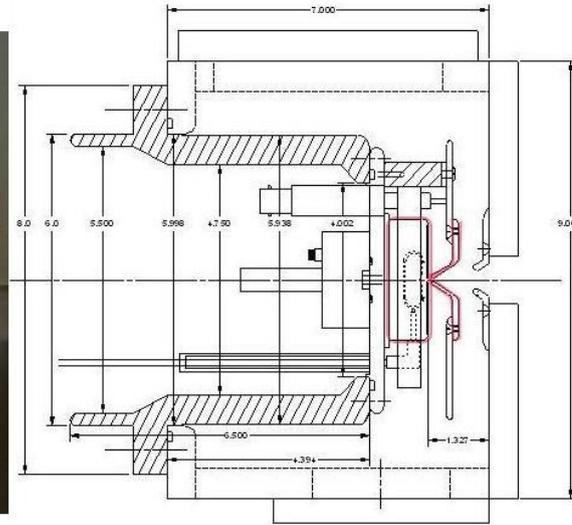
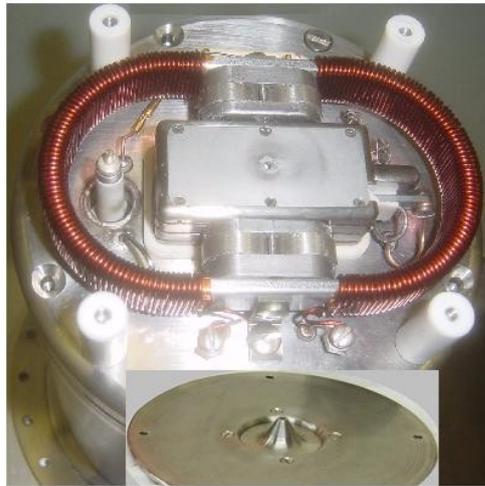


Pre-injector Upgrade Updates (27 Oct – 10 Nov 2010)

C.Y. Tan
10 Nov 2010

Source Status

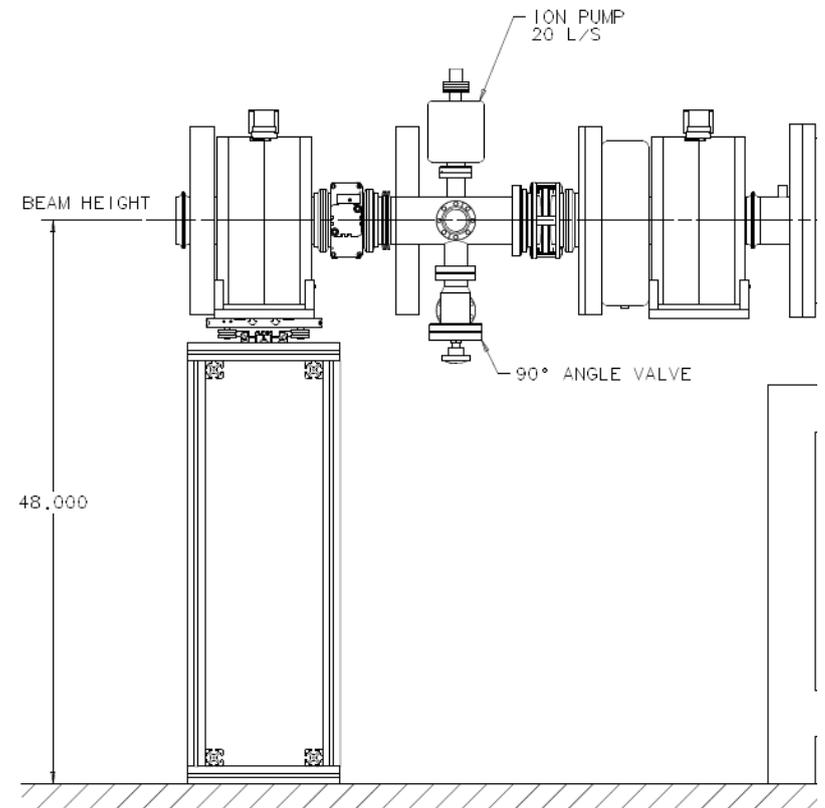
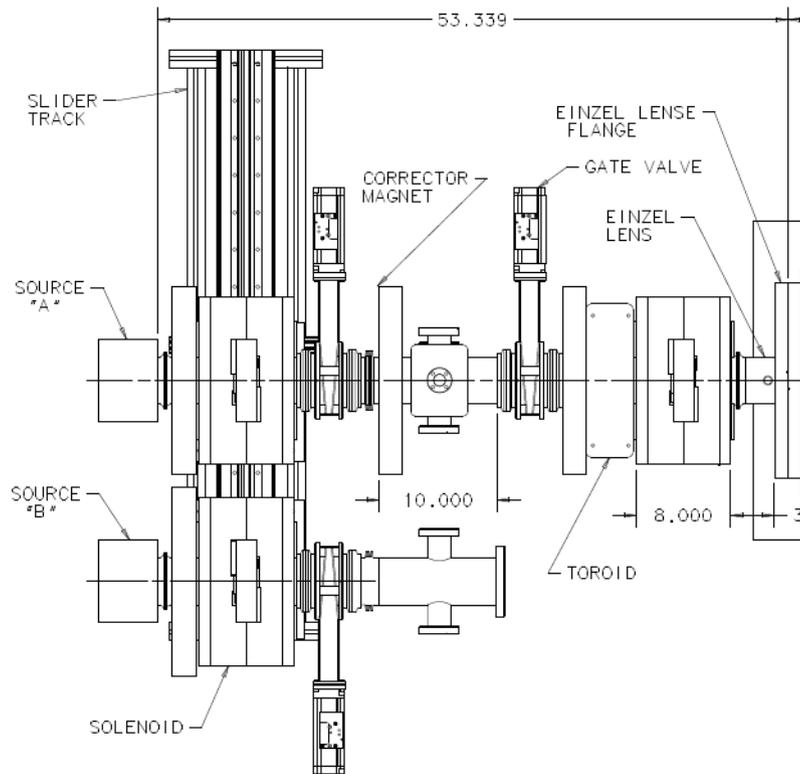


