

CONTENTS PAGE

Client:	Ankara University		
Quotation Number:	17016	Date:	19/06/2023
Job Number:	IN1319	Date:	20/06/2023

- ☒ 1 QUOTATION
- ☒ 2 CUSTOMER ORDER
- ☒ 3 MACHINE SPECIFICATION DOCUMENT_S027_v11
- ☒ 4 LOG SHEET_S028_v3
- ☒ 5 FAULT REPORTING DOCUMENT_S029_v3
- ☒ 6 TEST ACCEPTANCE SPECIFICATION_S030_v9
- ☐ 7 ASSEMBLY AND TEST RECORD_S023_v5
- ☒ 8 SERIAL NUMBER FORM_S053_v4
- ☒ 9 TEST DATA
- ☒ 10 PACKING LIST_S035b_v6
- ☒ 11 INSTALLATION REPORT_S057_v6
- ☒ 12 INSTALLATION ACCEPTANCE AND WARRANTY CERTIFICATE_S071_v3

ADDITIONAL:

Payment Terms:

50% / 40% / 10%

Other: please specify

Penalty Clause Yes / No

Please specify:

Blue Book Completion:

Signed		Date	11/5/24
Verified	S. McElroy	Date	11/5/24

3 - MACHINE SPECIFICATION

Client:	Ankara University		
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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	Y
20501	Hd Collector Assy ***	
50101/2	Trapping Loop Assy	
70201-1	70201-1 Analyser spares kit – Included	Y
EA Units		
10202/11	iso-EArth	
10202/13	iso-EArth+	
10202/14	PyroEArth	Y
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	Y
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 (<i>Inc. With ABCA2</i>)	
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 (<i>Inc. With Integra2</i>)	
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	
70801-5	Pyrolysis Consumables Kit High Temp (1000 samples)	Y
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	Y
Printer	Printer	
INST1	Installation and start up training at customer's site by Sercon Engineer	Y
INST2	Installation and start up training at customer's site by Agents Engineer	
WARR	1 year warranty	
WARR2	2 year warranty	Y
TRAIN	Training in UK for one person for 3 days	
SCONTRACT	Maintenance Service Contract – 1 year	

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SPECIFICATION REQUIREMENTS		
Voltage	230 Volts 50/60Hzs	Y
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	Y
	SI2514 2.5 metre Chinese mains to IEC C13	
Pallet	Stamped for export heat treated for 30 min @ 56 °C	Y
	Complies with all Export Requirements	

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Approved by Sales: Garry Armstrong		Date:26/06/2023
Approved by Tech.: Mark OConnor		Date: 26/06/2023



19/01/2017

6 - TEST / ACCEPTANCE SPECIFICATION

Customer:	Ankara University		
Quotation Number:	17016	Date:	19/06/2023
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HS20-22				
Reference Gas Precision (n=5)				
¹³ C	(CO ₂)	0.06	0.05%	✓
¹⁵ N		0.06	0.04%	✓
¹⁸ O	(CO ₂)	0.06	0.09%	✓
³⁴ S	(SO ₂)	0.1		
² H		0.4	0.4% 0.2	✓

Reference Gas Linearity				
¹³ C	≤0.02‰/nA	0.23%		✓
¹⁵ N	≤0.02‰/nA	0.07%		✓

IsoEarth & IsoEarth+						
Combustion (n=5)						
¹³ C	100 µg C	0.1	0.16	✓	10 µg C	0.8
¹⁵ N	100 µg N	0.15	0.08	✓	10 µg N	1.5
³⁴ S	25 µg S	0.3	0.3	✓	10 µg S	1.0
Dual	400 µg C	0.1			100 µg N	0.15

Integra2			
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	

6 - TEST / ACCEPTANCE SPECIFICATION

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HT-EA			
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 0.8	✓

Aqua, µCarbs & GasBox					
Equilibrations (n=5)					
¹⁸ O	0.2 ml water	0.1			
² H	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
² H	0.5 ml H ₂	1.5			
¹⁵ N	0.5 ml N ₂	0.1		100 ppm N ₂ O	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	

6 - TEST / ACCEPTANCE SPECIFICATION

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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	
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						

