

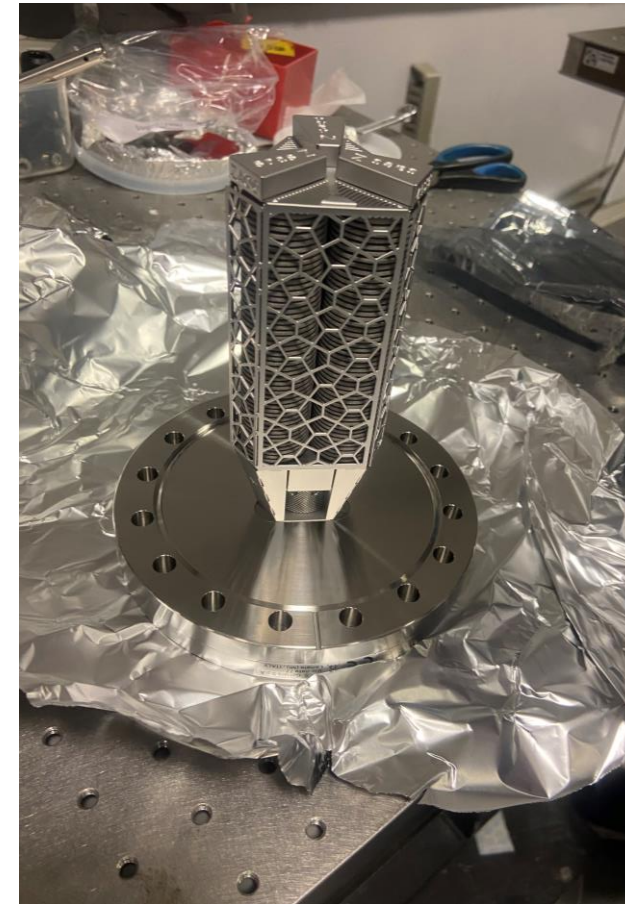
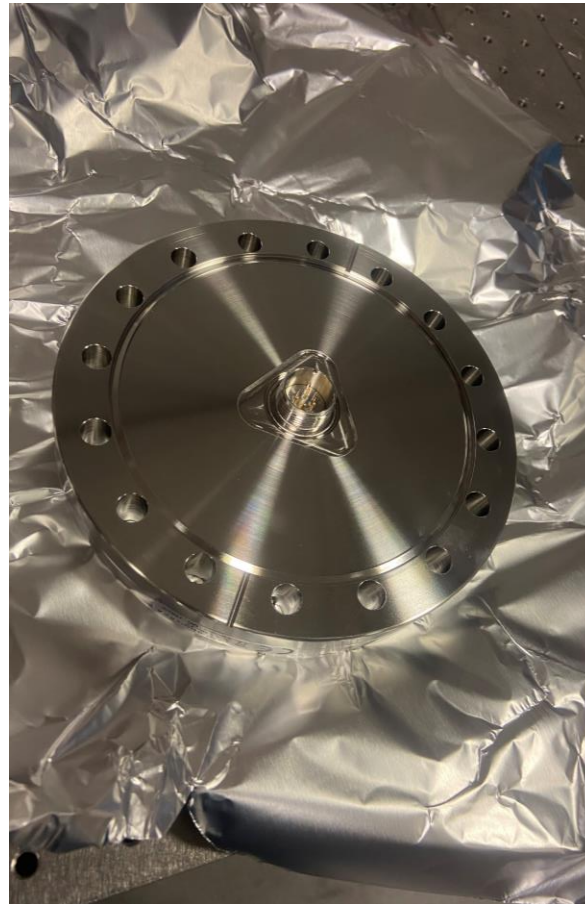
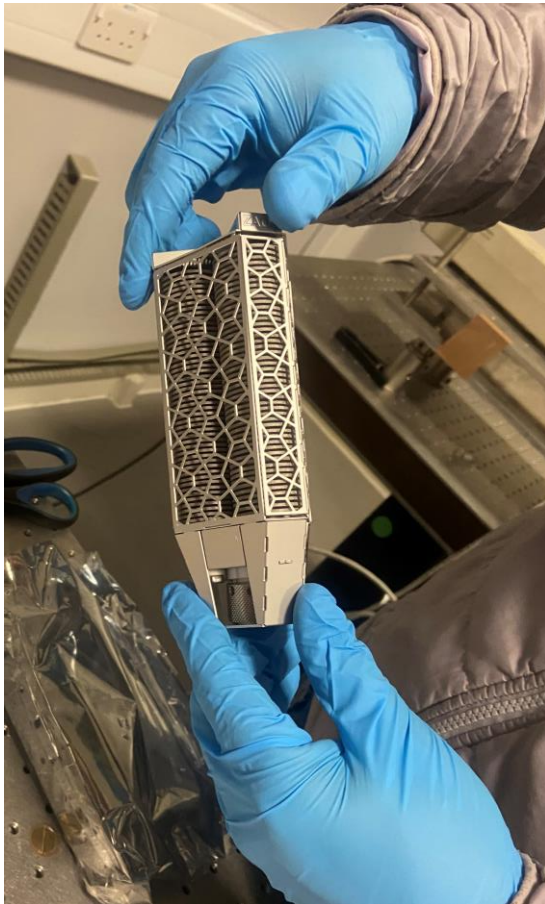
CI update

11/02/2022

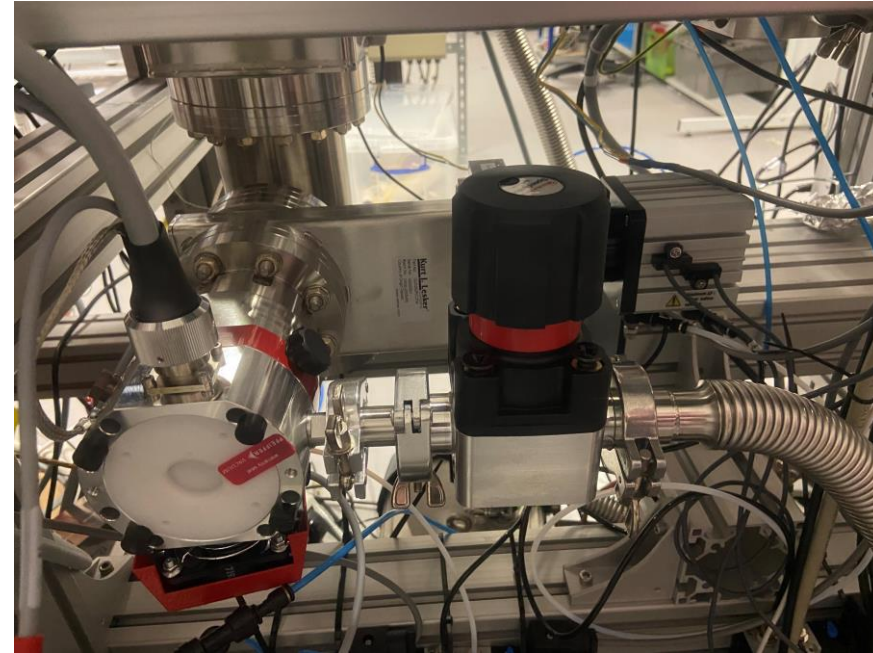
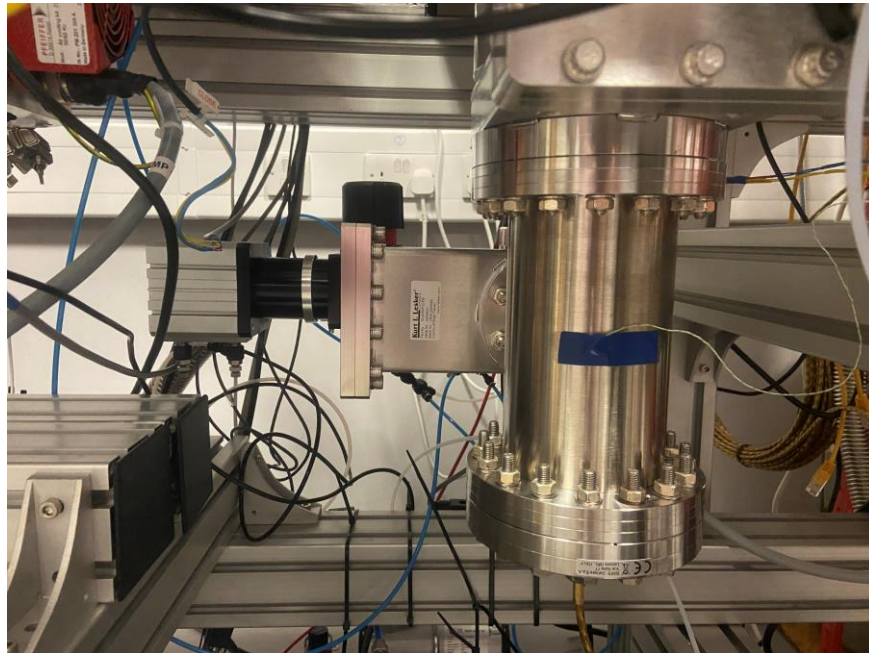


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NEG Pump Installed



NEG Pump Installed



Interaction chamber pressure NEG VS TMP

0.7 x 9mm 3rd skimmer

Jet	Egun	NEG (N2)	TMP (N2)	NEG (Ne)	TMP (Ne)
Off	Off	1.15E-09	3.2E-08	8.68E-10	3.20E-08
Off	On	5.64E-09	--	5.33E-09	--
On	Off	1.06E-08	--	3.25E-08	--
On	On	1.55E-08	4.58E-08	3.71E-08	3.87E-08

Conclusion: NEG behave similar if not better as the TMP in the interaction chamber

0.3 x 9mm 3rd skimmer

Jet	Egun	NEG (N2)	TMP (N2)	NEG (Ne)	TMP (Ne)
Off	Off	8.16E-10	1.66E-09	8.16E-10	1.66E-09
Off	On	8.40E-09	--	8.40E-09	--
On	Off	4.32E-09	1.14E-08	1.41E-08	--
On	On	9.53E-09	3.66E-08	2.16E-08	3.75E-08

NEG VS TMP installed in interaction chamber (Nitrogen)

Condition	CH1	CH2	CH3	CH4	CH5
E-gun & Jet off NEG	<5.0E-09	2.30E-10	2.80E-09	1.15E-09	2.00E-09
E-gun & Jet off TMP	3.8e-7	1.2e-8	3.1e-8	3.2e-8	1.3e-8
E-gun off Jet on NEG	5.4e-3	1.2e-5	1.9e-6	1.06e-8	9.3e-8
E-gun off Jet on TMP					
E-gun on Jet off NEG	<5.0e-9	2.9e-10	2.9e-9	5.64e-9	7.6e-9
E-gun on Jet off TMP					
E-gun & Jet on NEG	5.40E-03	1.20E-05	1.90E-06	1.55E-08	9.70E-08
E-gun & Jet on TMP	5.5e-3	5.3e-6	1.6e-6	4.58e-8	1.2e-7

3rd skimmer
0.7 x 9mm

NEG VS TMP installed in interaction chamber (Neon)

Condition	CH1	CH2	CH3	CH4	CH5
E-gun & Jet off NEG	<5.0E-09	8.3e-11	2.7E-09	8.68E-10	1.4E-09
E-gun & Jet off TMP	3.8e-7	1.2e-8	3.1e-8	3.2e-8	1.3e-8
E-gun off Jet on NEG	2.3e-3	6.7e-6	1.3e-6	3.25e-8	1.1e-7
E-gun off Jet on TMP					
E-gun on Jet off NEG	<5.0e-9	8.5e-11	2.9e-9	5.33e-9	7.0e-9
E-gun on Jet off TMP					
E-gun & Jet on NEG	2.3e-3	6.7e-6	1.3e-6	3.71e-8	1.2e-7
E-gun & Jet on TMP	2.0e-3	2.5e-6	6.8e-7	3.87e-8	9.3e-8

3rd skimmer
0.7 x 9mm

NEG VS TMP installed in interaction chamber (Nitrogen)

Condition	CH1	CH2	CH3	CH4	CH5
E-gun & Jet off NEG	<5.0e-9	2.8e-10	3.6e-9	8.16e-10	1.4e-9
E-gun & Jet off TMP	6.90E-09	1.90E-10	3.70E-09	1.66E-09	3.20E-09
E-gun off Jet on NEG	5.6e-3	1.2e-5	2.0e-6	4.32e-9	4.5e-8
E-gun off Jet on TMP	5.5e-3	1.2e-3	1.9e-6	1.14e-8	3.2e-8
E-gun on Jet off NEG	4.8e-8	7.1e-10	4.5e-9	8.4e-9	1.1e-8
E-gun on Jet off TMP					
E-gun & Jet on NEG	5.4e-3	1.1e-6	1.7e-6	9.53e-9	4.8e-8
E-gun & Jet on TMP	5.5e-3	1.2e-5	1.9e-6	3.66e-8	3.1e-8

3rd skimmer
0.3 x 9mm

NEG VS TMP installed in interaction chamber (Neon)

Condition	CH1	CH2	CH3	CH4	CH5
E-gun & Jet off NEG	<5.0e-9	2.8e-10	3.6e-9	8.16e-10	1.4e-9
E-gun & Jet off TMP	6.90E-09	1.90E-10	3.70E-09	1.66E-09	3.20E-09
E-gun off Jet on NEG	2.2e-3	6.7e-6	1.5e-6	1.41e-8	5.5e-8
E-gun off Jet on TMP					
E-gun on Jet off NEG	4.8e-8	7.1e-10	4.5e-9	8.4e-9	1.1e-8
E-gun on Jet off TMP					
E-gun & Jet on NEG	2.4e-3	6.9e-6	1.5e-6	2.16e-8	6.3e-8
E-gun & Jet on TMP	3.8e-3	8.5e-6	1.6e-6	3.75e-8	3.0e-8

3rd skimmer
0.3 x 9mm

TMP 1

- Additional fan installed for potential heat problem for long time run.
- No issues seen with TMP in nozzle chamber, including full day of operation with gas. TMP feel warm.

Conclusion

- **NEG behave similar if not better as the TMP in the interaction chamber for both 3rd skimmers.**
- **The NEG does not seem to be saturated (More than 17 hour jet of Nitrogen)**
- **Neon can be used, the pressure is higher than Nitrogen but still in 10⁻⁸ range.**
- **Future plan:**
 - **NEG in the dump chamber.**