Device	Status	Comments
Source	35kV without sparking.	First set of emittance measurements done at 35kV extraction voltage. Note: cone is not what we want to use.
Pulser	Tested up to 40kV with dummy load	Installed with new caps. Much less droop, 1V/us

Source Priorities

- HINS wants their source back
 - Priority must be to get the Einzel lens test work done before we return the source.
 - Crowbar circuit assembled by end of week
 - Dan off to Japan next week.

LEBT Status



Status

Bdl=186.5 gauss inches

Solenoids

Toroids

Einzel lens crowbar circuit

Comments

Out for bid.

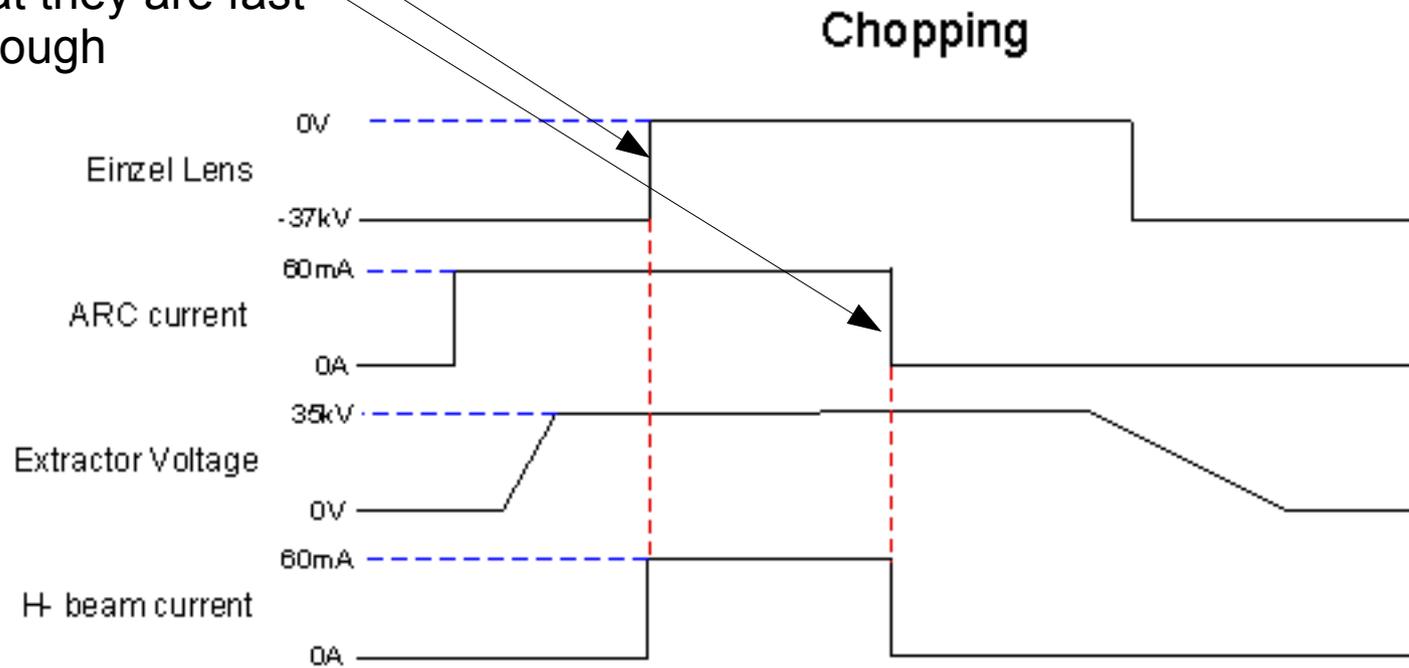
Beam shot at it at >35kV. No sparking

1st solenoid Jan/Feb next year

Must be done before HINS gets their source back

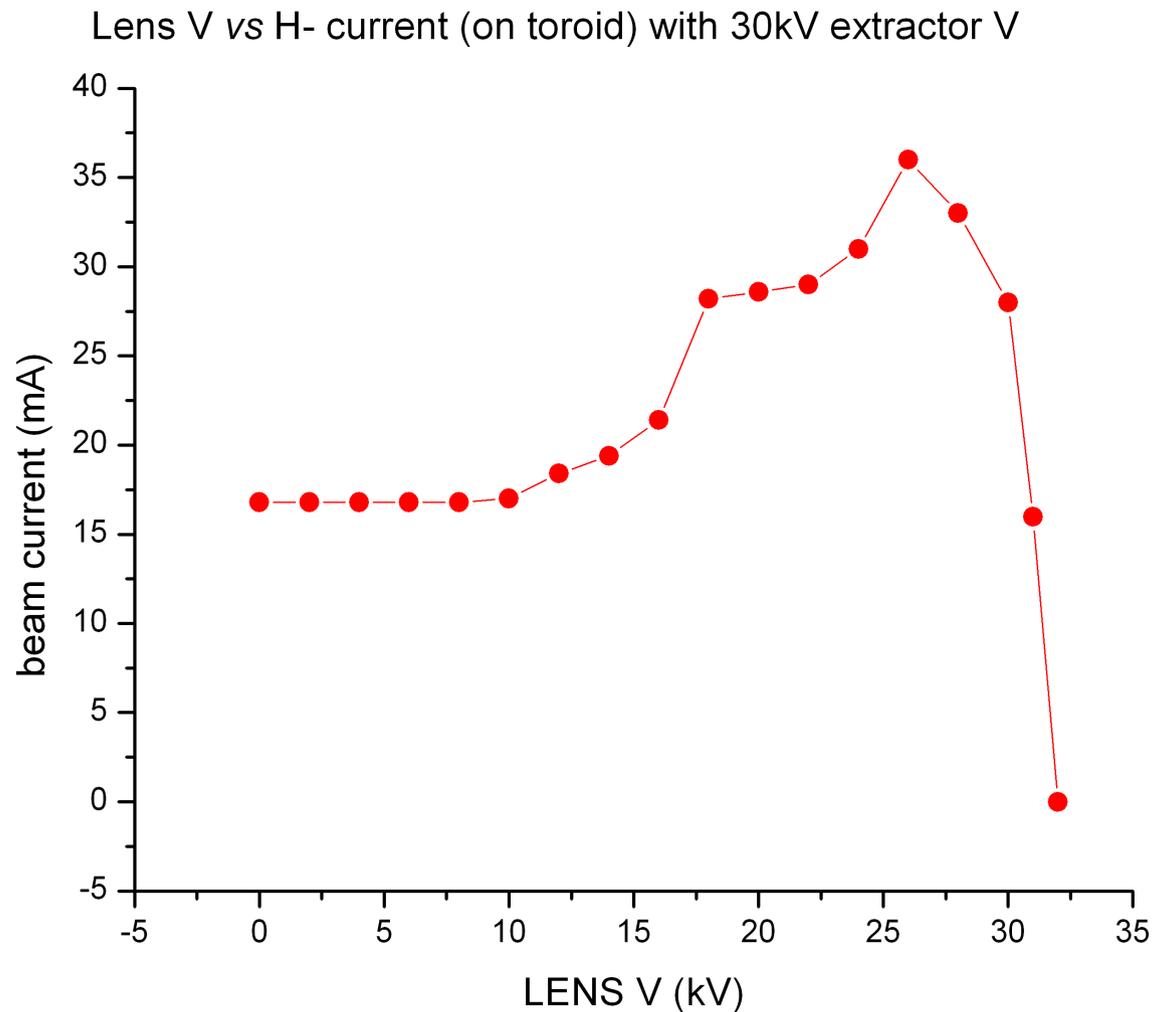
Chopper Timing

Needs to be verified
that they are fast
enough



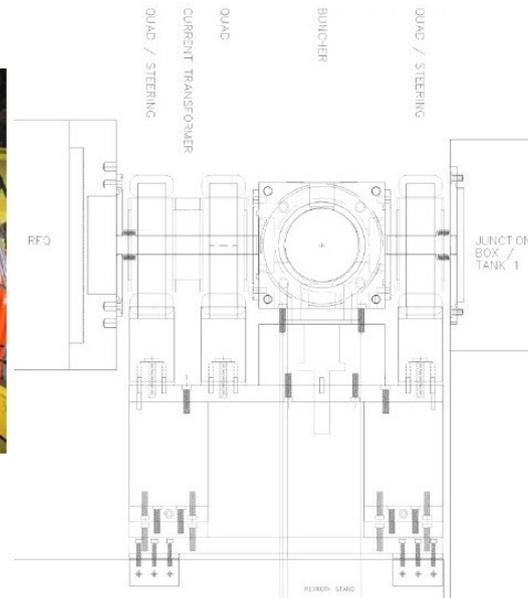
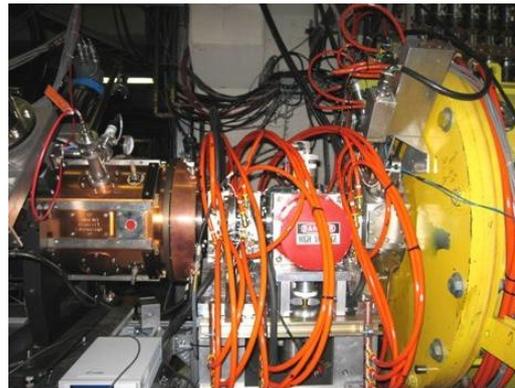
Courtesy of
Dan Bollinger

There is current even when lens is off in test stand



Good for Einzel lens testing because we will be setting the Einzel lens to zero volts with crowbar circuit.

