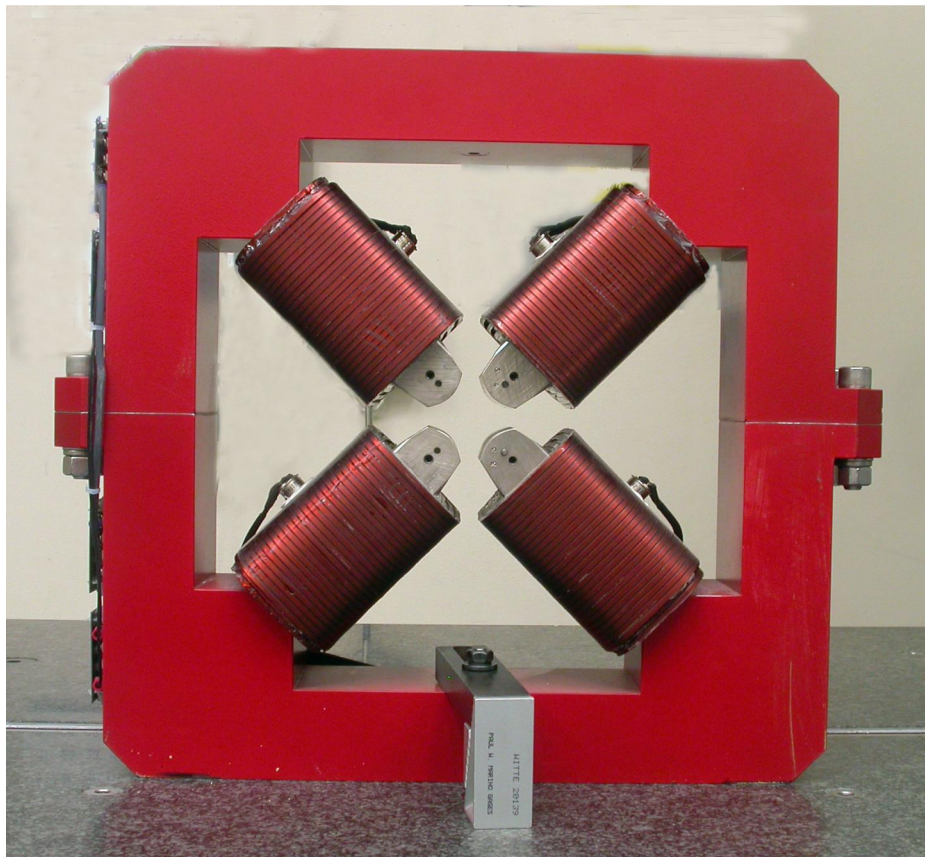


FACET II Magnet Fiducialization Report

1.26Q3.5 Quadrupole Magnet



Inspector : K. Caban

Engineer : M. JOHANSSON

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

SLAC No.: 1.26Q3.5-179607-043

Mfg. S/N : 043

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	6.4965	8.8839	-1.2492
TB 2	6.4987	8.8836	1.2494
TB 3	-6.5028	8.8777	1.2491
TB 4	-6.5019	8.8776	-1.2481
TB A	6.4977	8.1927	-1.2513
TB B	6.4980	8.1946	1.2488
TB C	-6.5025	8.1899	1.2500
TB D	-6.5023	8.1891	-1.2498

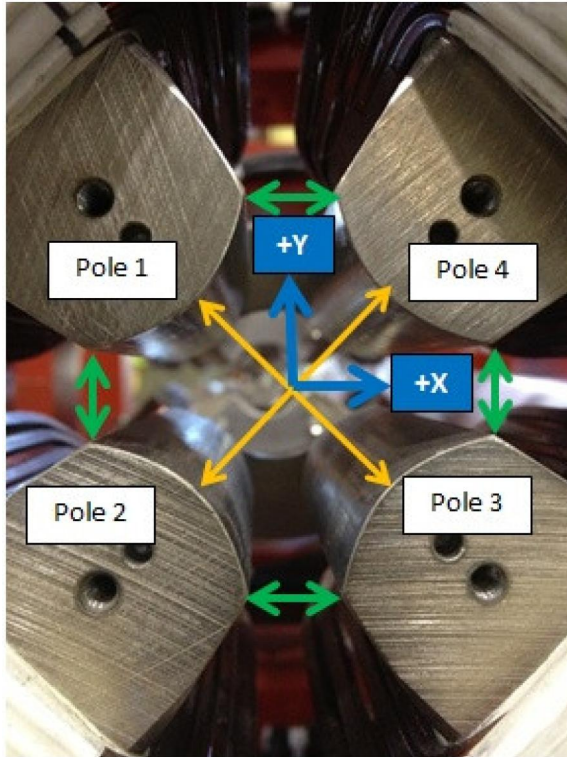
Tooling Ball Locations (1-4) are 1 inch above unpainted surface pads
 Tooling Ball Locations (A-D) are 5/16 inch above unpainted surface pads

Dimensions in Inch

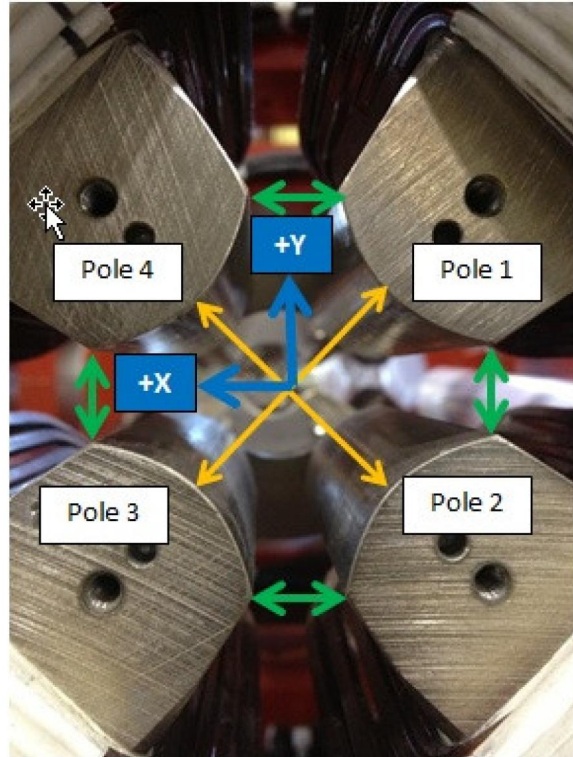
SLAC # : 1.26Q3.5-179607-043
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Pole Tip Gap Measurements

Pole Tips View from Downstream



Pole Tips View from Upstream

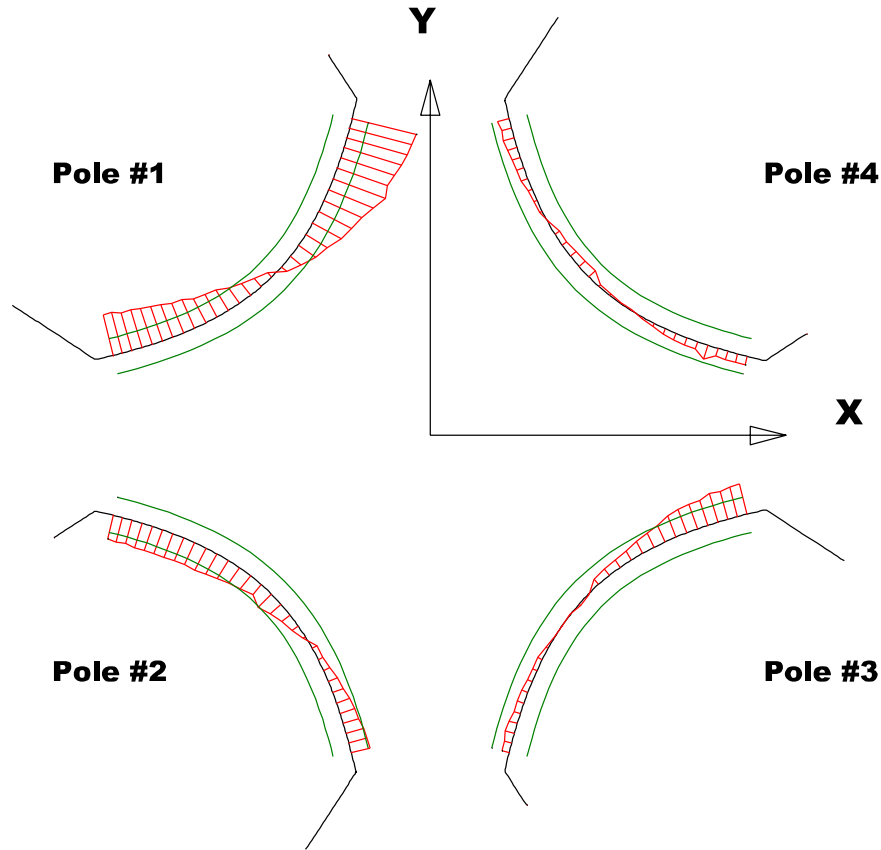


	Nominal Distance	Downstream Pole Ends	Upstream Pole Ends
Pole Tip Distance 1-3	1.260	1.26025	1.26018
Pole Tip Distance 2-4	1.260	1.26148	1.26108
Gap 1-2	.422	0.42816	0.42551
Gap 2-3	.422	0.41901	0.42227
Gap 3-4	.422	0.42001	0.41903
Gap 4-1	.422	0.41638	0.41576

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

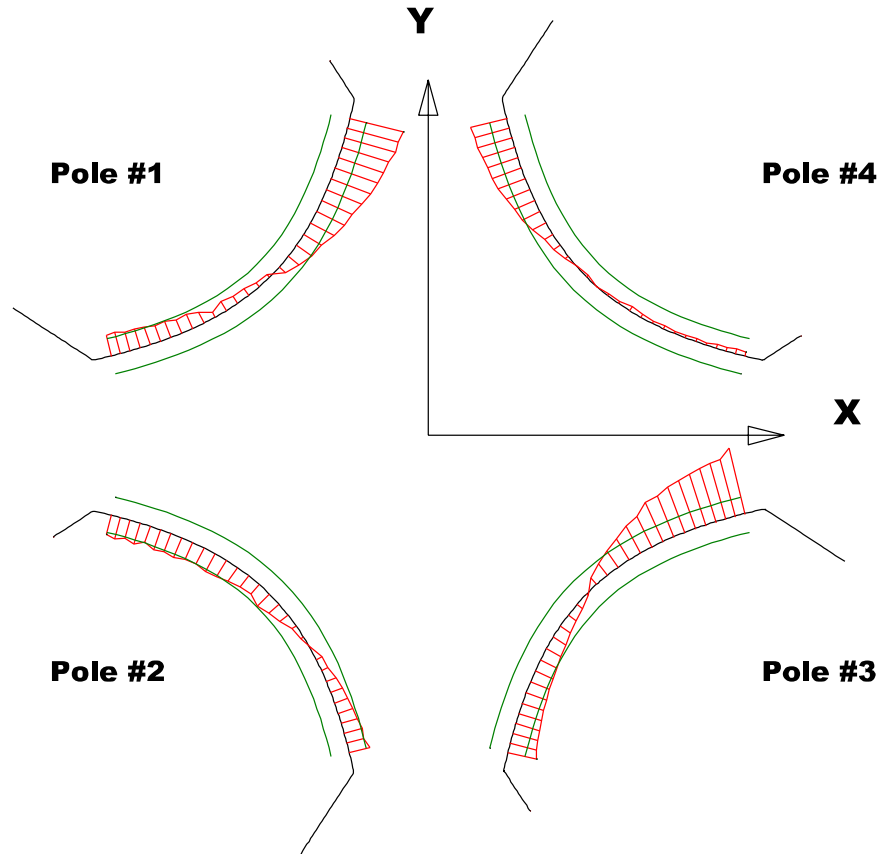
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00236	-0.00145	-0.0001	-0.00051
Max. Dev.	0.00371	0.00107	0.00177	0.0008

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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

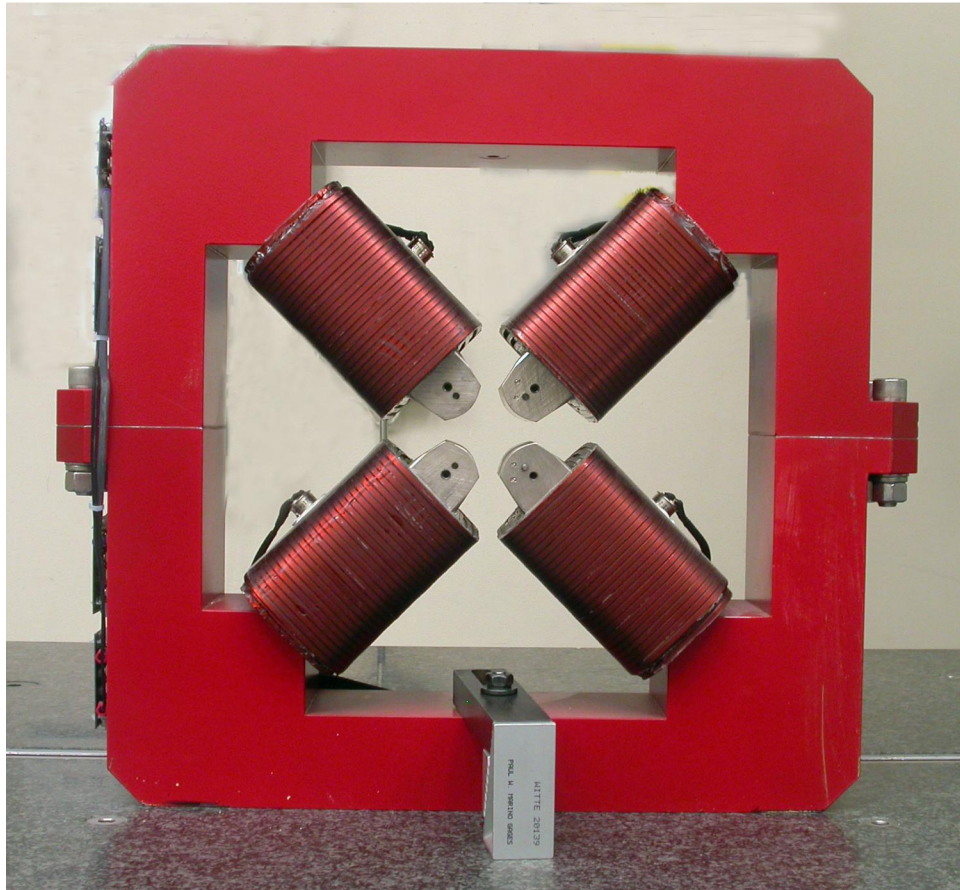
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00125	-0.00123	-0.00164	-0.00029
Max. Dev.	0.00311	0.00121	0.00378	0.00209

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



Angle in Decimal Degrees ° = -0.01665

Angle in Milliradians = -0.29058

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