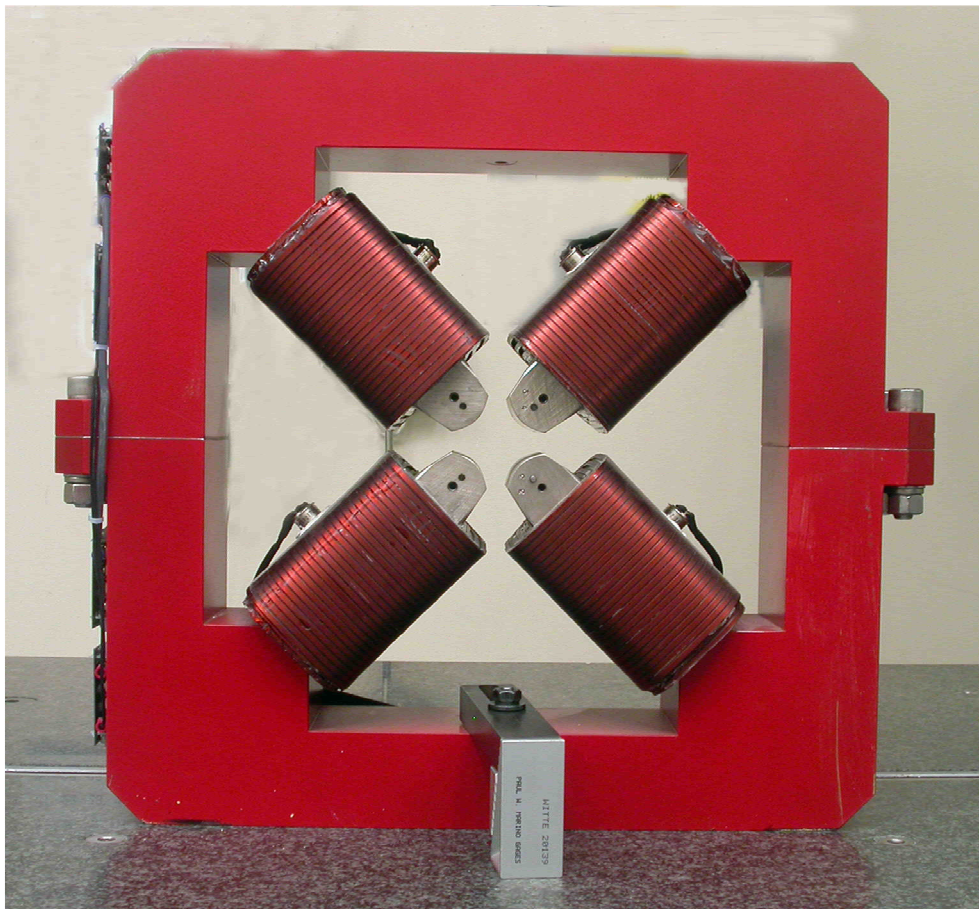


LCLS II Injector Quadrupole Fiducialization Report



Barcode # : ' 002745
Beamline Name: QS01B

Coordinate System Setup

Spatial Alignment

The Spatial Alignment of the magnet is created through a composite best-fit of the pole tips. Each pole tip scanned .150 inch inboard from the upstream magnet face and the downstream magnet face. A composite best-fit of the upstream poles and the downstream poles is made with the nominal pole tip shape and location. An axis is created through the two best-fit centerpoints. This axis is the spatial alignment of the magnet and defines the Z axis.

Planar Alignment

The Planar Alignment of the magnet is created by averaging the rotations of the composite best-fits of the upstream pole tips and downstream pole tips. This direction defines the Y and X directions of the magnet.

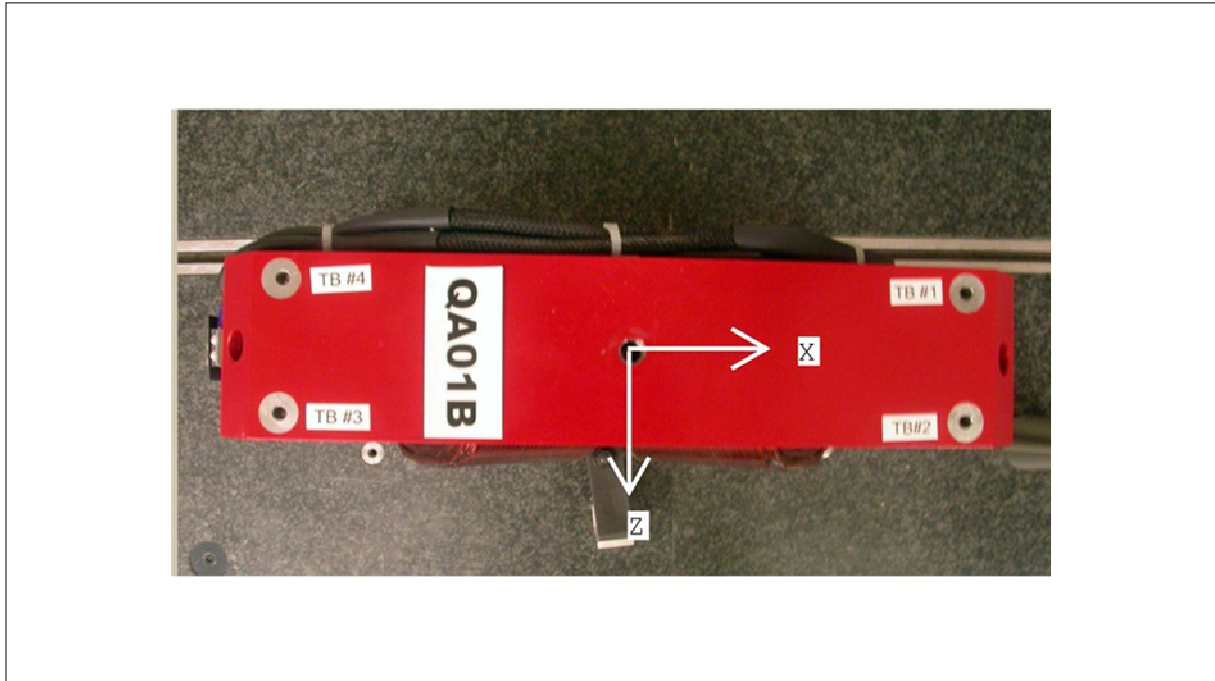
Coordinate Origins

The origins of the magnet coordinate system are as follows. The XY origin lies on the axis of spatial alignment. The Z origin is the intersection of the mid-plane between the upstream and downstream magnet faces and the Z axis.

Barcode # : ' 002745

Beamline Name: QS01B

Tooling Ball Locations



Tooling Ball Locations

Tooling Ball	X Coord.	Y Coord.	Z Coord.
Ball #1	6.49820	8.88153	-1.25393
Ball #2	6.49984	8.88167	1.24642
Ball #3	-6.49930	8.88106	1.24695
Ball #4	-6.49988	8.88151	-1.25376

