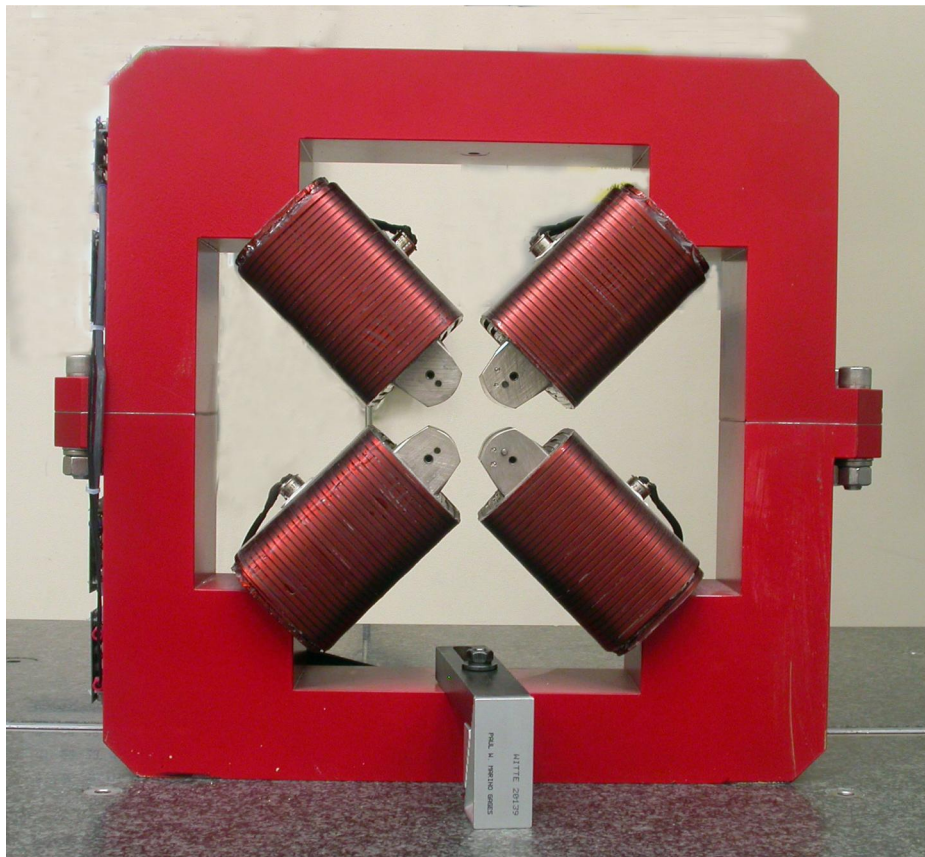


FACET II Magnet Fiducialization Report

1.26Q3.5 Quadrupole Magnet



Inspector : K. Caban

Engineer : M. JOHANSSON

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

SLAC No.: 1.26Q3.5-179607-044

Mfg. S/N : 044

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	6.5045	8.8774	-1.2488
TB 2	6.5039	8.8784	1.2477
TB 3	-6.4961	8.8821	1.2466
TB 4	-6.4960	8.8842	-1.2499
TB A	6.5030	8.1889	-1.2503
TB B	6.5026	8.1898	1.2498
TB C	-6.4976	8.1937	1.2480
TB D	-6.4976	8.1930	-1.2514

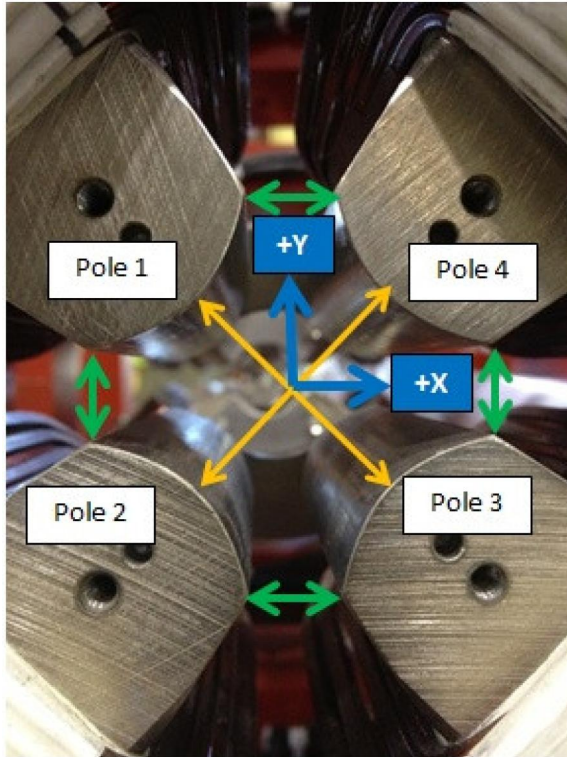
Tooling Ball Locations (1-4) are 1 inch above unpainted surface pads
 Tooling Ball Locations (A-D) are 5/16 inch above unpainted surface pads