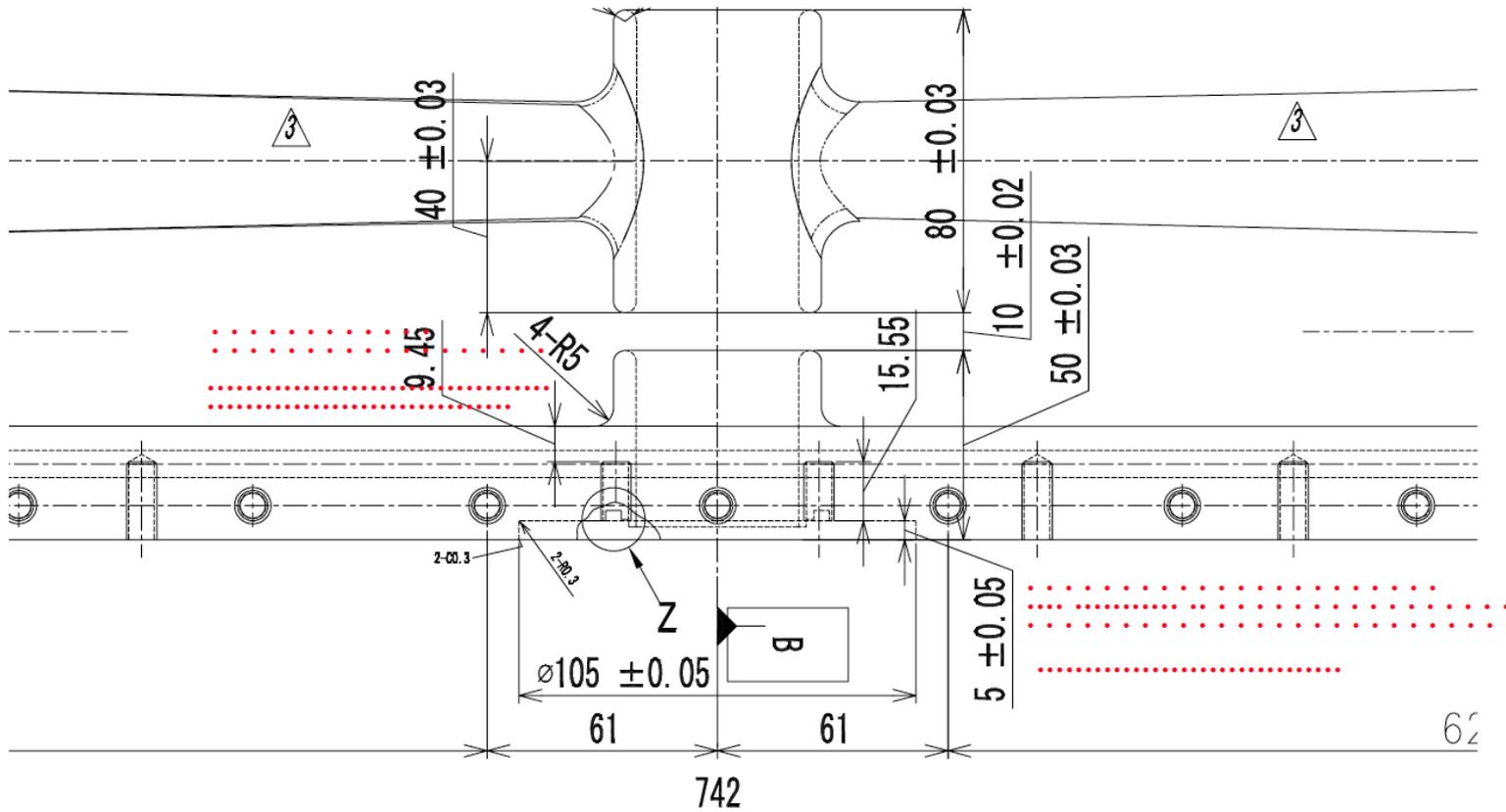
MEBT Status



Seriously considering replacing 3 quads with doublets. See next talk.

Device	Status	Comments
Quads	Design in progress. Length of quad is too long! Capture efficiency is ~70% compared to 80% before. BNL quads?	Sextupole problem solved with saddle correctors. Length of quad is 70mm. Physical length is > 100 mm!
Buncher	On order	Indent where flange is to reduce length by 1cm
Power for quads	Specs to follow	Quads being redone.
Power for buncher		Use present buncher supply in the line.
Connection to Tank	Remove large flange of Tank1	

Buncher



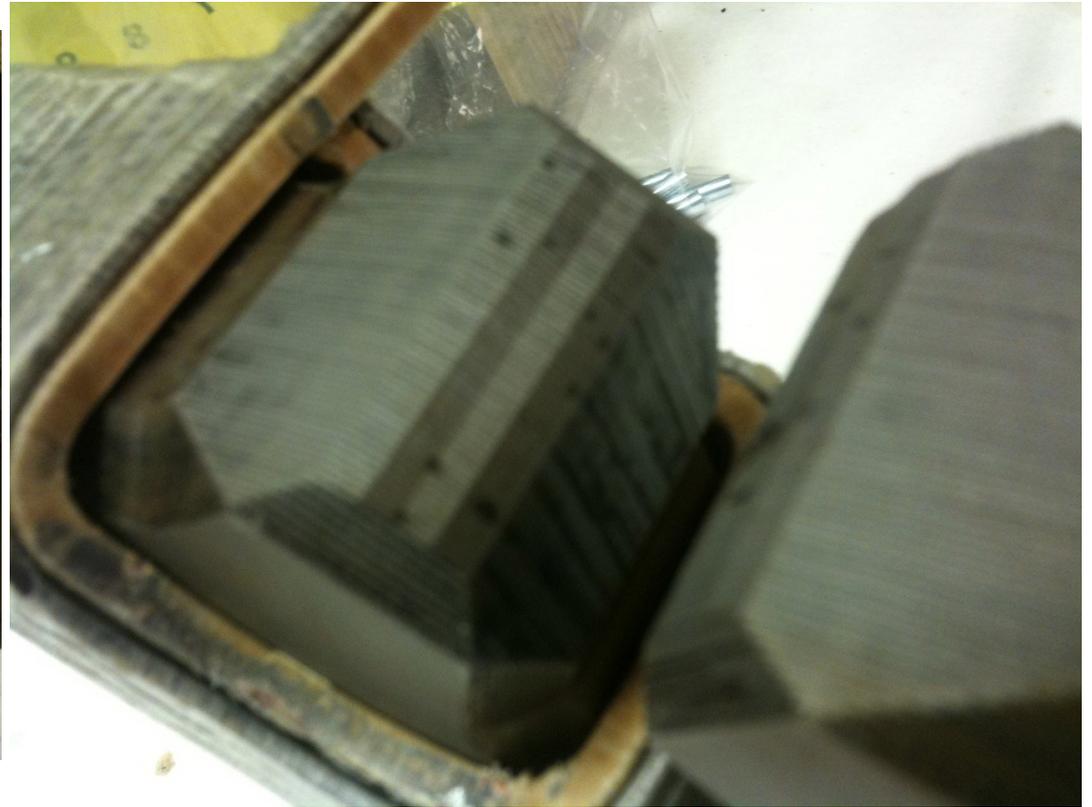
Indent for
flange to
save 1 cm.



社外秘



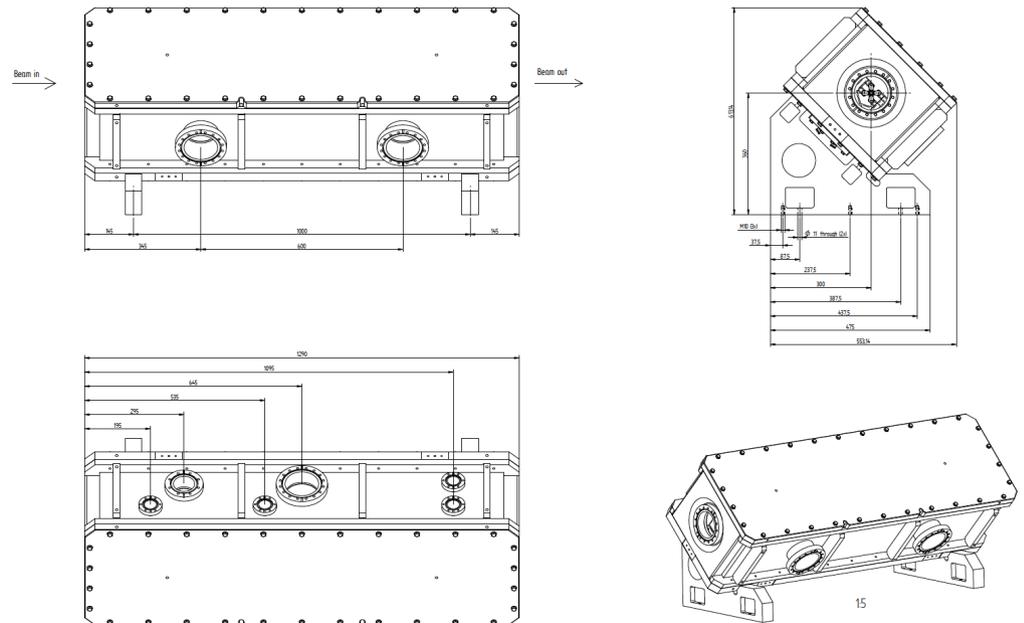
BNL MEBT Quads



$\frac{1}{2}$ windings are hollow for cooling.
The other $\frac{1}{2}$ are solid.
Gradient is still 60T/m max.
Not installed yet in the MEBT.

RFQ Status

- Schempp
 - Has corrected energy to 750keV
 - Still waiting for particle distribution and output files.
 - Drawings have been sent
 - Tank has been made. See pictures.
- PA assembly
 - Waiting for new engineer, coming on 01/01/11



