



sercon
innovators in isotopes

Sercon Ltd, Europa House, Coppicemere Drive,
Crewe, Cheshire CW1 6GZ, UK
Tel: +44 (0)1270 580008
Company Registration No. 4290072 Vat No. 771 1100 74

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Client:	Dept. of Energy C/O: Dynalab Corporation		
Quotation Number:	11758	Date:	16/10/2024
Job Number:	IN1360	Date:	08/04/2025

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ADDITIONAL:

Payment Terms:

50% / 40% / 10%

Other: please specify

Penalty Clause Yes / No

Please specify: _____

Blue Book Completion:

Signed	<i>[Signature]</i>	Date	22/10/25
Verified	<i>[Signature]</i>	Date	23/10/25



Unit 905 Atlanta Centre Annapolis St.,
Greenhills, San Juan Metro Manila
Tel. No.: (632) 8723-4710 / 8727-6270 / 8727-8659
Telefax: (632) 8721-5139
e-mail: info@dynalab.com.ph
VAT Reg. TIN: 001-044-373-00000

№ 0001488

PURCHASE ORDER

SERCON LTD.

Unit 3B Crewe Trade Park

Gateway Cheshire CWT 1 6JT UK

~~TEL: +44(0)1270 58008~~

DATE: 08 April 2025

TERMS OF PAYMENT: 30 days

Please enter this order subject to the terms and conditions stated below.

ITEM	QTY.	UNIT	PARTICULARS	UNIT COST	AMOUNT
1	1	pc	20501 HD Upgrade		USD 4,900.00
2	1	pc	S10685 20-20 Electromagnet Assy		USD 9,938.60
3	1	pc	S10315 Emag Drive Box w/ cable		USD 2,448.60
4	1	pc	41901/1 1 Channel Head Amp		USD 391.16
5	1	pc	70101/13 Standard Head Amp Cable		USD 462.00
6	1	unit	30302/5 nEXT 85 Turbo Pumping System Upgrade Dual		USD 13,300.00
7	1	unit	20102 HS Source Upgrade		USD 18,200.00
8	1	pc	71701-1 Sub Microgram Nitrogen Analysis Start Up Kit		USD 980.00
9	1	unit	S12533 Silicon Carbide Horizontal Tube Furnace		USD 13,636.00
10	1	pc	70901-4 GC-CP Pyrolysis H Spares Kit		USD 864.04
11	1	pc	70101/15 FID/Signal to new Electronics Cable		USD 140.00
12	1	pc	10202/7 Preparation PCB Upgrade		USD 7,000.00
13	1	pc	S41513 VFC PCB		USD 1,200.50
			CIP Charges		USD 3,000.00
			TOTAL:		USD 76,460.90

REQUESTED BY:

NOTED BY:

APPROVED BY:

Instructions:

1. Indicate Purchase Order Number on all copies of your invoice and delivery receipts.
2. Instruct your delivery man to leave the original and duplicate copies of your invoice with receiving personnel to facilitate payment of your account; otherwise mail the original to our Accounting Department. Payment will be made by our Accounting Department only.
3. Dynalab Corporation reserves the right to reject any or all materials delivered under this order which do not conform to the description shown above specification furnished.

20 BkIts. (50x3) 0001001 - 0002000
BIR Authority to Print No.: OCN042AU20210000000473
Date of ATP: 09/08/21 Expiry Date: 09/07/26
ST. GIRARD PRINTERS, INC.
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VAT REG. TIN: 200-235-473-00000

Printer's Accreditation No.: 052MP20190000000082
Date of Accreditation: August 19, 2019
Expiry Date: August 19, 2024

QMF 08.03 Issue 1 27/04/12

"THIS DOCUMENT IS NOT VALID FOR CLAIM OF INPUT TAXES"

"THIS PURCHASE ORDER SHALL BE VALID FOR FIVE (5) YEARS FROM THE DATE OF ATP"

3 - MACHINE SPECIFICATION

Client:	Dept. of Energy C/O: Dynalab Corporation		
Quotation Number:	11758	Date:	16/10/2024
Job Number:	IN1360	Date:	08/04/2025