Dimensions in Inch

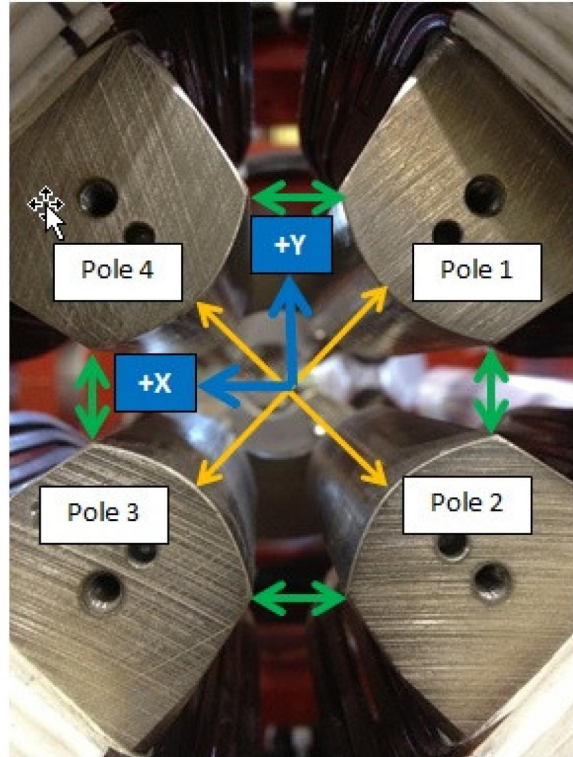
SLAC # : 1.26Q3.5-179607-044
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Pole Tip Gap Measurements

Pole Tips View from Downstream



Pole Tips View from Upstream

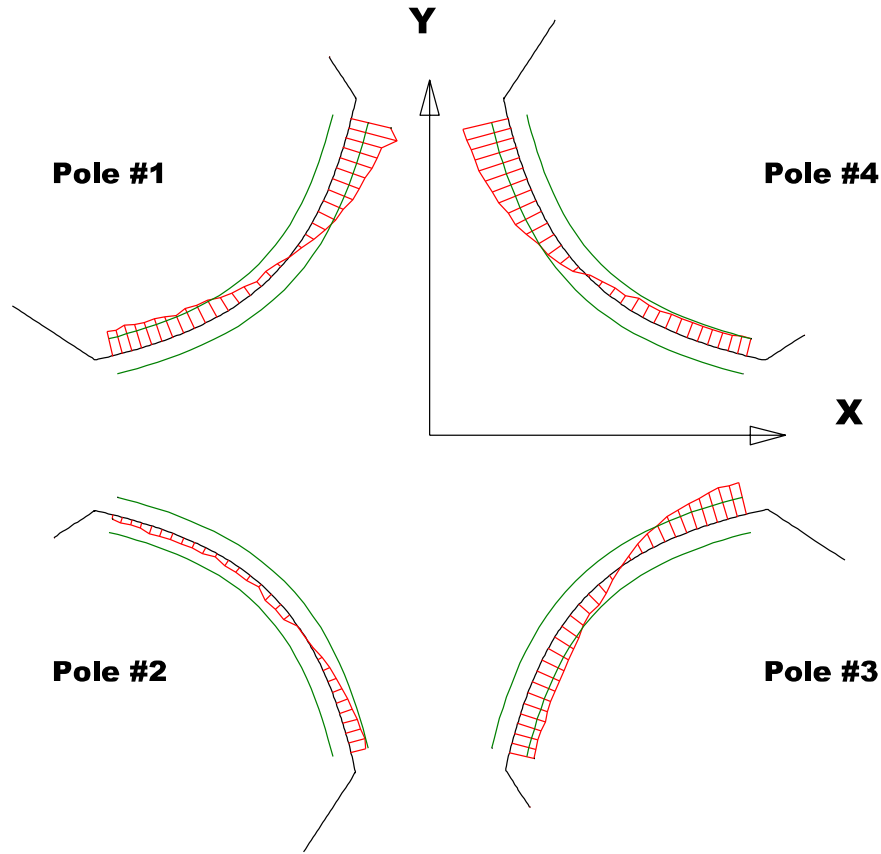


	Nominal Distance	Downstream Pole Ends	Upstream Pole Ends
Pole Tip Distance 1-3	1.260	1.26129	1.26151
Pole Tip Distance 2-4	1.260	1.26059	1.26034
Gap 1-2	.422	0.42511	0.42342
Gap 2-3	.422	0.42215	0.42109
Gap 3-4	.422	0.42052	0.4243
Gap 4-1	.422	0.41631	0.41517

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

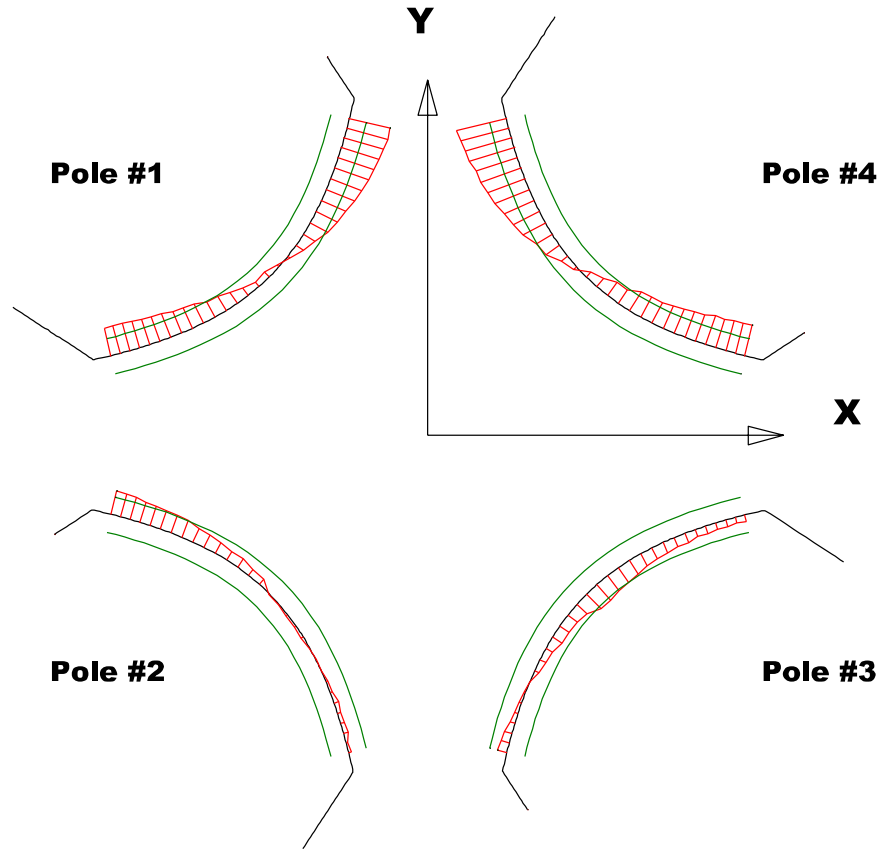
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00148	-0.0005	-0.00148	-0.00103
Max. Dev.	0.0028	0.00098	0.00185	0.00264

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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

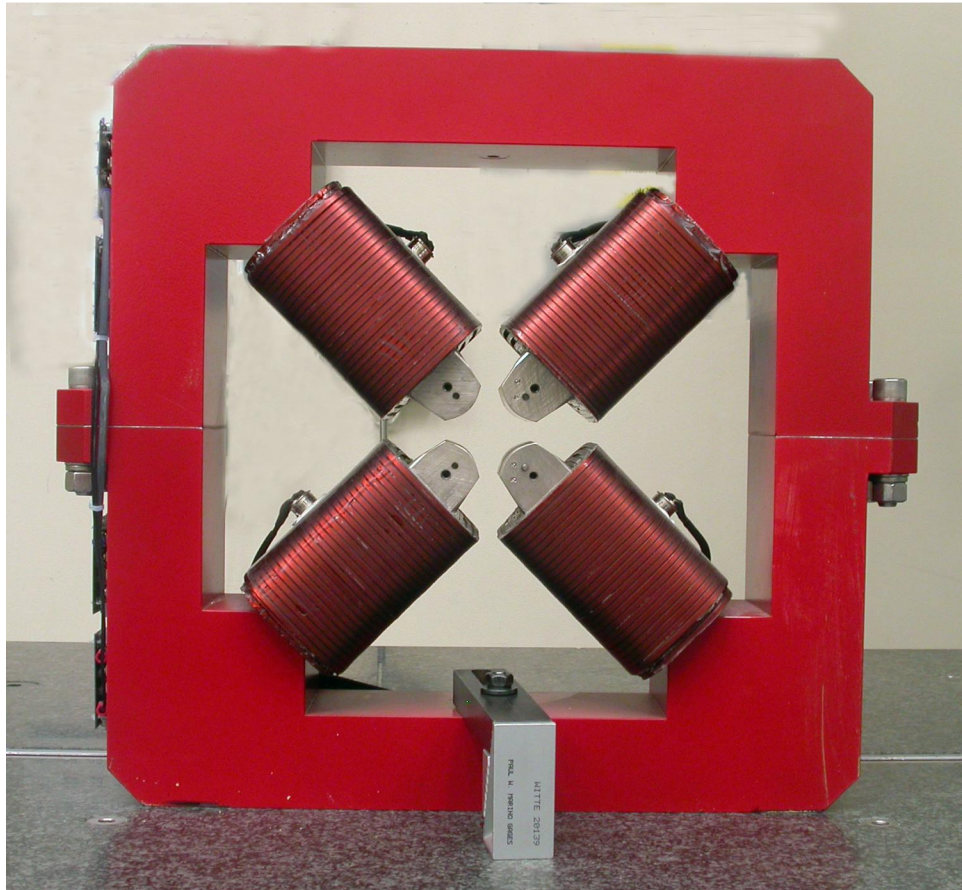
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.0016	-0.00014	-0.00116	-0.00176
Max. Dev.	0.0024	0.00137	0.00056	0.00287

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



Angle in Decimal Degrees ° = 0.01695

Angle in Milliradians = 0.29581

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