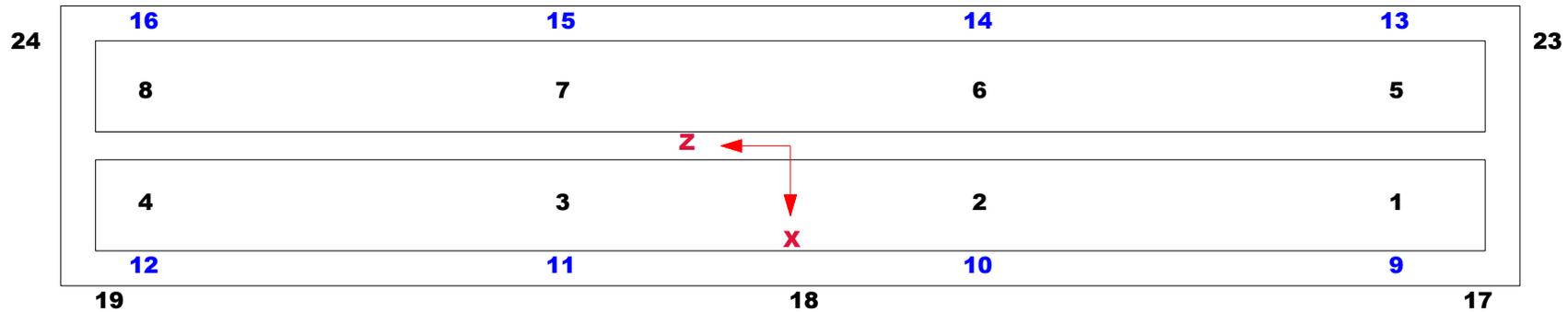


**.5in Tooling Ball Center Coordinates**

Name	X Corr.	Y Corr.	Z Corr.
TB 9	430.013	-0.249	-1489.594
TB 10	430.171	-0.128	-523.866
TB 11	430.207	-0.271	523.821
TB 12	430.155	-0.279	1489.060
TB 13	-430.205	0.082	-1489.758
TB 14	-430.101	-0.081	-524.259
TB 15	-430.112	0.172	524.011
TB 16	-430.054	-0.101	1489.491

**1.5in Tooling Ball Center Coordinates**

Name	X Corr.	Y Corr.	Z Corr.
TB 1	98.192	135.811	-1665.952
TB 2	98.237	135.864	-555.860
TB 3	98.542	135.871	555.878
TB 4	98.515	135.878	1665.534
TB 5	-98.714	135.988	-1666.130
TB 6	-98.364	135.927	-556.550
TB 7	-98.408	135.897	555.647
TB 8	-98.595	135.853	1665.624
TB 17	472.561	-231.167	-1579.609
TB 18	473.390	-228.421	86.711
TB 19	473.117	-228.563	1579.780
TB 23	-404.743	-228.241	-1709.388
TB 24	-404.224	-230.775	1707.172



**Grider centerline in reference to Pointed Magnets**

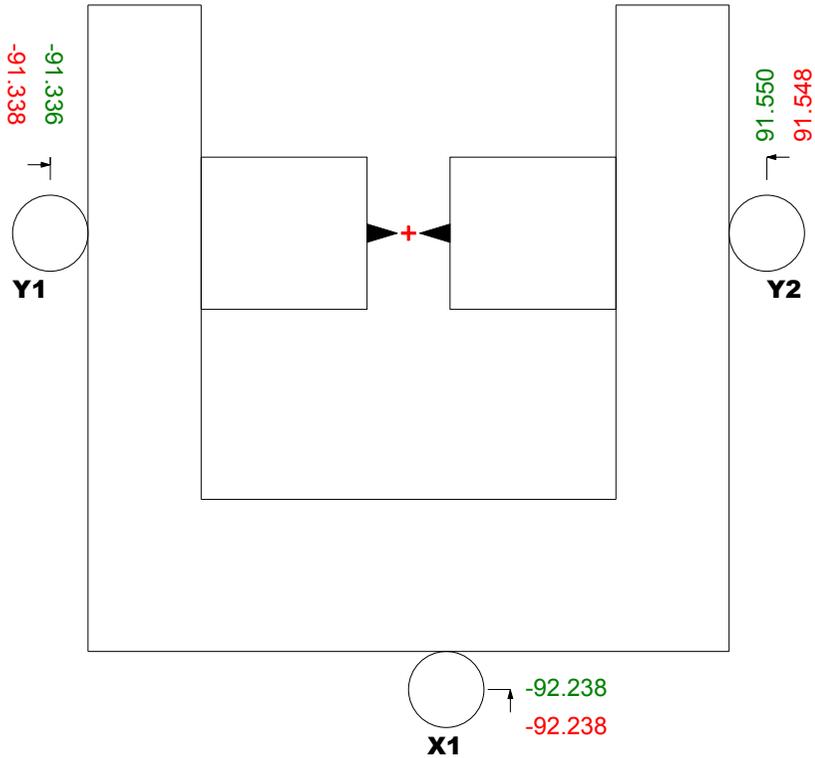
Dimensions in MM, Angles in Milliradians

	<p><b>HGVPU - Fiducialization at 9mm Gap, Tooling Balls</b></p>				<p><b>S/N : HXU_021</b></p>	
	<p><b>Nominal Gap : 9.000</b></p>	<p><b>US Full : 9.000</b></p>	<p><b>DS Full : 8.9999</b></p>	<p><b>US Wall Half : 4.5013</b></p>	<p><b>DS Wall Half : 4.5020</b></p>	<p><b>Date : 01-AUG-2019</b></p>
	<p><b>Nom. Taper : 0.000</b></p>	<p><b>US Aisle Half : 4.5015</b></p>	<p><b>DS Aisle Half : 4.5005</b></p>	<p><b>Run : FINAL</b></p>	<p><b>Cam Pos. : B</b></p>	<p><b>Data Set : 0001</b></p>

## PM 2

### Up Stream

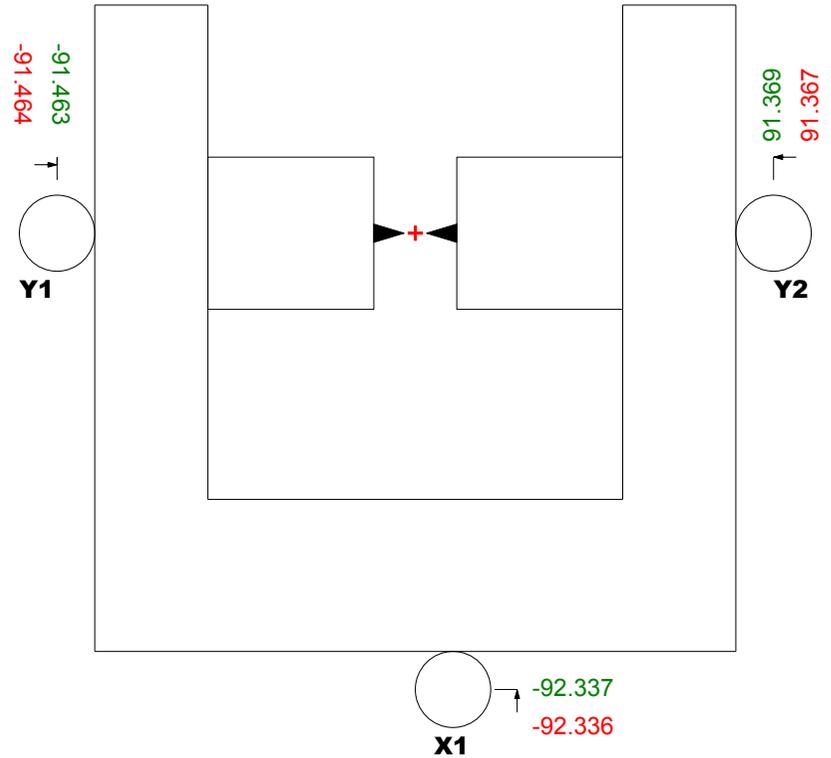
Z Center = -1842.106



## PM 3

### Down Stream

Z Center = 1842.863



Red values are in Girder Coordinate System, includes Roll component from Girder

Green values are in End Magnet Coordinate System

Girder centerline in reference to Pointed Magnets

Dimensions in MM, Angles in Milliradians



### HGVPU - Fiducialization, Pointed End Magnet Values

Nominal Gap :	9.000	US Full :	9.000	DS Full :	8.9999
Nom. Taper :	0.000	US Wall Half :	4.5013	DS Wall Half :	4.5020
		US Aisle Half :	4.5015	DS Aisle Half :	4.5005

S/N	: HXU_021
Date	: 01-AUG-2019
Data Set	: 0001
Run	: FINAL
Cam Pos.	: B