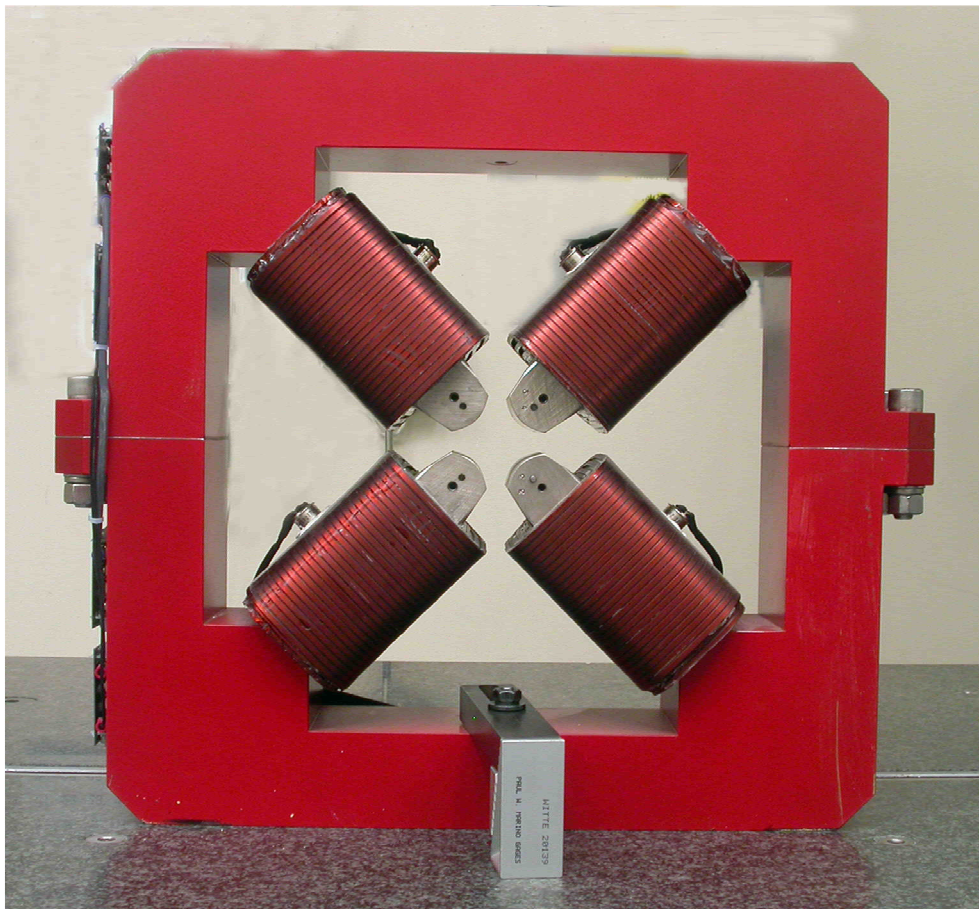


LCLS II Injector Quadrupole Fiducialization Report



Barcode # : 002746
Beamline Name: QS02B

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.

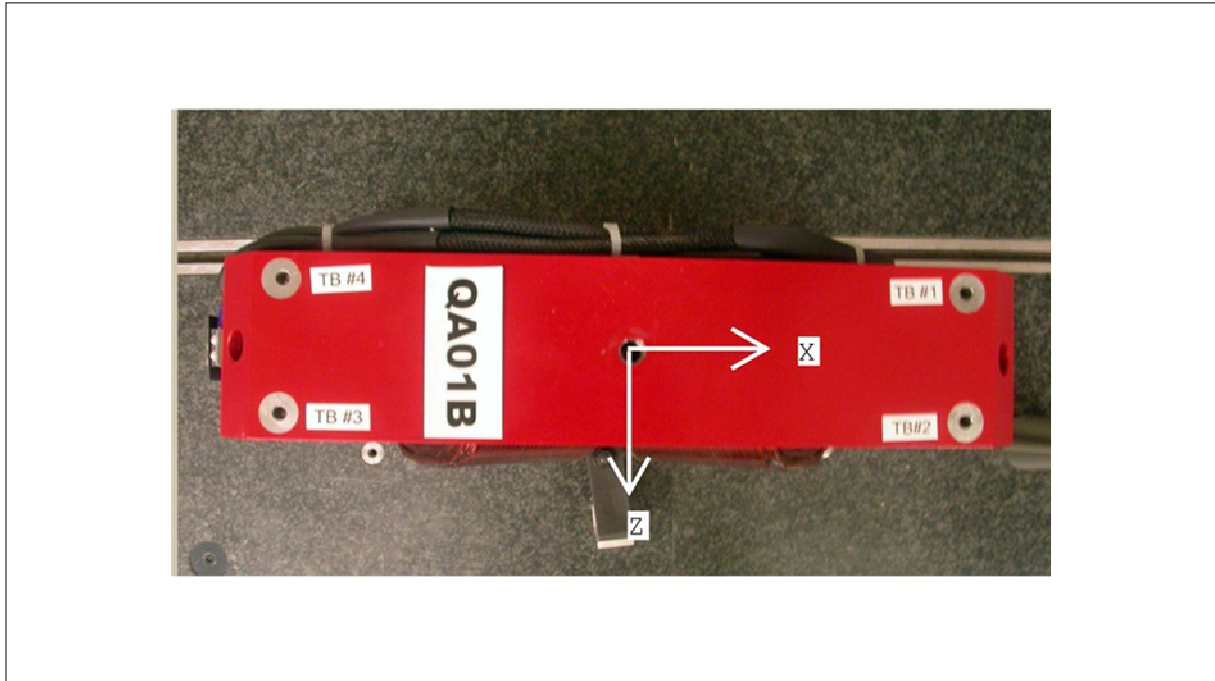
Coordinate Origins

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 # : 002746

Beamline Name: QS02B

Tooling Ball Locations



Tooling Ball Locations

Tooling Ball	X Coord.	Y Coord.	Z Coord.
Ball #1	6.49911	8.87998	-1.25579
Ball #2	6.49925	8.88111	1.24446
Ball #3	-6.50078	8.88053	1.24862
Ball #4	-6.50060	8.87920	-1.25203

Tooling Ball Locations are 1 inch above unpainted surface pads

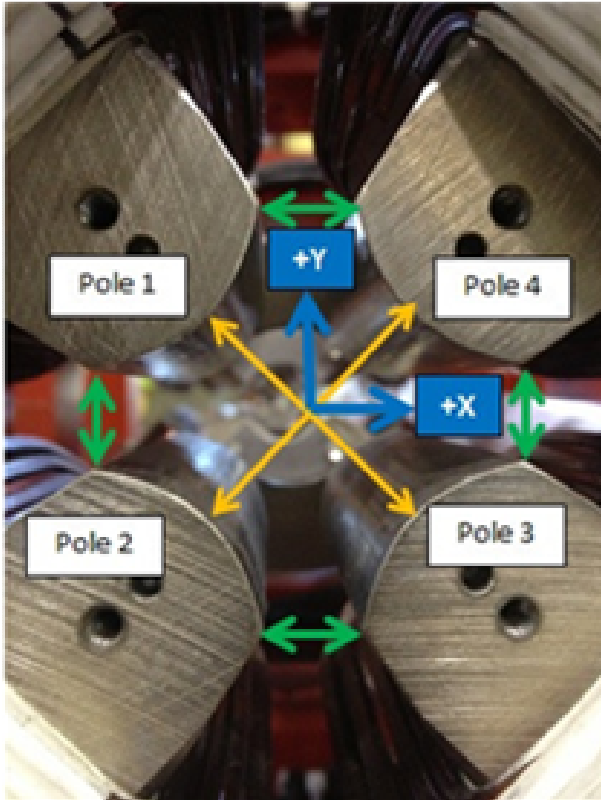
Dimensions in Inch

Barcode # : 002746

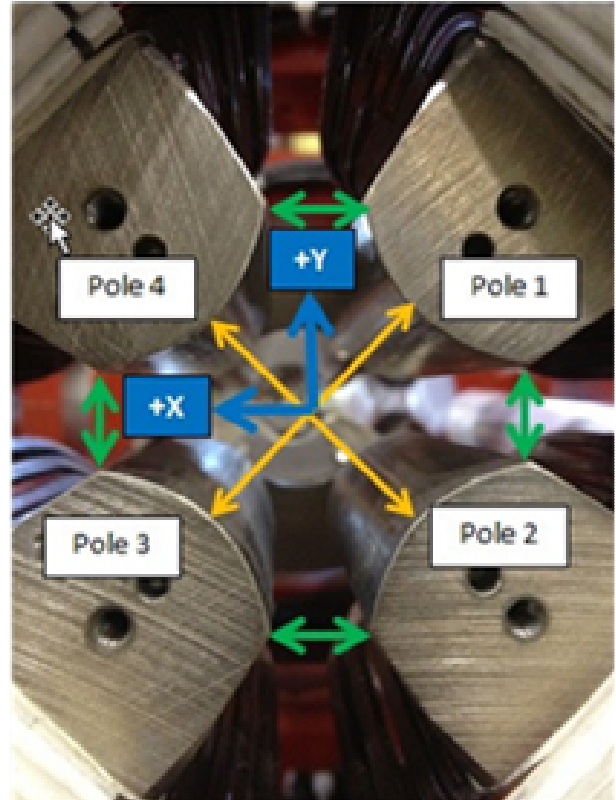
Beamline Name: QS02B

Pole Tip Gap Measurements

Pole Tips looking Downstream



Pole Tips looking Upstream

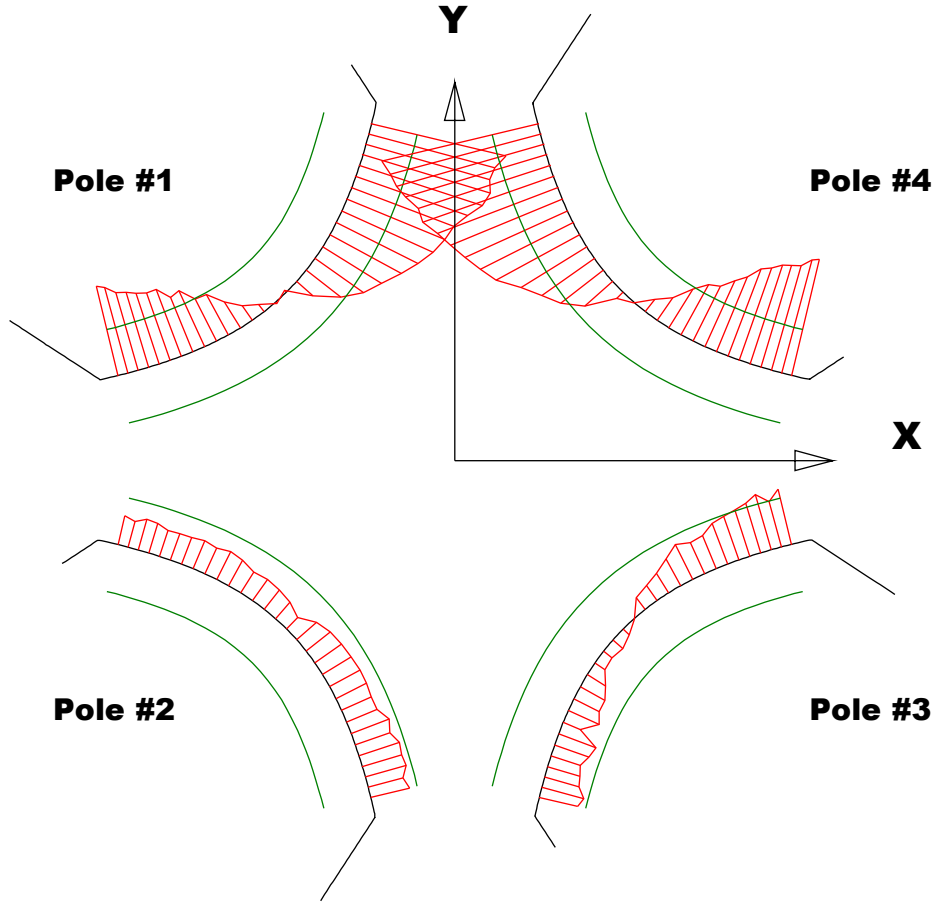


	Nominal Distance	Downstream Pole Ends	Upstream Pole Ends
Pole Tip Distance 1-3	1.260	1.26019	1.26018
Pole Tip Distance 2-4	1.260	1.25946	1.25894
Gap 1-2	.422	0.42468	0.42589
Gap 2-3	.422	0.42314	0.42228
Gap 3-4	.422	0.42562	0.42519
Gap 4-1	.422	0.41538	0.41518

Dimensions in Inch

Barcode # : 002746
Beamline Name: QS02B

Composite Best-fit of Pole Tips, Downstream



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

Dimensions in Inch

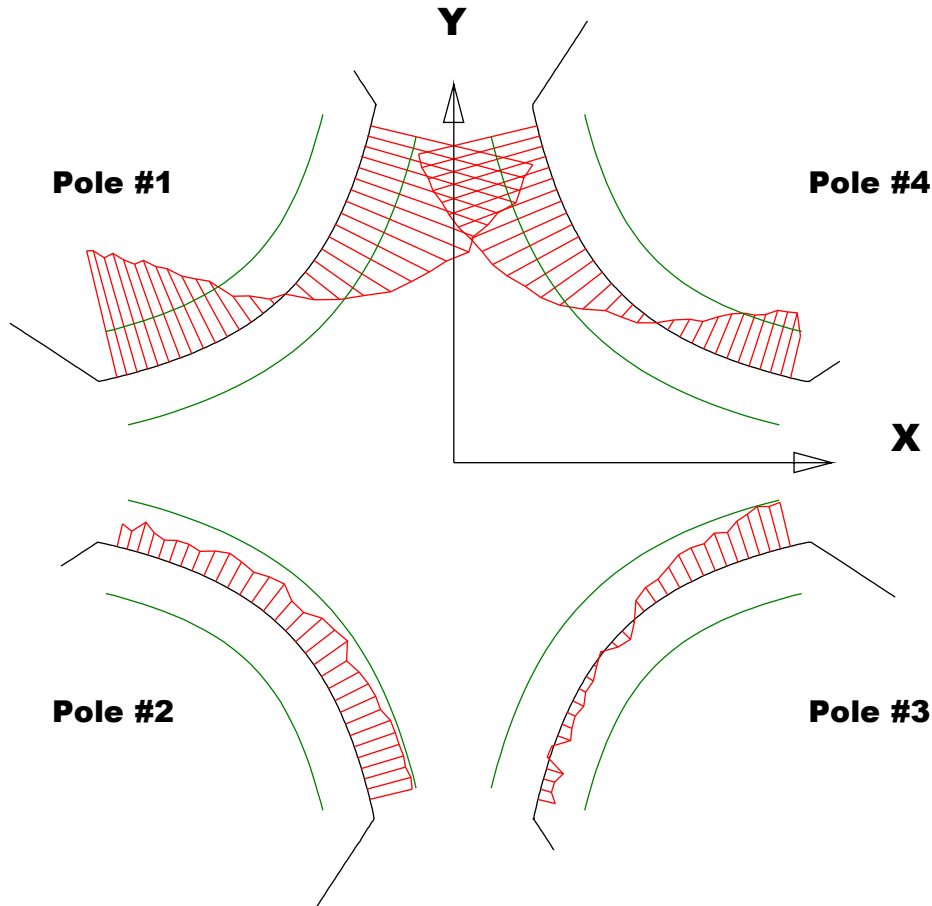
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00193	0.00033	-0.00091	-0.0025
Max. Dev.	0.0029	0.0009	0.0012	0.00337

Barcode # : 002746

Beamline Name: QS02B

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.	-0.00273	0.00039	-0.00037	-0.00135
Max. Dev.	0.0035	0.00095	0.00099	0.00256

Barcode # : 002746

Beamline Name: QS02B