2 pixel					110	17571	17681
	MA3-1 absorber	330	17700	18030	330	17700	18030
	MA3-2 absorber	330	18030	18360	330	18030	18360
	MA3-3 absorber	330	18360	18690	330	18360	18690
MU3 pad		212	18765	18977	212	18765	18977
MU3 pixel					110	18867	18977
	MA4 absorber	50	19077	19127			
MU4 pad		212	19539	19751	212	19539	19751
MU4 pixel					110	19641	19751
	MA5 absorber	50	19821	19871	50	19891	19941

Seitenansicht (Skizze):



Draufsicht (Skizze):



All deviations are given with respect to the beam axis.