



**MAINTENANCE TRACKING TOOL**  
**PETTRACE800**

Date:2024-05-18

<b>Country:</b> France	<b>Site:</b> TRY
<b>Intervention:</b>	Programmed maintenance: UBM/CBM <input checked="" type="checkbox"/>
<b>Subsystems:</b>	

**PRE-MAINTENANCE**

Registration Date: 2024-05-18

Gas flow(sccm): 3.5

**TPG Settings Verifications**

	Low limit (x10-)	High limit (x10-)
<b>Piranni 1 (TPG300 A1):</b>	0.1	
<b>Piranni 2 (TPG300 A2):</b>	7.00E-2	0.2
<b>Penning:</b>	1.80E-5	3.00E-5

Notes

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Gauge number	Pressure (x10-) without gas	Pressure (x10-) with gas
<b>A1 (mbar):</b>	0.025	0.084
<b>A2 Under Range:</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>A2:</b>	-	-
<b>B1 (mbar):</b>	-	-

**System software**

Subsystem	Version
<b>Master:</b>	3.6.3
<b>ACS:</b>	4.3.2
<b>Service System:</b>	3.6.0
<b>Manager:</b>	
<b>Informix (only applicable to SUN-Master Station):</b>	

Comments

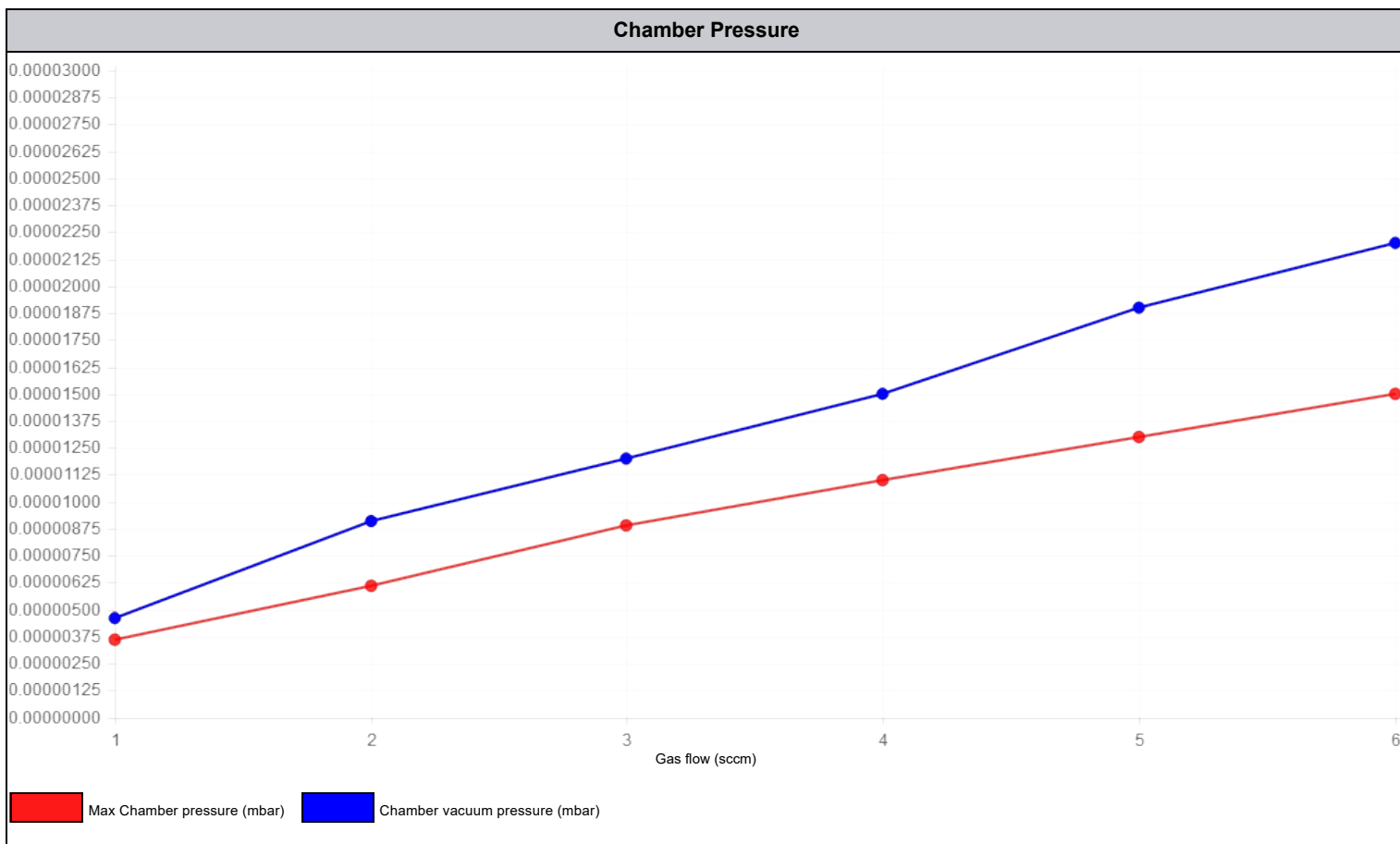
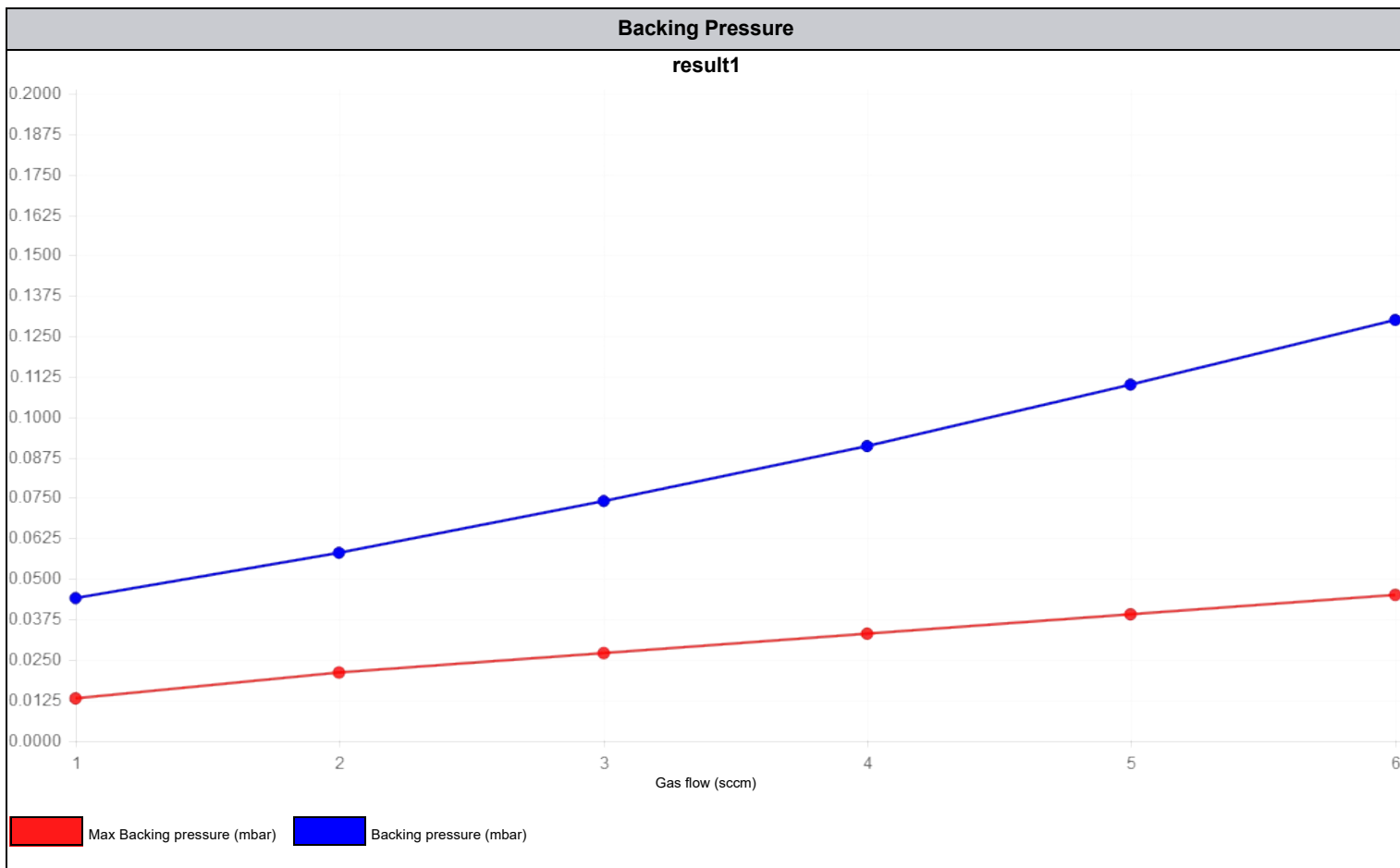
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Paper Burn Before PM

