

Section V: Schedule of Requirements

6.1 List of Goods & Delivery Schedule - Laboratory Equipment for Higher Education Section (Mattakkuliya & Tangalle) of the University

Unit:- Head Office, Ocean University of Sri Lanka, Mattakkuliya.

Line-Item No	Description of Goods	Final Destination	Delivery Date	
			Purchaser's Allowed Delivery Date	Bidder's Offered Delivery Date
	<ol style="list-style-type: none"> 1. Moisture Analyzer 2. Bench-top Centrifuge 3. Soxhlet Extraction Unit 4. Kjeldahl Degestion& Distillation Unit 5. Drying Oven 6. Water Bath 7. Laboratory Incubator 8. Hot Plate with Magnetic Stirrer 9. Laboratory Blender / Homogenizer 10. High – Speed Homogenizer / Ultra Turrax Type 11. Borosilicate Glass Desiccator 12. Seive Shaker 13. Niskin Water Sampler Bottles 14. Rutner Water Sampler 15. Conductivity Temperature Depth CTD Profiler 16. Acoustic Doppler Current Profiler 	<p>***Item No.1 – 32 should be delivered to the Main Stores, Crow Island, Mattakkuliya, Colombo – 15.</p> <p>*** Item No.33 – 48 should be delivered to the Academic Head,</p>	From the date of Acceptance Maximum 90 days	

17. Tide Gauge (Non – Contact Radar System)	Faculty of Fisheries & Ocean Sciences, Mahawela Road, Tangalle.		
18. Spectrophotometer			
19. Oven			
20. Muffle Furnaces			
21. Distilled Water Plant			
22. Multiparameter			
23. Salinometer			
24. Soxhlet Extraction Unit			
25. Sedwick Rafter			
26. Food Processor			
27. Gas Cylinder (5 Kg)			
28. Light Microscope			
29. Spectrophotometer			
30. Muffle Furnaces			
31. Oven			
32. CHN Elemental Analyzer			
33. Water Distiller			
34. Orbital Shaker			
35. Freezer			
36. Desiccator			
37. Laboratory Scale 1			
38. Laboratory Scale 2			
39. Trinocular Microscope with 8MP Camera			
40. Laboratory Oven			
41. Student Microscope			
42. Crucibles			
43. Petri Dish			
44. Fume Hood			
45. Glass Spreader			
46. Dissection Tray			
47. Refrigerator			
48. Mixer Grinder			

Name of the Bidder :-

Address of the Bidder :-

Company Seal :-

Date :-

Section V

6.2 Technical Specification & Compliance - Laboratory Equipment for Higher Education Section (Mattakkuliya & Tangalle) of the Ocean University of Sri Lanka

Item No.	Component Description	Minimum Specifications	Quantity	Bidder's Response (Yes/No)	If "No" comments on the offer
1	Moisture Analyzer	Capacity: 50–100 g; Readability: 0.001 g; Heating: Halogen/Infrared; Temperature Range: ambient–160 °C; Moisture Determination Modes: % Moisture, % Dry Matter; Automatic Calibration; Display: Digital LCD; Housing: Powder-coated steel; Power: 220 V, 50 Hz (Warranty: 3 years Minimum) Capacity: 50–100 g; Readability: 0.001 g; Heating: Halogen/Infrared; Temperature Range: ambient–160 °C; Moisture Determination Modes: % Moisture, % Dry Matter; Automatic Calibration; Display: Digital LCD; Housing: Powder-coated steel; Power: 220 V, 50 Hz (Warranty: 02 years Minimum)	1		
2	Bench-top Centrifuge	Rotor Capacity: 12 ×15 ml (01 Rotor) and 8 ×50 ml (01 Rotor) tubes; Maximum Speed: 6,000 rpm; Maximum RCF: ~4,500 × g; Speed Control: Digital adjustable; 2 Roters Timer: 0–99 min, auto stop; Imbalance Detection: Yes; Noise Level: <60 dB; Power: 220 V, 50 Hz; Material: Steel body	1		