RFQ tank waiting to be Cu plated



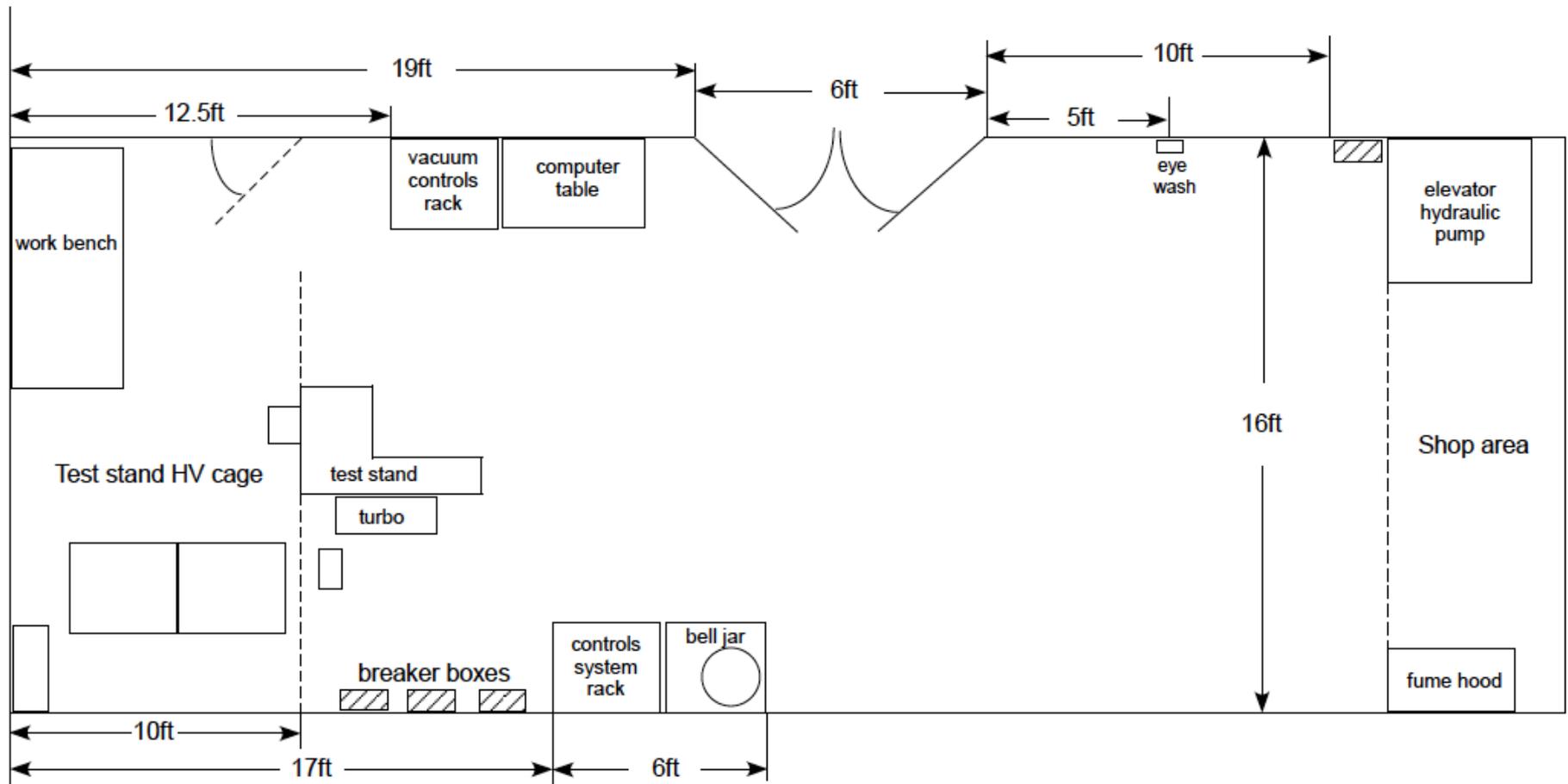
“Grooves” are an artifact of compression. Not there in real life.



Test Stand

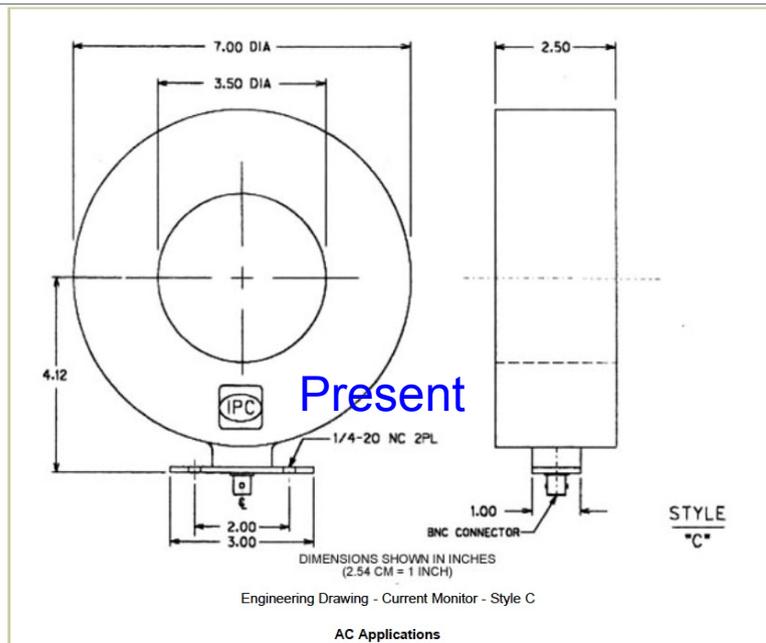
- Room has been cleaned up.
 - Beam line layout in progress
 - Water – Bob Slazak
 - Electrical – Jim Ranson
- Need to test LEBT before RFQ connection
 - Wires, toroids at the end of the LEBT, same position as the RFQ.
- Design diagnostic line.
- Are drawings from Schempp sufficient to build table?

Test Area



Instrumentation

- Toroids clamp on
 - 1.5" over 3" flange toroids (7810)



AC Applications

Model Number	Output Sensitivity Volts/Amp	Hole Dia. inch	Max. Peak Current kA	Max. RMS Current A	Low Frequency 3 dB Point Hz	High Frequency 3 dB Point MHz	Saturation Peak A/Hz As
CM-100-C	1	3.5	0.5	30	30	20	0.08

Model Number	Output Sensitivity Volts/ Amp	Hole Diameter inch	Max. Peak Current kA	Droop %/ms	Usable Risetime Nano-seconds	Saturation No Bias jdt As	Saturation With Bias jdt As
CM-100-C	1	3.5	0.5	20	17.5	0.008	0.025

- sensitivity 0.1V/A. c.f. 1V/A
- Rise time 50ns (same as non clamp on, 2x slower than present)

– Length 1.25"

- 6" toroids (7655)

– 0.1V/A

– Rise time 100 ns.

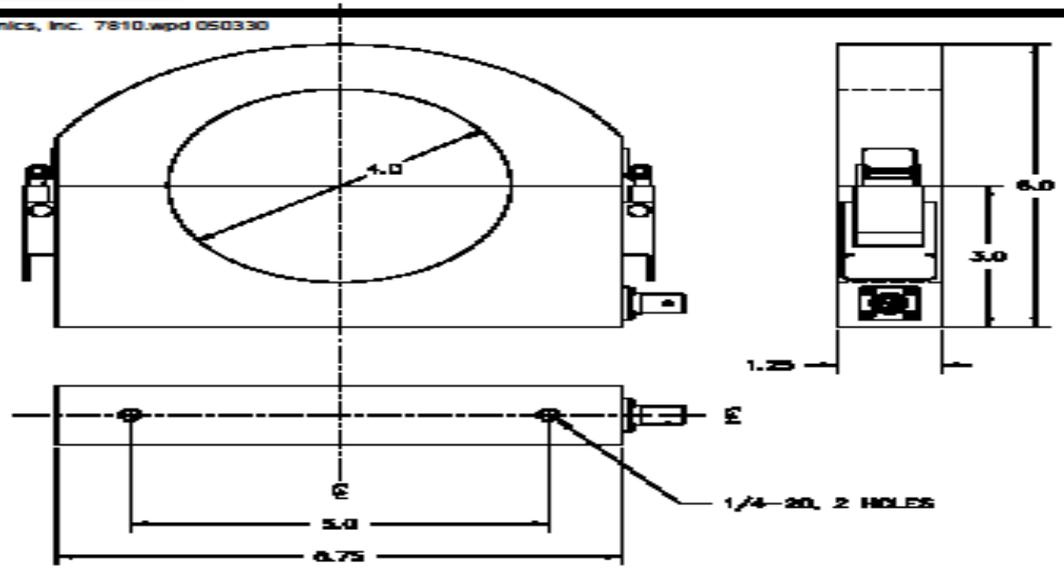
– Length 1.5" (2.5x or 3x shorter than non clamp on)

PEARSON™ CLAMP-ON CURRENT MONITOR MODEL 7810



sensitivity	0.1 Volt/Ampere ±1%
Output resistance	50 Ohms
Maximum peak current	5,000 Amperes
Maximum rms current	150 Amperes
Drop rate	7 %/millisecond
Useable rise time	50 nanoseconds
Current time product	0.4 Ampere-second maximum
Low frequency 3dB point	10 Hz (typical)
High frequency 3dB point	7.0 MHz (typical)
I/f figure	2.0 rms Amperes/Hz
Output connector	BNC (UG-290 A/U)
Operating temperature	0 to 85°C
Weight	6 pounds

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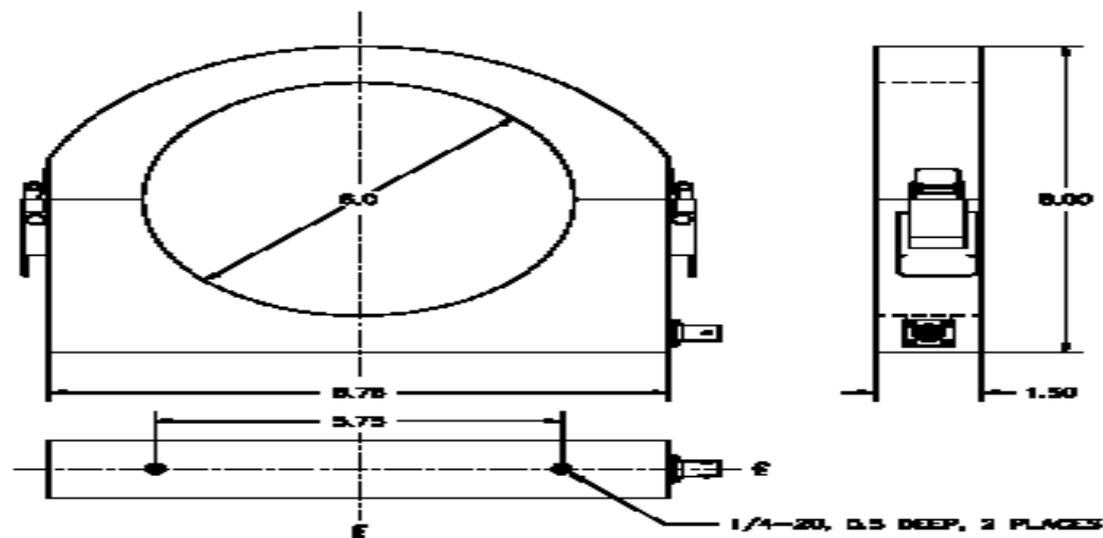