Ref No.	Product Description	Required
HS2022 (continuous flow)		
20402/1	HS2022 Ref Gas + P Mag	
20402/2	HS2022 Ref Gas + E-Mag	
20402/3	HS2022 Ref Gas + Hd Collector + E-Mag	
20402/4	HS2022 Ref Gas + Hd Collector+E-Mag+Trap Loop	
20501	Hd Collector Assy	***
50101/2	Trapping Loop Assy	
70201-1	70201-1 Analyser spares kit - Included	
EA Units		
10202/11	iso-EArth	
10202/13	iso-EArth+	
10202/14	iso-Earth HT Furnace Upgrade	
10202/15	Iso-Earth (Without Autosampler)	
11802/1	Earth+PC	
11802/2	EArth+Clarity+PC	
70501-1	Consumables for C and N for Combustion Only	
70501-11	Simultaneous CNS Consumables Kit (approx. 10000 analysis)	
70501-3	Sample Prep Kit (Inc.)	
70501-4	GSL Combustion and Gas C & N Start Up Kit	
70501-5	Simultaneous NCS Consumables Kit	
70501-6	C&N Combustion Only Consumables Kit (approx. 5000 samples)	
70501-8	Simultaneous CNS Consumables Kit (approx. 5000 samples)	
70601-1	Sulphur Start Up Kit (Inc. with Sercon EA Systems)	
70601-2	Sulphur Consumables Kit for 1000 Samples	
70601-4	Sulphur Consumables Kit (approx. 5000 Samples)	
70801-2	Pyrolysis Consumables Kit-Low temp for Solids	
71701-1	Sub Microgram Nitrogen Analysis Start Up Kit	
SI2040	PN150 Pneumatic Autosampler with one no.50 pos. carousel	
SI2345	ME Micro Balance	
SI2737/A	Sercon 50 Position Autosampler Assy	
SI2789	Extra 50 Position Carousel	
SI2744	Automatic Liquid Sampler 15 Position	
SI2743	Liquid Sampler Mounting Plate	
Headspace Equilibration		
10202/10	XYZ Gas Sampling Control Box	
10302/1	Aqua System	
11103	µCarbs for CF	
11103-1	µCarbs for DI	
11601	200 Place Dual Heated Block 240 Volt	
11801	Sercon XYZ Gas Autosampler	
71107-1	CF oxygen-18 equilibration kit	
71107-2	DI Oxygen-18 Equilibration kit	
71201-1	CF deuterium equilibration kit	
71201-2	DI Deuterium Equilibration kit	
71801-1	WES-DI start up kit (Inc. with WES-DI)	
GC Units		
10402/2	Orchid module 1500C (Will run Hd 70901-1 C Spares Kit Inc)	
10901	Nitrogen Option (71301-1 N Spares kit Included)	
HP7890/1	Agilent 7890B GC System	
HP7890/2	Agilent 7890B GC with Auto Injector	
HP7890/3	Agilent 7890B GC + Auto Injector + 150 Vial Sample Tray	
SI2561	Nexis GC 2010 Plus	

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Ref No.	Product Description	Required
GC Units <i>continued</i>		
SI2564	Nexis GC-2030	
70901-3	GC Pyrolysis H and O Start Up Kit	
70901-4	GC Pyrolysis H Spares Kit	
70901-5	GC Combustion C Spares Kit (approx. 5000 samples)	
70901-6	GC Pyrolysis h Start Up Kit (approx. 5000 samples)	
71301-1	GC N Spares kit	
ABCA2 Units		
10502/1	ABCA2 Sercon XYZ Autosampler	
10602	ABCA2 Gas Box	
20602	Complete Sercon ABCA2 system	
20603	ABCA IR Analyser	
70101-1	ABCA2 spares kit (Inc. With ABCA2)	
70101-2	ABCA2 Spares Kit for AB Analytica Systems	
70101-3	ABCA2 Autosampler Upgrade Kit	
SI1767	CVL505 – Barcode Reader	
SC9973	13C Urea breath test kit for Helicobacter pylori infection	
SC9974	Helicobacter Test kit for children age 3-11 (45mg)	
Integra2 Units		
20802/4	Integra2	
70201-2	Integra2 analyser spares kit - Included	
70401-1	Integra-2 consumables (Inc. With Integra2)	
Trace Gas Systems		
10802/4	CryoPrep	
10802/5	Automated LN refiller	
10802/6	CryoFlex (TOC)	
10802/7	CryoGas	
10802/8	CryoFlex (LA)	
SI2533	Silicon Carbide Vertical Furnace	
SI2731	213nm Laser Ablation System	
SI2733	isoScell 100 sampler chamber	
71001-1	Cryoprep Spares Kit	
71001-5	CryoGas Consumables Kit	
TOC Units		
14001	Thermalox Environmental TOC-IRMS	
14002	Thermalox Environmental TOC-Standalone	
14003	Thermalox Environmental TOC-Standalone No Sampler	
SI2772	CO2 Detector, High sensitivity Option	
SI2773	NOx detector Option	
SI2774	Vacuum pump Option	
SI2775	Stirred Vial rack Option	
72101-1	TOC Start Up Kit	
72101-2	TOC Chem Pack	
72101-3	TOC & TN Instrument with heavy usage - one year	
72101-4	TOC only - economy holding	
GEO 20-22 (dual inlet)		
10702	GEO 20-22 Water Equilibration System (D & 18O)	
21802/1	GEO 20-22	
21802/2	GEO 20-22 + E-Mag	

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21802/3	GEO 20-22 + E-Mag +Hd	
21802/4	GEO 20-22 Inlet	
70301-1	GEO start up kit - Included	
70301-3E	Comprehensive GEO 20-22 spares kit for 5 years operation	
HT-EA		
11501/4	HT-EA (With Autosampler)	
11501/5	HT-EA With Liquid Option	
11501/6	HT-EA Stand Alone	
11501/7	HT-EA (Without Autosampler)	
SI2622	CTC PAL3-LSI-L-S	
SI2624	CTC PAL3-Kit-Standalone	
70801-1	Pyrolysis Consumables Kit-High Temp for Solids	
71501-1	HT-EA Pyrolysis Start Up kit O and H	
71501-2	HT-EA Pyrolysis Kit for Water injections	
71501-3	HT-EA Sensitivity Start Up Kit for O & H in small samples	
71501-4	HT-EA Sensitivity Consumables Kit for O & H in small samples	
71501-5	HT-EA Sensitivity Kit for O&H in Small Samples (5000 samples)	
71501-7	HT-EA Kit for Room Temp Equilibration	
71501-8	HT-EA Pyrolysis Kit for Water injections (approx. 1 year kit)	

Ref No.	Product Description	Required
Upgrades		
12101	Evacuation System ***	
12102	2 Ref Gas+ Dilutor Box ***	
20101	Standard Source Assy ***	
20102	HS Source Assy ***	
20301	Standard Collector Assy ***	
30202/1	System Control Upgrade (Pmag) installation not included	Edwards Or Pfeiffer
30202/2	System Controller Upgrade (Emag) installation not included	Edwards Or Pfeiffer
10202/7	Preparation PCB Upgrade	
30202/3	Hijack Box ***	
30302/4	nEXT85 Edwards Pumping System Upgrade Single - installation not included	
30302/5	nEXT85 Edwards Pumping System Upgrade Dual - installation not included	
30302/6	nEXT85 Edwards Pumping System Upgrade Triple- installation not included	
SI2542	ABCA2 Upgrade Kit	
CALLISTOW	Callisto software upgrade ***	
Specials		
11702	LC-I interface	
12202	Leco Interface Unit	
SI2320	Agilent 1260 Series Refractive Index Detection HPLC System	
71401-1	ABCA-G Start Up/Spares Kit	
71401-2	ABCA-G Equilibration Spares Kit - Room temp O only	
71401-3	ABCA-G Equilibration Spares Kit - Room Temp O & H	
71601-1	LC Interface Spares Kit	
ADDITIONS		
PC	Windows 7 based PC System with Callisto Software	
Printer	Printer	
INST1	Installation and start up training at customer's site by Sercon Engineer	
INST2	Installation and start up training at customer's site by Agents Engineer	
WARR	1 year warranty	
WARR2	2 year warranty	
TRAIN	Training in UK for one person for 3 days	
SCONTRACT	Maintenance Service Contract – 1 year	

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Quotation Number:	11758	Date:	16/10/2024
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SPECIFICATION REQUIREMENTS			
Voltage	Volts 50/60Hzs		
Plug Type	SI2510	3 Metre USA/Japan plug to IEC C 13	
	SI2511	2.5 Metre Australian plug to IEC C 13	
	SI2512	3 Metre UK 13 amp Fused plug to IEC C 13	
	SI2523	3metre Schuko (Euro) Plug to IEC C13 Socket	
	SI2514	2.5 metre Chinese mains to IEC C13	
Pallet	Stamped for export heat treated for 30 min @ 56 °C		
	Complies with all Export Requirements		



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Quotation Number:	11758	Date:	16/10/2024
Job Number:	IN1360	Date:	08/04/2025

SPECIAL REQUIREMENTS (DETAILED SPECIFICATION)

[illegible]

Approved by Sales: (Name)	<i>[Signature]</i>	Date: 08/04/25
Approved by Tech.: (Name)	<i>[Signature]</i>	Date: 08/04/25



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[illegible]



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Log sheet - 4

4 - LOG SHEET

Client:	Dept. of Energy C/O: Dynalab Corporation		
Quotation Number:	11758	Date:	16/10/2024
Job Number:	IN1360	Date:	08/04/2025

Date	Action Taken	By Whom
BLANK JOC. 22/10/25		



Fault reporting - 5

Client:	Dept. of Energy C/O: Dynalab Corporation		
Quotation Number:	11758	Date:	16/10/2024
Job Number:	IN1360	Date:	08/04/2025

19/01/2017



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Test acceptance - 6

6 - TEST / ACCEPTANCE SPECIFICATION

Customer:	Dept. of Energy C/O: Dynalab Corporation		
Quotation Number:	11758	Date:	16/10/2024
Job Number:	IN1360	Date:	08/04/2025

HS20-22

Reference Gas Precision (n=5) x5 Ref gas pulses of 5 seconds to be used.

¹³ C	(CO ₂)	0.06	
¹⁵ N		0.06	
¹⁸ O	(CO ₂)	0.06	
³⁴ S	(SO ₂)	0.1	
² H		0.4	

Reference Gas Linearity ref gas pulses ranging from 1-second trough to 10 seconds

¹³ C	≤0.02‰/nA STD Deviation <0.30	
¹⁵ N	≤0.02‰/nA STD Deviation <0.30	

IsoEarth & PyroEarth

**Combustion (n=5) (For NCS use 0.3mg of Cystine) (Pyrolysis use silver caps)
0.4mg of Cystine for ¹⁸O and 4 mg of Cystine for H₂**

¹³ C	100 µg C	0.1		10 µg C	0.8	
¹⁵ N	100 µg N	0.15		10 µg N	1.5	
³⁴ S	25 µg S	0.3		10 µg S	1.0	
Dual	400 µg C	0.1		100 µg N	0.15	
¹⁸ O	100 µg or 1 µl water	0.3				
² H	200 µg H or 1 µl water	1.0				



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Test acceptance - 6

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Job Number:	IN1360	Date:	08/04/2025

EArth			
Solid specs to be completed using 2mg methionine calibration against 1,2,3mg (n=3) cystine. Combustion (n=5)			
		Accuracy (avg)	Precision (std dev)
¹³ C		+/- 0.4%	0.2
¹⁵ N		+/- 0.4%	0.2
² H		+/- 0.4%	0.2
³⁴ S		+/- 0.4%	0.2
¹⁸ O	Pyrolysis	+/- 0.4%	0.2
Liquid injections n=5 using 5µl methanol calibrated against 2,4,6µl injections of ethanol			
		Accuracy (avg)	Precision (std dev)
¹⁸ O	Pyrolysis	+/- 0.4%	0.2

Integra2			
Specs to be completed using AS beet mix 400C/100N for precision & 250C/100N for linearity			
¹³ C	100 µg C	0.2	
¹⁵ N	100 µg N	0.3	
Dual	100 µg N & 400 µg C	0.4 & 0.15	
³⁴ S	30 µg S	0.5	
¹⁸ O	100 µg O	0.5	
Dual	100 µg N & 250 µg C	0.5	
HT-EA (Pyrolysis use silver caps) 0.4mg of Cystine for ¹⁸ O and 4 mg of Cystine for H2			
Pyrolysis (n=5)			
¹⁸ O	100 µg O or 1 µl water	0.3	
² H	200 µg H or 1 µl water	1.0	

6 - TEST / ACCEPTANCE SPECIFICATION

Customer:	Dept. of Energy C/O: Dynalab Corporation		
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Aqua, μ Carbs & GasBox					
Equilibrations (n=5)					
^{18}O	0.2 ml water	0.1			
^2H	0.2 ml water	2.0			
Carbonates (n=5)					
^{13}C	100 μg CaCO_3	0.08			
^{18}O	100 μg CaCO_3	0.1			
Gas Analysis (n=5)					
^{13}C	5% CO_2	0.1		Air CO_2	0.1
^{18}O	5% CO_2	0.1		Air CO_2	0.2
^2H	0.5 ml H_2	1.5			
^{15}N	0.5 ml N_2	0.1		100 ppm N_2O	0.5
^{13}C	Breath (12 ml)	0.1			
DIC (n=5)					
^{13}C	15ppm (0.5ml)	0.15			

LC-I					
(n=5)					
^{13}C		0.2			

GC Orchid					
Combustion (n=3 for each analyte)					
^{13}C	3 Alkanes	100 ng C	0.2	10 ng C	0.5
^{15}N	2 Amines	100 ng N	0.5	14 ng N	1.5

6 - TEST / ACCEPTANCE SPECIFICATION

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Pyrolysis (n=3 for each analyte)						
² H	3 Alkanes	250 ng H	3.0		25 ng H	10.0
¹⁸ O	3 FAMES	100 ng O	0.5		20 ng O	2.0
Water pyrolysis (n=5)						
² H	0.1 µl water	3.0				
¹⁸ O	0.1 µl water	0.4				

CryoRange						
(n=5)						
¹³ C	Air CO ₂ (12ml)	0.1		Air CH ₄ (125ml)	0.2	
¹⁵ N	Air N ₂ (1ml)	0.1		Air N ₂ O (125ml)	0.4	
¹⁸ O	Air CO ₂ (12ml)	0.15		Air N ₂ O (125ml)	0.7	
¹⁸ O	Air O ₂ (1ml)	0.1				
² H	Air CH ₄	3.0				
¹³ C	TOC (5ppm)	0.4				
¹³ C	Laser					

Geo2			
Internal precision (no change overs)			
² H	200 Bar µl	0.15	
¹³ C	100 Bar µl	0.01	
¹⁵ N	100 Bar µl	0.01	
¹⁸ O	100 Bar µl	0.015	
³⁴ S	100 Bar µl	0.015	
Single cold finger volumes (10 change overs)			



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6 - TEST / ACCEPTANCE SPECIFICATION

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¹³ C	20 Bar µl	0.01	
¹⁸ O	20 Bar µl	0.015	
¹³ C	3 Bar µl	0.02	
¹⁸ O	3 Bar µl	0.03	
CAPS (n=5)			
¹³ C	50 µg CaCO ₃	0.03	
¹⁸ O	50 µg CaCO ₃	0.06	
WES (n=5)			
² H		1.0	
¹⁸ O		0.05	
Manifold (10 tubes)			
² H		0.5	
¹³ C		0.02	
¹⁵ N		0.02	
¹⁸ O		0.03	
³⁴ S		0.03	

Special tests



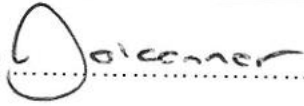
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Test acceptance - 6

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Quotation Number:	11758	Date:	16/10/2024
Job Number:	IN1360	Date:	08/04/2025

Sales Signature: 	Date: 11/07/25
Test Signature: 	Date: 9/7/25

7: ASSEMBLY AND TEST RECORD

Client:	Dept. of Energy C/O: Dynalab Corporation		
Quotation Number:	11758	Date:	16/10/2024
Job Number:	IN1360	Date:	08/04/2025

PRODUCT:

10202/7 (Prep upgrade)

SERIAL NUMBER:

10202/7/25/1360

 ASSEMBLED:
 (Name)

[Signature]

 Date: 27/6/25

 PRE-TEST
 INSPECTION:
 (Production name)

P. Hays

 Date: 30/6/25

 PRE-TEST
 INSPECTION:
 (Test name)

S. Madsen

 Date: 30/6/25

 SYSTEM TEST:
 (Name)

S. Madsen

 Date: 9/7/25

 PRE-DESPATCH
 INSPECTION:
 (Name)

[Signature]

 Date: 11/7/25

P.A.T. Test results

 In compliance with Low Voltage directive 73/23/EEC
 To Low Voltage standard EN61010 – 1:1993

Earth Continuity

_____ Ω

Insulation

_____ MΩ

N/A

Earth Leakage Current

_____ mA. @ _____ kVA.

Tested by:

Date:

8 - Serial Numbers Record Document

Client:	Dept. of Energy C/O: Dynalab Corporation		
Quotation Number:	11758	Date:	16/10/2024
Job Number:	IN1360	Date:	08/04/2025

<u>Units</u>	<u>S/N</u>
MS/ABCA	
Integra 2	
Prep Unit 1	
Prep Unit 2/Misc	
Electronics Upgrade	
CETAC	
Gas Box	
Autosampler	
BCR	
Dual Heater Block	

<u>Pump Kit and Optics</u>	<u>S/N</u>
Turbo pump S	250180874
Turbo pump A	240503728
Rotary Pump	
Voltage	110 / 240
Gauge S	
Gauge A	
Source	20103HS-255
Collector 1	20501-076
Collector 2	
E- Magnet	151

<u>Parts</u>	<u>S/N</u>
Fan PSU	
24V PSU	

Additional System Info:

Emag drive Box- 2505

<u>PCBs</u>	<u>S/N</u>
Electronics Box	
Prep PCB	20240002
VFC PCB	24008
Watchdog PCB	
Head Amp PCB 1	25003
Head Amp PCB 2	
Electromagnet RP	2505

<u>Furnaces</u>	<u>S/N</u>
Combustion	
Reduction	
HT-EA	
GC Oven	
Furnace 1	3858/04/25
Furnace 2	

<u>PC</u>	<u>S/N</u>
PC	
Monitor	
Printer	

Key

Pumps: E: Edwards
 P: Pfeiffer
 Furnaces: V/S: Vecstar
 E: Elite
 Magnet: E: Electromagnet
 S: Standard
 Turbos & Gauges: S: Source
 A: Analyser
 Collectors: Std: Standard
 S: Sulphur
 HD: Hydrogen Deuterium

Packing List

Customer Reference: 0001488

Shipper / Exporter:

Sercon Limited
 Europa House
 Coppicemere Drive
 Crewe
 CW1 6GZ
 UK

Tel: +44 (0)1270 580008
 Reference: IN1360

Consignee:

Dynalab Corp
 Unit 905, 906, 908, Atlanta Centre
 31 Annapolis St, Greenhills
 San Juan City 1502
 Philippines

Contact Name: Let Lim
 Contact Tel Number: (632) 8723 4710

BOX: 1

Quantity	Product Code	Product Description	Serial Number: if available
☒	1	30302/5	
☒	2	Pumping System upgrade includes.	
☒	2	Edwards EXT 75DX Turbo Pumps	250180874 - 240503728
☒	2	Edwards Air cooler assembly	
☒	2	Edwards Vent Valves	
☒	2	Edwards Y Adapter	
☒	1	Wiring Loom	
☒	1	Selection of Crimps	
☒	1	Bag of Cable ties and Bases	
☒	1	Large cut off 6mm hex key	
☒	1	Small cut off 6mm hex key	
☒	1	Edwards Tee Junction.	
☒	16	M8 X 25 cap head screws.	
☒	1	Pumping upgrade manual	
☒	1	10202/7	
☒	1	Prep Board Upgrade for Orchid	
☒	1	Prep Board upgrade	Prep PCB -20240002
☒	1	USB Cable	
☒	1	Valve converter cable	
☒	1	Bag of M3 X 6 screws and cable labels	
☒	1	Prep board upgrade Manual	
☒	1	70101/15	
☒	1	FID/Signal cable	
☒	1	Furnace power and temp cable	

Packed by:

Date:


 11/07/25

Claims for damage or shortages must be made within 3 days

Packing List

Customer Reference: 0001488

Shipper / Exporter:

Sercon Limited
Europa House
Coppicemere Drive
Crewe
CW1 6GZ
UK

Tel: +44 (0)1270 580008
Reference: IN1360

Consignee:

Dynalab Corp
Unit 905, 906, 908, Atlanta Centre
31 Annapolis St, Greenhills
San Juan City 1502
Philippines

Contact Name: Let Lim
Contact Tel Number: (632) 8723 4710

BOX: 2

Quantity	Product Code	Product Description	Serial Number: if available
☒ 1	20501	HD COLLECTOR	20501-076
☒ 1	SI0685	20-20 ELECTROMANNET ASSEMBLY	151
☒ 1	SI0315	EMAG DRIVE BOX AND CABLE	2505
☒ 1	41901/1	1 CHANNEL HEAD AMP	
☒ 1	70101/13	STANDARD HEAD AMP CABLE	
☒ 1		INVERTER HEAD AMP CABLE (WITH AMP CONTROL)	
☒ 1	20102	HS SOURCE ASSEMBLY	20102HS-255
☒ 1	SI1513	VFC PCB	24008
☒ 1	71701-1	SUB MICROGRAM NITROGEN ANALYSIS START UP KIT	
☒ 1	70901-4	GC-CP PYROLYSIS H SPARES KIT	
GC UPGRADE			
☒ 1	SI2533	SILICON HORIZONTAL FURNACE	3858/04/25

Packed by:



Date:

11/07/25

Claims for damage or shortages must be made within 3 days

Works Order Picking List

Date: 16/04/2025

Time: 09:48:34

Works Order: WO02419
Stock Code: 10202/7
Description: Preparation PCB Upgrade
Qty Required: 1.00 Each
Qty Outstanding: 1.00
Plan Period: WK16/2025
Due Date: 12/05/2025

Stock Code / Description Qty to Pick Unit Location Qty Picked / By
Manufacturing Instructions: IN1360

SI0384 Crimp Terminal For Socket Housing	0.00	Each	D-W3	
SI0529 10 Way Socket Housing, 2.54mm Pitch	2.00	Each	D-W3	
SI0648 M3x13mm Nylon Pillar Male-Female,	10.00	Each	D-W3	
SI0811 2 Way Socket housing, 2.54mm pitch	1.00	Each	D-W3	
SI1918 8 Way socket housing, 2.54mm pitch	3.00	Each	D-W3	
SI0538 37 Way Top Entry Plastic D Hood	4.00	Each	D-X4	
SI0568 37 Way Solder Contact ZD Plug , 5A 400 Vac	2.00	Each	D-X4	
SI1482 34 Way IDC Bump Polarised Socket, 1A	2.00	Each	D-X4	
SI2228 37 Way Solder Contact ZD Socket , 5A 400 Vac	2.00	Each	D-X4	
SI2288 Internal USB 4.5m	1.00	Each	Stores J-3	
SI0962 Prep system PCB	1.00	Each	Stores J-4	
SI1910 Furnace Watchdog	1.00	Each	Stores J-4	

All items picked and packed as marked:

Date: ____/____/____ Signed: _____

Stock Allocated, Issued, Completed:

Date: ____/____/____ Signed: _____

Works Order Picking List

Date: 16/04/2025

Time: 09:51:26

Works Order: WO02420
Stock Code: 30302/5
Description: nEXT85 Turbo Pumping System Upg
Qty Required: 1.00 Each
Qty Outstanding: 1.00
Plan Period: WK16/2025
Due Date: 09/05/2025

Stock Code / Description **Qty to Pick** **Unit** **Location** **Qty Picked / By**
Manufacturing Instructions: IN1360

SI2519 nEXT85 Turbomolecular Pump	2.00	Each	B-RACK R	2
SI2520 AXC85 Air Cooler	2.00	Each	B-RACK R	2
SI2521 N/O TAV5 vent valve	2.00	Each	B-RACK R	2
SI2522 Accessory "Y" adaptor	2.00	Each	B-RACK R	2
SI0756 Connector, Crimp Terminal, Adaptor, Male-Male	0.00	Each	D-W1	
SI0648 M3x13mm Nylon Pillar Male-Female,	2.00	Each	D-W3	
SI0794 Female NiPt D Screwlock assembly, 13mm	4.00	Each	D-X	
SI0570 15 way Solder Contact ZD skt 5A 400 Vac	4.00	Each	D-X4	
SI0632 15 Way D Hood	4.00	Each	D-X4	
SI0960 IEC Cord - Plug	1.00	Each	Stores A-2	1
SI0508 24V PSU	1.00	Each	Stores A-8	1
SI0120 NW16 Tee Aluminium - Edwards	1.00	Each	Stores B-1	1

ON ORDER

Production

SI2519 - 1 (SN240503728)
 SI2519 - 2 (SN250180874)

All items picked and packed as marked:

Date: ____/____/____ Signed: _____

Stock Allocated, Issued, Completed:

Date: ____/____/____ Signed: _____



COLLECTION NOTE

Job Number: **IN1360**
Customer: **Dynalab Corp.**
Contact: **Let Lim**

Collection on
Date:

10/7/25

No.
of boxes: 1

By:
Company:

Ucti

Vehicle
Reg No. PV70C2K

Signature:

[Signature]

Print:

A. ARKINSON



S062_v3

Sercon Ltd
Europa House
Coppicemere Drive, Crewe
CW1 6GZ, U.K.
Registered in England and Wales: 4290072

Phone: +44 (0) 1270 580008
Fax: +44 (0) 1270 252310
sales@sercongroup.com
www.sercongroup.com
VAT No.: 771 1100 74
19/01/2017

11 – Installation Report

Client:	Dept. of Energy C/O: Dynalab Corporation		
Quotation Number:	11758	Date:	16/10/2024
Job Number:	IN1360	Date:	08/04/2025

1

Contact:	Anne Marie B. Sabino / Dynalab Corp		
Date of Visit:	10 th – 23 rd Sept 2025	No. of Days:	5
Engineer:	David Harris		

Details of visit:

Arrived on site, inspected delivery of parts. All ordered parts accounted for – All OK.

Inspected instruments before progressing to upgrade of system. All systems powered down. MS vented. PC deactivated. System has not been used for several year. Customer reports that there has been issues with corrosion. Unknown if all parts are functioning. Gas lines are plumbed in but flows have not been active for a long time. Laboratory has high humidity. Engineer suspects that system may be damaged due to water within plumbing & flight tube. Pink thick liquid present within Sulphur setup water trap (tube is empty of magnesium perchlorate).

Proceeded to upgrade systems. [New hi-pace molecular turbo pumps, new eMag & eMag power supply, new HS Ion Source, new HD collectors, new HD Head-Amp, new HD card, new Orchid prep PCB & wiring upgrade].

Removed rotary pump. Dynalab engineers drained old oil and replaced for new.

Removed flexi-tubing, cleaned of residue oil.

Removed old turbo pumps from flight tube. Slight decolourisation of copper gaskets noted.

Replaced copper gaskets for new.

Assembled vent valve and cooling fans on turbo pumps – All OK.

Fitted new pumps to flight tube – All OK.

Removed old wiring. Installed new wiring and connected pumps to original power supply and control channels – All OK.

Fitted flexi- tubing to original rotary pump – All connections look good. Seals tight – All OK.

Removed blank flange on Hydrogen spur. High levels of copper oxide build up noted on old copper gasket.

Fitted HD collector with new copper gasket. New screws required as long screws originally fitted to flight tube – All OK.

Fitted new HD Head Amp assemble. Part damaged. Connector cup to wiring snapped. Connector cup soldered back on to assemble. Part now good to use – All OK.

Remove SysCon from outer casing. Fit new HD card on the VFC input. System Controller is now HD analysis capable.

11 – Installation Report

Client:	Dept. of Energy C/O: Dynalab Corporation		
Quotation Number:	11758	Date:	16/10/2024
Job Number:	IN1360	Date:	08/04/2025

Removed old Ion Source. Ion Source shows high levels of corrosion and damage. Green build up has formed around several parts of the assembly. No damaged noted to flight-tube.

Fitted new HS Ion Source with new copper gasket – All OK.

Activated pump down sequence. Rotary pump fails. Turbi pumps respond as normal and attempt to spin up.

Remove rotary pump. Customer has spare rotary pump, fit new pump. Rotary pump fails again. Incorrect voltage being supplied via power cable.

Rotary pump has manual power switch. Connect to mains power via different IEC lead. Rotary powers on.

Advise user that to pump/vent 2020 instrument both the turbo pump power switch (located within lower tray section of MS) and manual power switch on rotary pump must be used in tandem.

Turbos spin up to 93k RPM – All OK.

Source side vacuum pressure gauge fails. No power to gauge. Swapping over cables indicated the both gauges are functional. User has space power/comms cable. Fit new cable, both gauges now read back.

Discard damaged cable – All OK.

System is slow to pump down. Approx. 7.9×10^{-8} mBar pressure achieved after 1 day pumping.

3.1×10^{-8} mBar achieved after 2 days pumping. If system had a leak such low values (S-side readback) would not be possible. A-side read back slower to pump down (1.2×10^{-7} mBar). No leak detected. Tightening up all connections did not affect vacuum. This may be due to build up of corroded material / moisture within HD spur section of flight tube (See above, copper oxide present on HD flange copper gasket). This should diminish over time. Advise user to monitor over the coming months for vacuum to drop further.

Once low vacuum pressure achieved conditioned filament. Filament conditions with no issues – All OK.

Demonstrated to user how to condition filament. Left system overnight for filament to out-gas – All OK.

HT voltages fail.

No HT voltages on system. Readbacks for HT, HP, Focus & IR do not display correct values. Investigate fault. Remove outer casing on Source cable. Checked voltages being supplied – No voltages detected except on filament supply. Removed System Controller and opened. No damage noted. No loose cables. Issue with 24v power supply / SSR. System Controller will not function in present state. Advise users to return SysCon to Sercon HQ for assessment and repair.

Removed old P-Magnet from flight tube position. Installed new eMag. New connections required for new magnet model – All OK.

While plugging in IEC lead to mains power (for power to eMag PSU) the power tripped in the room. System vented as a result. Electrician called to investigate. Conclusion – bad plug socket to mains electricity. IEC lead was not connected to anything at time of being plugged into socket.

Installed power supply – All OK, except power leads have limited reach. No space to situate eMag power supply box. Leave unit resting on top of System Controller. Adjust software to control/display eMag settings –

11 – Installation Report

Client:	Dept. of Energy C/O: Dynalab Corporation		
Quotation Number:	11758	Date:	16/10/2024
Job Number:	IN1360	Date:	08/04/2025

All OK. Readbacks respond as normal – All OK. eMag heats up as normal. Set to current of 13500mA. Set eMag max current limit to 14000mA and hysteresis loop to 0 (for all projects) – All OK.

Set up eMag tuning settings to all match in both high mass and low mass modes – All OK.

Once low vacuum pressure achieved conditioned filament. Filament conditions with no issues – All OK.

Demonstrated to user how to condition filament. Left system overnight for filament to out-gas – All OK.

HT voltages fail.

No HT voltages on system. Readbacks for HT, HP, Focus & IR do not display correct values. Investigate fault. Remove outer casing on Source cable. Checked voltages being supplied – No voltages detected except on filament supply. Removed System Controller and opened. No damage noted. No loose cables. Issue with 24v power supply / SSR. System Controller will not function in present state. Advise users to return SysCon to Sercon HQ for assessment and repair.

As a result of having no HT voltages it is not possible to obtain beam data from instrument. Cannot position eMag or check tunings. Cannot run sample data.

Carry on with setup of prep units as system requires a lot of work.

Remove old Orchid PCB and wiring assembly – All OK.

Fit and install new Orchid PCB and wiring assembly – All OK.

Establish comms with PC from Orchid. All parts of software operate as normal. Normal valve control achieved via software. All readback respond as normal – All OK.

Install new HT furnace and power supply unit – All OK.

Setup within GC oven is of old style, as such normal furnace fitting area is not drilled out. Create new hle and feed through for line out on side of GC oven unit – All OK.

Power on GC oven. System responds as normal. All systems good. All method parameters respond to setpoint. All gas lines in are connected and supplying gas as expected. FID flame lights. GC oven heats and cools as required. Inlet & FID heats respond and hold at set temps. Carrier He gas set to 1.5ml/min. No issues with flow. GC Oven in good working condition – All OK.

Fused silica plumbing broken inside of GC oven. Also connections broken to Nafion tube. No sample carrier line connected to 2020.

Rebuild internal plumbing. Replace fused silica tubing where required – All OK.

Salvaged Nafion tube and re-built connections. Counter flow through Nafion set to 15ml/min. No leaks detected – All OK.

Make reaction tube for HD pyrolysis. Demonstrated the customer how to make reaction tubes and connect tubes to system – All OK.

Connected system up to 2020 top isolation valve. No leaks detected. Flow rate approx. 5ml/min at pigtail vent on isolation valve. GC He pressure set to 3psi – All OK.

Set furnace to 1350°C. No issues found with HT GC furnace – All OK.

12 – Installation Acceptance and Warranty Certificate

Client	Dept. of Energy C/O Dynalab Corporation		
Quotation Number	11758	Date	16/10/2024
Job Number	IN1360	Date	08/04/2025

Contact	Anne Marie B. Sabino / Dynalab Corporation
System	2020 (HS upgrade), GSL (low volume upgrade) with CETAC, Orchid (Prep PCB upgrade) with HT furnace
Software	Callisto v20.0.24, GC 5.0.53
Engineer	David Harris
Installation Date	23 rd Sep 2025

Warranty commences	23 rd Sep 2025
Warranty Expires	23 rd Sep 2026

Customer Acceptance:

Name: Virginia S. Llamas
 Signature: [Signature]
 Date: 24 Sept. 2025

Notes:

Engineer's Signature:

On behalf of Sercon Limited

Name: David Harris
 Signature: [Signature]
 Date: 23rd Sep 2025