		with corrosion-resistant rotor, (Warranty: 02 years Minimum)			
3	Soxhlet Extraction Unit	Positions: 6; Extraction Flasks: 250–500 ml borosilicate glass; Condenser Type: Vertical glass condenser; Heating Mantle: Individual, digital temperature control 50–300 °C; Material: Heat-resistant glass, stainless steel supports; Power: 220 V, 50 Hz; Accessories: Clamps, connectors, silicone tubing; Max Solvent Volume per unit: 500 ml (Warranty: 3 years Minimum) Positions: 6; Extraction Flasks: 250–500 ml borosilicate glass; Condenser Type: Vertical glass condenser; Heating Mantle: Individual, digital temperature control 50–300 °C; Material: Heat-resistant glass, stainless steel supports; Power: 220 V, 50 Hz; Accessories: Clamps, connectors, silicone tubing; Max Solvent Volume per unit: 500 ml (Warranty: 02 years Minimum)	1		
4	Kjeldahl Digestion & Distillation Unit	Digestion Block: Corrosion-resistant steel; Heating: Electrical with digital temp control 50–450 °C; Distillation: Borosilicate glass assembly, automatic steam distillation; Sample Capacity: 6–12 per run; Nitrogen Determination Range: 0.1–25 mg; Power: 220 V, 50 Hz; Dimensions- minimum: ~600×400×500 mm; Weight: ~25 kg; Safety: Fume extraction port, over-temp protection; Accessories: Glass tubes, flasks, condensers, Semi – Automated (Warranty: 02 years Minimum)	1		

5	Drying Oven	Type: Forced convection; Chamber Volume: 50–200 L; Temperature Range: Ambient +5 °C to 250 °C; Temp Accuracy: ±1 °C; Heating: Electrical; Shelves: Stainless steel, removable, adjustable; Construction: Powder-coated steel exterior, stainless steel interior; Control: Digital PID controller; Safety: Over-temp cut-off; Power: 220 V, 50 Hz; Dimensions- minimum:~600×600×800 mm; (Warranty: 02 years Minimum)	1		
6	Water Bath	Type: Digital water bath, double-walled; Temperature Range: Ambient to 90 °C; Temperature Stability: ±0.5 °C; Bath Volume: 10–20 L; Material: Stainless steel tank, powder-coated steel exterior; Controls: Digital PID controller; Features: Removable concentric rings; mm; Power: 220 V, 50 Hz (Warranty: 02 years Minimum)	1		

7	Laboratory Incubator	Type: Dry air incubator; Temperature Range: 30–60 °C (± 0.5 °C); Control: Digital; Chamber Material: Stainless steel; Shelves: Adjustable, removable, stainless steel; Uniformity: ± 1 °C; Safety: Over-temperature alarm; Volume: 40–60 L; Power: 220 V, 50 Hz; Dimensions: (Warranty: 02 years Minimum)	1		

8	Hot Plate with Magnetic Stirrer	Plate Size: 150×150 mm (or higher than this); Stirring Speed: 0–1500 rpm; Heating Range: Room temp–300 °C; Accuracy: ±1 °C; Plate Material: Aluminum or ceramic; Housing: Powder-coated steel; Power: 220 V, 50 Hz; Features: Over-temperature protection, digital display (Warranty: 02 years Minimum)	5		
9	Laboratory Blender / Homogenizer	Motor: 500–1500 W; Speed: Variable; Capacity: 500–1000 ml; Blade Material: Stainless steel; Container: Glass or stainless steel; Splash-proof lid; Power: 220 V, 50 Hz Accessories: Blade assembly, jar, lid (Warranty: 02 years Minimum)	1		
10	High-Speed Homogenizer / Ultra-Turrax Type	Motor Power: 1–2 kW; Speed Range: 5,000–25,000 rpm; Rotor/Stator: Stainless steel, high precision; Max Sample Volume: 500–1000 ml; Control: Digital display with speed and time settings; Material: Stainless steel body, corrosion-resistant; Power Supply: 220 V, 50 Hz; Accessories: Standard rotor/stator, jar, splash-	1		

		proof lid; Safety: Overload protection, easy-clean design (Warranty: 02 years Minimum)			
11	Borosilicate Glass Desiccator	With a porcelain plate, Sizes (Inner Diameter): 300mm, Component: Includes a heavy-duty, ground-glass lid for an airtight seal., Included Accessory: An unglazed, perforated porcelain plate (for sample storage), Design: Knob-cover style for easy handling. (Warranty: 02 years Minimum)	1		
12	Selve Shaker	Sieve diameter: 250-300mm Measuring range: 0.025-5mm (8-10 sieves with pan) Motor power: ~0.25kW Sound: less than 50dB Amplitude: 3-5mm Speed: 1420rpm Overall dimension: ~450*350*350mm Net weight: 25-30kg	1		

		Power supply: 220V, 50Hz (Warranty: 02 years Minimum)			
13	Niskin Water Sampling Bottles	Flushing - Free-flushing sampling bottles	1		
		Activate - GO Devil messenger (1000MG, sold separately), individually or serially attached to hydro cable.			
		Closer - Manual by messenger			
		Length - ~25" (633mm)			
		Weight - 2.5kg -3.0kg (Warranty: 02 years Minimum)			
14	Ruttner Water Sampler	Volume - 1.0 1.5 L	1		
		Cylinder tube, acrylic - O.D./I. D: 8.5/8.0 cm			
		Length of tube - 24 - 26 cm			
		Total height- 55-60 cm			
		Internal thermometer (non-Mercury) - Range: -10 °C to +60 °C			
		Drop messenger - brass: 200 g			
		Recommended line - Max. Ø2 or Ø3 mm			
		Weight - 1.30-1.5 kg (Warranty: 3 years Minimum)			
15	Conductivity Temperature Depth CTD Profiler	Initial Accuracy: -	1		
		Conductivity: ± 0.0005 S/m			
		Temperature: ± 0.005 °C			
		Pressure: Strain-gauge ± 0.1% of full-scale range; Quartz ± 0.02% of full-scale range			
		Total Stability: -			
		Conductivity: 0.0003 S/m per month			
		Temperature: 0.0002 °C per month			

		<p>Pressure: Strain-gauge $\pm 0.1\%$ of full-scale range; Quartz $\pm 0.02\%$ of full-scale range per year</p> <p>Resolution: -</p> <p>Conductivity: 0.00005 S/m typical</p> <p>Temperature: 0.0001 °C</p> <p>Pressure: Strain-gauge 0.002% of full-scale range; Quartz 0.0025% of full-scale range</p> <p>Sampling speed: Profiling: 4 Hz (strain-gauge pressure) or 2 Hz (Quartz pressure)</p> <p>Memory & Data: Storage 64 Mbyte non-volatile FLASH Bytes/sample: 6 T&C; 5 pressures; 2 each external voltage; 4 date & time (RS-232 sensor is sensor dependent)</p> <p>Power Supply & Consumption: 9 alkaline D-cell batteries, 60 hours CTD profiling (see manual)</p> <p>Optional External Power: 9 - 28 VDC; consult factory for required current</p> <p>Auxiliary Sensors Power: out up to 500 mA at 10.5 - 11 VDC; Voltage sensor A/D resolution 14 bits & input range 0-5 VDC</p> <p>Housing, Depth Rating & Weight (add 0.3 to 0.7kg [in air] for pump, depending on model) Acetal Copolymer Plastic, 600 m, in air 7.3 kg, in water 2.3 kg 3AL-2.5V Titanium, 600 m, in air 13.7 kg, in water 8.6 kg 6AL-4V Titanium, 10,500 m</p> <p>Optional Cage (weight in air): (strain-gauge pressure version) 1016 x 241 x 279 mm, 6.3 kg, (Warranty: 02 years Minimum)</p>			
16	Acoustic Doppler Current Profiler	Features: Type 8382 (-0457 single battery; -0427 dual battery)	1		

	ADCP: Operating frequency - 625kHz		
	Maximum profiling range - 50+ m (depending on water environment)		
	Minimum cell size - 12mm		
	Minimum blanking distance - 0.6mm		
	Velocity range (along beam) - Up to ± 2 m/s or 3.75 m/s user selectable		
	Velocity RMS - 0.5% of measured value		
	Maximum number of cells - 2500		
	Maximum ping rate - 4Hz (5beams)		
	Beam width/ angle - ± 1 degrees / 25 degrees		
	Acoustic modem: - Operating frequency - MF (20–34 kHz)		
	Typical operating range - 500m		
	Sensors: - Temperature - -5° to 35° C Heading accuracy/ resolution - $\pm 1^{\circ}/0.1^{\circ}$ Pitch & roll accuracy/ resolution & range - $\pm 1^{\circ}/0.1^{\circ}$ & $\pm 90^{\circ}$ (pitch), $\pm 180^{\circ}$ (roll) Pressure - $\pm 0.05\%$ full scale; inquire for options		
	Communication and Logging: - Communication - RS232, Ethernet and acoustic modem & Internal logging - 1 TB internal memory		
	Output: Output telegrams – PD0, A gram, and B gram; simultaneous output Industry – Standard ADCP data output formats		
	Electrical: - External power - 18-48 V power by external cable; PoE+, adapter included PoE+; adapter included Power - 15 mW (sleep), 600 mW (pinging), 3.5 W (fully active)		

		<p>Internal battery capacity - 55 Ah rechargeable (dual battery option available); charger included Internal battery recharge - 4 hours fast charge (8 hours for dual battery option) Full/ scheduled/ standby lifespan - 1 week/ 3 months/ 2 years</p> <p>Environmental: - Depth rating - 300 m survivable/ 150 m operational Operating/ storage temperature: -5 to 40°C/ -20 to 55°C</p> <p>Mechanical: - Construction - Plastic Connector type - Subconn: 8-way for power and comms; 6-way for fast-charge Dimensions (height x max diameter) - 308 x 290 mm (dual battery height 388 mm) Weight in air/ water - 19.2/ 7.2 kg (dual battery option 23.9/ 7.9 kg)</p> <p>Software: - Original Portal - Embedded Web UI for control & configuration Origin Scheduler - Schedule planning & configuration tool Origin Viewer - File data inspection Origin Topside - Remote configuration & control over acoustic modem, (Warranty: 02 years Minimum)</p>			
17	Tide Gauge (Non-Contact Radar System)	<p>Features: - Contactless water level measurement</p> <p>Sensors: - RS-232, RS-485 Modbus, SDI-12, analog 4-20 mA, Robust, small-size IP68 enclosure Radar Sensor, Pressure Sensor, Permanent Installation, 1 cm accuracy.</p> <p>Data Logger - handle harsh weather, floods, high winds and rough seas</p>	1		

		Operating temperature- range from -40°C to 70°C			
		Design for use with data loggers			
		Adjustable angle - 30 and 45 degrees			
		weather tight			
		Water Level Temperature Sensors - Vented or absolute pressure sensor options with 0.05% full scale accuracy			
		SDI-12, RS-485 Modbus RTU, and 4-20mA protocols for interfacing with data loggers and PLC systems			
		Mounting kit, (Warranty: 02 years Minimum)			
18	Spectrophotometer	Make – Please Specify	1		
		Model – Please Specify			
		Country of Origin – USA/Europe/Japan			
		Warranty – 01 Year or Specify			
		Optical System – <u>Double</u> Beam, Spectral			
		Light Source – Gas-filled Tungsten			
		Wavelength Range – 330–1000 nm or better			
		Wavelength Accuracy – ±1.5 nm or better			
		Wavelength Calibration – Automatic			
		Spectral Bandwidth – 5 nm or better			
		Photometric Measuring Range – ±3.0 Abs or Better			
		Pre-programmed Methods – 200 or better <u>UV Visible</u>			
		Reagent Recognition – RFID & Barcode			
		Display – 5.5" Color or Better			
		Data Storage – 1500 Data Points or Better			

		Enclosure Rating – IP30 or Better			
		Interface – USB (2), Ethernet and RFID			
		Data Logger – 2000 Measured Values			
		Sample Cell Compatibility – 10 & 50 mm Rectangular, 13 mm Round, 1 Round, 1 Square (Warranty: 02 years Minimum)			
19	Oven	7 sizes 6 shelves to 100 liters	1		
		Temp range 40 °C to 250 °C			
		Fluctuation +/- 0.75 °C			
		Easy to use thermostatic control			
		Independent overheat thermostat (Warranty: 02 years Minimum)			
20	Muffle Furnaces	Tmax 1100 °C or 1200 °C	1		
		Heating from two sides by ceramic heating plates Thermocouple type N (1100 °C) or type S (1200 °C) Ceramic heating plates with integral heating element which is safeguarded and easy to replace Optional flap door (L) which can be used as work platform or lift door (LT) with hot surface facing away from the operator Adjustable air inlet integrated in door (see illustration) · Exhaust air outlet in rear wall of furnace Controller with touch operation B510 4 Liter (Warranty: 02 years Minimum)			
21	Distilled Water Plant	Compact and user-friendly tabletop design.	1		
		4L/hr. Capacity			

		<p>Should be supplied a thermometer for displaying the cooling water temperature.</p> <p>Easily openable Boiling Chamber as well as Condenser for easy cleaning.</p> <p>Heating power - 3kW</p> <p>Degas Function for remove CO2 via condenser vent.</p> <p>Safety features - Thermostatic cut-off (self - resetting type) for assured low water detection - with visual indication and safety alarm.</p> <p>Power supply AC 220-240V, 50/60 Hz</p> <p>Spare parts availability certificate for at least 10 years by the Manufacture.</p> <p>(Warranty – 02 years Minimum)</p> <p>Local Agent authorization letters.</p> <p>User reference list.</p> <p>Certification – CE and ISO standard</p>			
22	Multiparameter	<p>Measures DO, pH, ORP, conductivity, salinity, TDS, turbidity, temperature, depth, and optional nutrients (ammonium, nitrate, chloride), plus algae/chlorophyll., Waterproof (IP-67 rated), Stores 100,000+ datasets, supports USB data transfer (Warranty: 02 years Minimum)</p>	1		
23	Salinometer	<p>Measurement range – Typically 0–70 ppt salinity (practical salinity units), suitable for freshwater to seawater, Accuracy – High precision with $\pm 1\%$ of reading or better, Measurement principle – Based on electrical conductivity using a multi-electrode sensor., Handheld, water-resistant/waterproof (Warranty: 02 years Minimum)</p>	1		

24	Soxhlet Extraction Unit	Positions: 6; Extraction Flasks: 250–500 ml borosilicate glass; Condenser Type: Vertical glass condenser; Heating Mantle: Individual, digital temperature control 50–300 °C; Material: Heat-resistant glass, stainless steel supports; Power: 220 V, 50 Hz; Accessories: Clamps, connectors, silicone tubing; Max Solvent Volume per unit: 500 ml (Warranty: 02 years Minimum)	1		
25	Sedwick Rafter	Overall, Glass Dimensions	30		
		76mm x 40mm x 2.28mm thick			
		Chamber Dimensions			
		50mm x 20mm x 1mm deep			
		Volume 1ml			
26	Food Processor	Key Features	1		
		700 W			
		16 functions			
		2-in-1 disc			
		In-bowl storage			
		(Warranty: 02 years Minimum)			
27	Gas Cylinder (5Kg)	Litro	1		
28	Light Microscope	Material: Alloy	1		
		Draw Tube: Monocular			
		Mechanical tube length: 120 mm			
		Eyepiece: 10x			
		Objective: 4x,10x,40x			
		Total Magnification: 40X-400			
		Stage: Single layer with paired slid clips			

		Stage Size: 90*90mm			
		Diaphragm: Rotating disc diaphragm			
		Nosepiece: Triple			
		Focusing: Coarse adjustment focusing only. (Warranty: 02 years Minimum)			
29	Spectrophotometer	Optical Design – Dual Beam	1		
		Spectral Bandwidth – 1.8 nm			
		Light source – Xenon Flash Lamp			
		Detector – Dual Silicon Photodetector			
		Wavelength Range – 190 – 1100 nm (depends on your selection)			
		Scan Speed - Up to 3600 nm/min (depends on your selection)			
		Data interval for Scanning – 0.1, 0.2, 0.5, 1.0, 2.0, 5.0 nm			
		Path Length – 1 cm			
30	Muffle Furnaces	Tmax 1100 °C or 1200 °C	1		
		Heating from two sides by ceramic heating plates			
		Thermocouple type N (1100 °C) or type S (1200 °C)			
		Ceramic heating plates with integral heating element which is safeguarded and easy to replace			
		Optional flap door (L) which can be used as work platform or lift door (LT) with hot surface facing away from the operator			
		Adjustable air inlet integrated in door (see illustration) · Exhaust air outlet in rear wall of furnace			

		Controller with touch operation B510 (Warranty: 3 years Minimum)			
31	Oven	7 sizes 6 to 100 liters	1		
		Temp range 40 °C to 250 °C			
		Fluctuation +/- 0.75 °C			
		Easy to use thermostatic control			
		Independent overheat thermostat (Warranty: 02 years Minimum)			
32	CHN Elemental Analyzer	Measuring Range: Carbon: 0.005% to 100%, Hydrogen: 0.01% to 60%, Nitrogen: 0.008% to 60%	1		
		Repeatability: Carbon (Cad ≤ 0.5%), Hydrogen (Had ≤ 0.15%), Nitrogen (Nad ≤ 0.08%)			
		Temperature Range: RT+10 to 1050°C			
		Temperature Accuracy: ±1°C			
		Sample Weight: 80 to 100mg			
		Sample Delivery Method: Automatic			
		Number Of Samples: 39 Samples/Time			
		Single Sample Analysis Time: Around 4min			
		Carrier Gas: Helium, Purity ≥99.995%, Pressure 0.25±0.1mpa			

		Supporting Gas: Oxygen, Purity for Hydrocarbons $\geq 99.5\%$, Purity for Nitrogen Element $\geq 99.995\%$, Pressure			
		Power Gas: Inert Gas, No Oil, And No Water, Pressure 0.29 ± 0.1 mpa			
		Placement Method: Horizontal			
		Power: ≤ 4.5 kw			
		Power Supply: 220V 50-60Hz			
		Dimension: $690 \times 740 \times 720$ mm			
		Packaging Dimension: $700 \times 750 \times 720$ mm			
		Net Weight: 102 Kg			
		Gross Weight: 105 Kg (Warranty: 02 years Minimum)			
33	Water Distiller	Compact and user-friendly tabletop design.	1		
		4L/hr. Capacity			
		Should be supplied a thermometer for displaying the cooling water temperature.			
		Easily openable Boiling Chamber as well as Condenser for easy cleaning.			
		Heating power - 3kW			
		Power supply AC 220-240V, 50/60 Hz			
		Degas Function for remove CO2 via condenser vent.			

		<p>Safety features - Thermostatic cut-off (self - resetting type) for assured low water detection - with visual indication and safety alarm.</p> <p>Power supply AC 220-240V, 50/60 Hz</p> <p>Spare parts availability certificate for at least 10 years by the Manufacture.</p> <p>(Warranty – 02 years Minimum)</p> <p>Local Agent authorization letters.</p> <p>User reference list.</p> <p>Certification – CE and ISO Standard</p>			
34	Orbital Shaker	<p>Voltage(V) 220-240</p> <p>Frequency(Hz) 50~60</p> <p>Motor Type - DC brushless motor</p> <p>Max Load(kg) 7.5</p> <p>Allowable Ambient Temperature 5~40°C</p> <p>Allowable Ambient Humidity 80%</p> <p>Speed Range(rpm) 60~500</p> <p>LCD Speed Display</p> <p>Timing Function Availability</p> <p>Timing Range should be 0~99h59min</p> <p>LCD Time Display</p> <p>Heating power 35/185W</p> <p>Amplitude 4mm</p> <p>Orbital Shaking mode</p> <p>Temperature Range RT+5~75°C</p> <p>Temperature Accuracy 0.1 °C</p> <p>Instrument Size(mm) 330*370*130 (Approx.)</p> <p>(Warranty – 02 years minimum)</p> <p>Spare parts availability (Specify)</p> <p>Local Agent authorization letters</p>	1		

		User reference list CE Certified			
35	Freezer	<p>Total Capacity=320 Liters Shelves=Wire baskets Cooling Method=Direct cooling Refrigerant=R600a (Eco-friendly) Compressor=Conventional Compressor Temperature Control=Mechanical Adjustable Thermostat Voltage/Frequency =220-240V AC / 50Hz Net Weight=Approx. 45 kg Material=Coated metal body + aluminum evaporator Defrost=Manual Defrost Lighting=Interior Light Alarms needed for Over-temperature alarm Outer Doors and locks Single lid + door lock (Warranty – 02 years Minimum) 1 Years Manufacturer Warranty 5 Years Compressor Warranty Additional Features Compressor indicator Drain system for cleaning Easy-moving castors</p>	1		
36	Desiccator	Material: Made of high-quality Borosilicate Glass 3.3 (SIMAX or equivalent), ensuring durability and compliance with international laboratory standards.	1		
		Functionality:			
		Suitable for drying and dehydration processes of laboratory samples.			

		<p>When equipped with a stopcock/valve, the desiccator shall be suitable for vacuum applications and storage under reduced pressure.</p> <p>Chemical Resistance:</p> <p>Shall exhibit excellent resistance to a wide range of chemicals, ensuring long-term usability without degradation.</p> <p>Thermal Properties:</p> <p>Low coefficient of thermal expansion</p> <p>High resistance to thermal shock, minimizing risk of cracking during temperature variations</p> <p>Sterilization:</p> <p>Must be autoclavable, allowing safe sterilization under high temperature and pressure conditions.</p> <p>Design & Construction:</p> <p>Provided with a ground flat flange for airtight sealing</p> <p>Precision-ground surfaces to ensure leak-proof performance, especially under vacuum conditions</p> <p>Standards & Certification:</p> <p>Manufactured in compliance with relevant DIN standards for laboratory glassware</p> <p>Product shall comply with Marienfeld Superior brand certifications and ISO-certified manufacturing processes</p> <p>Diameter=300mm Should be supplied with disk (Warranty: 02 years Minimum)</p>			
37	Laboratory Scale 1	<p>Capacity- 2200 g or better</p> <p>Minimum loading – 0.5 g</p>	1		

Readability- (d) 0.01 g
Repeatability – 0.01 g
Linearity +/- 0.02 g
Response Time 2 sec. or better
Minimum Sample weight - 1 g
MonoTech weighting sensor based on electromagnetic force for high, reliable accuracy and long operation life.
self-calibration according to temperature changes or pre-set conditions.
Ability to configure perfect self-automatic calibration (PSAC) to initiate self-calibration at specific time and every power on.
Standard USB to connect printer and R232 interface to windows direct communication with windows applications.
Balances have adjustable feet for maintaining/providing uniform level.
Statistic printing to obtain data including minimum value, Standard deviation, difference and coefficient variance.
Weighing modes of weight measurement, Piece Counting, animal weighing mode, Percentage weighing and density measurement.
Pan size should(mm) 190 x 205 with stainless steel pan
Solid construction with high quality material.
Dimensions (W x D) 345 x 215 mm or less

		<p>Tare range - full</p> <p>Built in features for ensures GLP/ISO regulation compliance.</p> <p>Back-lit function for easy viewing.</p> <p>Operating temperature range should be 15 C - 35 C.</p> <p>Power supply 220-230V 50 -60 Hz</p> <p>Please offer optional prices for a rechargeable battery.</p> <p>Ability to attend within 2 days for any service maintenance or calibration needs.</p> <p>All technical data in required specifications should be mentioned and highlighted clearly in product brochure.</p> <p>Product manual with technical data sheets and product demonstrations should be provided with the product.</p> <p>(Warranty – 02 years Minimum)</p> <p>Spare parts availability- Please specify.</p> <p>Local Agent authorization letters.</p> <p>List of users for Identical model</p>			
38	Laboratory Scale 2	<p>Capacity- 6100 g or better</p> <p>Readability- (d) 0.01 g</p> <p>Repeatability – 0.02 g</p> <p>Linearity +/- 0.03 g</p>	1		

	Response Time 2 sec. or better		
	Minimum Sample weight - 1 g		
	MonoTech weighting sensor based on electromagnetic force for high, reliable accuracy and long operation life.		
	self-calibration according to temperature changes or pre-set conditions.		
	Ability to configure perfect self-automatic calibration (PSAC) to initiate self-calibration at specific time and every power on.		
	Standard USB to connect printer and R232 interface to windows direct communication with windows applications.		
	Balances have adjustable feet for maintaining/providing uniform level.		
	Statistic printing to obtain data including minimum value, Standard deviation, difference and coefficient variance.		
	Weighing modes of weight measurement, Piece Counting, animal weighing mode, Percentage weighing and density measurement.		
	Pan size should(mm) 190 x 205 with stainless steel pan		
	Solid construction with high quality material.		
	Dimensions (W x D) 345 x 215 mm or less		
	Tare range - full		
	Built in features for ensures GLP/ISO regulation compliance.		
	Back-lit function for easy viewing.		
	Operating temperature range should be 15 C - 35 C.		

