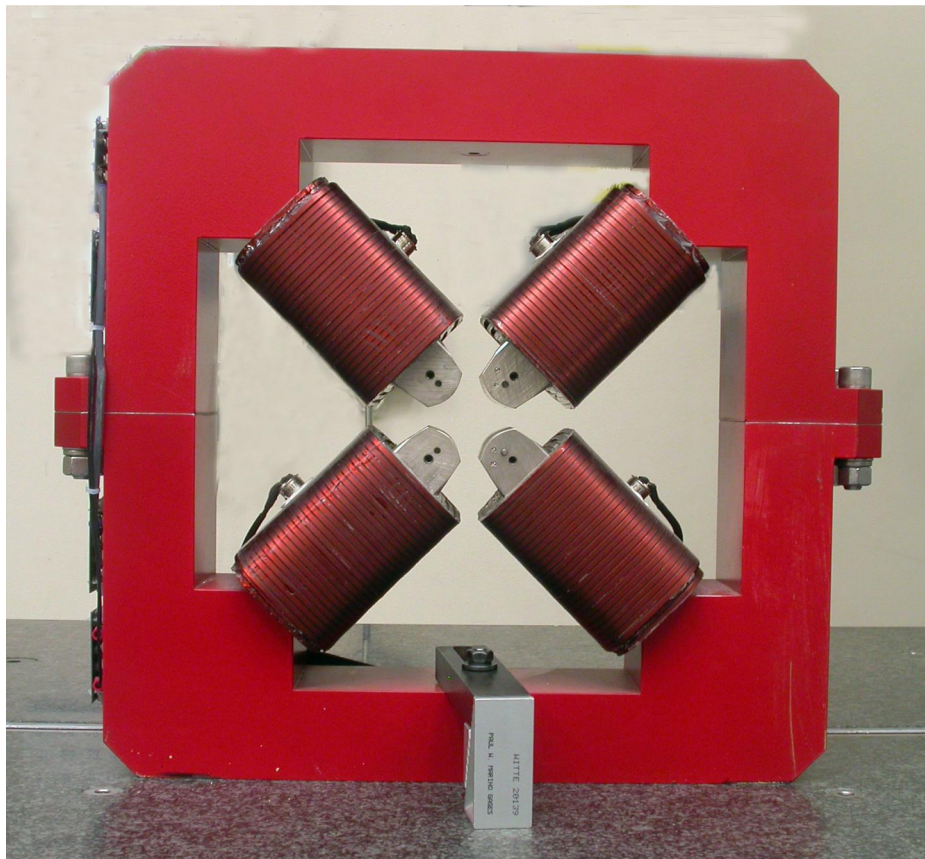


FACET II Magnet Fiducialization Report

1.26Q3.5 Quadrupole Magnet



Inspector : K. Caban

Engineer : M. JOHANSSON

Drawing No. : SA-380-309-12 R1

SLAC No.: 1.26Q3.5-179607-042

Mfg. S/N : 042

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 the 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.

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Tooling Ball Locations



Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	6.4952	8.8855	-1.2486
TB 2	6.4957	8.8839	1.2484
TB 3	-6.5036	8.8770	1.2459
TB 4	-6.5027	8.8772	-1.2498
TB A	6.4959	8.1953	-1.2500
TB B	6.4955	8.1965	1.2493
TB C	-6.5045	8.1881	1.2478
TB D	-6.5043	8.1876	-1.2520

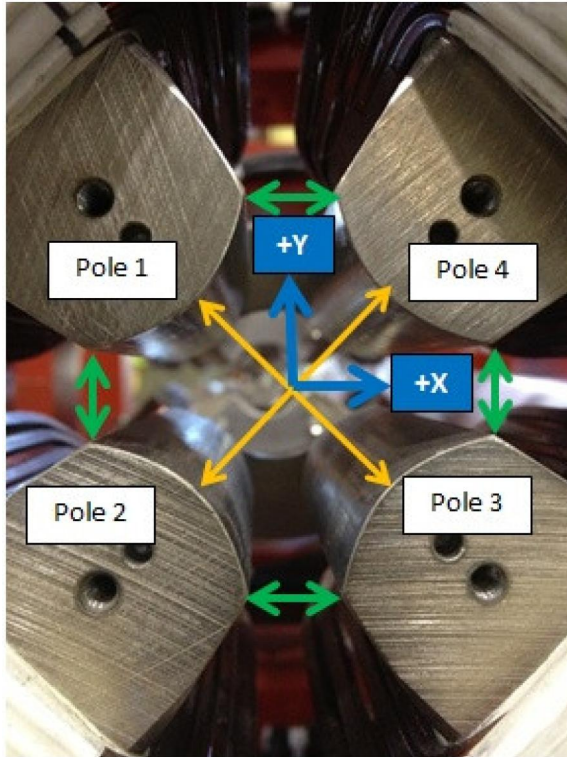
Tooling Ball Locations (1-4) are 1 inch above unpainted surface pads
 Tooling Ball Locations (A-D) are 5/16 inch above unpainted surface pads

Dimensions in Inch

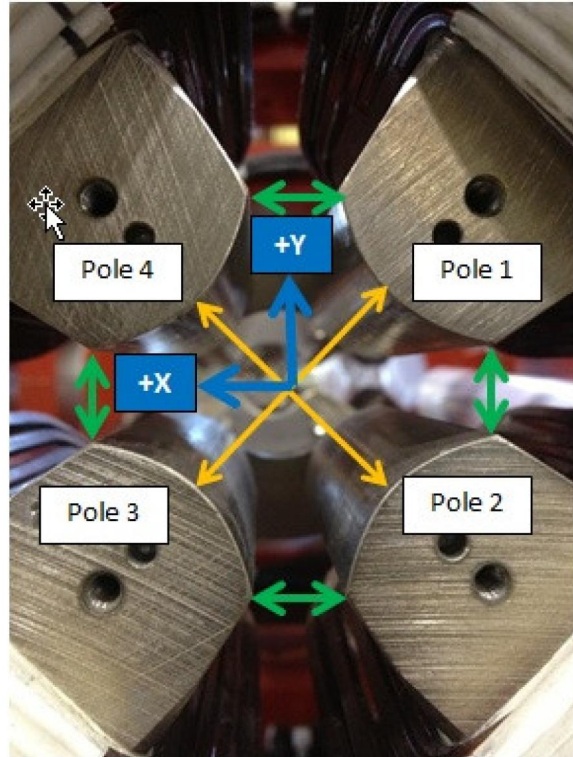
SLAC # : 1.26Q3.5-179607-042
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Pole Tip Gap Measurements

Pole Tips View from Downstream



Pole Tips View from Upstream

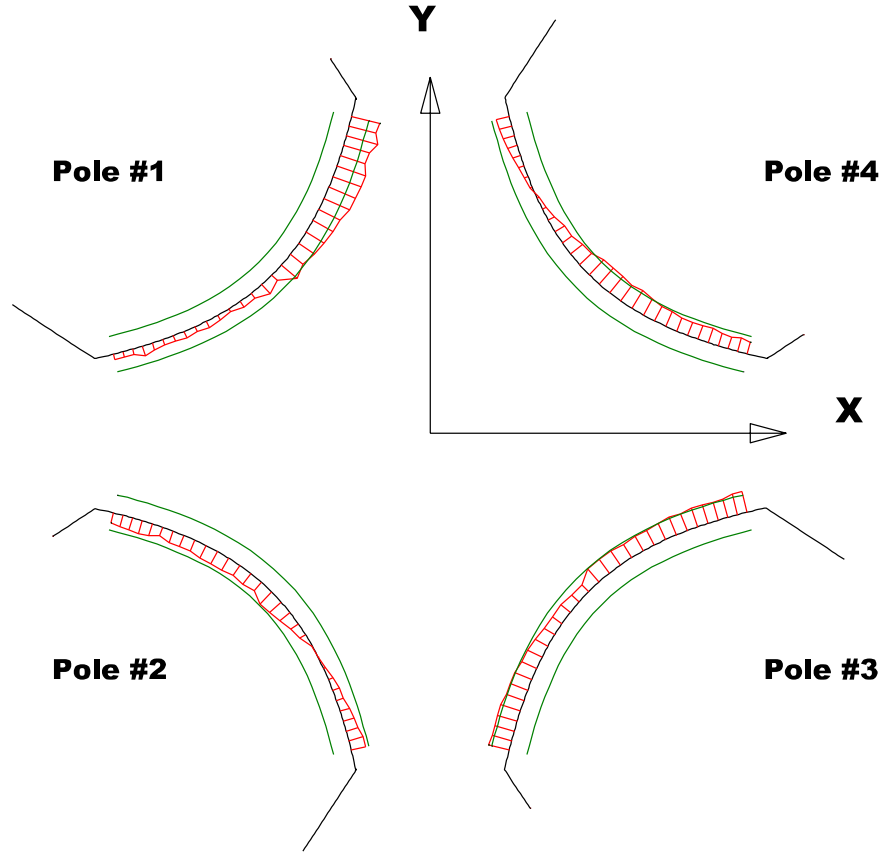


	Nominal Distance	Downstream Pole Ends	Upstream Pole Ends
Pole Tip Distance 1-3	1.260	1.25893	1.25919
Pole Tip Distance 2-4	1.260	1.26208	1.26232
Gap 1-2	.422	0.42253	0.42199
Gap 2-3	.422	0.41824	0.42103
Gap 3-4	.422	0.42084	0.42174
Gap 4-1	.422	0.41944	0.4167

Dimensions in Inch

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Composite Best-fit of Pole Tips, Downstream



Black = Nominal Pole Tip

Red = Pole Tip Deviations

Green = +/- .001 Tolerance

Dimensions in Inch

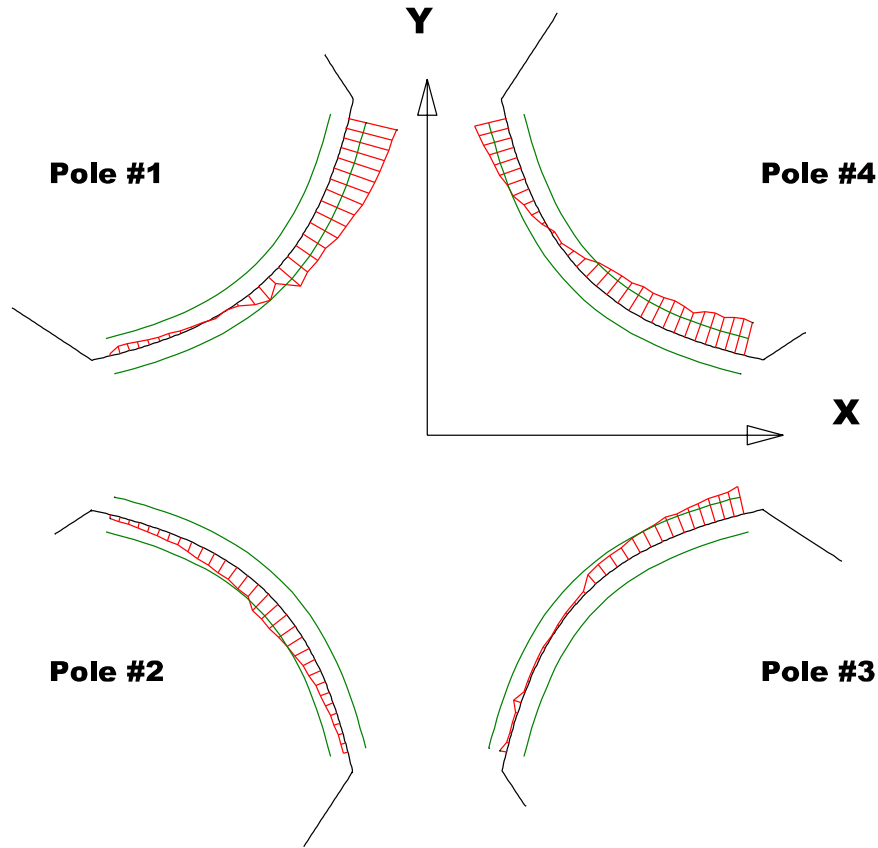
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	0.00021	-0.00094	0.00056	-0.00121
Max. Dev.	0.00182	0.00085	0.00122	0.00076

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Composite Best-fit of Pole Tips, Upstream



Black = Nominal Pole Tip

Red = Pole Tip Deviations

Green = +/- .001 Tolerance

Dimensions in Inch

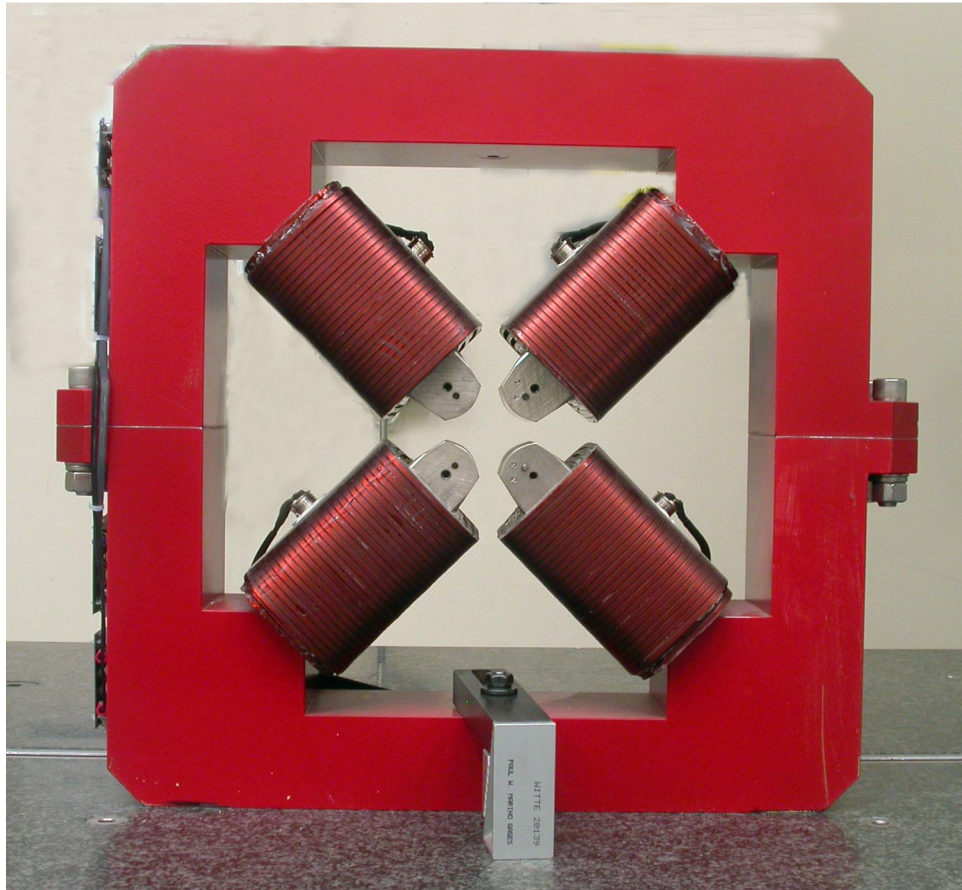
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00043	-0.0013	0.00003	-0.00201
Max. Dev.	0.00275	-0.0002	0.00159	0.00182

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Angle of the Composite Pole Tip Best-Fit In Relation to Tooling Ball Plane



Angle in Decimal Degrees ° = -0.03537

Angle in Milliradians = -0.61725

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