

# BTF status and schedule

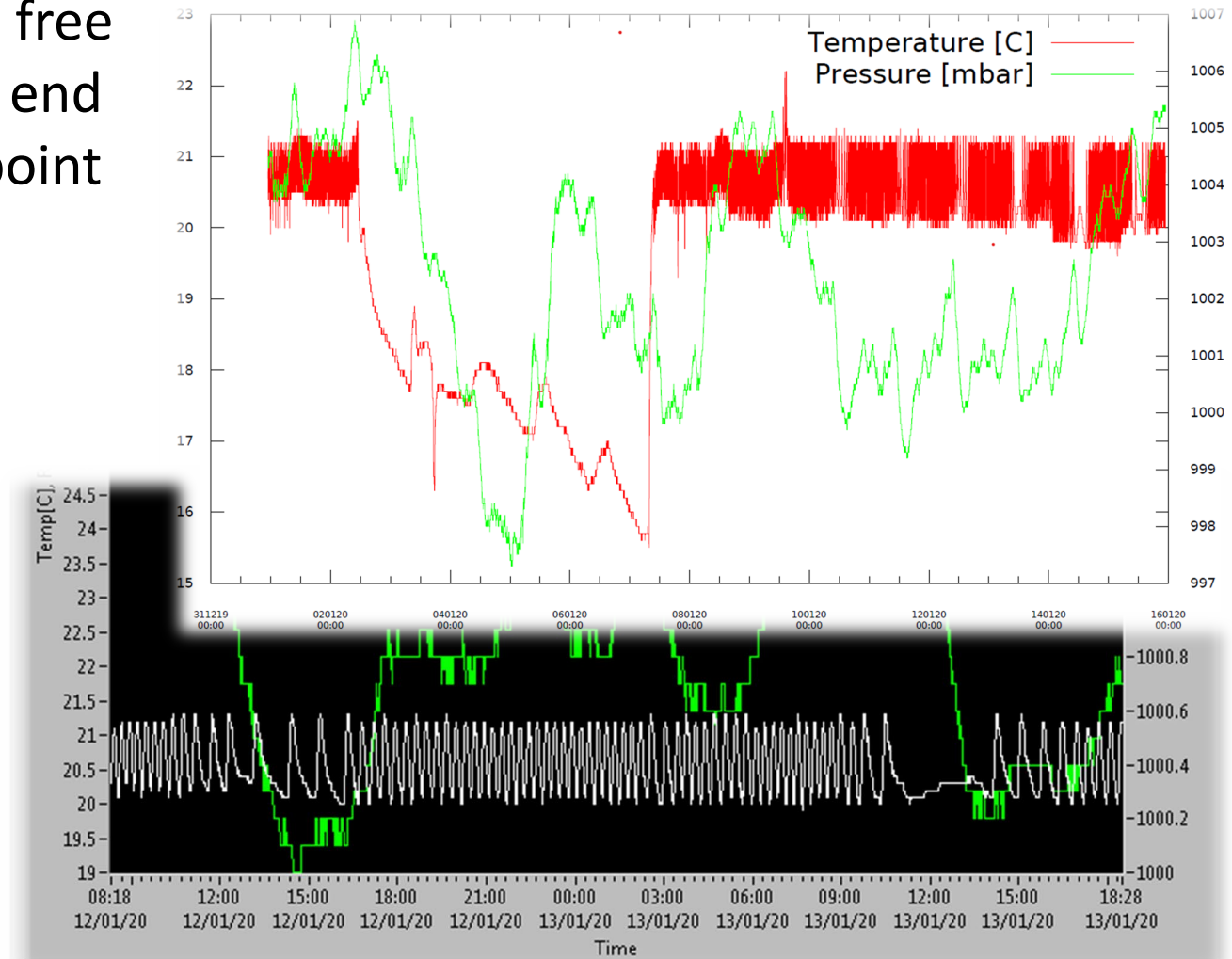
Luca Foggetta on the behalf of BTF group

Riunione Resp. di Servizio e di Progetto

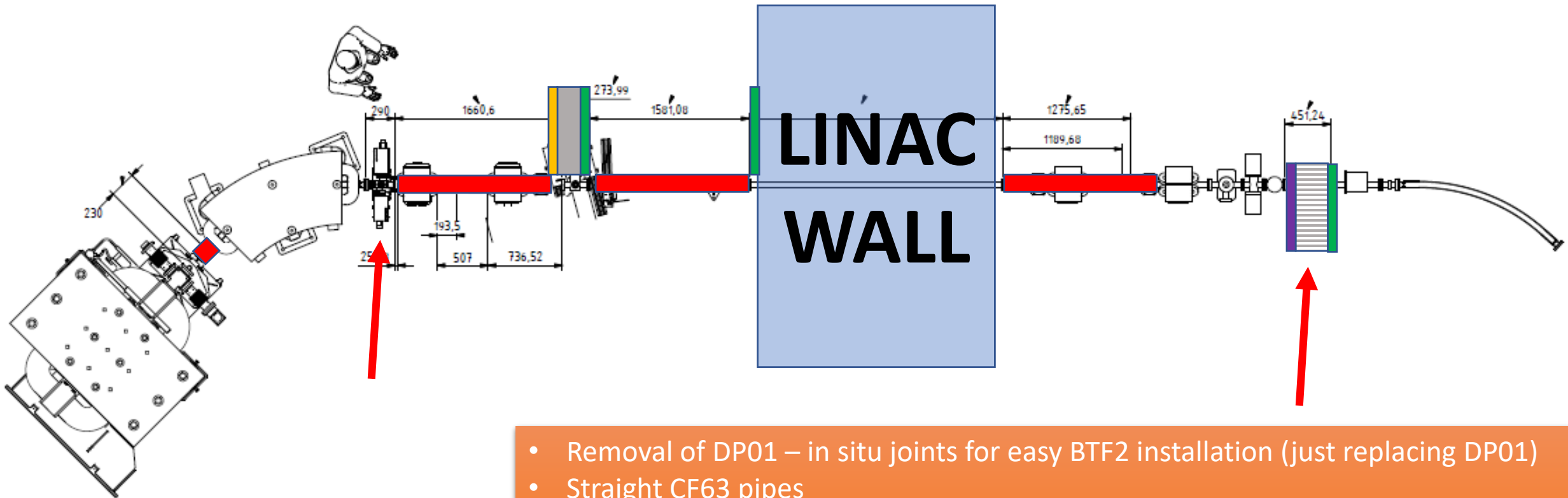
LNf – 17/01/2020






# BTF status – BTF area

- Berillium window problem recovered -> free and air conditioned zone at November's end
- Air cooling problem fixed for winter setpoint
- BTF temp probe on BTF racks (maximum delta)
- Winter Setpoint = 20C
- Delta winter setpoint <1C
- To be tested in summer
- Actual setpoint could be difficult to achieve in summer => when BTF ready for PADME could be right to move from 20C->23C to minimize summer to winter delta
- Not knowing PADME actual heating power



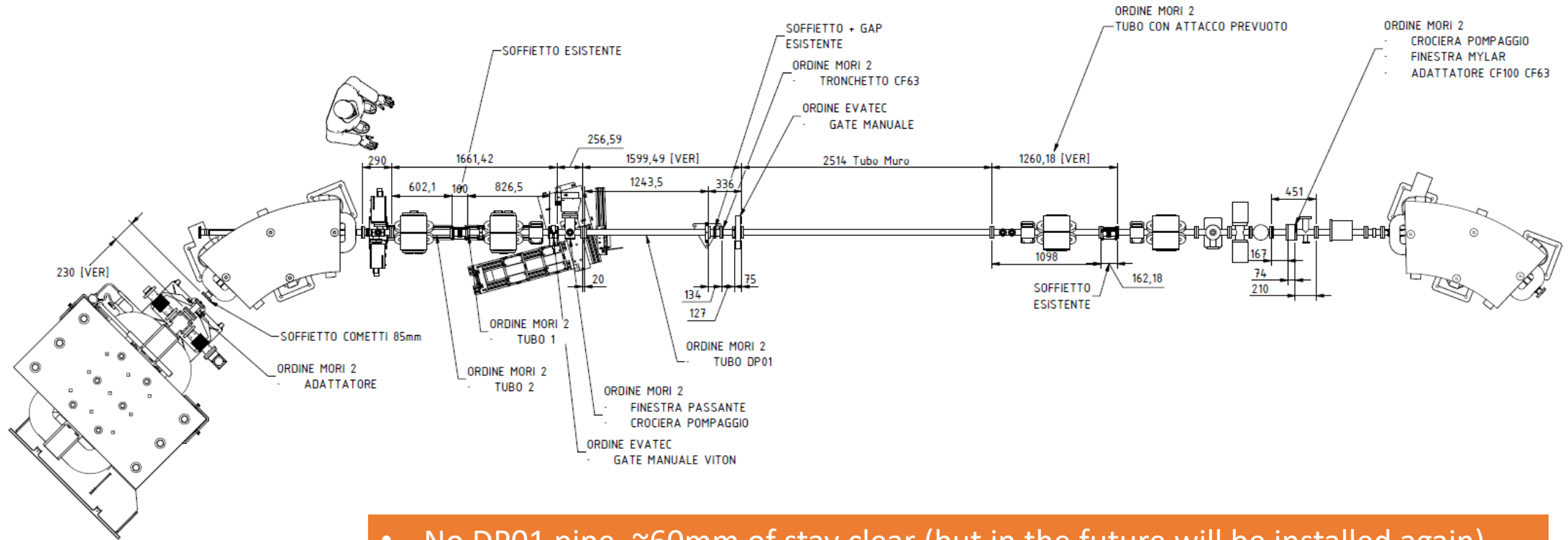
# BTF status – BTF Vacuum



-  Vacuum Service (TMP,  $10^{-6}$ )
-  Pipes
-  Vacuum Break (125um-mylar)
-  OPT. Secondary Vacuum Break (40um-mylar)
-  Valves

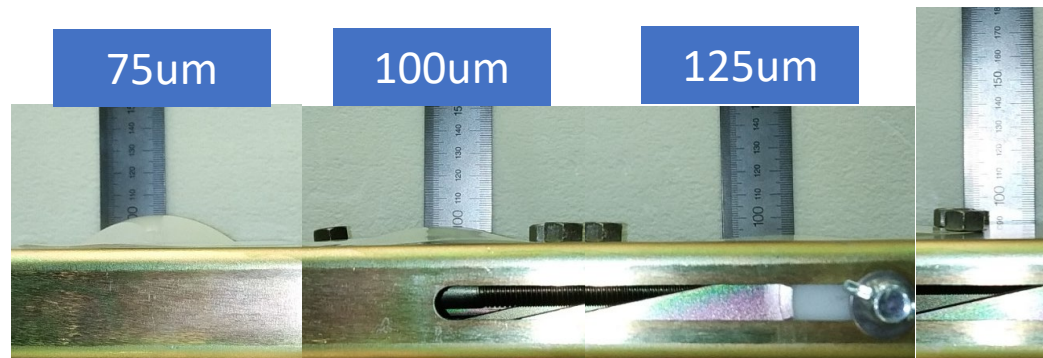
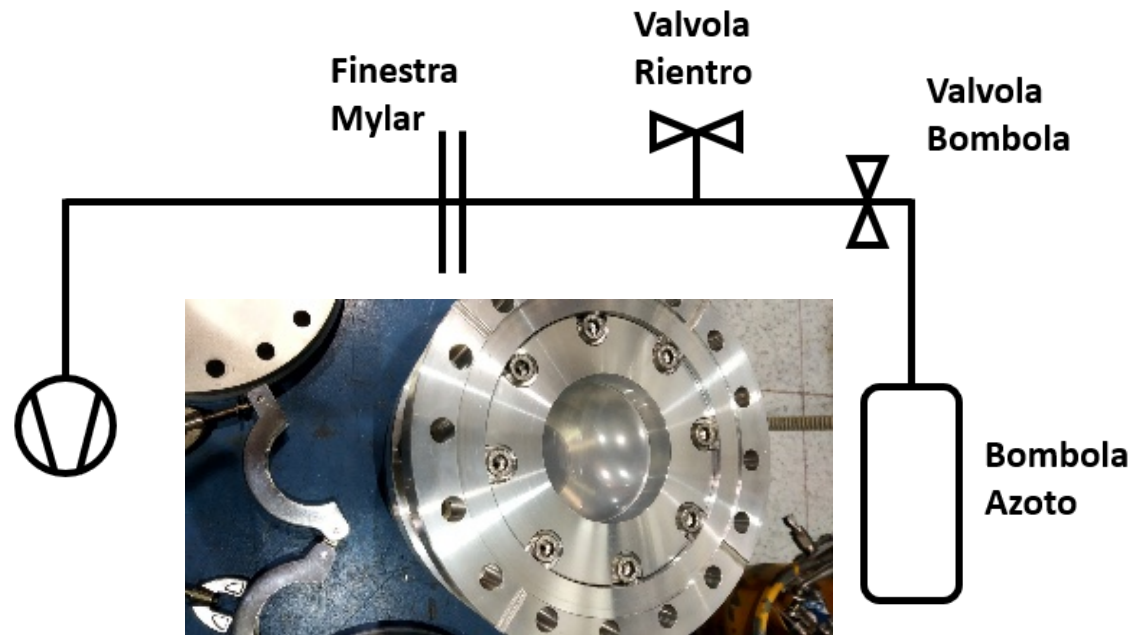
- Removal of DP01 – in situ joints for easy BTF2 installation (just replacing DP01)
- Straight CF63 pipes
- New bellows, crosses and vacuum services
- New ceramic gap for BTF2 installation
- Low leak fast valve upstream in LINAC – ACC area, new vacuum safety system will be installed in end of March
- Different vacuum separation from PADME to BTF/LINAC volumes

# BTF status – BTF Vacuum



- No DP01 pipe, ~60mm of stay clear (but in the future will be installed again)
- No huge internal diameter differences -> keep as possible CF63 or more
- Scrapers, as you asked (the only internal diameter variation in the line)
- DHSTB002 pipe as the previous one, but more thickness in the low energy side
- No needs to align PADME cross with DHSTB002 -> on week 4 final alignment
- PADME cross and related joints/bellow are still the same

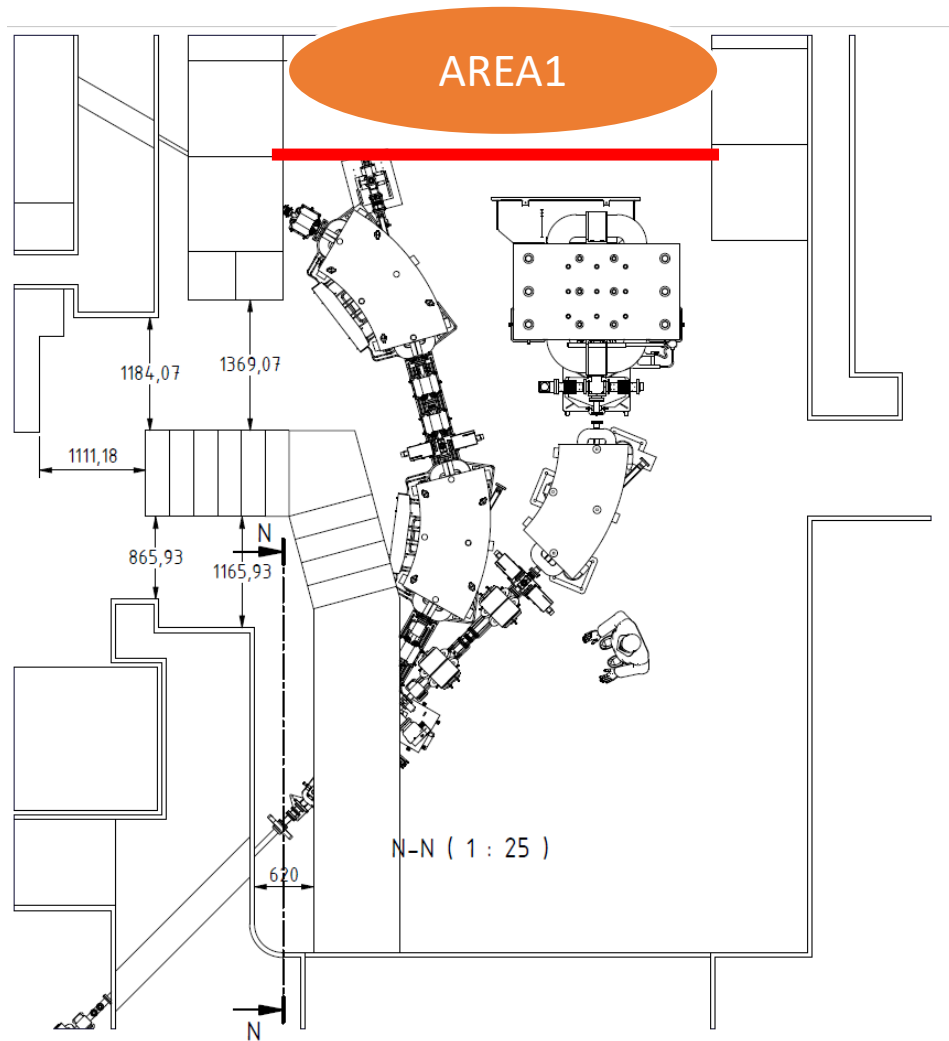
# BTF status – BTF Vacuum Breaking Windows



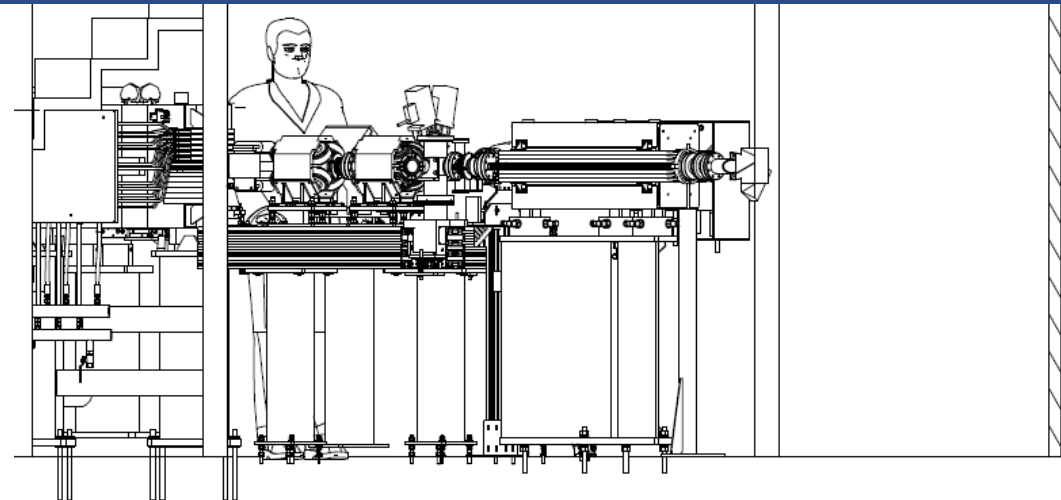
PROVE MECCANICHE FINESTRE MYLAR				
TEST A ROTTURA				
M_250_01	AriaVSAzoto	DeltaP = 3bar	60s	
		DeltaP = 3bar	Rientro Veloce DeltaP da 0 a 3 bar	5 cicli
		DeltaP = 3bar	120s	
		rientro in aria		
	VuotoVSAzoto	DeltaP = 4 bar	60s	
		DeltaP = 4,5 bar	60s	
		DeltaP = 4,5 bar	Rientro Veloce DeltaP da 1 a 4,5 bar	5 cicli
		rientro in aria		
Deformazione finale		4,5 mm		
M_125_01		DeltaP = 2,5 bar	30 s	
		DeltaP = 2,5 bar	Rientro Veloce DeltaP da 1 a 2,5bar	
		DeltaP = 3 bar	60s	
	VuotoVSAzoto	DeltaP = 3 bar	Rientro Veloce DeltaP da 1 a 3bar	5 cicli
		DeltaP = 4bar	60s	
		DeltaP = 4bar	Rientro Veloce DeltaP da 1 a 4 bar	5 cicli
Deformazione finale		8 mm		
M_75_01		DeltaP = 2 bar	60 s	
		DeltaP = 2 bar	Rientro Veloce DeltaP da 1 a 2 bar	
		DeltaP = 3 bar	60 s	
	VuotoVSAzoto	DeltaP = 3 bar	Rientro Veloce DeltaP da 1 a 3 bar	
		DeltaP = 4 bar	60 s	
		DeltaP = 4 bar	Rientro Veloce DeltaP da 1 a 4 bar	10 cicli
Deformazione finale		18 mm		
	TEST ulteriori da fare			
	1 - Prova Da Vuoto			
	2 - Prove a Fatica - Rientro Veloce - DeltaP=1,5bar			
	Note			
	Costruite finestre da 100um e 200um - collaudate in ditta a deltaP 1bar			

**Final tests in this week**

# Beam Line next – BTF2 Layout in BTFEH1



- Improved area rules when BTF2 installation will occur
- Needs a different site for racks
- Already moved the PADME cross services
- In the next future, PADME people only in AREA1
- There will be different search procedures



# BTF status – BTF1 temp. installation planning

**Schedule foreseen today** (strictly in dependence of spare parts arrival and SIDDHARTINO status)

Up to now = all the parts replacement orders have been executed; shipments ongoing

Week 4 = Start PADME and magnets alignment in BTFEH1- end of vacuum windows tests

Week 5 = Start installation vacuum parts installation, area will be closed

Waiting shutdown week (on week 8 or week 10) then

- End of alignment campaign on LINAC tunnel
- BTF line in LINAC tunnel workouts
- Vacuum safety system preparation (it will be complete at the end of March)
- Cooling workout
- PLC setup and debug
- Checks and line debug + vacuum procs
- BTF diagnostic preparation

Then we will open again the BTF area.

# DAFNE – Actual Beam Planning

## GOOD DAFNE Performances

- DAFNE collisions on 14° Jan achieved
- DAFNE beam developing for two weeks
- Start SIDDHARTINO run on end of January – two weeks
- Two Weeks of contingency -> End of SIDDHARTINO run at end of Feb
- One week for machine off workout (BTF2 preparation, LINAC maintenance, LINAC+ACC vacuum safety improvements, LINAC-BTF mylar window installation and line developing...)
- One week (maybe less) of contingency and BTF preparation

⇒ BTF ready for PADME on half of March

⇒ Two months of run time foreseen

## BAD DAFNE Performances

- DAFNE/SIDDHARTINO off on ~14° Feb
- One week for machine off workout (BTF2 preparation, LINAC maintenance, LINAC+ACC vacuum safety improvements, LINAC-BTF mylar window installation and line developing...)
- One week (maybe less) of contingency and BTF preparation

⇒ BTF ready for PADME on end of February if BTF installation procs have just been started today (?)

⇒ One months of run time foreseen



# BTF status – Actual PADME Beam Planning

- Beam setup = 3 -> 7 days
- Positron Primary beam, 150 ns, low charge, scraping
- Different vacuum layout, no more gamma monitor
- Different End of line window, in principle better charged beam multiplicity and position measurements

# BTF status – Actual Beam Planning

## Just few words:

- BTF2 installation will start at the end of PADME run, the spare part involved in Be are in final design or ordered
- BTFEH2 elements (Cross and DC01 magnet) are in the final design and ready to be produced
- BTF2 needs only two element in BTF1 line: replacing the DP01 magnet and its low clearance pipe (so at the end will be clear what is the TRUE list of background sources)
- After BTF2 installation, will start the commissioning and it could be very long (maybe one/two months)
- After BTF2 commissioning will be start the user campaign, and so different scenario could occur (and now is not the time to discuss it)

# BTF – Impatto servizi divisione

## BTF1

- Vuoto (installazione, sistema sicurezza vuoto)
- Meccanica (installazione, progettazione, logistica e sistema ambientale di sicurezza)
- Magneti (connessioni linea BTF1)
- Controlli (DP01)
- Elettrico (PLC, cablaggio e test)
- Fluidi (preparazione BTF2)

## RUN PADME

- Operatori DAFNE
- Servizio LINAC

## BTF2

- Vuoto (installazione e progettazione)
- Meccanica (installazione, progettazione, logistica e sistema ambientale di sicurezza)
- Controlli (magneti BTF2)
- Magneti (connessioni linea BTF2 e test)
- LINAC (sistema sicurezze BTF2, ronda nuova BTF1)
- Elettrico (PLC, vacuometri, cablaggi e test)
- Fluidi (sistema cooling saletta alimentatori e BTF2, test)
- Sicurezza Porte REI e pannelli su bunker, scala di passaggio, adeguamento porta scale BTF2 e cancello BTF1