PEARSON™ CURRENT MONITOR MODEL 7655



Sensitivity	0.1 Volt/Ampere +1%
Output resistance	50 Ohms
Maximum peak current	5,000 Amperes
Maximum rms current	175 Amperes
Droop rate	7 %/millisecond
Useable rise time	100 nanoseconds
Current time product	0.4 Ampere-second maximum
Low frequency 3dB point	10 Hz (typical)
High frequency 3dB point	4.0 MHz (typical)
I/f figure	2.0 rms Amperes/Hz
Output connector	BNC
Operating temperature	0 to 65 °C
Weight	5.5 pounds

© 2005 Pearson Electronics, Inc. 7655.wpd 050330



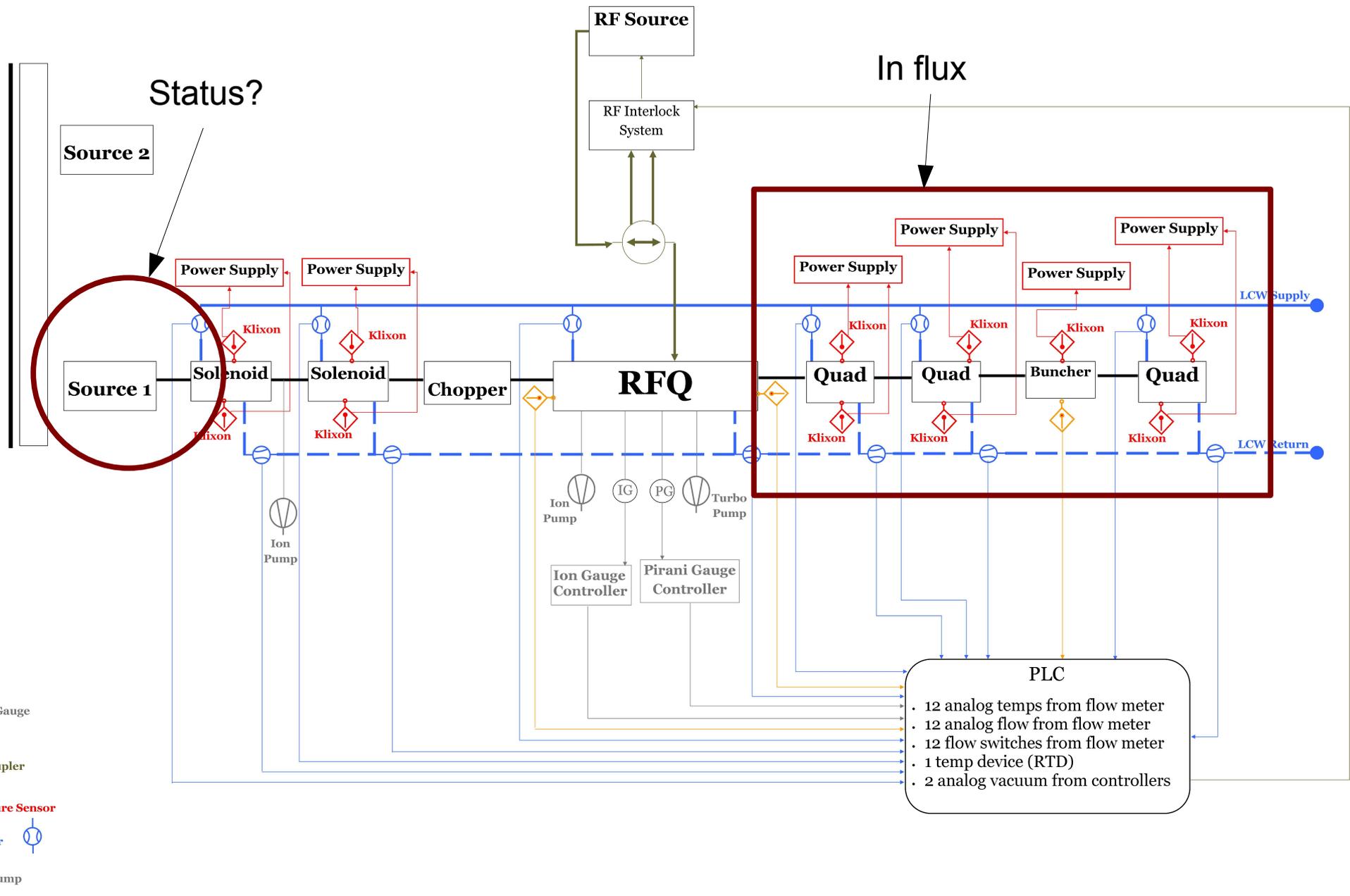
Some of Vic's conclusions last week

- Persion CTs
 - 3100, 2854, 8583, 7810, 7655 have been used at FNAL
 - ~ 6 to 8 weeks
 - ~\$15K with stand, ceramic, etc
 - ~\$20K with VME readout electronics

Safety

- When can the beam line layout in test area be done?

Controls



RFQ reminders

- Schempp is vendor
 - Make sure that the vanes are cleaned! See ISIS email.
 - Some cleaning details supplied by ISIS.
 - Review and verify on site mechanical design and construction (already in contract).