<b>Photos</b>
There is not photographic evidence

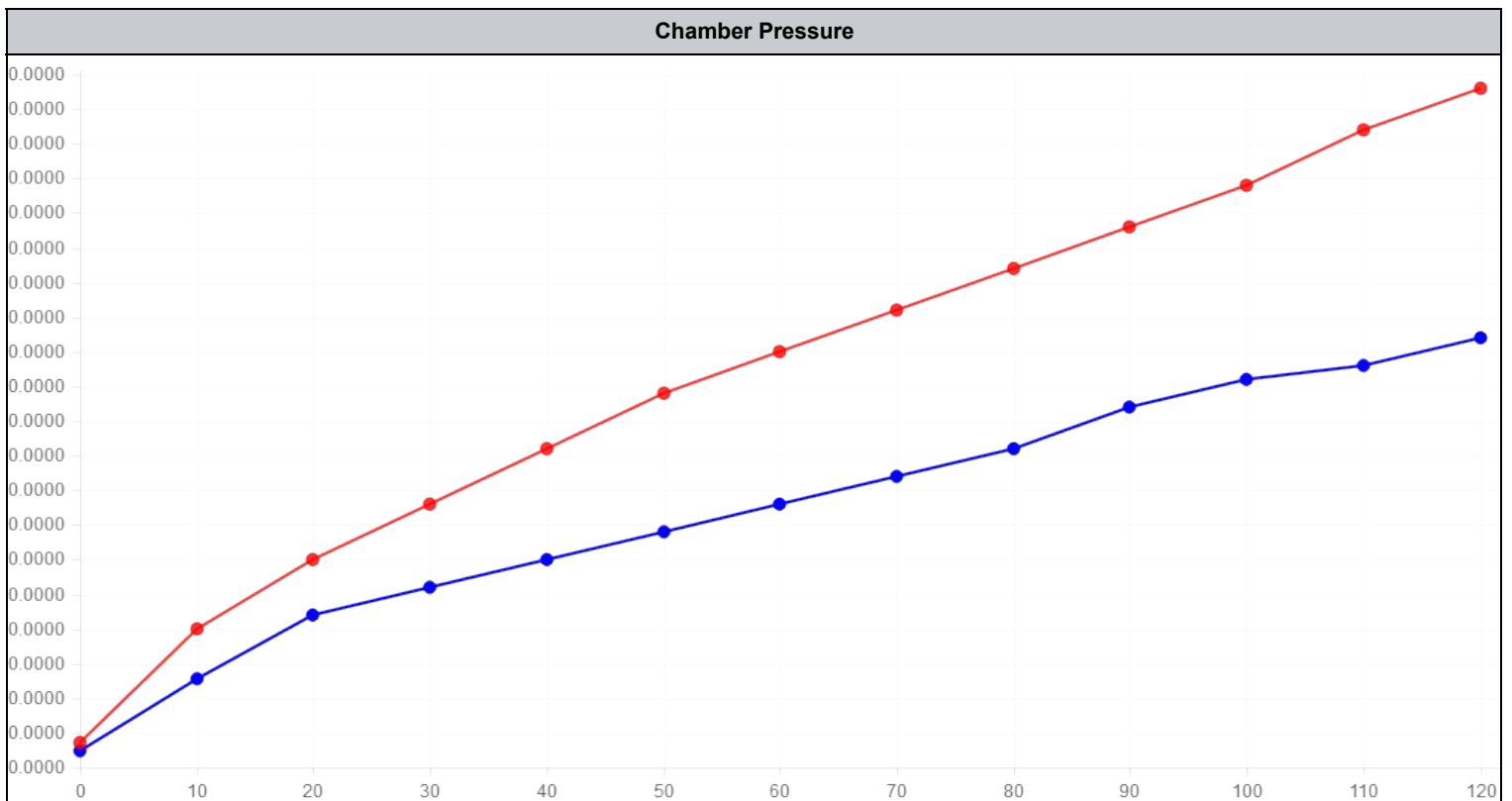
Vacuum MFC curve test

<b>SCCM</b>	<b>Chamber pressure</b>	<b>Backing pressure</b>
1	4.60E-6	0.044
2	9.10E-6	0.058
3	1.20E-5	0.074
4	1.50E-5	0.091
5	1.90E-5	0.11
6	2.20E-5	0.13



**Vacuum leak test**

Seconds since push standby	Chamber pressure	Max. Chamber pressure
0	1.20E-7	1.80E-07
10	6.40E-7	1.00E-06
20	1.10E-6	1.50E-06
30	1.30E-6	1.90E-06
40	1.50E-6	2.30E-06
50	1.70E-6	2.70E-06
60	1.90E-6	3.00E-06
70	2.10E-6	3.30E-06
80	2.30E-6	3.60E-06
90	2.60E-6	3.90E-06
100	2.80E-6	4.20E-06
110	2.90E-6	4.60E-06
120	3.10E-6	4.90E-06



**Diffusion pump & HVV timing**

TimeInto	HeatingTime	PumpingTimeBeforeOpenHVV (Min)	TimeToOpenHVV
Open HVV			690.0

**RP & DP pump oil condition**

Date last rotary oil change: 2024-03-11

Roughing pump oil mist filter cleaned	Roughing pump oil is in good color and condition
	<input checked="" type="checkbox"/>

Last DP maintenance:

DP oil is in good color and condition

RP Photo



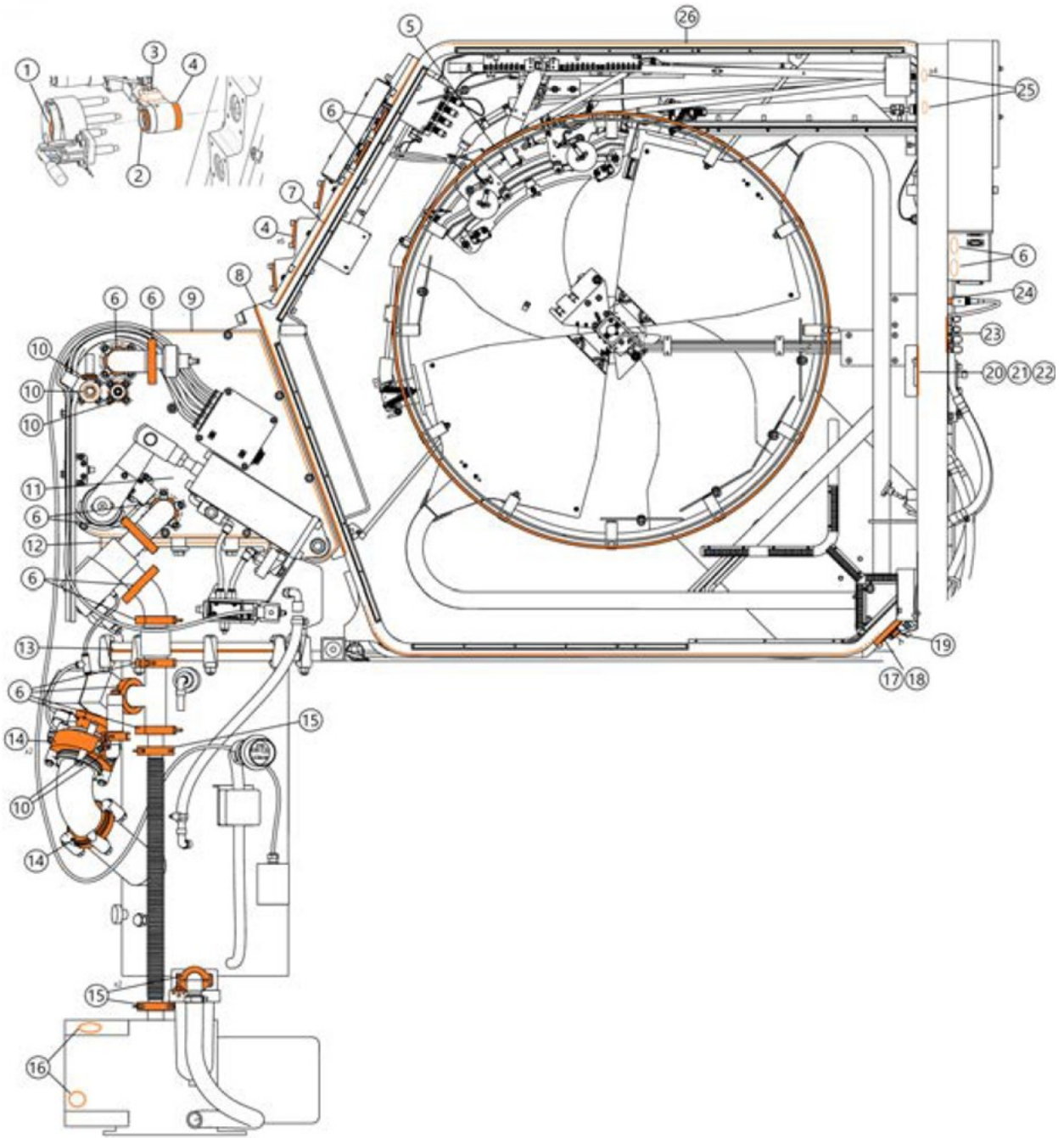
