

11 – Installation Report

Client:	University of Vienna		
Quotation Number:	19066	Date:	05/09/2025
Job Number:	IN1374	Date:	07/11/2025

Contact:	Katerina Douka		
Date of Visit:	08/06/2026	No. of Days:	5
Engineer:	Thomas Iordanidis		

Details of visit:

Day 1 (08/06/2026):

- Arrived on site
- Boxes in basement – no obvious damage, transferred to installation room successfully, unpacked and system placed on bench top – all okay
- No damage observed on system or any components
- Gas company here to finish gas installation – wrong fittings on gauges, used my own connections – all okay
- Compressed air line with wrong gauge fittings – gas company brought back a 4mm connector and I modified the back of the system to a 4mm fitting straight to the compressed air inlet – all okay
- PC set up, System mains & electronics turned on – all COMs respond fine and software operates normally – good readbacks
- All CAL3300 controllers read room temperature and seem to be responding fine – all okay
- Autosampler and connections fitted with new PTFE ferrules – all okay
- Edwards rotary pump unpacked & demonstrated to customer how to fill it up with Edwards-15 oil and fitted at the back of the system – all okay
- Checked continuity across filament pins – all okay and no continuity elsewhere
- Pumps turned on and reached 93k relatively quickly with system pumping down fine
- Turned on gases from cylinders and connectors – leak on helium gauge, more PTFE tape used, all gas connections leak checked using SNOOP – all okay
- Purged lines before connecting to the back of the system
- Unpacked all consumables
- Made Combustion & Reduction tubes and water trap with customer, fitted and leak checked – all okay – no magnesium perchlorate was found in the consumables purchased, used a bottle from my stock
- Turned gases off overnight to ensure there are no leaks and left furnaces at room temperature
- End of day vacuum $\sim 1.5\text{E-}7$

Day 2 (09/06/2026):

- Vacuum on arrival $\sim 2.8\text{E-}8$ – all okay
- Filament turned on – fired okay with good emissions of $\sim 200\mu\text{A}$ at trap of 50 and left to degas for a few hours whilst heating up furnaces
- Gases turned on and leak checked – all okay
- No flow observed on flow sensor – opened side panel, Purge line seemed cut from transport and inside carrier flow leaking, replaced line, re-crimped and used new PTFE ferrules – all okay system now reading on the outlet $\sim 55\text{ml/min}$ with both pressure gauges at 25PSI and no leaks detected with helium detector around the system
- Started ramping up furnace temps to reach Combustion: 1000°C , Reduction: 600°C and GC: 65°C , Cal controllers respond fine – all okay
- Autosampler does not seem to rotate – side panels removed and cog adjusted – no change, swapped block to thicker model and adjusted cog positioning and it seems to be turning fine now
- Autosampler screws leak checked – all okay
- Pressure tested system with furnaces at full temps – drop of 1PSI in 300secs – system leak tight

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- Purge flow ~35ml/min – leak found at the entry of helium to V9 – tightened all okay and crimp adjusted for purge to be ~55ml/min matching the carrier flow
- Moved magnet and adjusted legs – dropped beetmix samples for tuning
- Good CO2 peak shape with good stability and trap jumping obtained
- N2 tuning resulted to a good peak shape and stability rising all the way indicating that the system is still pumping down since the filament was turned on this morning
- N2 background ~1.5E-10 seems to be going down overtime – all connections and trapping loop tightened
- N2 Blanks ~3.0E-10, autosampler not turning again – swapped out cog screw for a longer one – all okay
- Ran dual blanks – blanks coming down over time and no CO2 blanks – all okay
- Lowered GC temperature to 60°C for better dual separation
- Good flash combustion observed for samples – all okay
- Submitted dual precision batch to assess current tuning – CO2 passed however N2 gave variable results indicating that further tuning is required
- Dual linearity ran with CO2 passing specifications and N2 giving variable results
- CO2 has passed specifications – to leak test system tomorrow and optimise N2 tuning
- End of day vacuum ~3.8E-8

Day 3 (10/06/2026):

- Vacuum on arrival ~2.0 E-8 – all okay
- Pressure tested O2 line – No drop within 300secs. – leak tight
- Ran a set of blanks – blanks staying low and dropping over time – autosampler turns fine – all okay
- Dropped a sample and new N2 tuning selected with good stability
- Dropped another sample to check CO2 peak shape and HT positioning – all okay
- Submitted dual beetmix precision batch to assess tuning – CO2 still looks good but N2 gives variable results
- Further tuning for N2 – good peak shape obtained with improved trap jumping
- Submitted dual beetmix precision batch to assess tuning – CO2 still looks good but N2 looks better but still variable
- Blanked off purge line to leak test – line leak tight
- Snooped around oxygen line – no leaks detected, possible small leak at O2 pressure gauge, tightened – nothing leaks detected
- Submitted dual beetmix precision batch overnight with fresh beetmix samples to assess tuning

Day 4 (11/06/2026):

- Vacuum on arrival ~1.2E-8 – all okay
- Batch that ran overnight with fresh samples passed precision specifications for both CO2 & N2
- Trapped two samples to check that HT is still on peak – all okay
- Made a fresh dual linearity batch and submitted it – linearity specifications met for both CO2&N2
- System specifications have been met -all okay
- Background scan slightly higher than expected however everything stays below the limit of 1.0E-11, one pump system – all okay
- Customer training on the system commenced including but not limited to:
- System theory (isotopes/separation/ionisation) & System components (Pumps, Autosampler, Furnaces, Tubes, Cal Controllers, GC, Trapping Loop, Isolation valve, System controller, Source, Gauge, Magnet, Flight tube, Collector)
- Source familiarization & tuning parameters
- Callisto software training – Including how to set system to standby/full flows, what each valve does, vacuum indications
- Tuning using the trapping loop for both N2 & CO2 (Peak Shape & Stability)
- Sample Lists, Methods, References, and other functions of the software

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- How to use the Reprocessor to adjust windows, change names
- Leak and Pressure testing of the system including background checks

Day 5 (12/06/2026):

- Allowed customer to work the system – valve operational control/trapping/samples/reprocessing
- Dropped a few collagen samples to determine what sample sizes are optimal for the system
- From the tests carried out it seems like a good weight of collagen sample is 0.5-1mg which gives good size peaks for N2&CO2
- Handed system to customer
- Installation visit complete

Final System Specifications:

	CO2	N2
Peak Shape	Good	Good
Stability	Good	Good
Dual Beetmix Solution (100ugN/400ugC) Precision	0.007	0.079
Dual Beetmix Solution (100ugN/250ugC) Linearity	0.240	0.200

Recommendations:

Purchase more consumables for making up tubes, magnesium perchlorate for the water trap (none was found), and I would recommend getting a leak detector to ease the leak checking procedure

Purchase relevant standards for the required analysis

Take care with your helium gauge as this was installed loose

Faults and Shortages:

Autosampler stopped turning – new holding block for the cog provided and longer screw – hasn't stopped turning since Day 2 – if it stops turning again a new arm might be required

Follow up:

Please contact us at service@sercongroup.com if you have any future questions or problems

Engineer: Thomas Iordanidis

Date: 12/06/2026

Signed:

