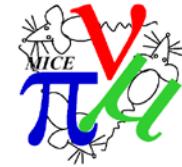




L-H₂ Absorber



IPAC10 in Kyoto, May, 2010

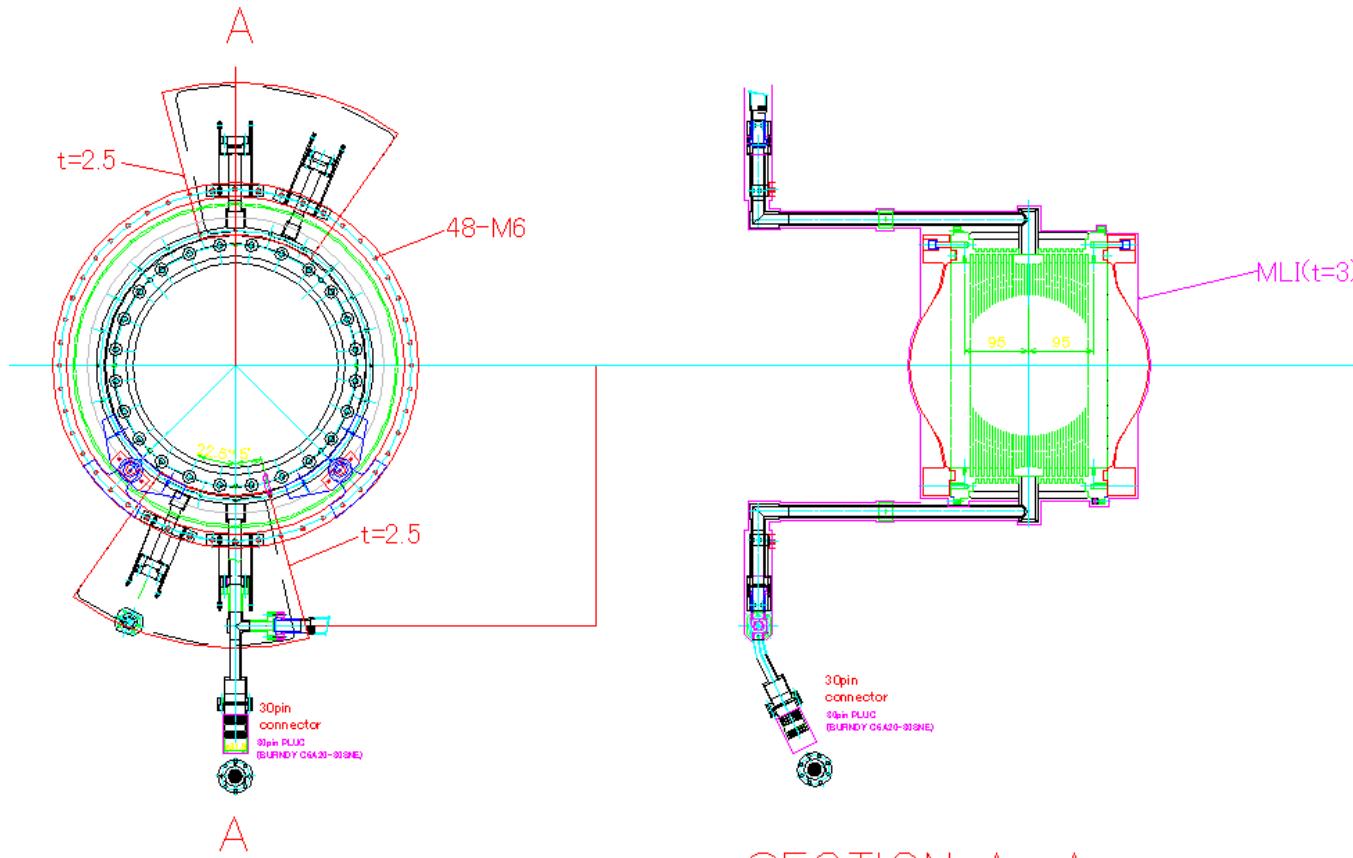
Shigeru Ishimoto KEK

MICE CM27 at RAL, Jul-08, 2010

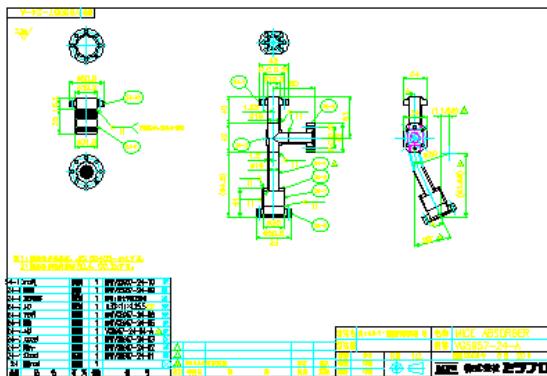
Contents

- (1) Interface with AFC module
- (2) Absorber #1 test & results at KEK
- (3) Absorber cabling and connection
- (4) Absorber #2 assemble
- (5) Summary and plans