Tooling Ball Locations are 1 inch above unpainted surface pads

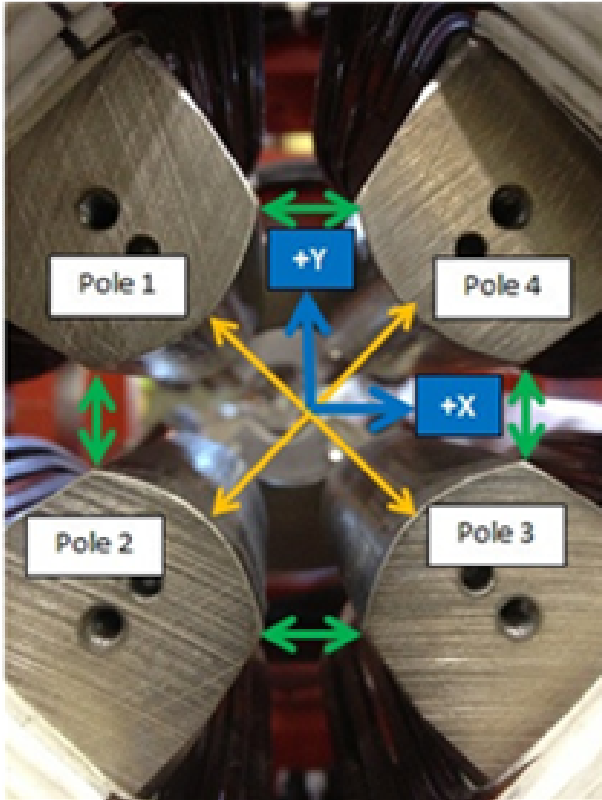
Dimensions in Inch

Barcode # : ' 002745

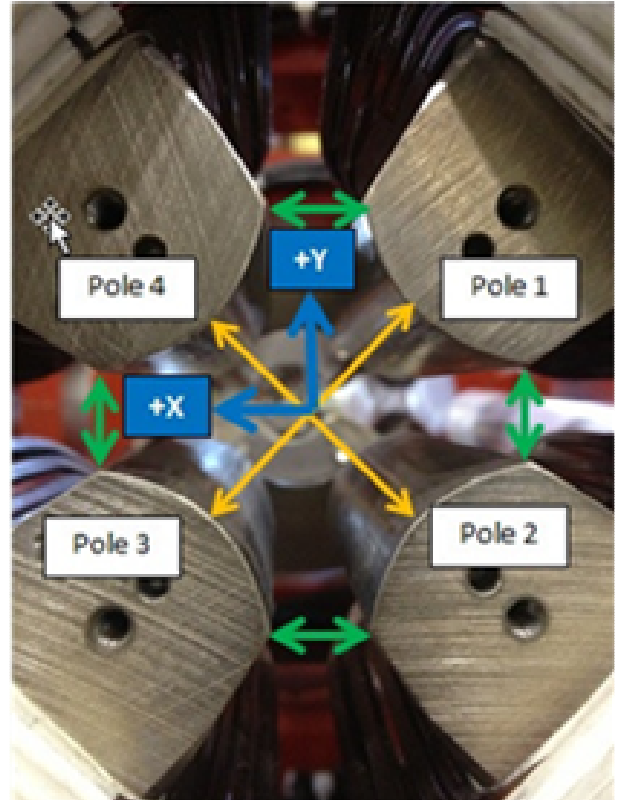
Beamline Name: QS01B

Pole Tip Gap Measurements

Pole Tips looking Downstream



Pole Tips looking Upstream

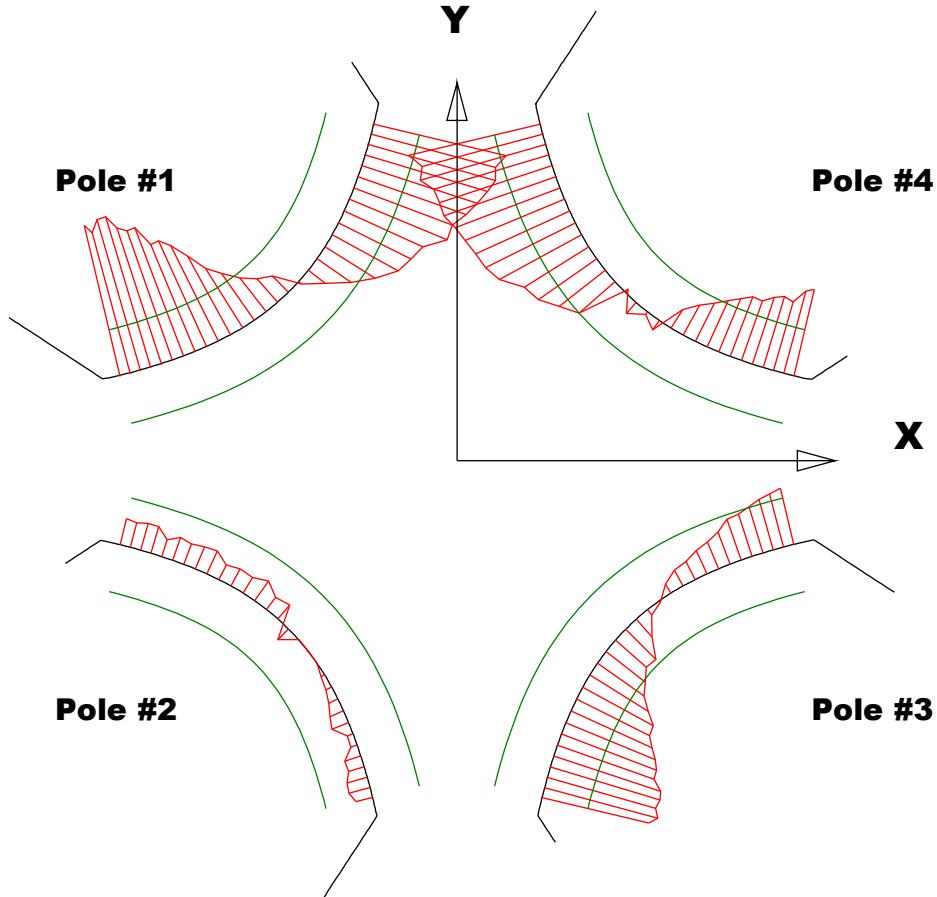


	Nominal Distance	Downstream Pole Ends	Upstream Pole Ends
Pole Tip Distance 1-3	1.260	1.26133	1.26035
Pole Tip Distance 2-4	1.260	1.26032	1.25968
Gap 1-2	.422	0.428	0.42762
Gap 2-3	.422	0.42614	0.42455
Gap 3-4	.422	0.42534	0.42612
Gap 4-1	.422	0.4169	0.41622

Dimensions in Inch

Barcode # : ' 002745
Beamline Name: QS01B