6 - TEST / ACCEPTANCE SPECIFICATION

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Quotation Number:	17016	Date:	19/06/2023
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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)			
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	



Test acceptance - 6

Sercon Ltd, Unit 3B Crewe Trade Park, Gateway
Crewe, Cheshire CW1 6JT, UK
Tel: +44 (0)1270 580008 Fax: +44 (0)1270 252310
Company Registration No. 4290072 Vat No. 771 1100 74

6 - TEST / ACCEPTANCE SPECIFICATION

Customer:	Ankara University			
Quotation Number:	17016	Date:	19/06/2023	
Job Number:	IN1319	Date:	20/06/2023	

Special tests

Sales Signature: <i>[Signature]</i>	Date: <i>18/10/23</i>
Test Signature: <i>S. Masea</i>	Date: <i>1/5/24</i>

7: ASSEMBLY AND TEST RECORD

Client:	Ankara University		
Quotation Number:	17016	Date:	19/06/2023
Job Number:	IN1319	Date:	20/06/2023

PRODUCT:

2022 HS

SERIAL NUMBER:

20402/4-2023/1319

 ASSEMBLED:
 (Name)

P. Hays

Date:

25/9/23

 PRE-TEST
 INSPECTION:
 (Production name)

P. Hays

Date:

25/9/23

 PRE-TEST
 INSPECTION:
 (Test name)

S. Marsh

Date:

25/9/23

 SYSTEM TEST:
 (Name)

S. Marsh

Date:

11/10/23

 PRE-DESPATCH
 INSPECTION:
 (Name)

P. Hays

Date:

18/10/23

P.A.T. Test results

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

Earth Continuity

0.065
 Ω

Insulation

> 300
 $M\Omega$

Earth Leakage Current

0.70mA

mA. @

0.05

kVA.

Tested by:

P. Hays

Date:

25-9-23

7: ASSEMBLY AND TEST RECORD

Client:	Ankara University		
Quotation Number:	17016	Date:	19/06/2023
Job Number:	IN1319	Date:	20/06/2023

PRODUCT:

Pyro Earth

SERIAL NUMBER:

10202/14/2023/1319

 ASSEMBLED:
 (Name)

P. Hayes

Date:

10/10/2023

 PRE-TEST
 INSPECTION:
 (Production name)

P. Hayes

Date:

10/10/23

 PRE-TEST
 INSPECTION:
 (Test name)

S. Massey

Date:

10/10/23

 SYSTEM TEST:
 (Name)

S. Massey

Date:

18/10/23

 PRE-DESPATCH
 INSPECTION:
 (Name)

P. Hayes

Date:

18/10/25

P.A.T. Test results

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

Earth Continuity

0.069
 Ω

Insulation

~~20~~ 201
 $M\Omega$

Earth Leakage Current

0.50

mA. @

0.23

kVA.

Tested by:

Harry Rowe

Date:

10/10/2023

8 - Serial Numbers Record Document

Client:	Ankara University		
Quotation Number:	17016	Date:	19/06/2023
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Units	S/N
MS/ABCA	20402/4-2023/1319
Integra 2	
Prep Unit 1	10202/14/2023/1319
Prep Unit 2/Misc	
Electronics Upgrade	
CETAC	
Gas Box	
Autosampler	42679
BCR	
Dual Heater Block	

Pump Kit and Optics	S/N
Turbo pump S	230396258
Turbo pump A	230404551
Rotary Pump	230381221
Voltage	110 / 240
Gauge S	230327544
Gauge A	230430000
Source	20101HS-224
Collector 1	20301 - 144
Collector 2	20501 - 058
Magnet	13T

Parts	S/N
Fan PSU	
24V PSU	

PCBs	S/N
Electronics Box	20230019
Prep PCB	42001
VFC PCB	23007
Watchdog PCB	
Head Amp PCB 1	23003
Head Amp PCB 2	23025
Electromagnet RP	131

Furnaces	S/N
Combustion	
Reduction	
HT-EA	
GC Oven	
Furnace 1	
Furnace 2	

PC	S/N
PC	FLDRVR3
Monitor	9TDHJT3
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

Additional System Info: