



Status of the Absorber and Focus Coil Procurement

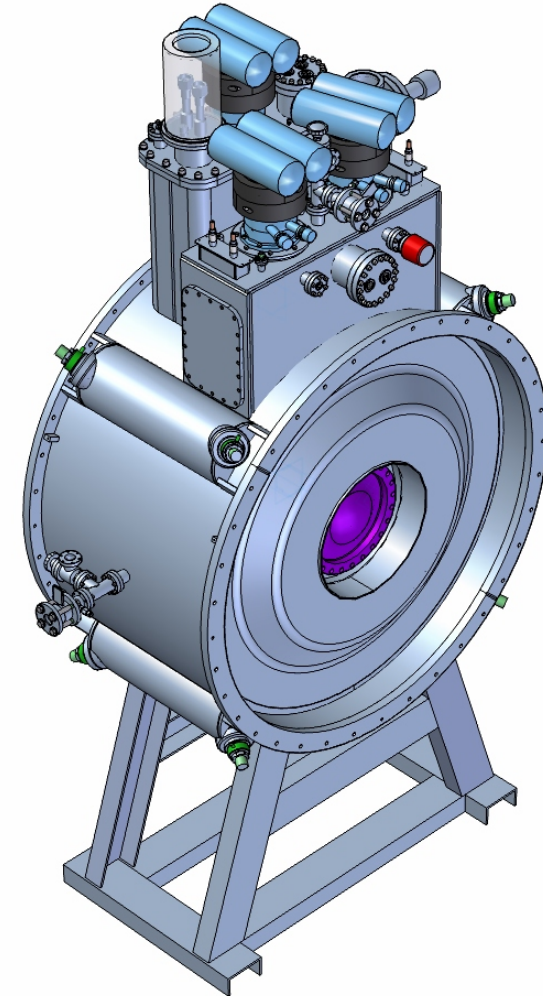
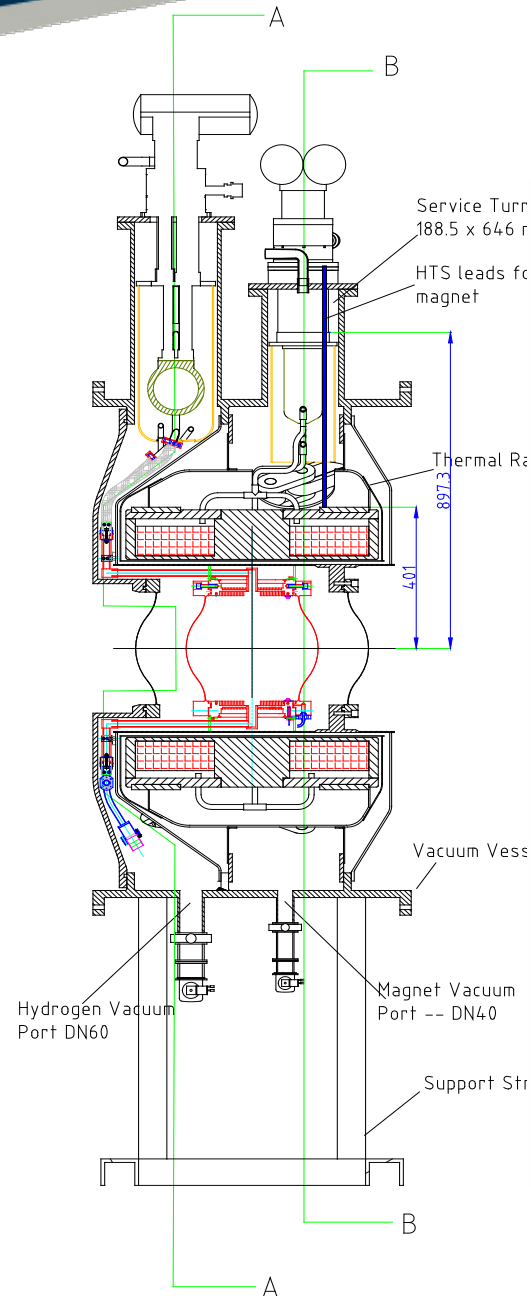
MICE Collaboration Meeting 8th February 2012

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Matt Hills	



Talk will cover

- Recent progress at TESLA
- Configuration
- Schedule



- OVC Machining complete – OVC back at Tesla
- Most of the sub assemblies complete
- Vast majority of the welding complete

Issues

Vacuum brazing firm – causing problems

Delivery of heater – late delivery (being chased)

Sorting out surveying mounts

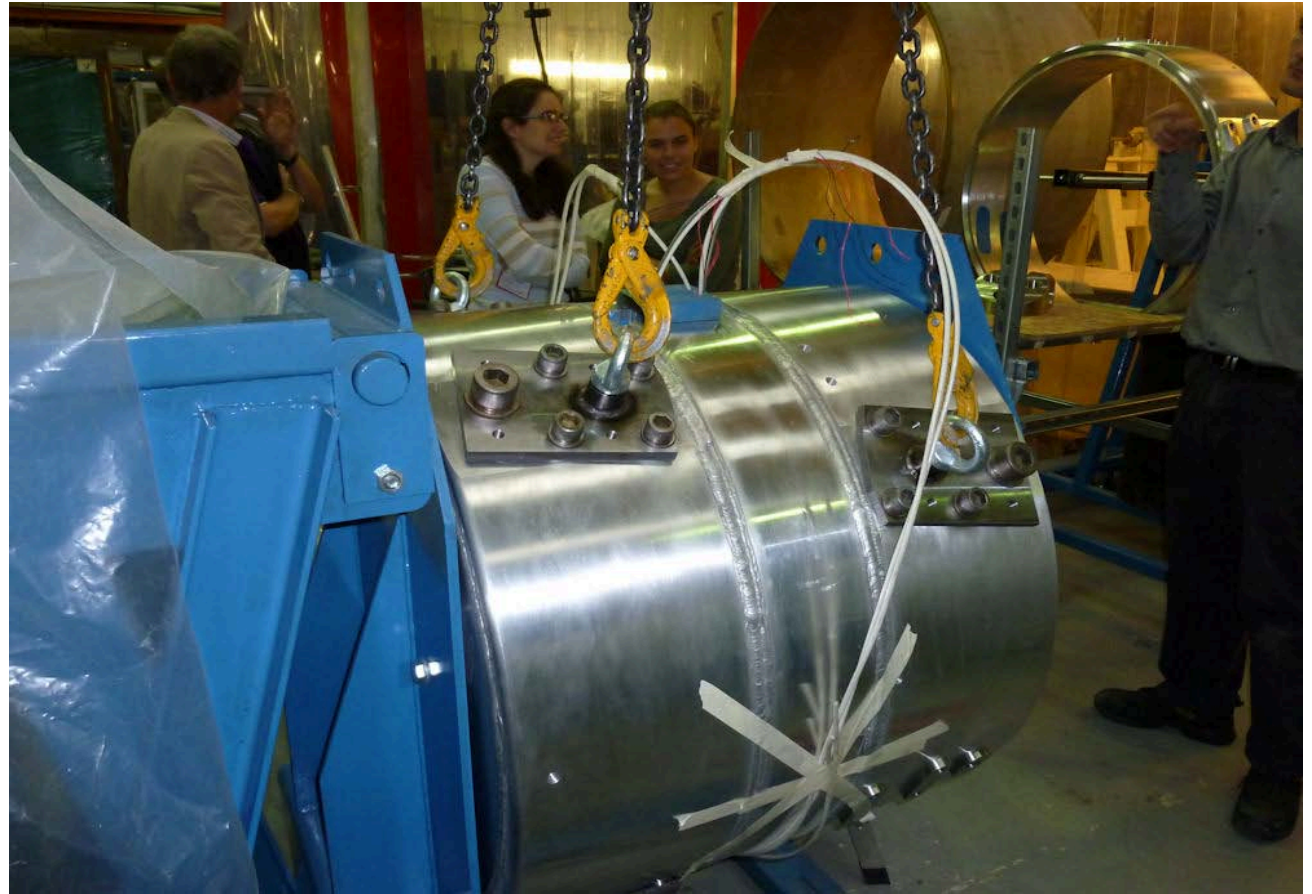
Preparing for delivery and CERN field mapping

Components for second module being sourced at the same time so this will de-risk second build



Preparation of the second module for potting, potting completed – conductor mounts are in place and assembly is progressing

Cold mass for
module #2 on
handling frame





Machining of OVC had to be contracted out because of problem with Tesla Large milling machine – unfortunately has caused delays but quality looks good

Several meetings between controls group and Tesla

Monitoring system should be available end February for use during installation of wiring

Instrumentation and services list is on version 10 (at least...)

- Cryocooler #1 back at Cryomech – they have confirmed the poor performance of the unit.
- Waiting for a response from them – other units are not so hot ...



	Cryomech New Performance Data Sheet	Customer Test # 1	Customer Test # 2	Return Tested As Is
Min Temp.	36.8 / 2.8	36.8 / 2.9	35.2 / 2.6	38.6 / 2.4
Heat Load	45W @ 45K / 1.5W @ 4.2K	40W @ 50K / 1.5W @ 4.4K	40W @ 49K / 1.5W @ 4.4K	35W @ 45K / 1.5W @ 4.2K

Parameter	Configuration	
	<i>TRD</i>	<i>As-made</i>
Inner Coil Radius (<i>mm</i>)	263	267.6
Coil thickness (<i>mm</i>)	84	94.3
Coil length (<i>mm</i>)	210	213.3
Longitudinal distance between coils (<i>mm</i>)	200	192.1
Number of layers per coil	76	84
Number of turns per layer	127	Average 134
Average current density at maximum current* (<i>Amm⁻²</i>)	113.95	104.75
Average current density at maximum current** (<i>Amm⁻²</i>)	138.2	125.8
Magnet maximum current (<i>A</i>)	250.7	224.8
Estimated magnet self-inductance (<i>H</i>)	65.7	80.3
Estimated magnet stored energy (<i>MJ</i>)**	1.79	2.03
Peak Magnetic Induction in coil (<i>T</i>)**	7.49	7.52
Estimated force between magnet coils (<i>MN</i>)**	3.45	3.74
Estimated radial force (<i>MN</i>)**	8.87 (VB-8.30)	8.05

* 200MeV/c flip mode

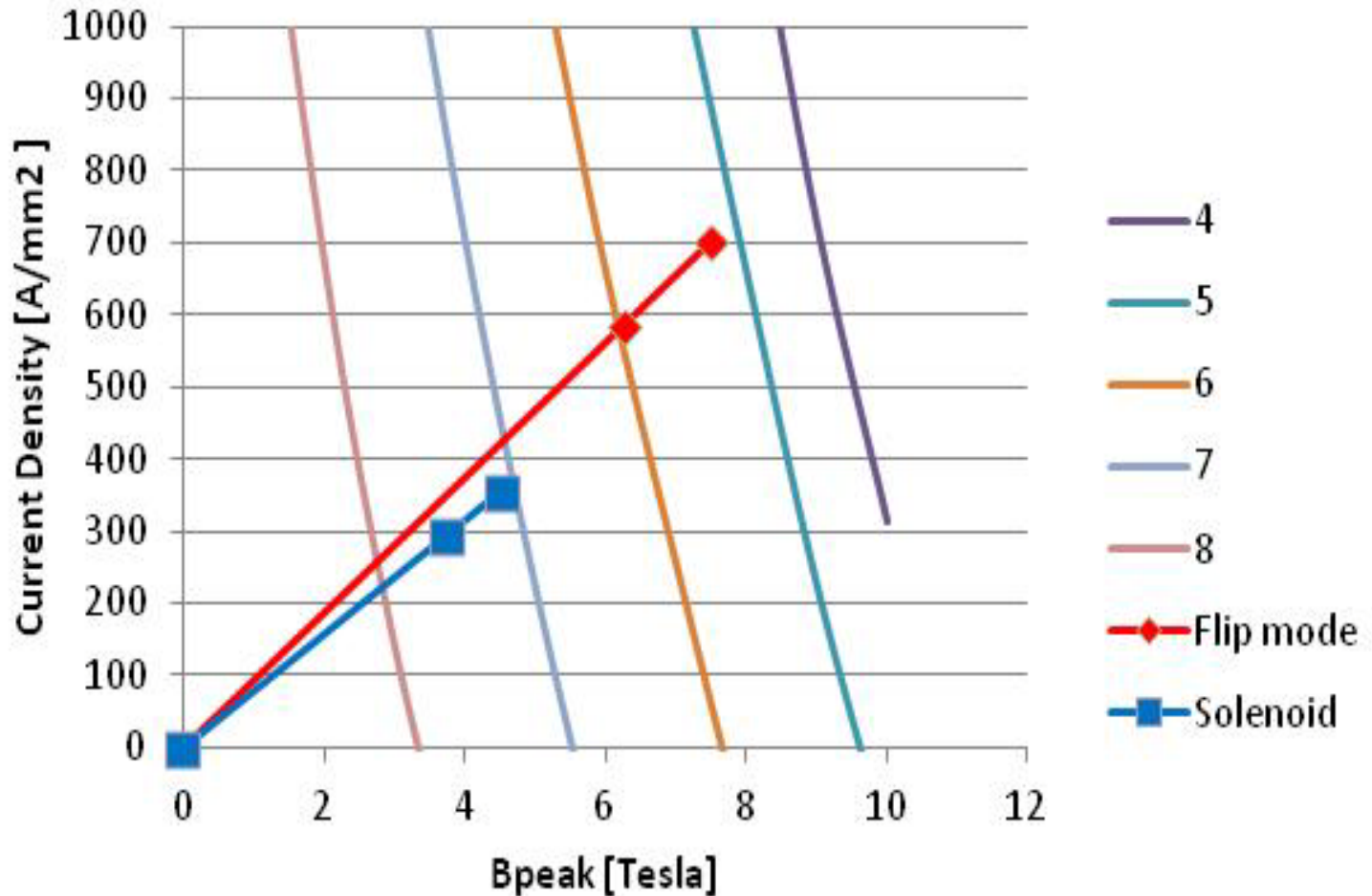
** 240MeV/c flip mode

Performed a cross check on the build, currents required, fields, forces, inductances etc.....

Operating points

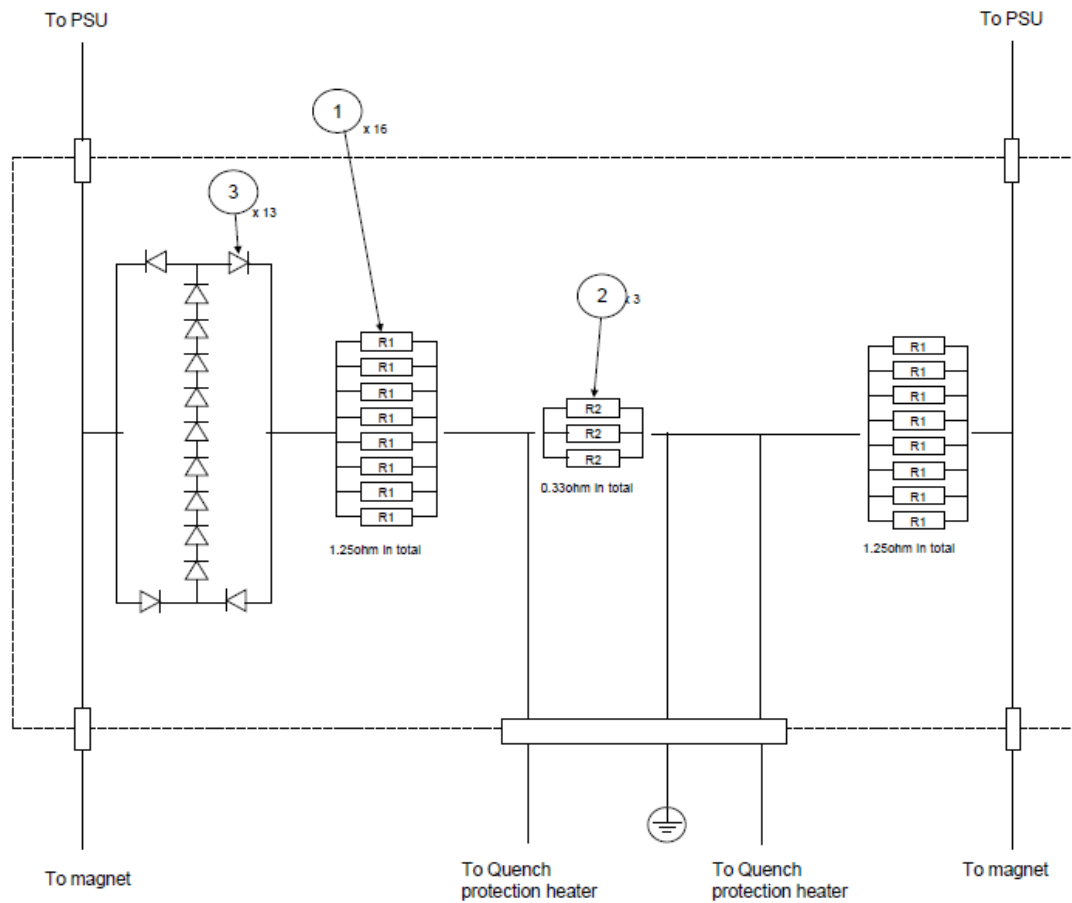
	Flip mode		Solenoid mode	
	200 MeV/c	240 MeV/c	200 MeV/c	240 MeV/c
Current	187.14	224.75	94.15	113.09
Current density NbTi	584.82	702.35	294.23	353.41
Current density coil	104.75	125.80	52.70	63.30
Bz max	3.090	3.711	2.598	3.121
Bpeak conductor	6.264	7.523	3.763	4.520

Points are 200 and 240 MeV/c cases



The estimated coil operating temperature is 4.7K

Preparing a MICE note on the As-Built configuration.....



Parts list

Item No.	Item	Spec	Supplier P/N	Supplier	Qty
1	R1	10R, 1500W	701-5826	RS	16
2	R2	1R, 1000W	701-5787	RS	3
3	Diode	SKR240I04 240A	656-524	RS	13
4					
5					
Total					

Power supply specified and is on order (x2)

Module/Activity	Due Date
AFC1 at RAL	End March
Absorber integration and test	+3mths elapsed
AFC2 at RAL	June 2012 – date is holding
Absorber integration and test	<3mths

Gantt charts are available ..
Retired most of the schedule risks and delays



END