Composite Best-fit of Pole Tips, Downstream



Black = Nominal Pole Tip
 Red = Pole Tip Deviations
 Green = +/- .001 Tolerance

Dimensions in Inch

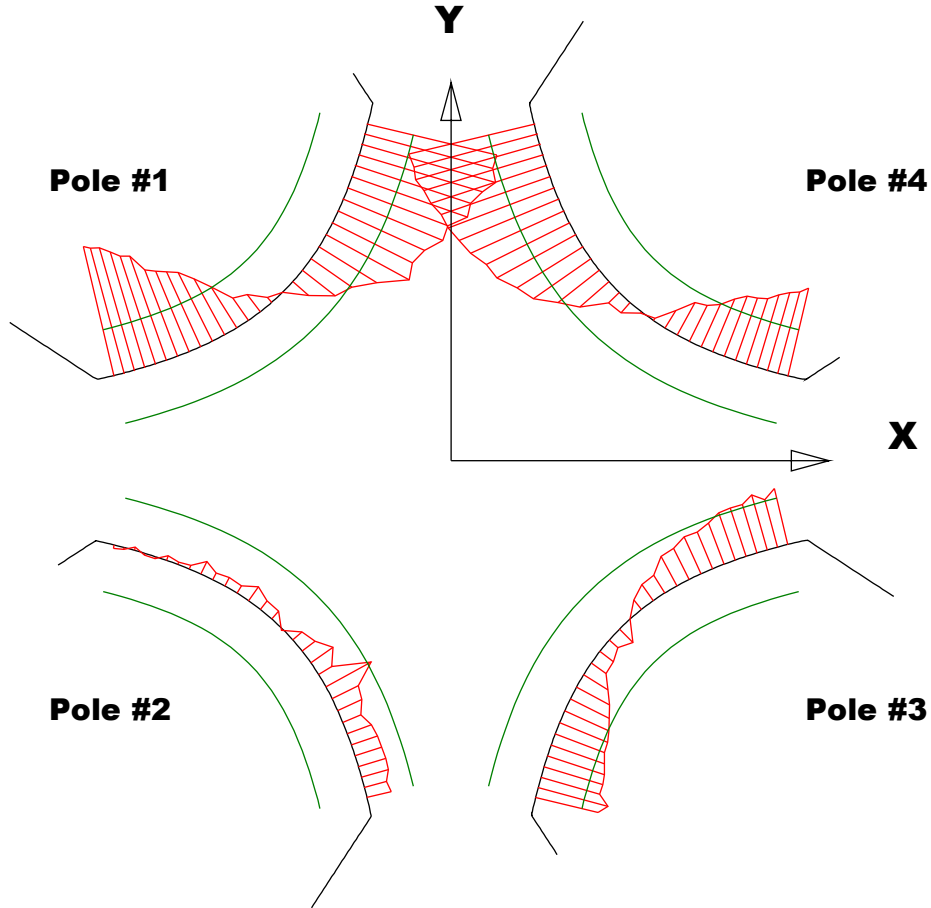
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00329	-0.00046	-0.00246	-0.00186
Max. Dev.	0.00286	0.00058	0.00121	0.00284

Barcode # : ' 002745

Beamline Name: QS01B

Composite Best-fit of Pole Tips, Upstream



Black = Nominal Pole Tip
 Red = Pole Tip Deviations
 Green = +/- .001 Tolerance

Dimensions in Inch

Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00278	-0.00008	-0.00152	-0.00189
Max. Dev.	0.00291	0.00108	0.00121	0.00271

Barcode # : ' 002745

Beamline Name: QS01B