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Quotation Number:	15788	Date:	22/11/2021
Job Number:	IN1292	Date:	26/09/2022

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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	28/2/23
Verified	<i>[Signature]</i>	Date	28/2/23

3 - MACHINE SPECIFICATION

Client:	EIYOKEN C/O: Taiyo Nippon Sanso		
Quotation Number:	15788	Date:	22/11/2021
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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	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	Y
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)	Y
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	
70801-1	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	Y
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	Y
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	100 Volts 50/60Hzs		
Plug Type	SI2510	3 Metre USA/Japan plug to IEC C 13	Y
	SI2511	2.5 Metre Australian plug to IEC C 13	Y
	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		Y

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SPECIAL REQUIREMENTS (DETAILED SPECIFICATION)

SI2519 Turbo pump ordered as spare

SI1719 rotary pump ordered as spare

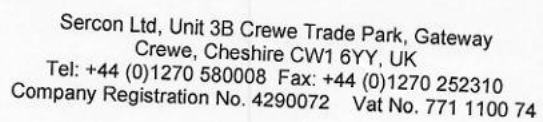
Approved by Sales: <i>Garry Armstrong</i>	Date: 30/09/2022
Approved by Tech.: <i>Mark O'Connor</i>	Date: 30/09/2022

4 - LOG SHEET

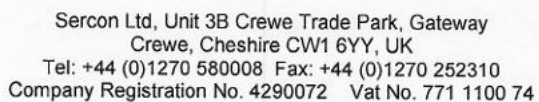
Client:	EIYOKEN C/O: Taiyo Nippon Sanso		
Quotation Number:	15788	Date:	22/11/2021
Job Number:	IN1292	Date:	26/09/2022

Date	Action Taken	By Whom
9/1/23	Instrument Pumping down	SM
18/1/23	Aqua now on test with versa	SM
23/1/23	All crimps and flows inside 20-22 set for ref gas	SM
25/1/23	CO ₂ + N ₂ Peaks are excellent	
	Specs ran for both	
	13C - 0.06 - Precision 180 0.04	
	15N - 0.06 - Precision	
	13C - 0.26 STD Dev Linearity	SM
	15N - 0.28 STD Dev Linearity	
26/1/23	Instrument Switched over to H ₂	SM
	Peak again is excellent	
	Specs ran Fine	
	0.24 Precision H ₂ 5ppm	
27/1/23	Flow and Crimps Set for Aqua	SM
	Aqua now interfaced and leak tight	
1/2/23	CO ₂ Dry Vials run windows set up	SM

[illegible]



19/01/2017

[illegible]



5 - FAULT REPORTING

Client:	EIYOKEN C/O: Taiyo Nippon Sanso		
Quotation Number:	15788	Date:	22/11/2021
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[illegible]



Client:	EIYOKEN C/O: Taiyo Nippon Sanso		
Quotation Number:	15788	Date:	22/11/2021
Job Number:	IN1292	Date:	26/09/2022

S029_v3

6 - TEST / ACCEPTANCE SPECIFICATION

Customer:	EIYOKEN C/O: Taiyo Nippon Sanso		
Quotation Number:	15788	Date:	22/11/2021
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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	

Aqua, µCarbs & GasBox					
Equilibrations (n=5)					
¹⁸ O	0.2 ml water	0.1	0.2 Spec	0.16	✓
² H	0.2 ml water	2.0	1.04		✓
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

Customer:	EIYOKEN C/O: Taiyo Nippon Sanso		
Quotation Number:	15788	Date:	22/11/2021
Job Number:	IN1292	Date:	26/09/2022

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

Customer:	EIYOKEN C/O: Taiyo Nippon Sanso		
Quotation Number:	15788	Date:	22/11/2021
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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	

6 - TEST / ACCEPTANCE SPECIFICATION

Customer:	EIYOKEN C/O: Taiyo Nippon Sanso		
Quotation Number:	15788	Date:	22/11/2021
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Special tests

Sales Signature:	Date:
Test Signature: <i>S. Ward</i>	Date: <i>6/2/23</i>

6 - TEST / ACCEPTANCE SPECIFICATION

Customer:	EIYOKEN C/O: Taiyo Nippon Sanso		
Quotation Number:	15788	Date:	22/11/2021
Job Number:	IN1292	Date:	26/09/2022

HS20-22				
Reference Gas Precision (n=5)				
¹³ C	(CO ₂)	0.06	0.04	✓
¹⁵ N		0.06	0.06	✓
¹⁸ O	(CO ₂)	0.06	0.04	✓
³⁴ S	(SO ₂)	0.1	/	
² H		0.4	0.22	✓

Reference Gas Linearity				
¹³ C	≤0.02‰/nA	0.26 STD		✓
¹⁵ N	≤0.02‰/nA	0.28 STD		✓

IsoEarth & IsoEarth+						
Combustion (n=5)						
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	

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	

7: ASSEMBLY AND TEST RECORD

Client:	EIYOKEN C/O: Taiyo Nippon Sanso		
Quotation Number:	15788	Date:	22/11/2021
Job Number:	IN1292	Date:	26/09/2022

 PRODUCT: AQUA UNIT

 SERIAL NUMBER: 10302/1-2023/1292

 ASSEMBLED:
 (Name) [Signature]

 Date: 18/1/23

 PRE-TEST
 INSPECTION:
 (Production name) P. Hays

 Date: 18/1/23

 PRE-TEST
 INSPECTION:
 (Test name) S. Mosely

 Date: 18/1/23

 SYSTEM TEST:
 (Name) S. Mosely

 Date: 6/2/23

 PRE-DESPATCH
 INSPECTION:
 (Name) [Signature]

 Date: 16/2/23

P.A.T. Test results

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

 Earth Continuity 0.082 Ω

 Insulation >200 $M\Omega$

 Earth Leakage Current 0.75 mA. @ 0.05 kVA.

 Tested by: P. Hays

 Date: 18/1/22

7: ASSEMBLY AND TEST RECORD

Client:	EIYOKEN C/O: Taiyo Nippon Sanso		
Quotation Number:	15788	Date:	22/11/2021
Job Number:	IN1292	Date:	26/09/2022

PRODUCT:

HEATER Block

SERIAL NUMBER:

11601/2023/1292

 ASSEMBLED:
 (Name)

James Han

Date:

25/1/23

 PRE-TEST
 INSPECTION:
 (Production name)

P. Hays.

Date:

25/1/23

 PRE-TEST
 INSPECTION:
 (Test name)

S. Moseley

Date:

25/1/23

 SYSTEM TEST:
 (Name)

S. Moseley

Date:

25/1/23

 PRE-DESPATCH
 INSPECTION:
 (Name)

James Han

Date:

16/2/23

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

Earth Leakage Current

_____ mA. @ _____ kVA.

Tested by:

Date:

7: ASSEMBLY AND TEST RECORD

Client:	EIYOKEN C/O: Taiyo Nippon Sanso		
Quotation Number:	15788	Date:	22/11/2021
Job Number:	IN1292	Date:	26/09/2022

PRODUCT:

VERSA 4

SERIAL NUMBER:

60101/4-2023/1292

 ASSEMBLED:
 (Name)



Date:

25/1/23

 PRE-TEST
 INSPECTION:
 (Production name)

P. Hayes

Date:

25/1/23

 PRE-TEST
 INSPECTION:
 (Test name)

S. Massey

Date:

25/1/23

 SYSTEM TEST:
 (Name)

S. Massey

Date:

6/2/23

 PRE-DESPATCH
 INSPECTION:
 (Name)

Janne Han

Date:

16/2/23

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

Earth Leakage Current

mA. @

kVA.

Tested by:

Date:

8 - Serial Numbers Record Document

Client:	EIYOKEN C/O: Taiyo Nippon Sanso		
Quotation Number:	15788	Date:	22/11/2021
Job Number:	IN1292	Date:	26/09/2022

Units	S/N	PCBs	S/N
MS/ADCA	20402/3-2023/1292	Electronics Box	20230004
Integra 2		Prep PCB	
Prep Unit 1		VFC PCB	22010
Prep Unit 2/Misc		Watchdog PCB	
Electronics Upgrade		Head Amp PCB 1	22022
CETAC		Head Amp PCB 2	22016
Gas Box		Electromagnet RP	
Autosampler			
BCR			
Dual Heater Block			

Pump Kit and Optics	S/N
Turbo pump S	220773820
Turbo pump A	220773816
Rotary Pump	220672705
Voltage	110 / 240
Gauge S	220828968
Gauge A	220828966
Source	20102MS-205
Collector 1	20301-126
Collector 2	20501-049
Magnet	N/A

Parts	S/N
Fan PSU	
24V PSU	

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

PC	S/N
PC	GMYR153
Monitor	CN-ØWXV53-WSLØØ-23H-CUDW
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:

SPARE ROTARY - 220672702
 AQUA UNIT - 10302/1-2023/1292

1292

Gauge A 220828966

" S 220828968

Head Amp ^{HP} 22016

Collector ^{HP} 20501-049

Head Amp STD 22022

Collector STD 20301-126.

Source 2010245-205

UFC 22010

ERBox. 20230004

Pump 1 220672705

Pump 2 ^{stage} 220672702

Unit 2022. 20402/3-2023/1292

Turbo S 220773820

Turbo A 220773816

AQUA 10302/1-2023/1292

PC GHYRIS3

MAN CN-PXV53-WSL66-23H-CUOW

JM 16/2/23