KEK ABSORBER with New 30pin + H₂ IN Pipe

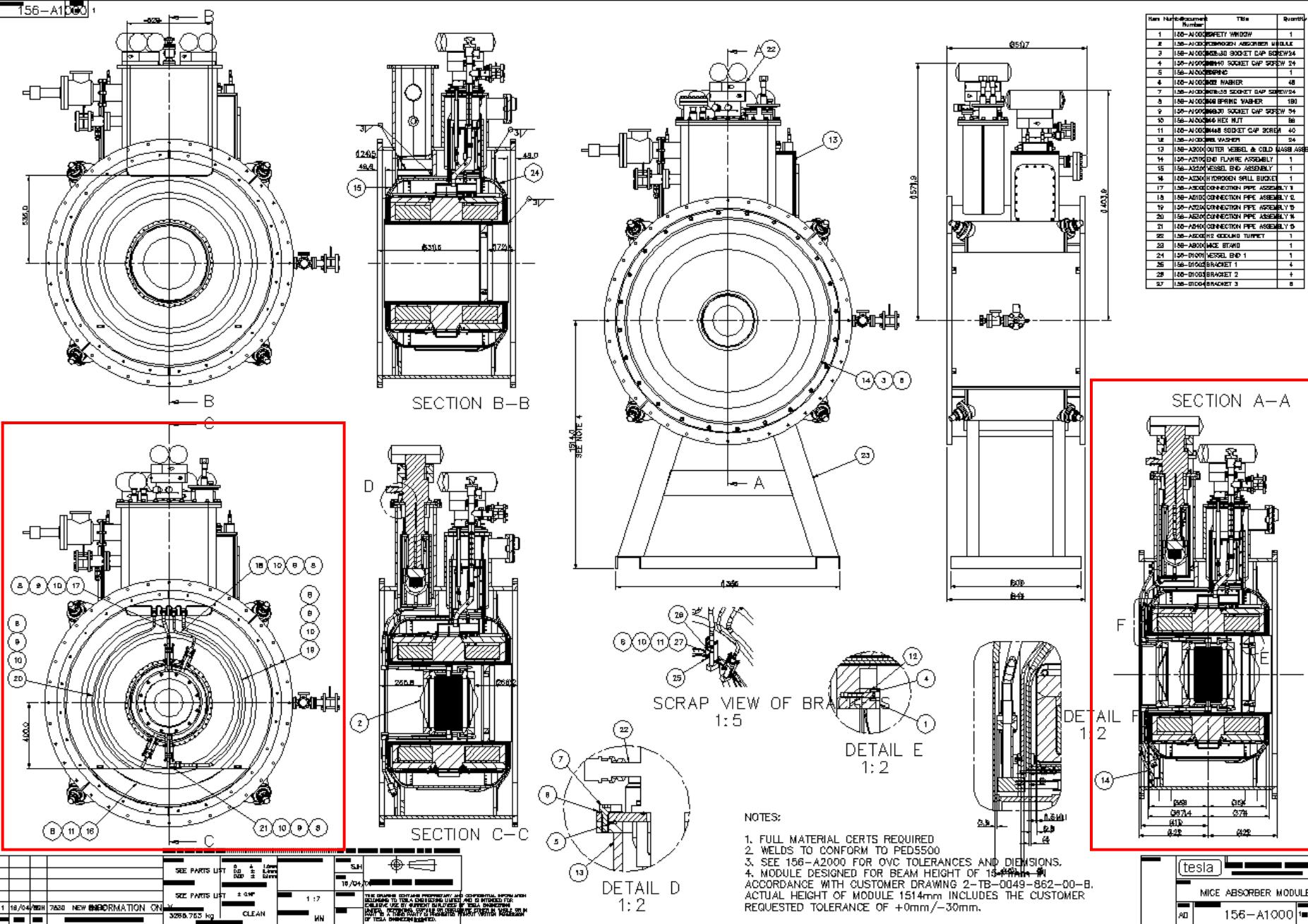


SECTION A-A



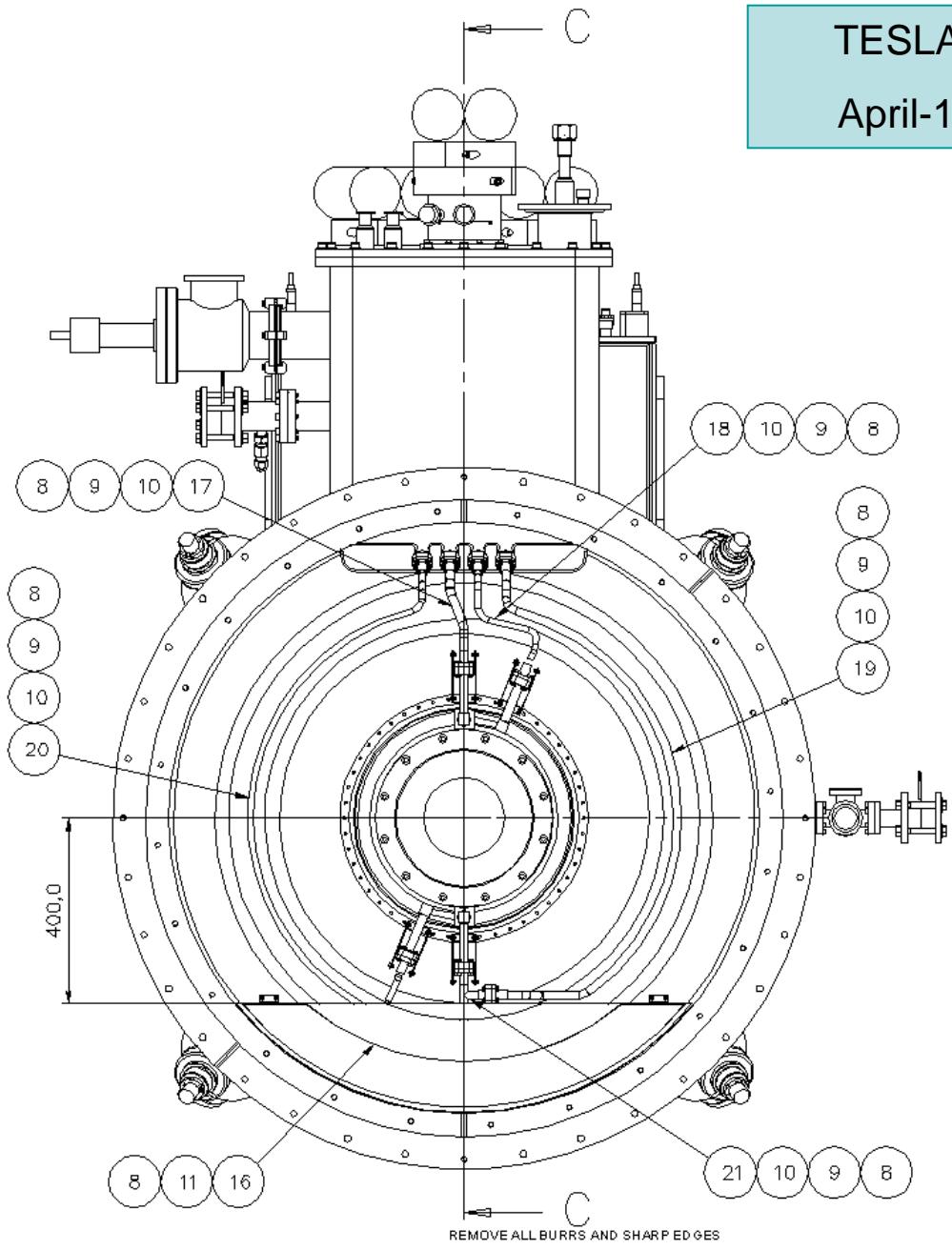
New 30pin + H₂ IN Pipe

TESLA DRAW April-14, 2010

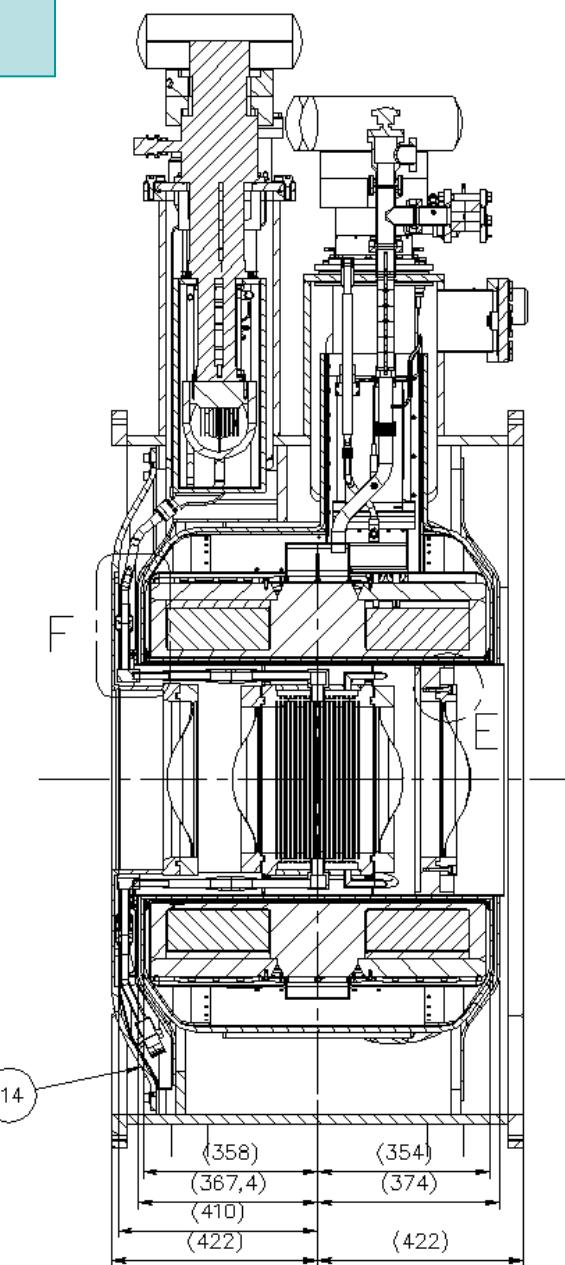


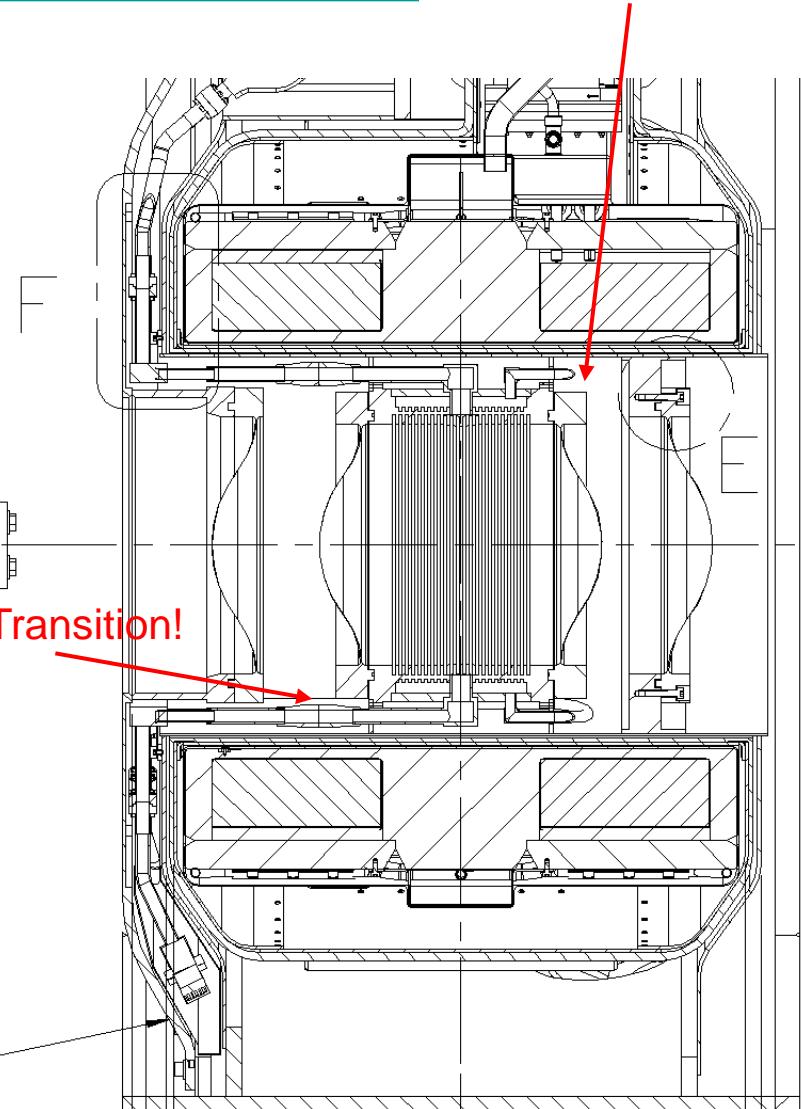
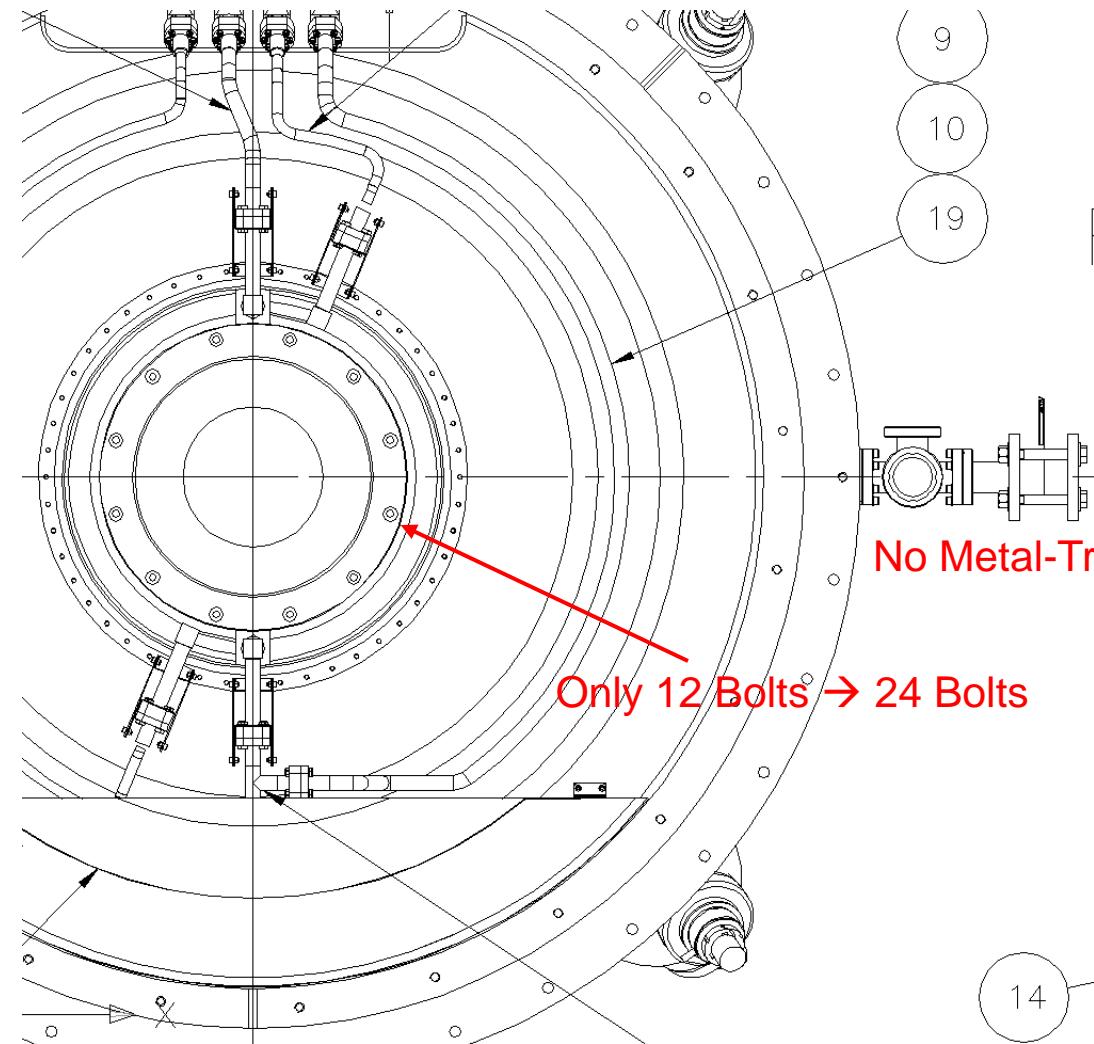
TESLA DRAW

April-14, 2010



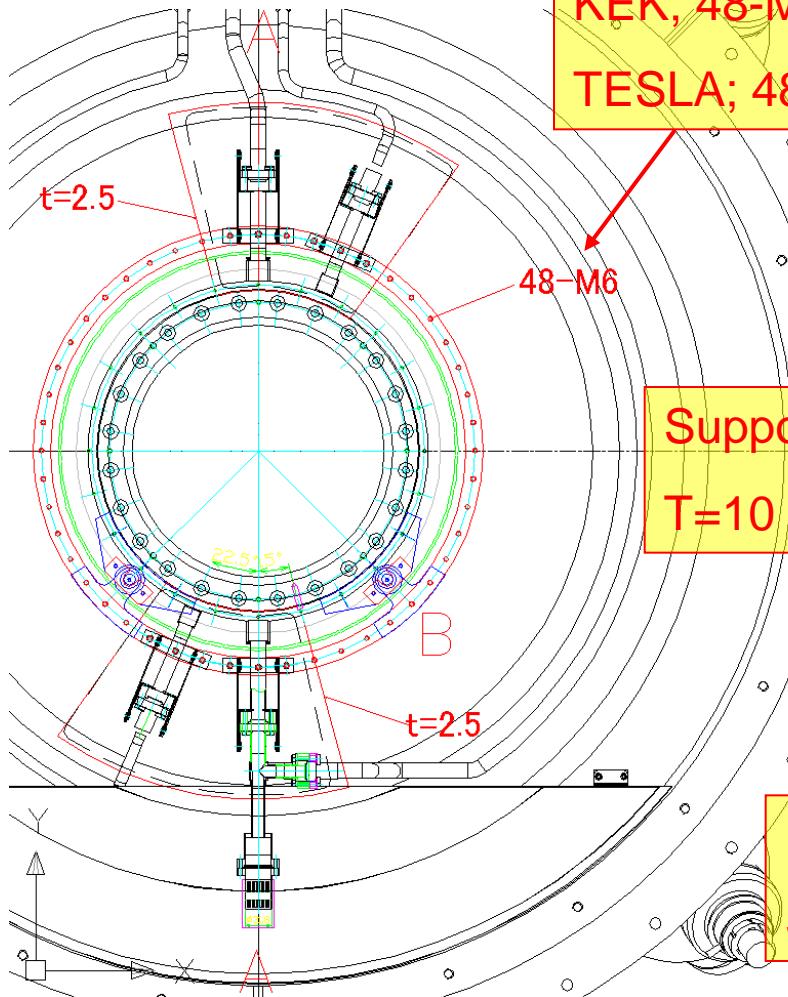
SECTION A-A





Absorber in this drawing is very old (~2006!).

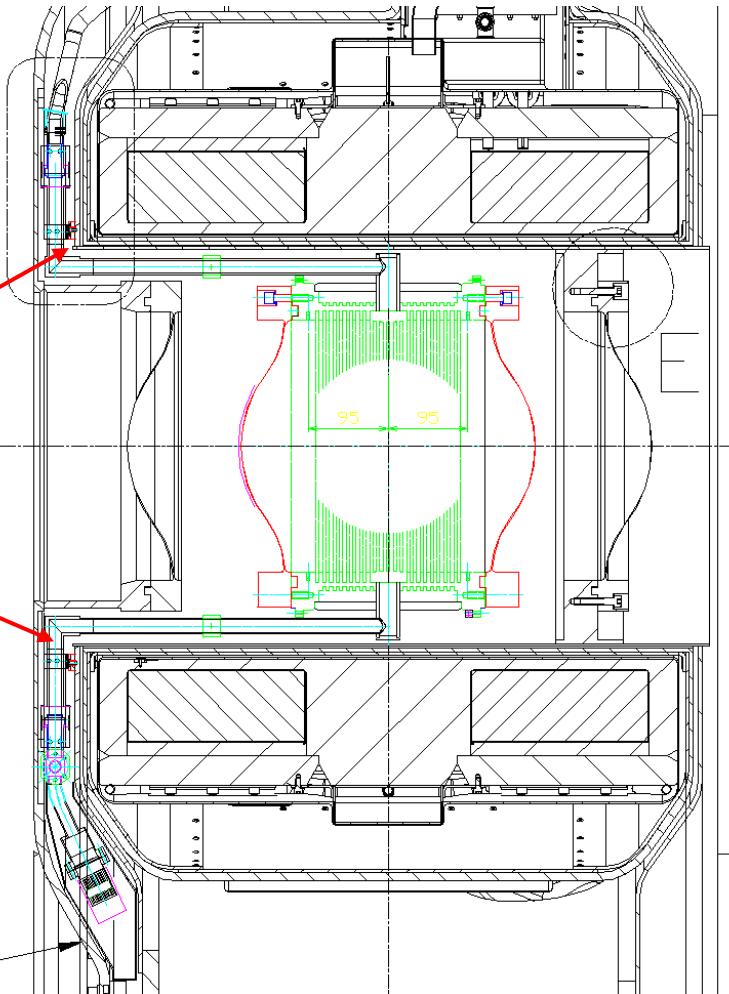
TESLA DRAWING + KEK ABSORBER



KEK; 48-M6
TESLA; 48-M4 : OK

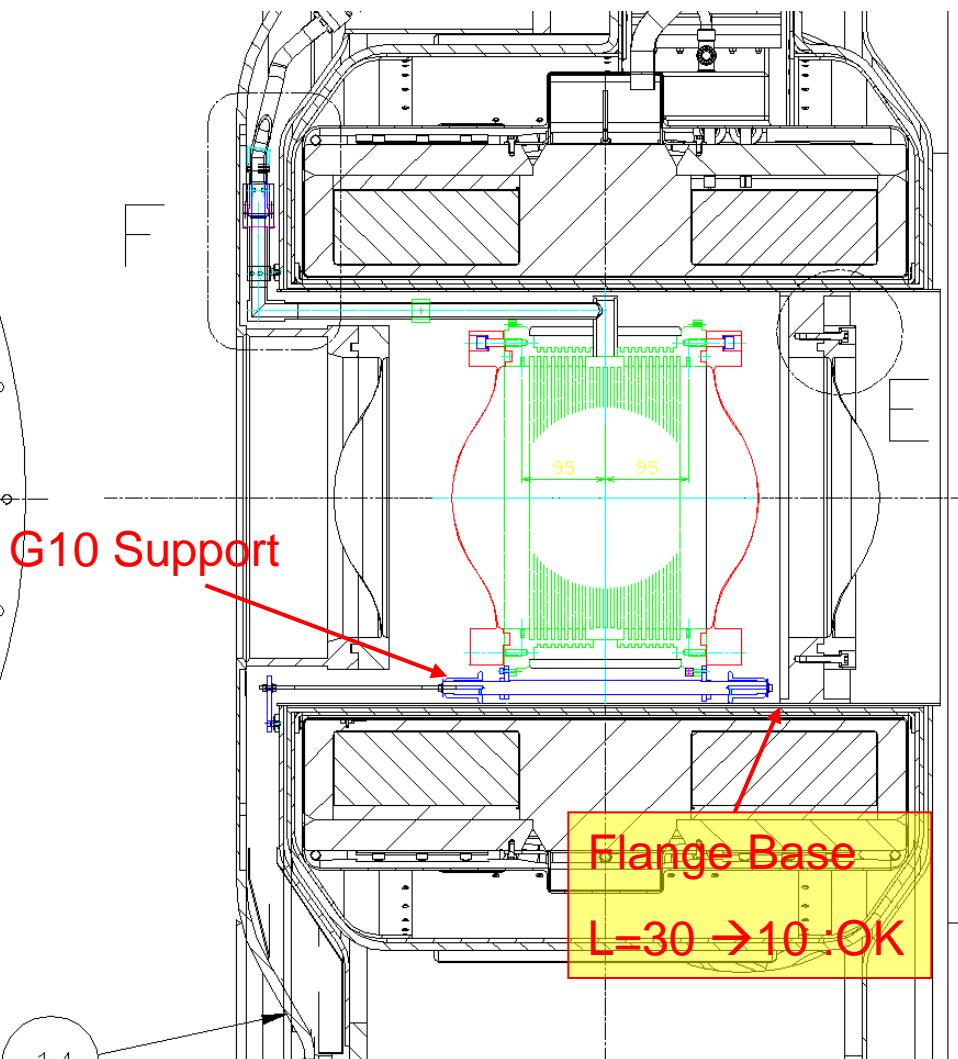
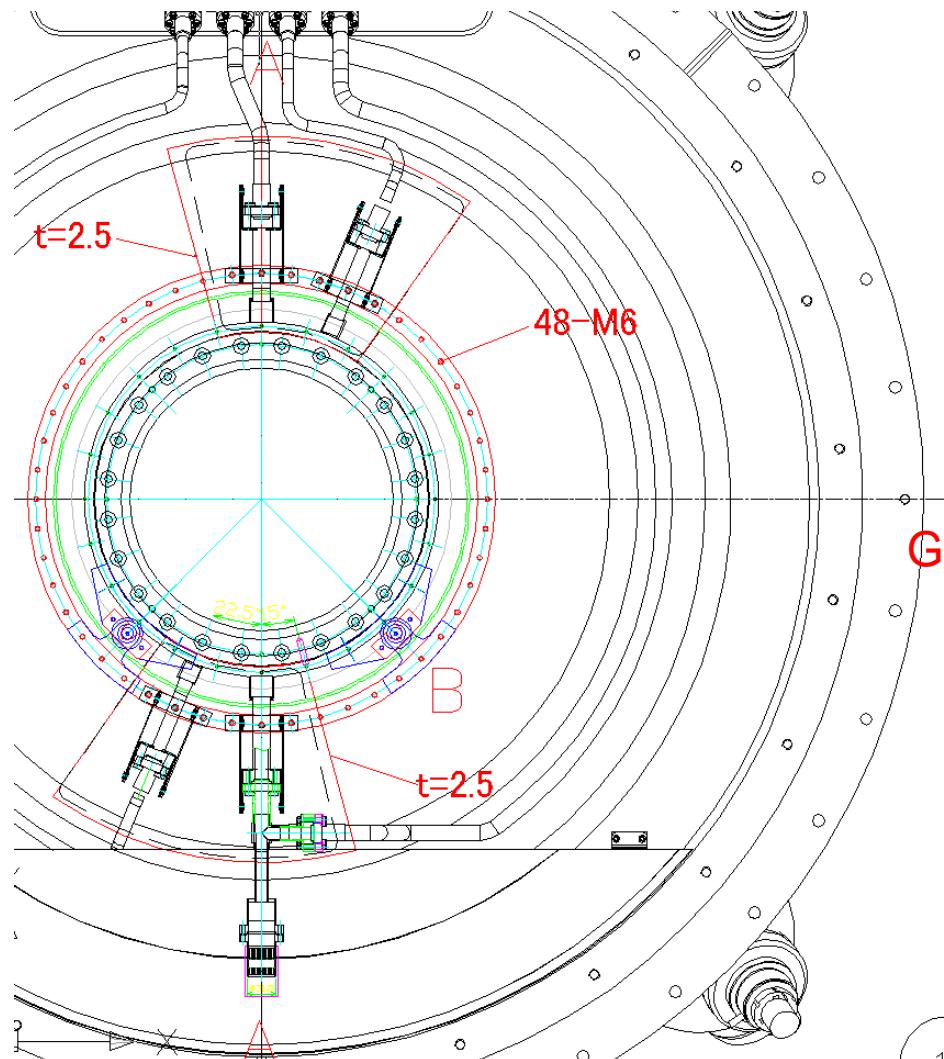
Support Flange
T=10 → 5 :OK

KEK 30pin
Short Tee: OK



SECTION A-A

TESLA DRAW + KEK ABSORBER



SECTION A-B

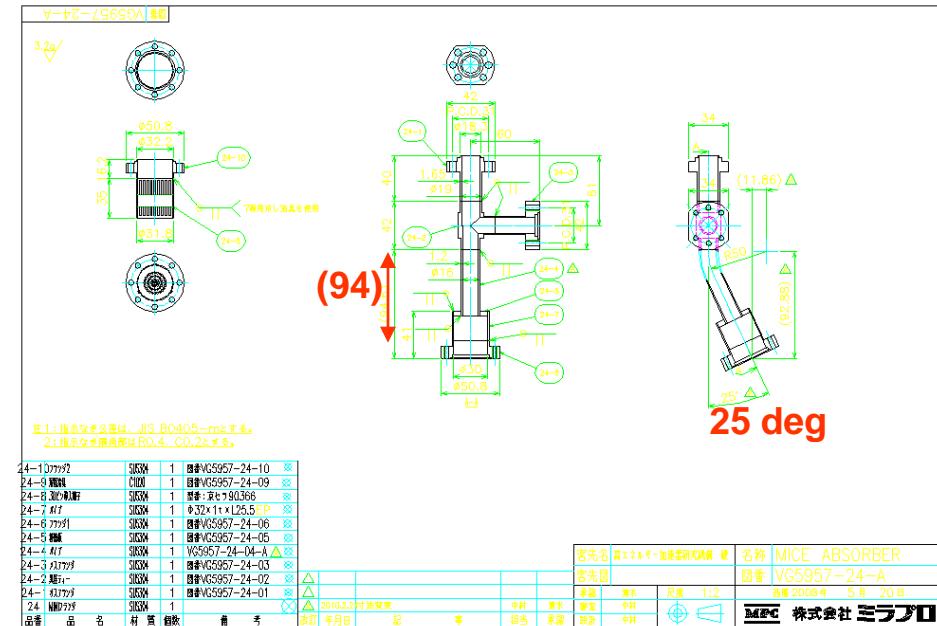
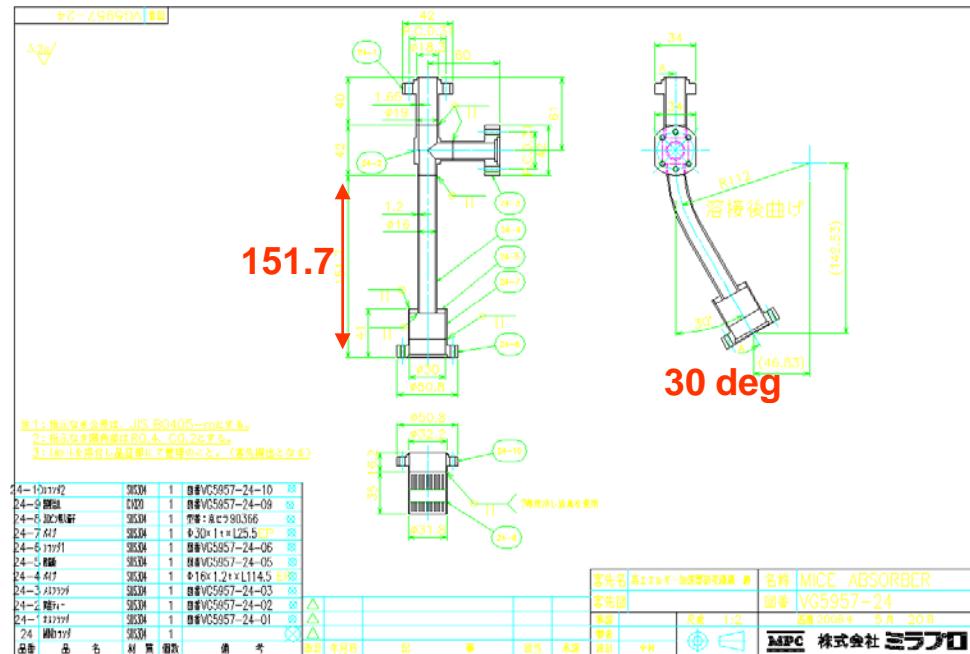
Modification of Tee with 30 Pin

May-20, 2008

Pipe Length
- 57.7 mm

Feb-20, 2010

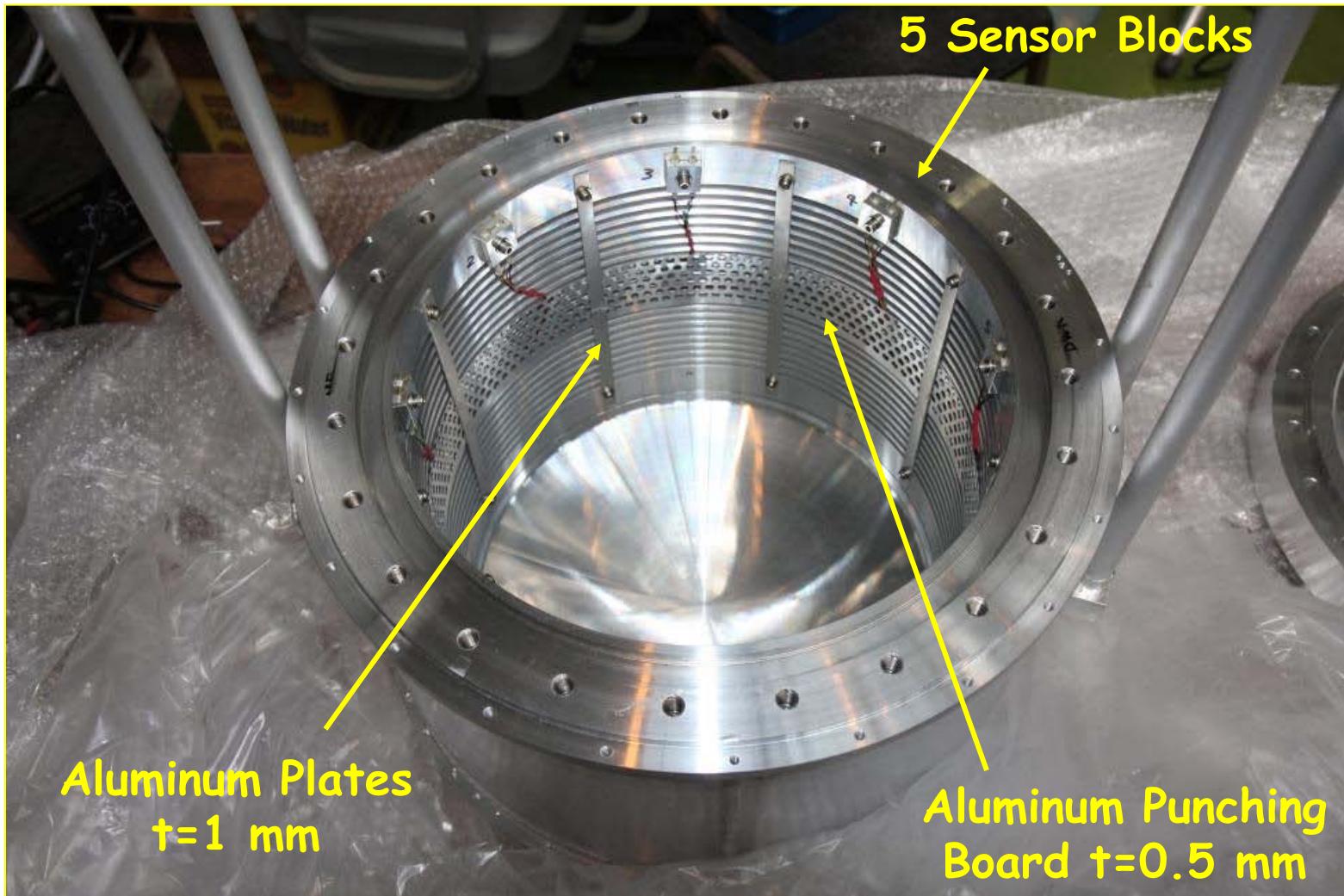
We will order after
Oxford/TESLA agreement
time limit is CM27



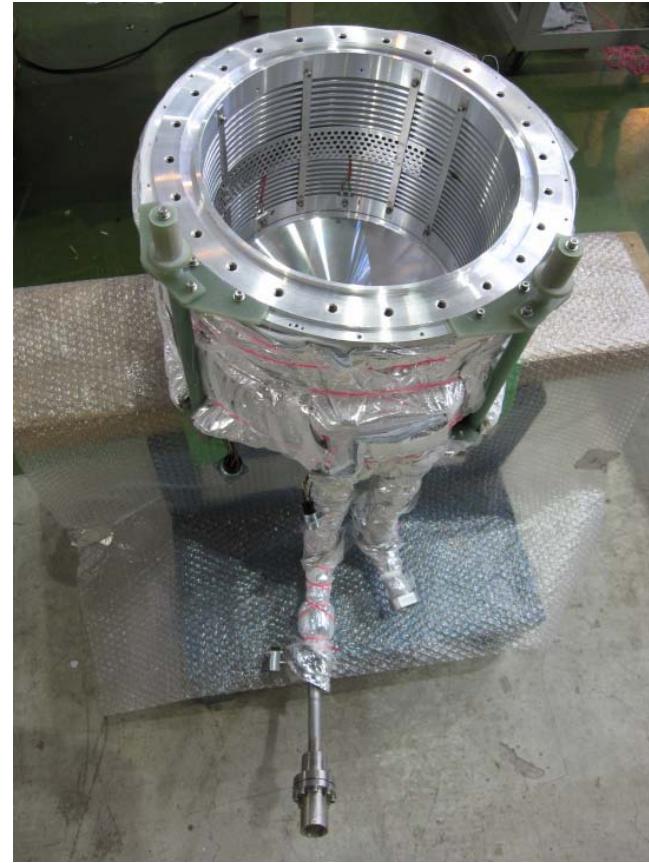
Absorber Test at KEK



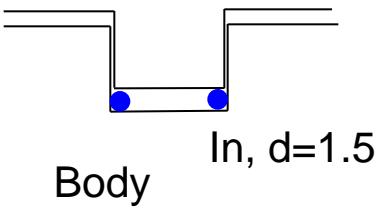
Absorber #1 Assemble



Cold Leak $\sim 1 \times 10^{-4}$ mbar at $\sim 100\text{K}$



Window



Cause; downstream window was imperfect Indium seal without spring washer (set at company).

Double Indium ($d=1.5\text{mm}$) seal + spring washer

Absorber#1 (G-10 insulator)



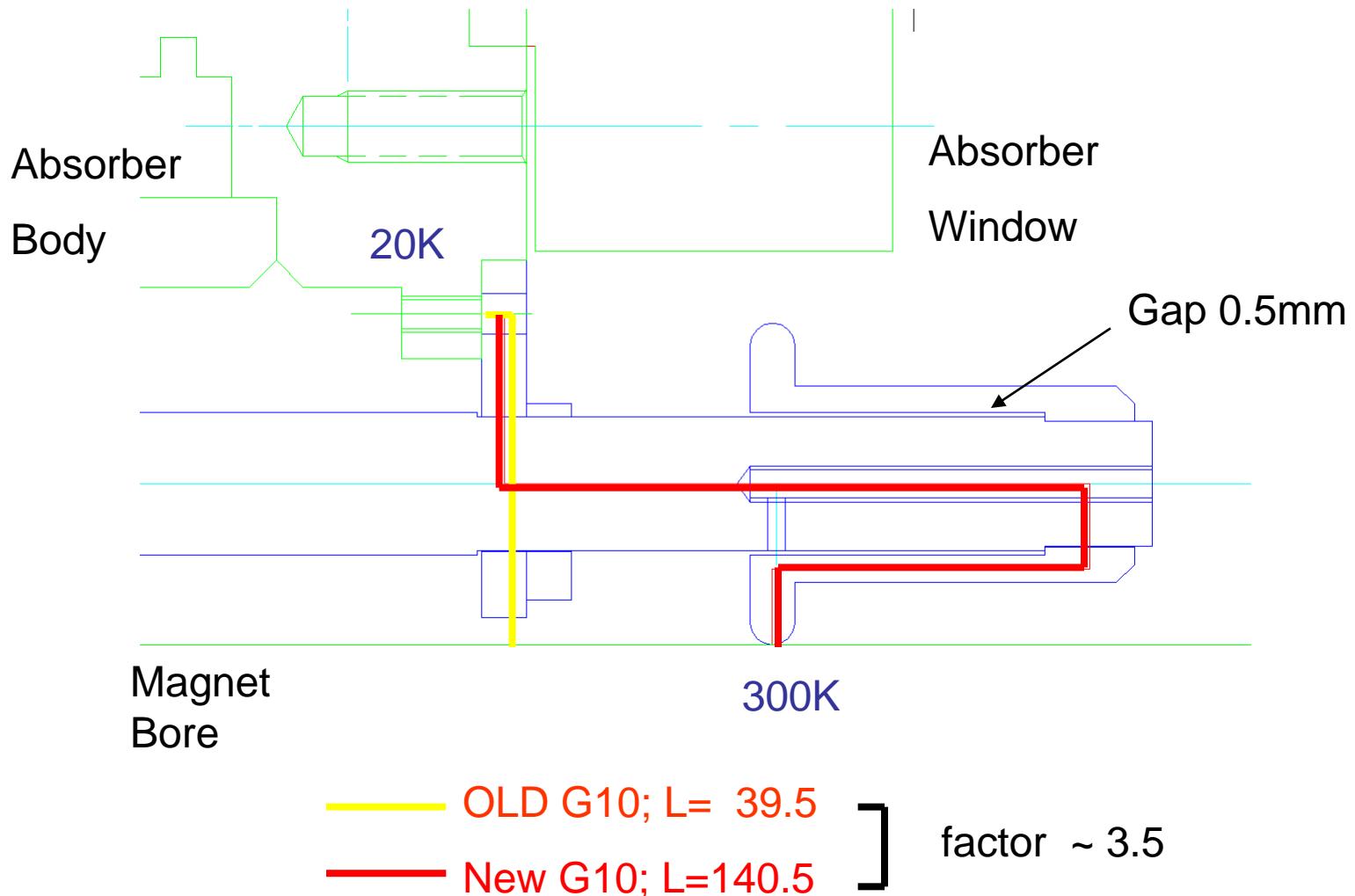


New G-10 Insulator
for Absorber Body

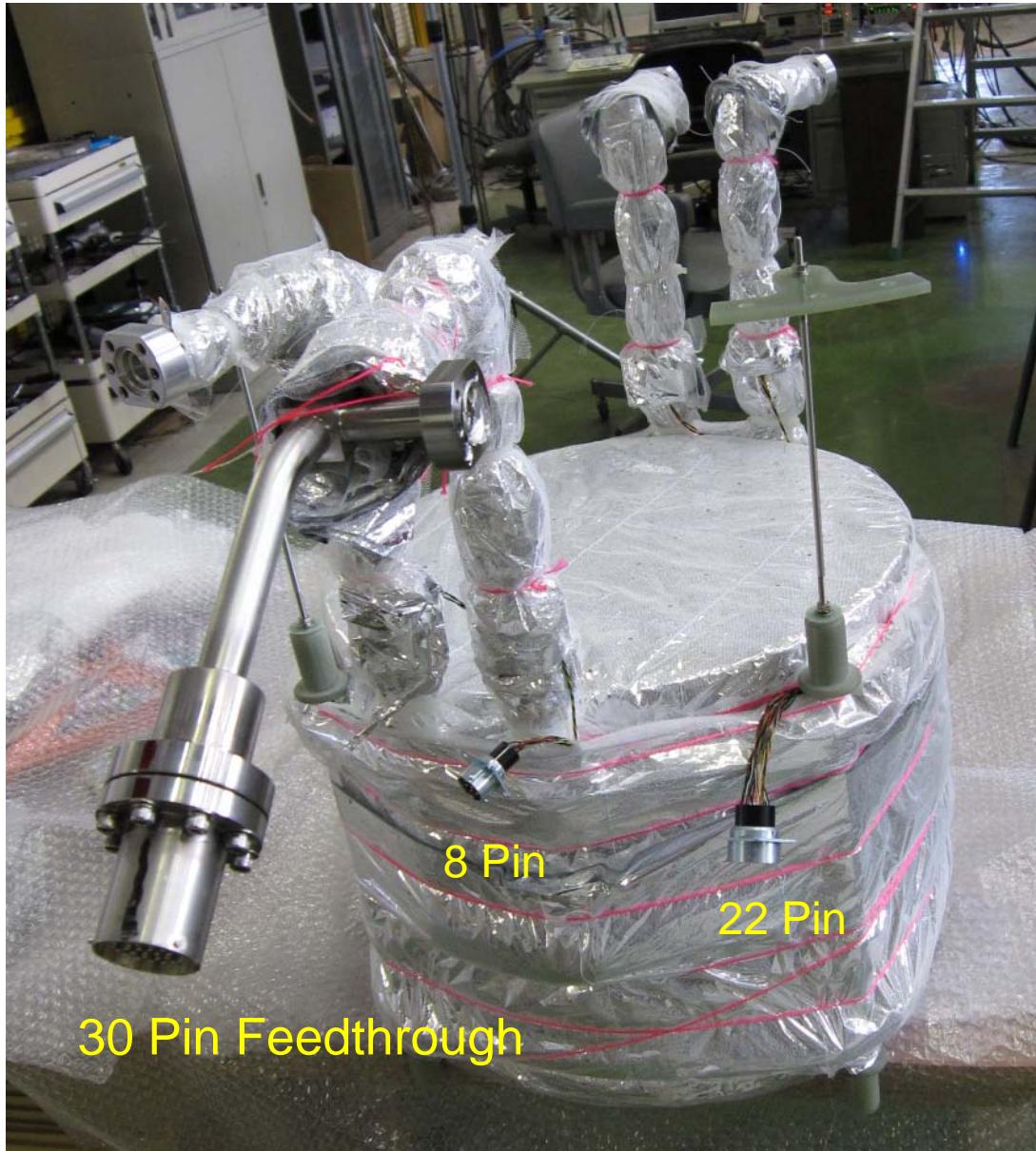
Multi Layer Insulator
(5 Aluminised Mylar
+ 6 Nylon Mesh)



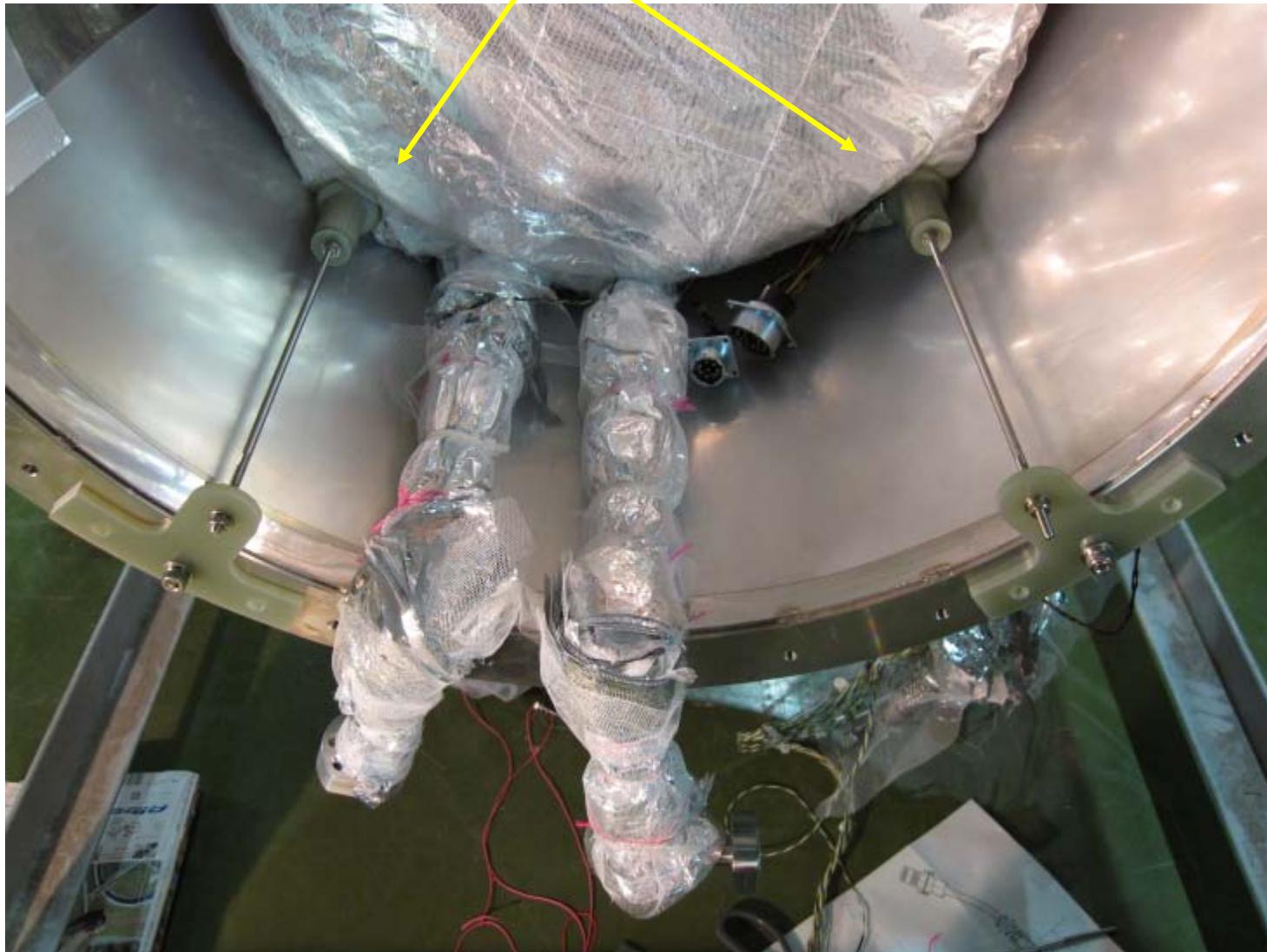
ABSORBER G10 SUPPORTS



Lead Wire Connection



New G-10 Insulator for Absorber Body

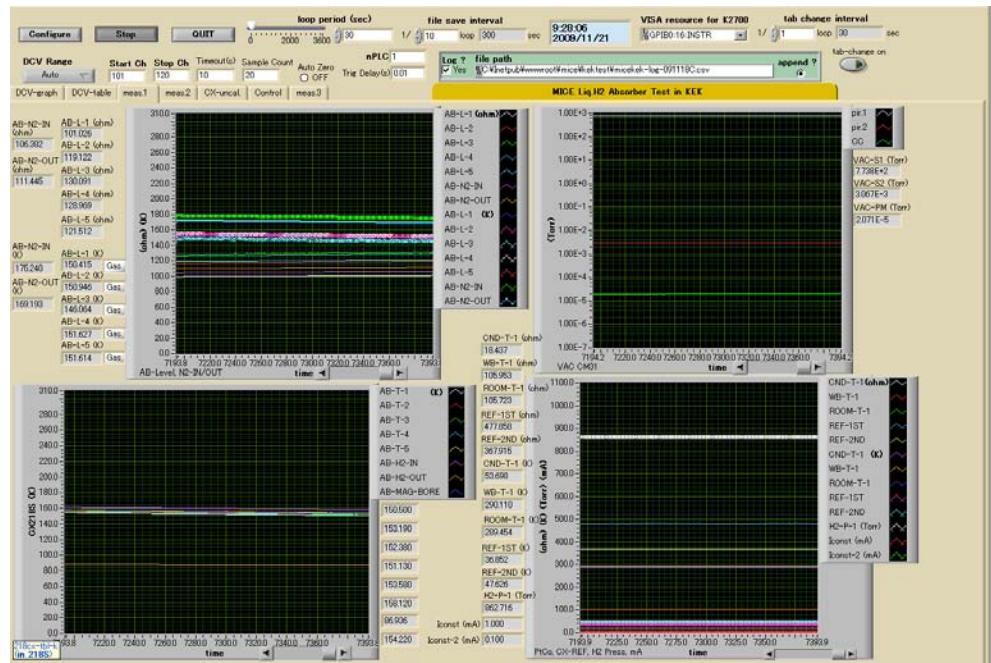


MICE Absorber Internet Monitor System

Programmed by

Shoji Suzuki KEK

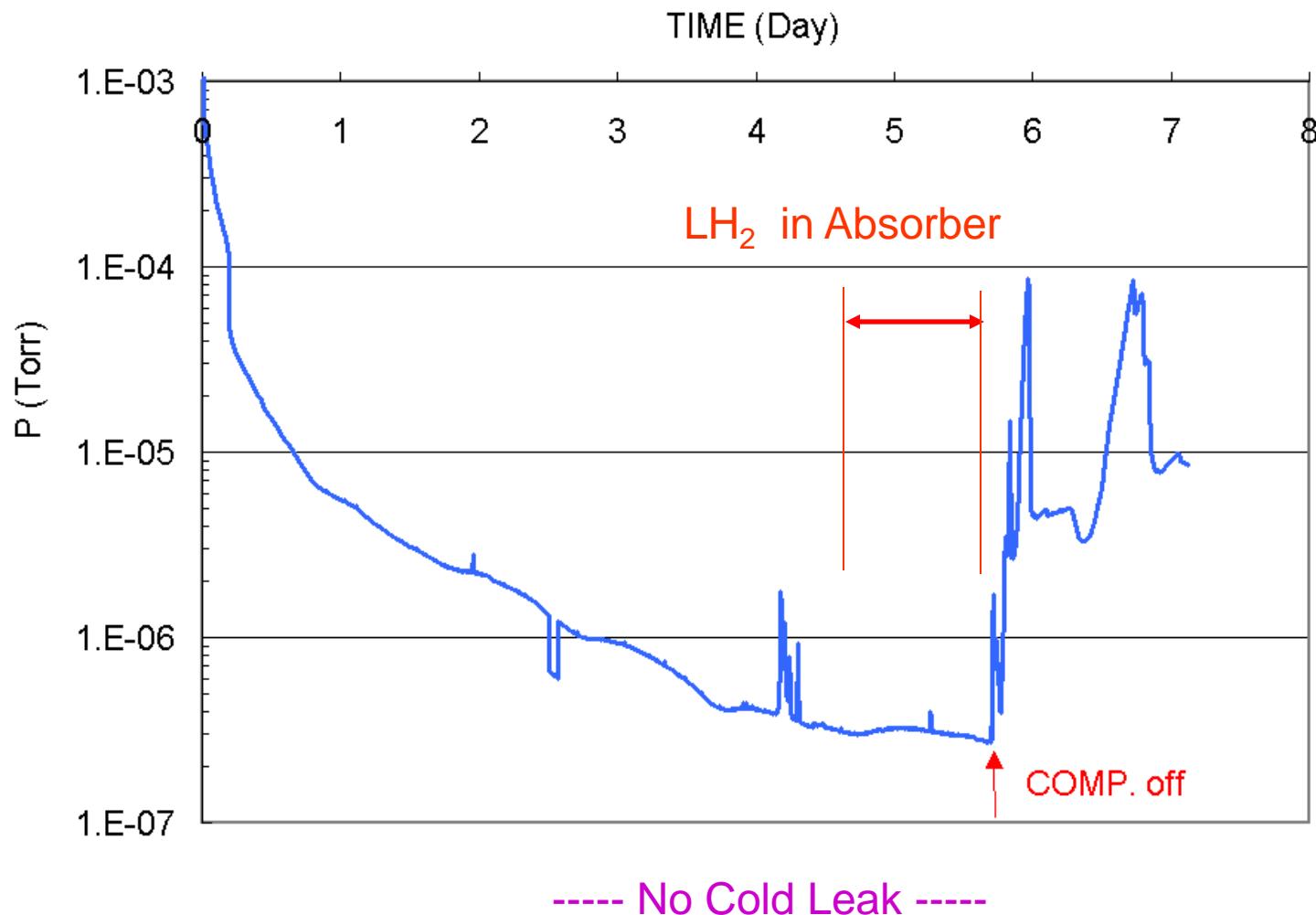
LakeShore 218S



Keithley 2700

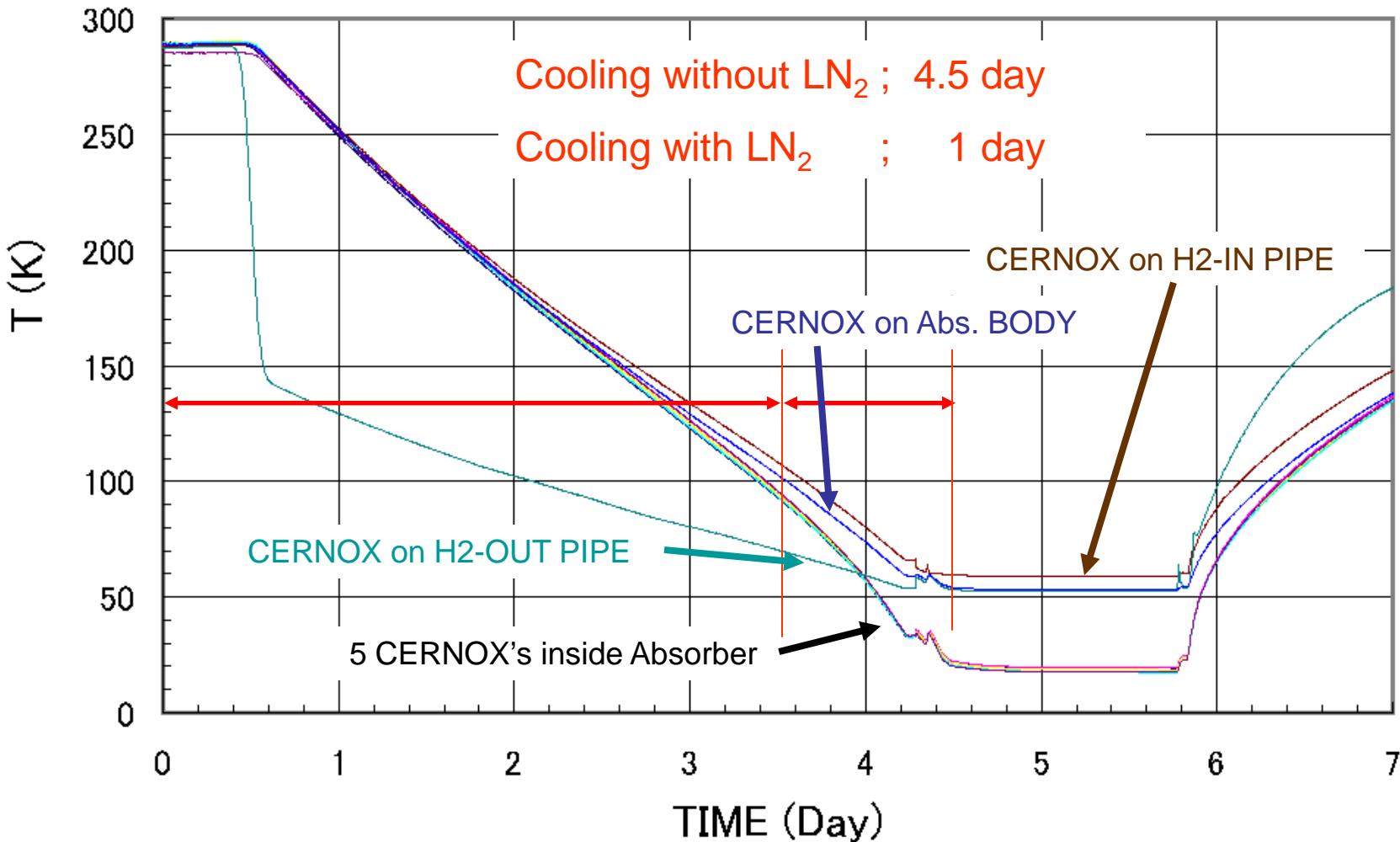


Insulation Vacuum

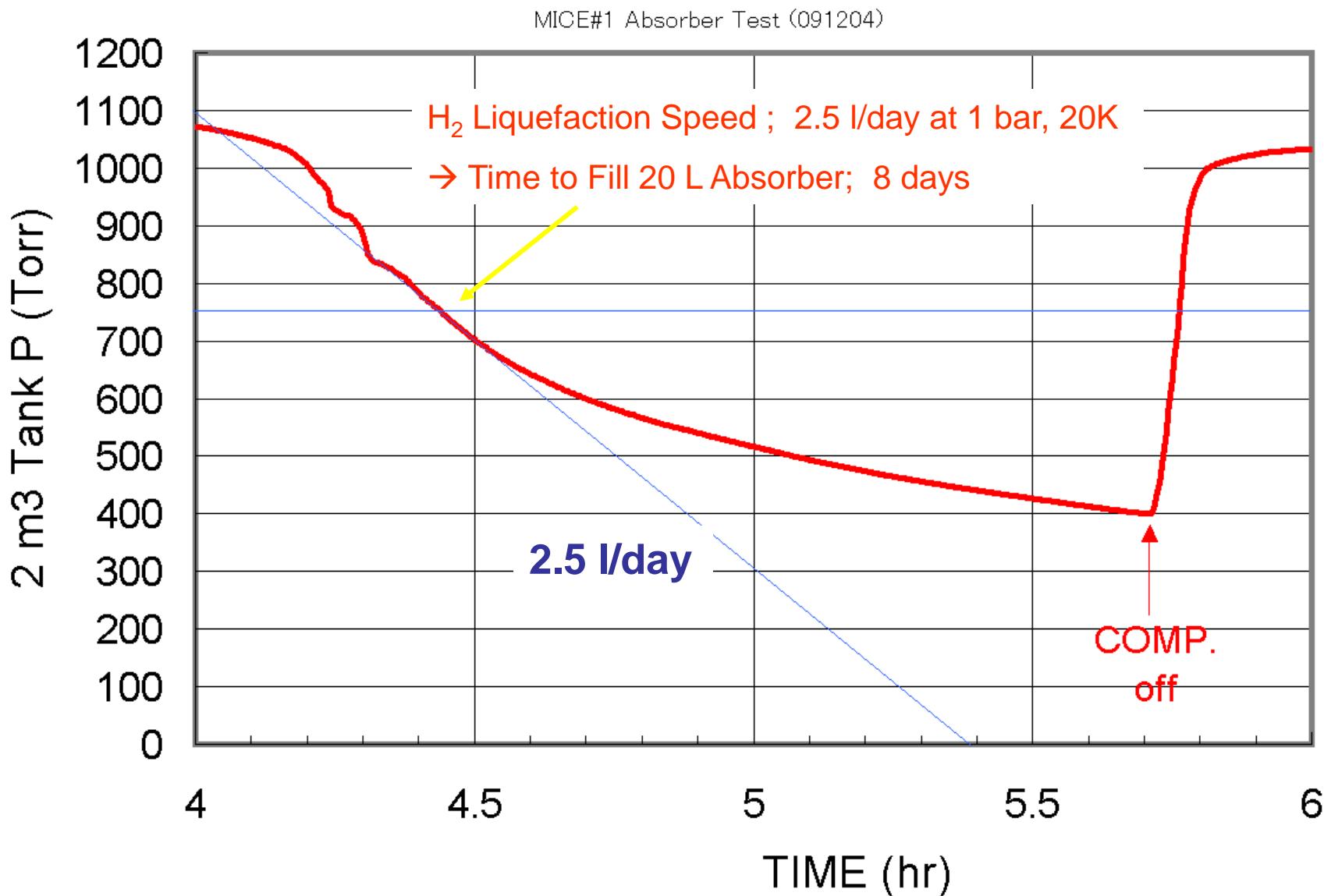


Cooling Time

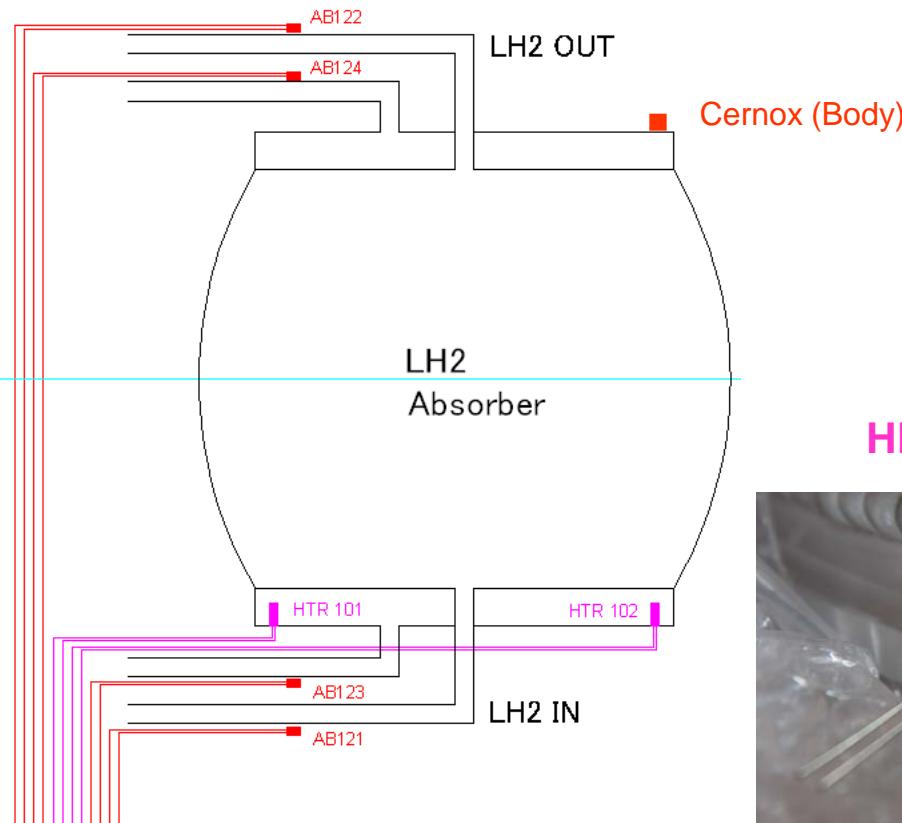
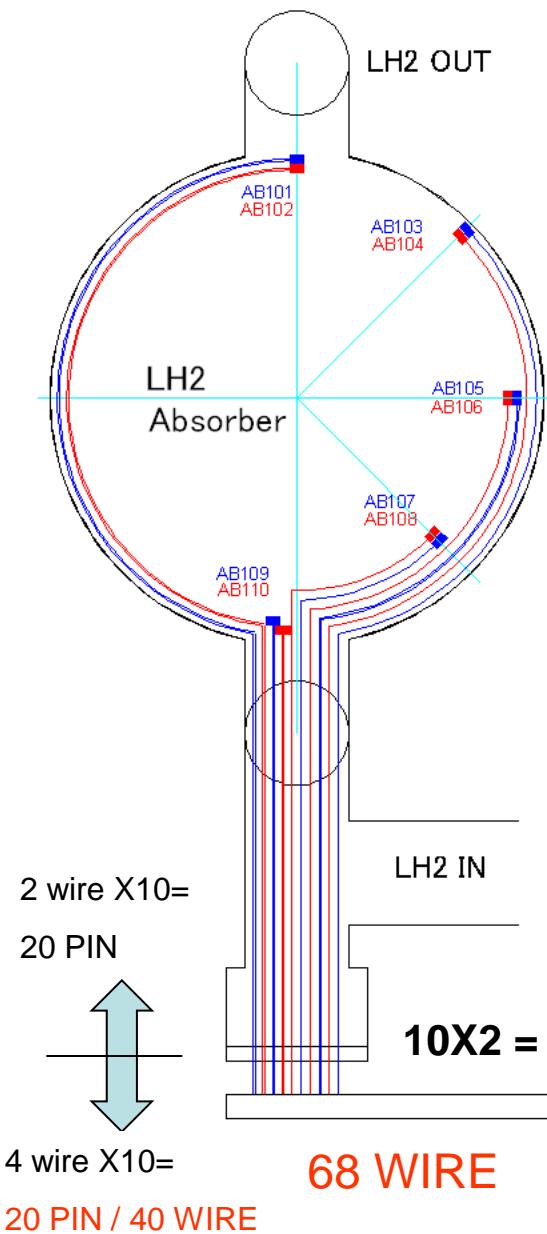
MICE#1 Cooling Test at KEK (091204)



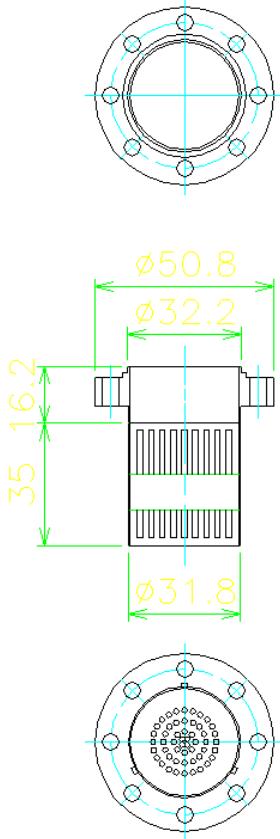
H_2 Liquefaction Speed



Sensor and Heater (Overall)



Absorber 30pin Feedthrough



THE NEW VALUE FRONTIER
KYOCERA

ULTRA HIGH VACUUM
COMPONENTS

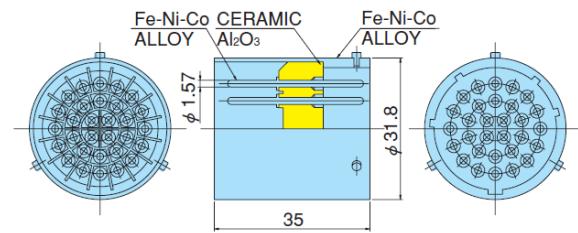
Ultra High Vacuum Feedthrough

MULTIPIN TYPE
(BAYONET LOCK SERIES)

Measurement and control use. Bayonet lock socket compatible.
Various shape and type are available.

unit : mm

30PIN



Connection Plugs



30pin Feedthrough

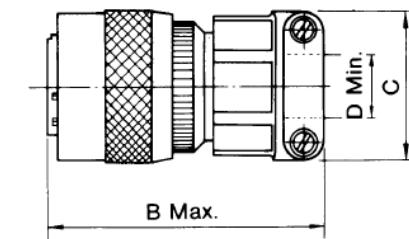
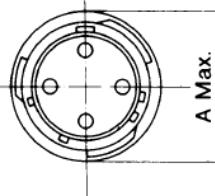
G-SERIES

PLUG (G6A--NE-JG)



8 Pin

22 Pin



型番		シェルサイズ	ΦA max.	B max.	C	ΦD min.
ピン用	ソケット用					
G6A104PNE-JG →	G6A104SNE-JG	10	21.4	49.0	22.2	7.5
G6A1288PNE-JG	G6A1288SNE-JG	12	24.7	51.0	27.0	10.7
G6A1492PNE-JG	G6A1492SNE-JG	14	27.7		29.4	13.8
G6A1619PNE-JG	G6A1619SNE-JG	16	31.1	52.0	31.8	15.4
G6A1822PNE-JG →	G6A1822SNE-JG	18	34.1		37.3	18.6
G6A2030PNE-JG →	G6A2030SNE-JG	20	37.5	57.0		
G6A2238PNE-JG	G6A2238SNE-JG	22	40.4		42.9	23.4
G6A2448PNE-JG	G6A2448SNE-JG	24	44.0	59.0		

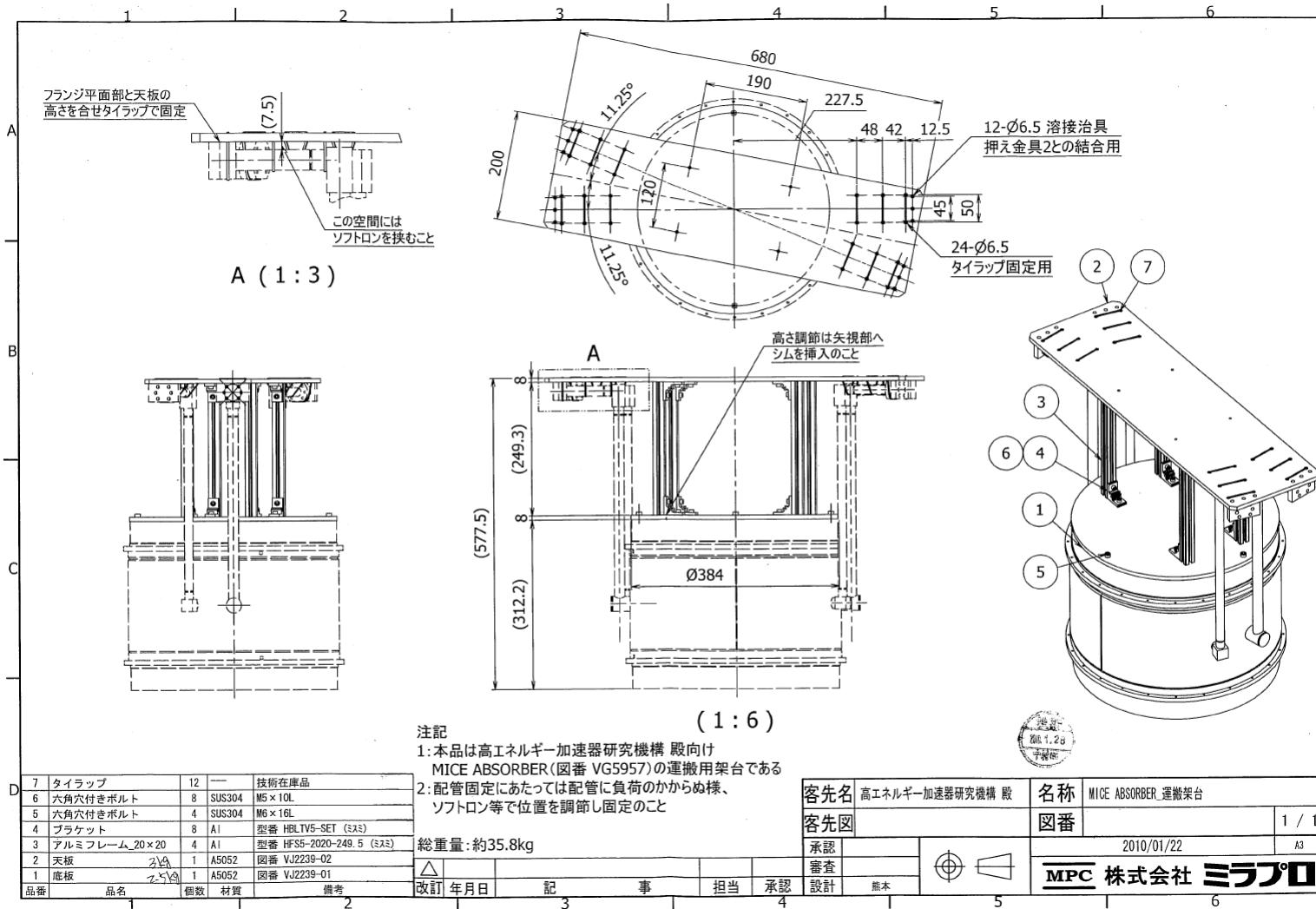
For Pin

For Socket

Shell Size

Support Flame for Shipping to RAL

Three flames are at KEK

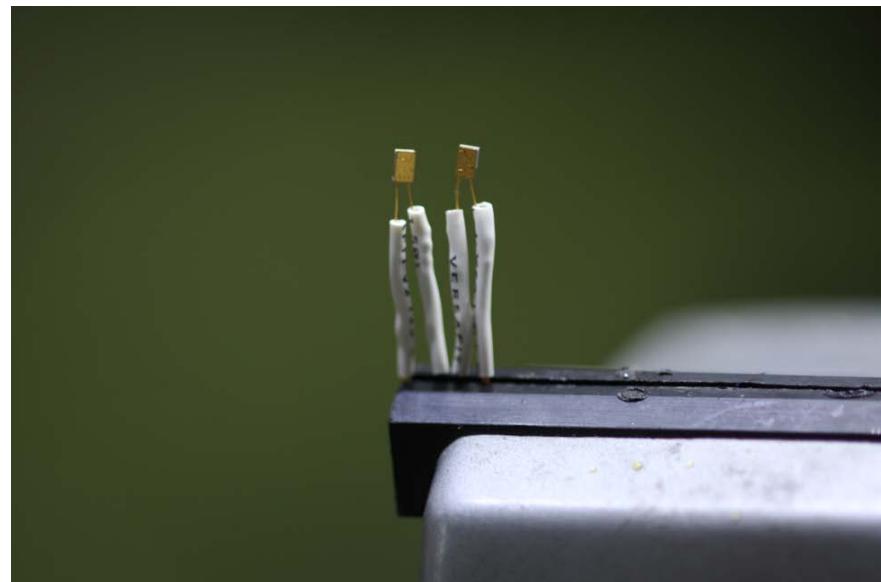
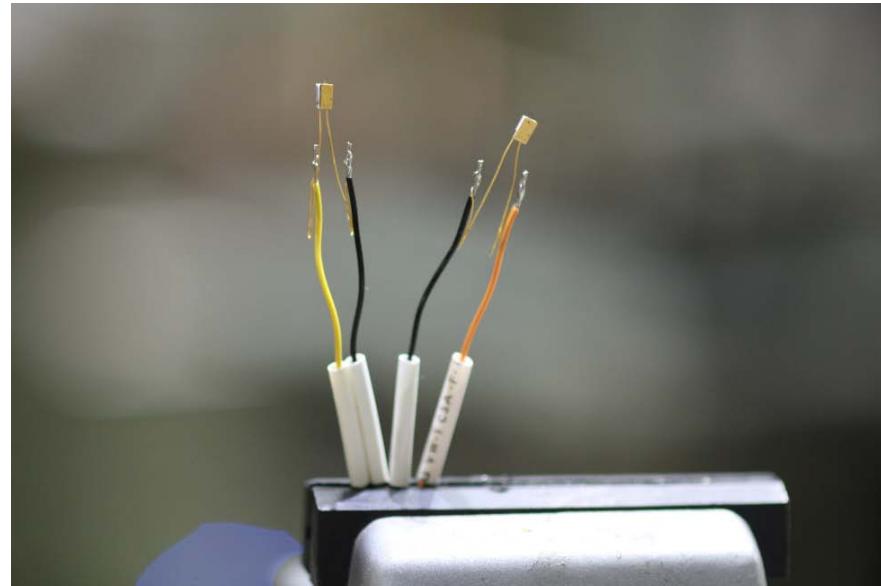
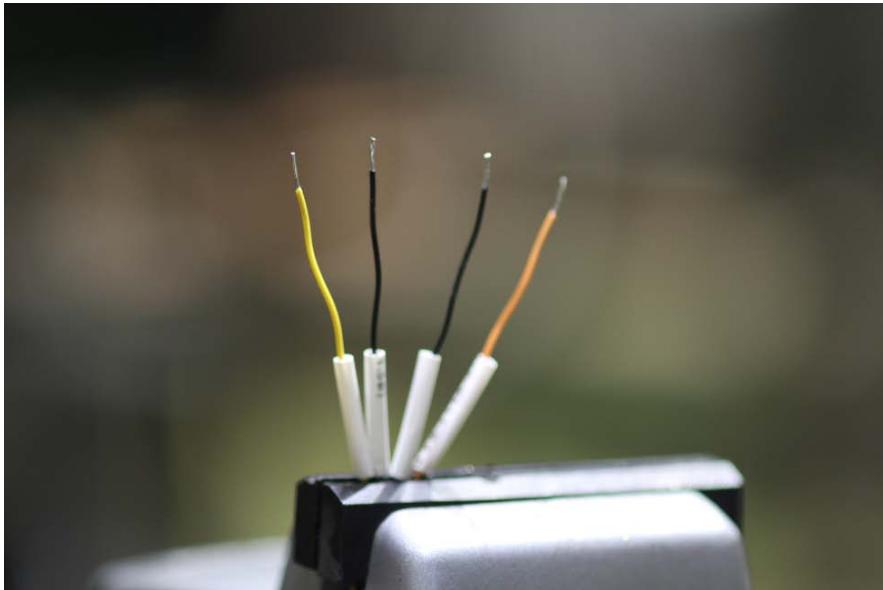


Absorber #2 Assemble

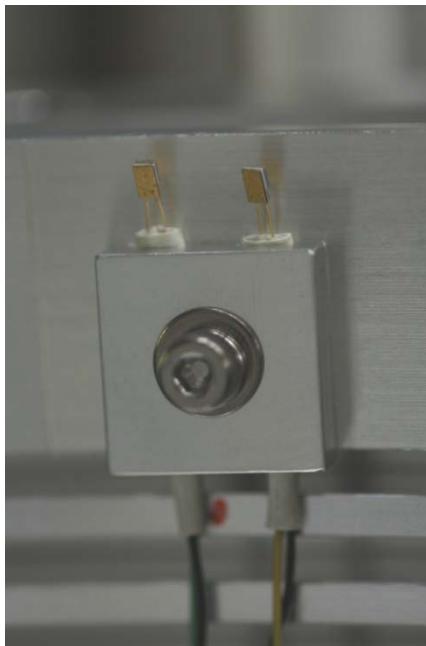
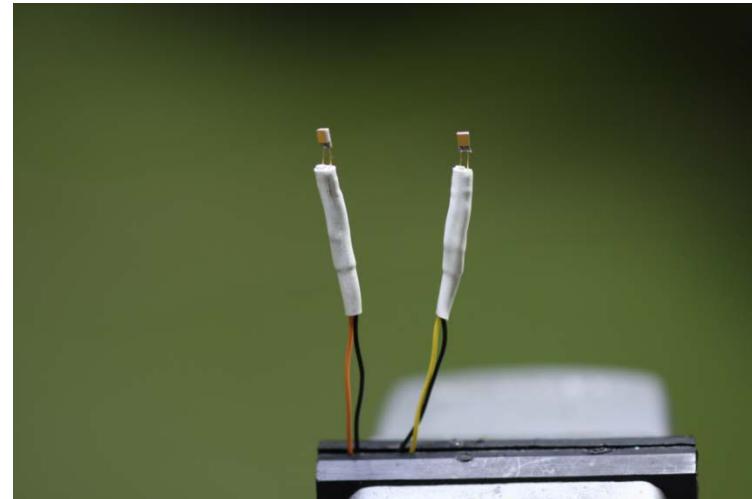
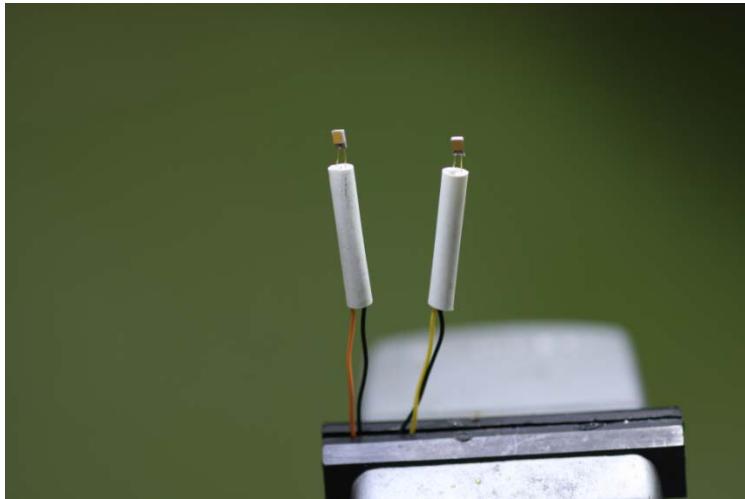


Photo in last week

Absorber #2 Assemble



Absorber #2 Assemble



5 sensor-blocks
were assembled



needs 30pin
feedthrough

Summary and Plans 1/2

Absorber #1

- Cooling test of Absorber #1 was finished in last December.
Cooling time to 20K; **4.5 days without LN₂ cooling, 1 day with LN₂ cooling**
The H₂ liquefaction speed was measured as **~2.5 l/day**, and it will take **~8 days to fill 20 l absorber**.
- Improvement of condensation speed;
 - > better insulation
 - > high power cryocooler (CRYOMEC has higher power at 1st stage?)
 - > lower temperature of S.C. magnet bore (if T<300K)
- Osaka Univ. will order 2 set of 30pin + Tee pipe, then He leak test.
← needs agreement with Oxford/TESLA; time limit is CM27
drawing of AFC plus absorber is hard to obtain
- Interface check by the real window → D. Summers agree to send the window to KEK, but broken one.
- Then, absorber #1 will be send to RAL. It will take 1~2 month after ordering the 30pin parts.

Summary and Plans 2/2

Absorber #2

- Start sensor assemble
- wait 30pin + Tee
- cooling test



IPAC10 in Kyoto, May, 2010