EAR1 Beam Line - Report on the Status

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n_TOF Collaboration / Collaboration Board

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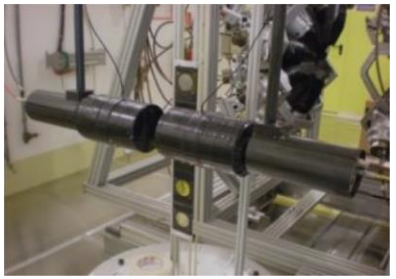
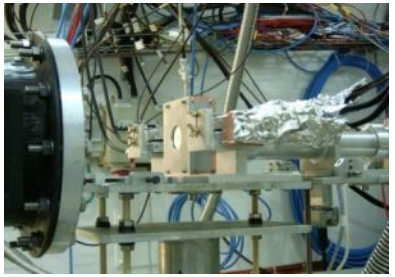
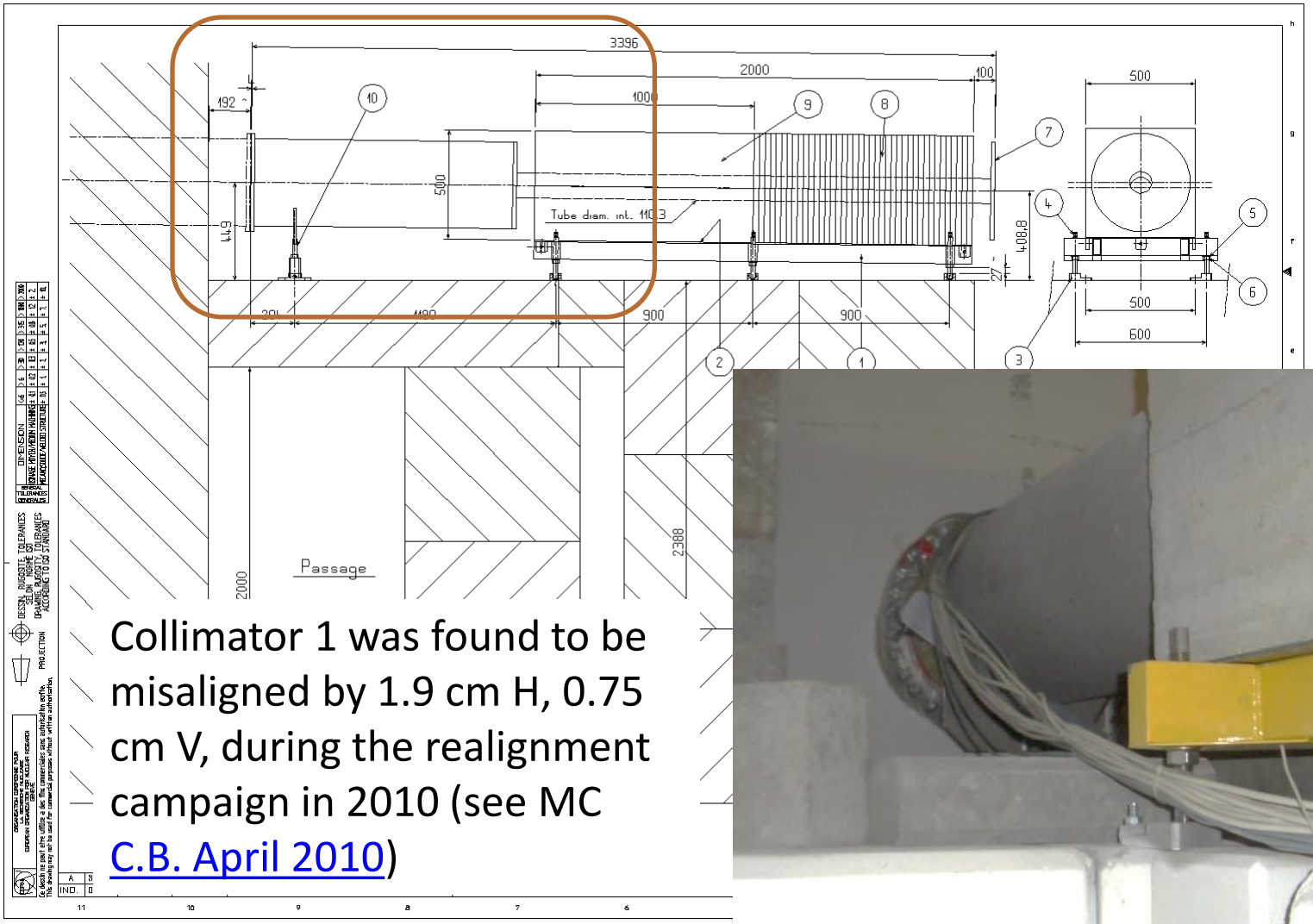



Outline

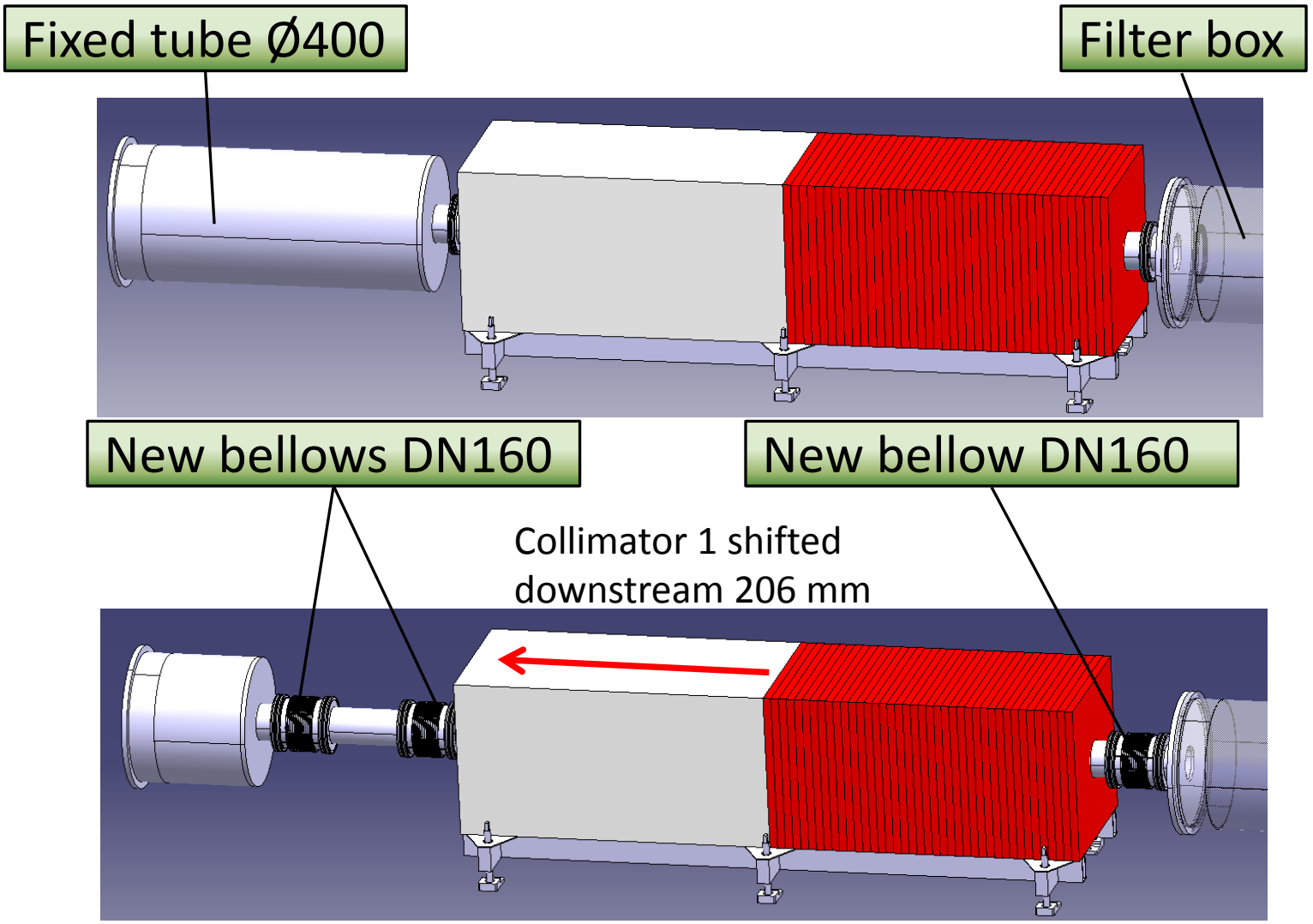
- Collimator No. 1: Alignment
- Filter box - Renovation
- Vacuum window, valve and collimator No. 2
- Access system modifications
- General consolidation (magnet, cooling station, vacuum and RP monitoring)
- Clean up of storage area and old control room
- Summary

Collimator No. 1

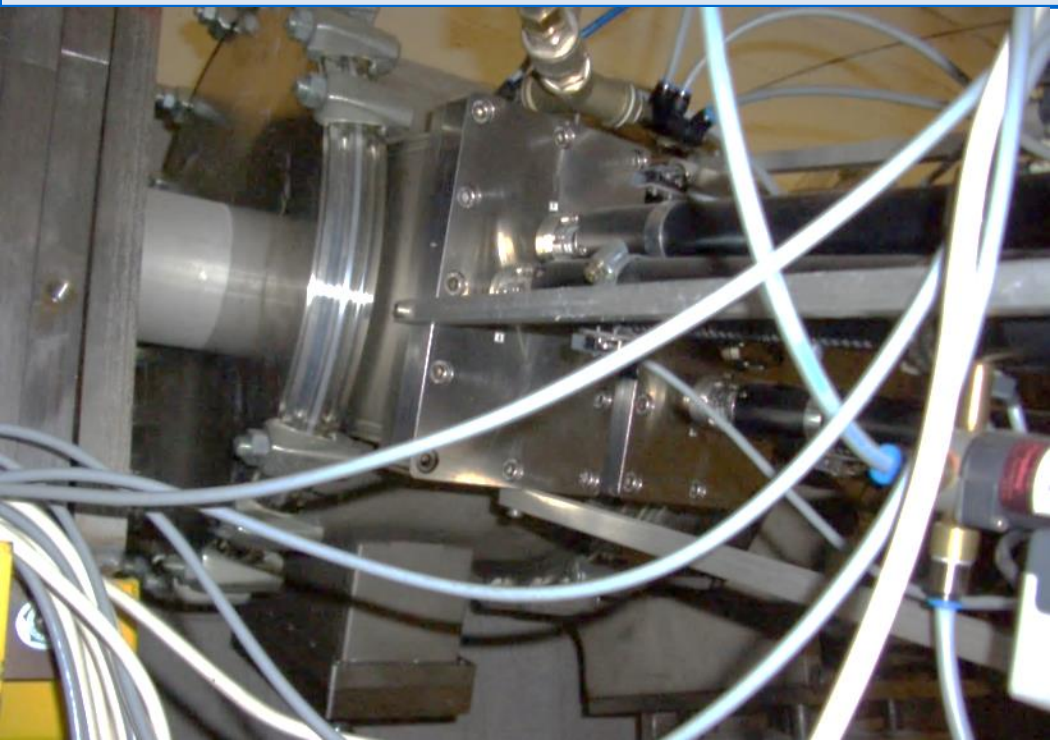


Collimator 1 was found to be misaligned by 1.9 cm H, 0.75 cm V, during the realignment campaign in 2010 (see MC C.B. April 2010)

Collimator No. 1

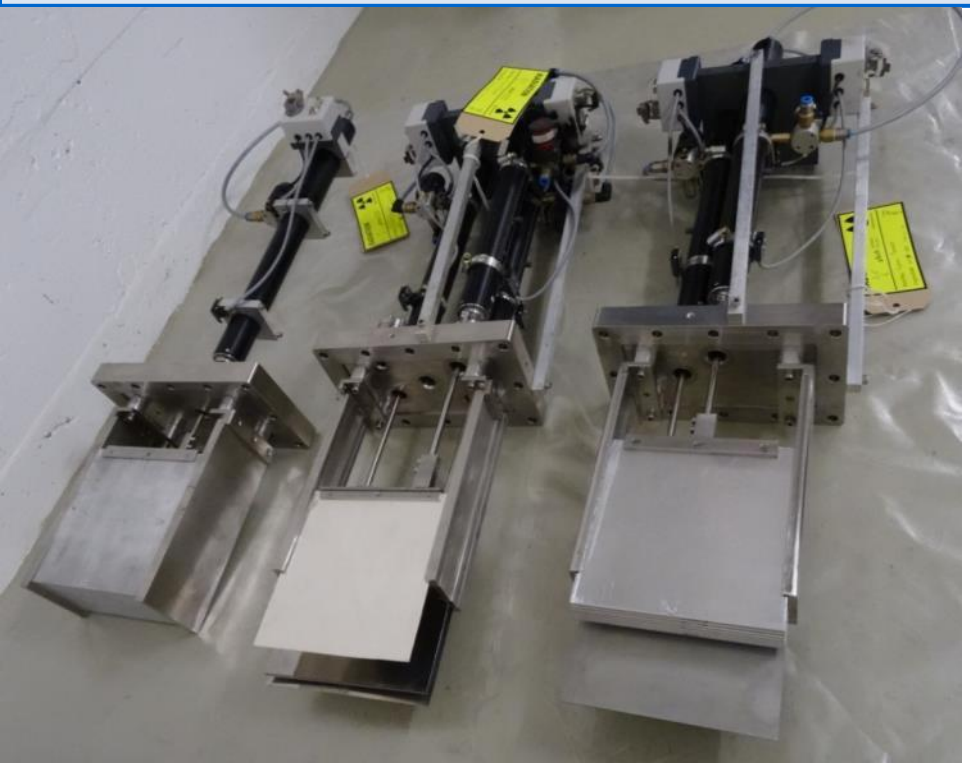


Filter box



- Chamber with ports will remain unchanged
- Flanges and numbers of feed-through remain unchanged
- Actuators and limit switches to be changed

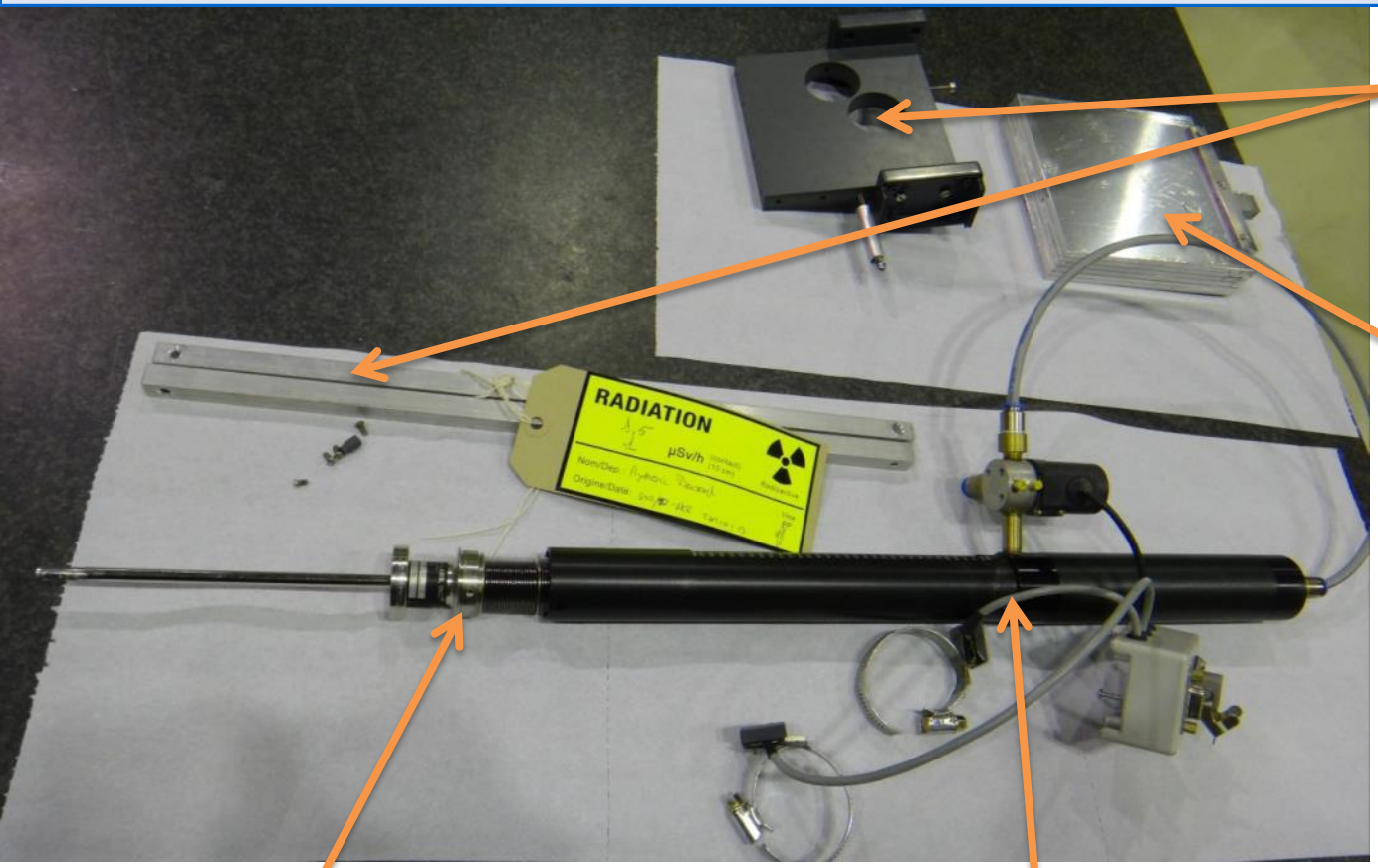
Filter box



1	Al 80 mm	ok	4 x 20 mm
2	Ag 0.5 mm	ok	5 x 0.1 mm
3	not used		
4	W 0.8 mm	1 x 0.6 +	1 x 0.3 mm?
5	Co 0.25 mm	ok	2 x 0.125?
6	not used		
7	Mo 1.0 mm	ok	1 x 1 mm
8	Al 30 mm	ok	6 x 5 mm

- 3 ports
- 1, 2 and 5 feed-throughs
- Are there material/thickness changes needed compared to the existing ones?

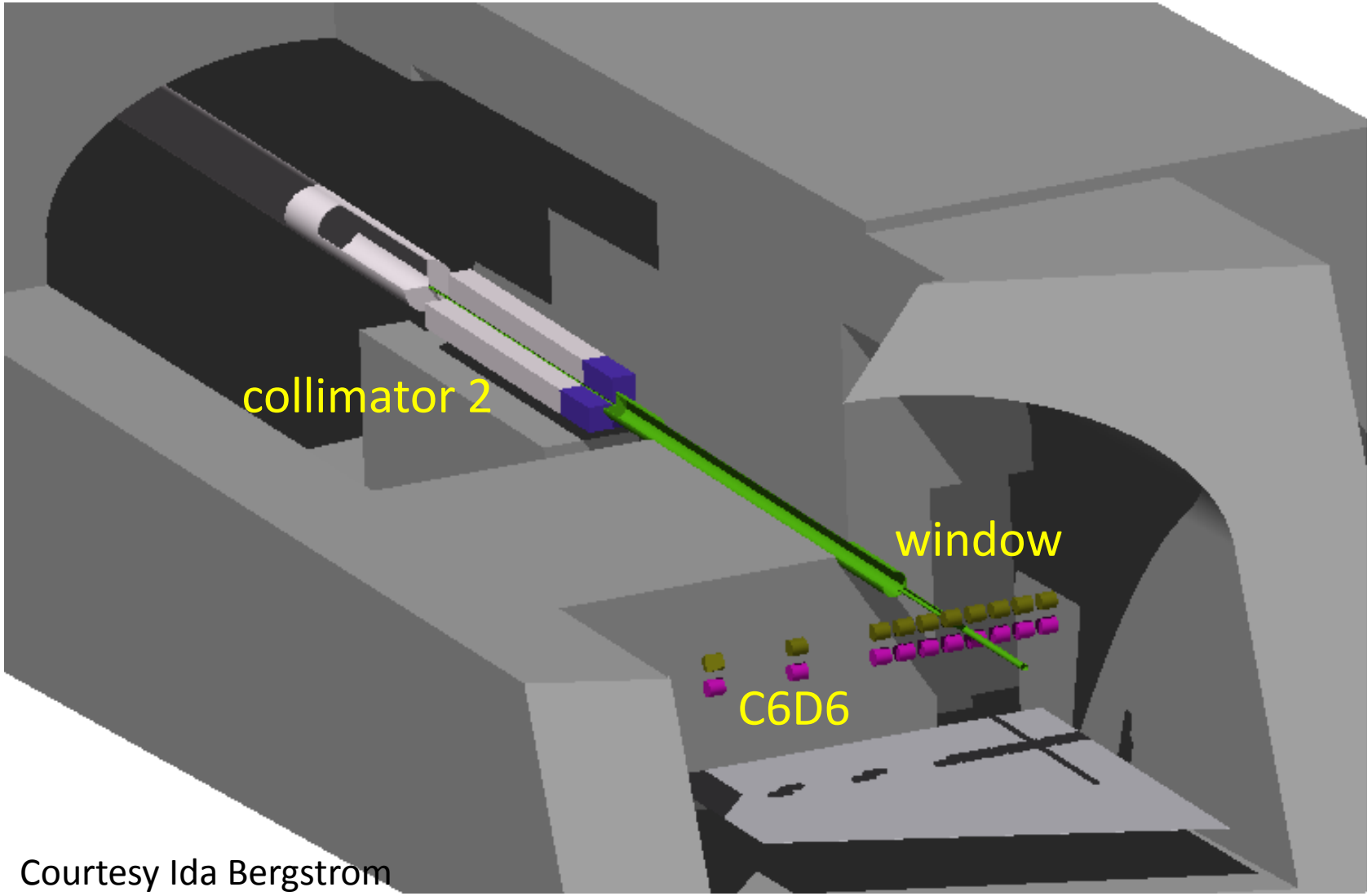
Filter box



- Improved support structure
- Flange and material holder kept

- Principle maintained (compressed air actuator)
- Jacks replaced with standard commercial components

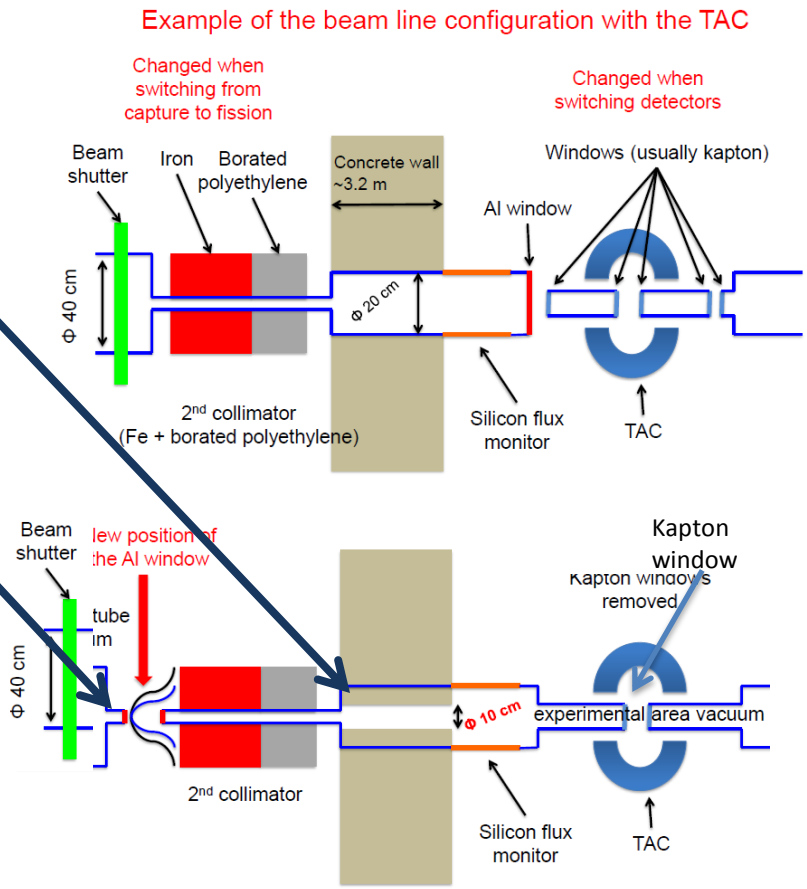
Vacuum window



Courtesy Ida Bergstrom

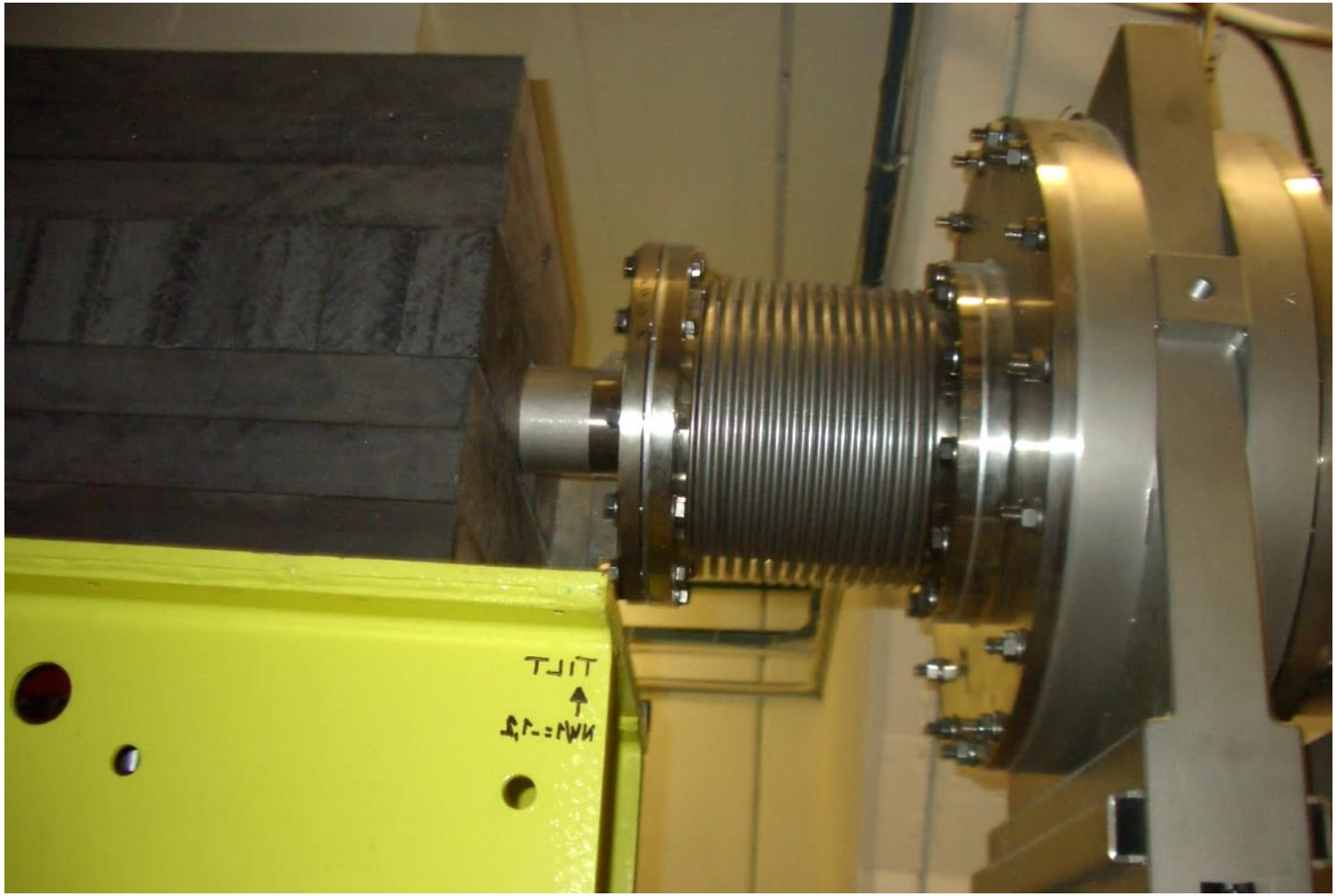
Background improvement on EAR1

1. Reduce free passage through the wall to ~10 cm
2. New window, smaller diameter, upstream of collimator No 2.
3. Kapton Windows in EAR1
4. Smaller valve (shutter) upstream of new window
5. Sample holder?

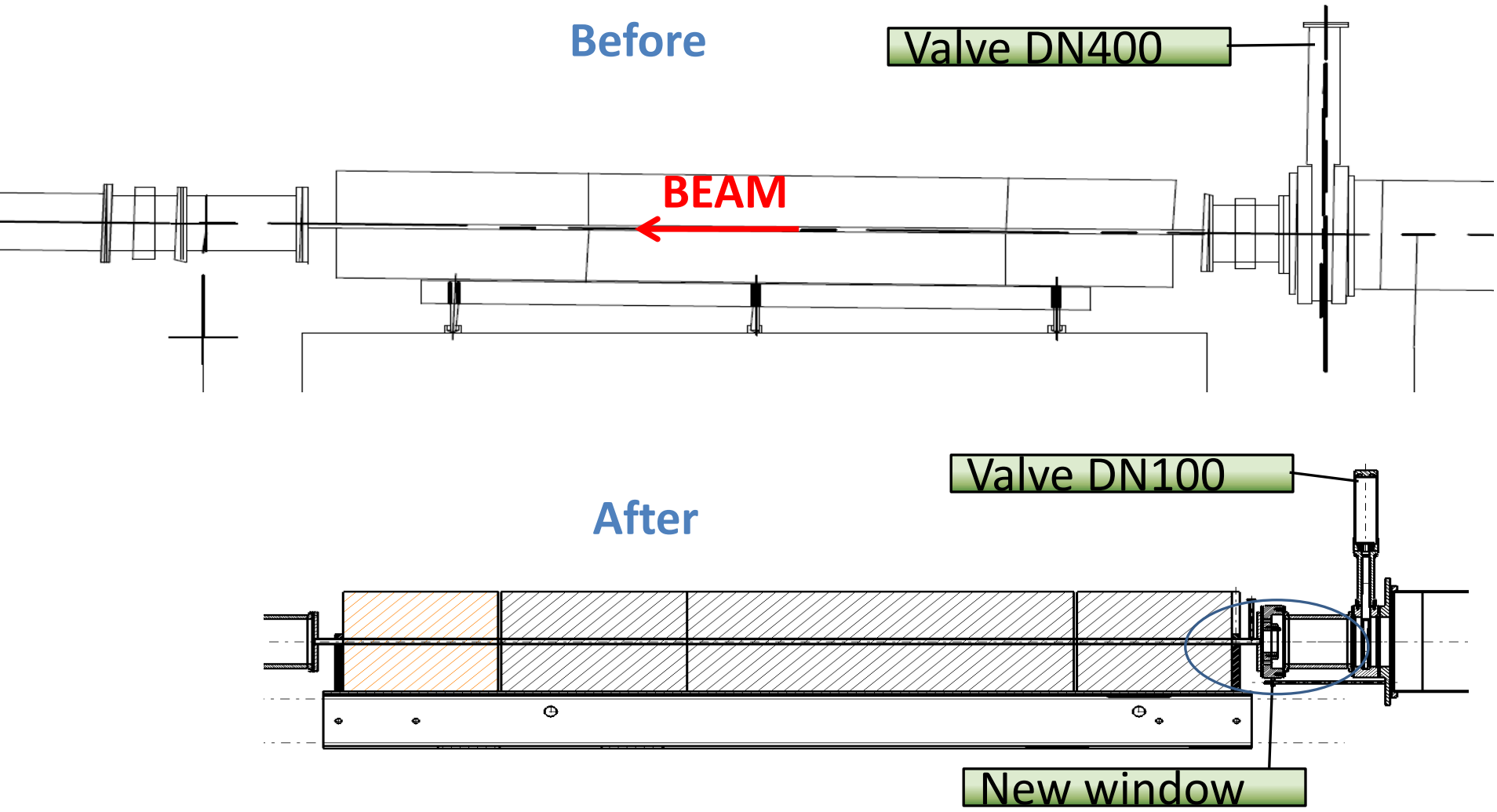


Vacuum window

- Planned location for new vacuum window

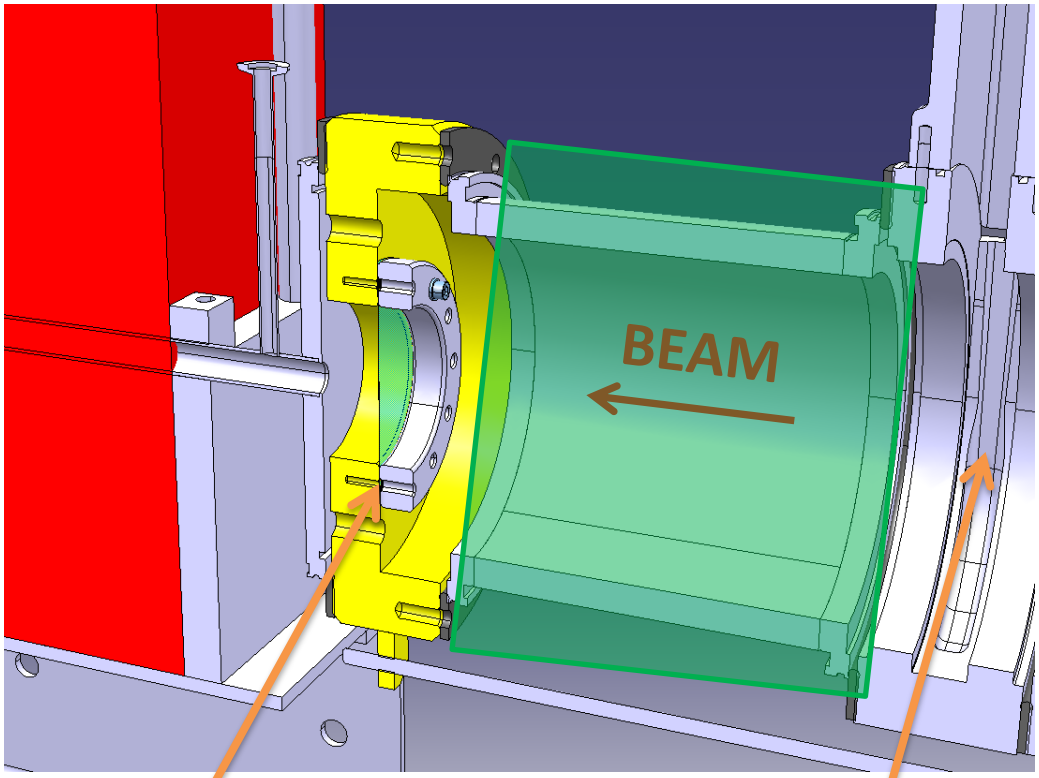


Vacuum window



Vacuum window

- Al window in front of collimator No. 2 (thickness 0.3 mm, Ø DN 100, compliant to resist a shock wave)
- Second window at the entry of EAR 1 still needed (Kapton, e.g. Ø 65 mm/0.1 mm)
- Replace DN 400 valve with fast response, standard valve DN 100
- Prepare for a sample holder?
  - Depending on dimensions, we need to shift the collimator downstream
  Similar design as the filter box actuators