**DP Photos**

[Photo DP](#)

Notes

PETtrace800 O-Rings analysis

Pins



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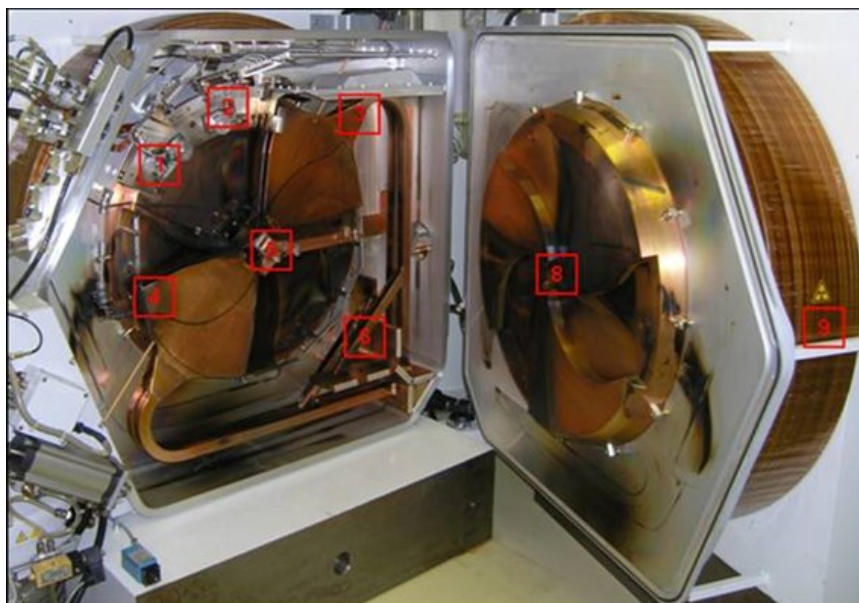
**CHAMBER**


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**Chamber Opening**

Measure yoke play, adjust if needed: -

Dose rate mapping (positions 1-9, [ $\mu\text{Sv/h}$ ])

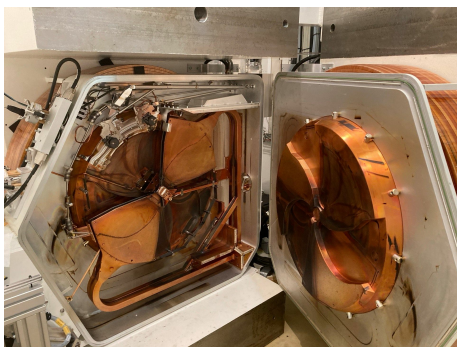


Position 1: At 36 cm from Extraction trolley	-
Position 2: At 36 cm from Carousel	-
Position 3: At 36 cm from Dee 2-stem junction	-
Position 4: At 36 cm from Deel upper corner	-
Position 5: At 36 cm from Central region	-
Position 6: At 36 cm from Stems coupler	-
Position 7: At contact with central region	-
Position 8: At 36 cm from magnet pole	-
Position 9: At contact of magnet coil	-



**Photo documentation & visual inspection**

**Vacuum chamber**



**Magnet pole**

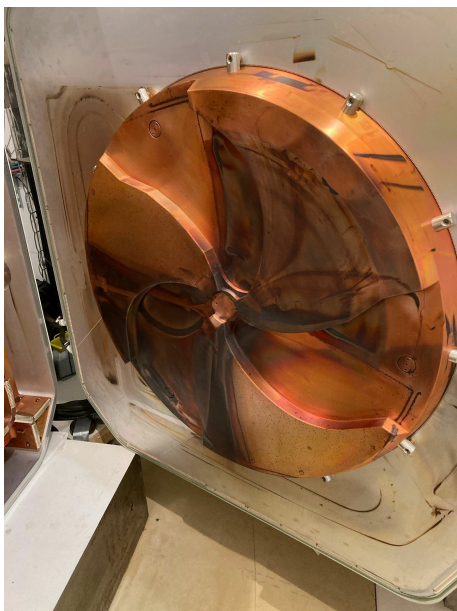
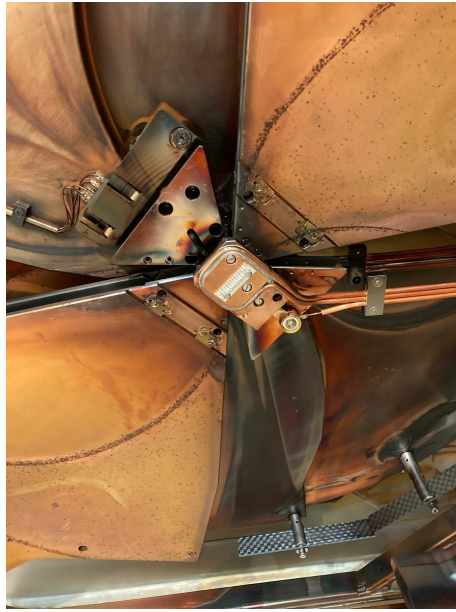
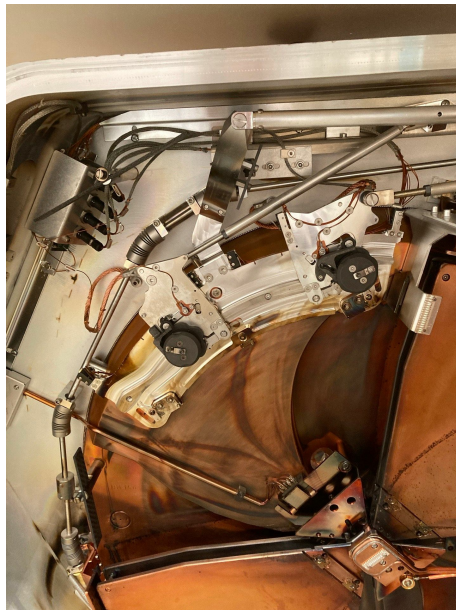


Photo documentation & visual inspection

Central region



Extraction



**Photo documentation & visual inspection**

**Screen plate beam passage**



**Flap 1**



**Photo documentation & visual inspection**

**Flap 2**



**Collimators**



**Photo documentation & visual inspection**

**Others**



**Others**



**Beam exit valve tests**

Visual inspection of tubing	<input checked="" type="checkbox"/>
Visual inspection of opening/closing	<input checked="" type="checkbox"/>
Tubing replacement if needed	<input checked="" type="checkbox"/>



**Flaps**Flap 1

Calibrate flaps, record minimum and maximum motor current:

<b>Minimum current [mA]</b>	-81
<b>MaximumCurrentMA</b>	92

Record flap to dee distances for 0%, 50%, 100%

<b>0% value [mm]</b>	4.5
<b>50% value [mm]</b>	-
<b>100% value [mm]</b>	-

Notes

Movement ok

Flap 2

Calibrate flaps, record minimum and maximum motor current:

<b>Minimum current [mA]</b>	-90
<b>MaximumCurrentMA</b>	86

Record flap to dee distances for 0%, 50%, 100%

<b>0% value [mm]</b>	4.5
<b>50% value [mm]</b>	-
<b>100% value [mm]</b>	-

Notes

Very high current at 1st start (300), not reproduced on next 2 attempts. Movement ok. Springs touch the screen plate beyond 85%, expected

**Central Region**

<b>Visual inspection of flip-in probe</b>	<input checked="" type="checkbox"/>
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Measure flip-in probe position (a,b,c,d,e)

A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
-	-	-	-	-

<b>Dismount ion source and mount dummy ion source</b>	
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Measure central region distances (A, B, C, D) [mm]

A [mm]	B [mm]	C [mm]	D [mm]
-	-	-	-

<b>Visual inspection and photo of H-puller</b>	
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<b>If needed: H-puller replacement</b>	
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If needed: Adjustment of central region and record A, B, C, D again

<b>If needed: Adjustment of central region and record A, B, C, D again</b>	
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A [mm]	B [mm]	C [mm]	D [mm]
-	-	-	-

<b>If needed: Ion source maintenance or replacement</b>	
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<b>Install back ion source</b>	
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Restore and record flip-in probe position

<b>Restore and record flip-in probe position</b>	
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A [mm]	B [mm]	C [mm]	D [mm]
-	-	-	-



Pictures	
Image	Comments

**Dees**

Visual inspection of dees, internal and external baffles	<input checked="" type="checkbox"/>
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	Measure dee thickness	Measure dee height
A	-	-
B	-	-
C	-	-
D	-	-
E	-	-
F	-	-
G	-	-
H	-	-

Pictures	
Image	Comments
<a href="#">Dees_1004.jpg</a>	One Dee 1 baffle a bit long

Verify tightness of dee- and stem screws	
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**Extraction**

Replace extraction foils of carousels	<input checked="" type="checkbox"/>
Visual inspection of extraction cables	<input checked="" type="checkbox"/>

Calibrate balance, record minimum and maximum motor current [mA]

	Calibrate balance, record minimum and maximum motor current	Calibrate extraction 1, record minimum and maximum motor current [mA]	Calibrate extraction 2, record minimum and maximum motor current [mA]
Minimum current [mA]	-	-	-
Maximum current [mA]	-	-	-

**Diagnostic system checks**

Target ID	2
Visual inspection of collimators and collimator cables	<input checked="" type="checkbox"/>
Check collimator screws tightness	<input checked="" type="checkbox"/>
Measure flip-in probe resistance	29380
Target Resistance	19999
Lower Collimator Resistance	29360
Upper Collimator Resistance	29380
Horizontal Collimator Opening	-
VerticalCollimatorOpening	-

	Resistance Measurement	Insulation Measurement
Extraction 1	29420	-
Extraction 2	-	-

Comments	T2 lower coll screws tightened a small bit
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<b>Target ID</b>	5
<b>Visual inspection of collimators and collimator cables</b>	<input checked="" type="checkbox"/>
<b>Check collimator screws tightness</b>	<input checked="" type="checkbox"/>
<b>Measure flip-in probe resistance</b>	-
<b>Target Resistance</b>	<b>20010</b>
<b>Lower Collimator Resistance</b>	<b>29430</b>
<b>Upper Collimator Resistance</b>	<b>29440</b>
<b>Horizontal Collimator Opening</b>	-
<b>VerticalCollimatorOpening</b>	-

	<b>Resistance Measurement</b>	<b>Insulation Measurement</b>
<b>Extraction 1</b>	-	-
<b>Extraction 2</b>	29430	-

<b>Comments</b>	
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### Chamber Clean-up

Carousel repositioning

<b>Install back carousels</b>	<input checked="" type="checkbox"/>
<b>Foil change test on each carousel</b>	<input checked="" type="checkbox"/>
<b>Reset foil counter</b>	<input checked="" type="checkbox"/>

<b>Full picture of vacuum chamber</b>
<a href="#">Image_1004.jpg</a>

Chamber clean-up

	<input checked="" type="checkbox"/>
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**Ion Source**


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Record H2 gas pressure

Set point [SCCM]	Reading at MFC [bar]
-	-

Turn on Magnet, set probe in, turn on RF, turn on gas.

Magnet current [A]	DEE1 voltage [kV]	DEE2 voltage [kV]	Gas flow [scm]	If ion source was maintained, perform ion source conditioning (ramp up from 30 mA to 100 mA in 30 minutes and from 100mA to 200mA in 10 minutes)
432	36.5	39	3.5	

**Record Ion Source Performance**

IS current [mA]	IS voltage [V]	Flip in probe current [ $\mu$ A]
50	1341	10.2
100	1133	44.4
150	941	97.3
200	811	159.5
250	723	221.2

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**Beam Conditioning**

Photo name	Add Comment
<a href="#">Image_1003.jpg</a>	No comments

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**PMDebriefing**

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<b>Record additional tasks performed not recorded elsewhere</b>	<b>Record open tasks and issues</b>	<b>Record spare parts / consumables to be ordered</b>	<b>Record worker dosimetry</b>
	Several graphene foils not satisfactory in the packs	Graphene foils Dual tubing compressed air BEV	