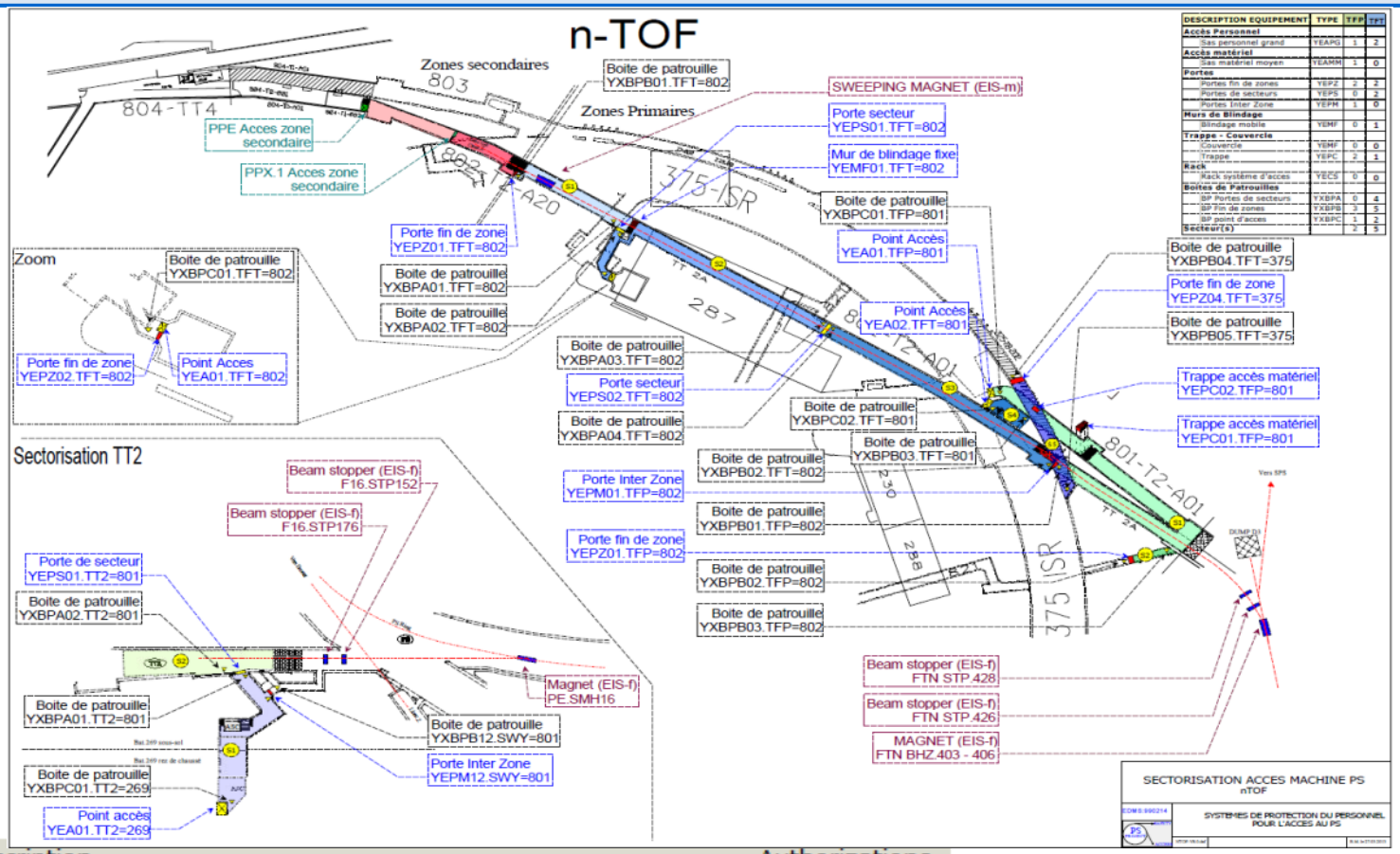
Window with vacuum bypass

Replaced valve DN400 -> DN 100

Bellow shortened to integrate sample holder

Access system

Access system fully renewed (general activity in the PS complex)



MEYRIN

Buildings	Zone	Description	Authorizations
375, 802	NTOF-TARG	n_TOF target area, primary beam line & target cooling statio	87
603	NTOF	Obsolete! use NTOF-EXP	655
603, 804	NTOF-EXP	NTOF (2 control rooms + exp. zones)	37

Access system

- « IMPACT » already in place
  - Entrance to n_TOF primary area is centrally managed
- RP presence for work in target area and cooling station mandatory
- Patrol for primary and secondary area to be done by n_TOF.
- Check your access rights, requests and training courses

Consolidation

- Old magnet, power supply without spare parts ✗
- Vacuum layout modifications (first collimator, window) ✓
- RP monitoring (e.g. Cooling water sampling) ✓
- Implementing existing equipment into the new DAQ ✓

Clean up of storage area and old control room

- Remove empty electronic racks
- Sort material, clean up
- Secure detector parts, spare components
- Provide shelves and cupboards for the collaboration members

Summary

- Vacuum layout modification and re-alignment of collimator No. 1
- New filter box actuators, identical for EAR 1 and 2
- New vacuum window to reduce background in EAR 1 and improve safety.
- New access system in place for start up in 2014
- General consolidation of the installation ongoing