		Power supply 220-230V 50 -60 Hz			
		Please offer optional prices for a rechargeable battery.			
		Ability to attend within 2 days for any service maintenance or calibration needs.			
		All technical data in required specifications should be mentioned and highlighted clearly in product brochure.			
		Product manual with technical data sheets and product demonstrations should be provided with the product.			
		(Warranty – 02 years Minimum).			
		Spare parts availability- Please specify.			
		Local Agent authorization letters.			
		List of users for Identical model			
39	Trinocular Microscope with 8MP Camera	Observation method=Brightfield	1		
		Optical system=Infinity Corrected Optical System			
		Head=Trinocular, 30/360 rotating			
		Split Ratio=50/50			
		Interpupillary distance (mm)=50-75			
		Dioptric adjustment=On left tube			
		Eyepieces=10x/22 mm, Higher eye point with fixing screws			
		Nosepiece=Quintuple and Bi-directional			
		Objective type=IOS W-PLAN Achromatic Objectives			
		Parfocal distance (mm)=45			
		Standard objectives			
		4x/0.10, W.D. 17.3 mm			

	10x/0.25, W.D. 10 mm		
	40x/0.65, W.D. 0.54 mm		
	100x/1.25 (Oil), W.D. 0.13 mm		
	Focusing System		
	Coaxial coarse and fine with focus memory lock		
	Fine resolution (μm) =2		
	Fine total travel (per single rotation) (mm)=0.2		
	Fine graduations=100		
	Coarse total travel (mm)=25		
	Stage Type=Double layer, rackless		
	Stage Dimensions=233x147		
	Stage XY Moving range (mm)=78x54		
	Vernier scale accuracy (mm)=0.1		
	Condenser Type=Swing-out, Centrale and removable Abbe condenser with focusable by rack and pinion with aperture scale		
	Condenser Numerical aperture (N.A.) 0.2/0.9		
	Transmitted Illumination=Full Kohler illumination		
	X-LED		
	With manual light control facility		
	LED life time=Long-life more than 65,000 hours		
	Light source power (W)=3.6		
	Power Supply=External Multi-plug		
	(Warranty – 02 years Minimum)		
	Spare parts availability=10 years		
	Local Agent authorization letters=Yes		
	User reference list=More than 10 years		
	1. USB Camera resolution (MP)=8.3		
	2. Camera resolution (n° of pixels: W x H) =3840x2160		
	3. Color / Monochrome=Color		

		<ol style="list-style-type: none"> 4. Sensor Size=1/1.8" 5. Sensor Technology=CMOS 6. Sensor Type=SONY EXMOR 7. Acquisition technology =Rolling Shutter 8. Pixel Size (um)=2.0 x 2.0 9. Frame rate full resolution (fps)=45@3840x2160 10. Frame rate other resolution (fps)=70@1920x1080 11. Exposure time=0.02 msec - 15 sec 12. IR filter=Should available 13. C-Mount=Should be supplied with compatible C Mount adaptor 14. Camera accessories Calibration slide USB cable (1.8m) 15. Camera Software Should be supplied free of charge from the same manufacturer Image analyzing software Compatible with Windows 7, Windows 8, Windows 10 (32Bit), Windows 10 (64Bit), Osx (MAC Osx) starting from 10.7.5, Linux 16. Warranty 02 years 17. Spare parts availability = 02 years 18. Local Agent authorization letters = Yes 19. User reference list, more than 5 years 20. Laptop Laptop, 8 GB Ram, 11th Gen 			
40	Laboratory Oven	ISO 13485, ISO 9001: 2015 and CE certifications. – Relevant document should be attached.	1		

		<p>PED certified manufacture by a European body. (PED -2014 / 68 /EU)</p> <p>Product should comply with all the essential health and safety requirements (EC Declaration of conformity) - EN ISO 12100 :2010, EN ISO 14119 :2013, EN2006/42/EC, 2014/35/EU, 2014/30/EU. – Relevant documents should be attached.</p> <p>Capacity (L) =Not less than 40 L</p> <p>Temperature range=50 to 200 °C</p> <p>Temperature control accuracy=±2 °C</p> <p>Inner Dimensions Maximum. (WxDxH)=350 x 400 x 400 mm</p> <p>Outer dimensions Maximum. (WxDxH)=600 x 500 x 800 mm</p> <p>Shelves=2 nos.</p> <p>Heater power (kW)=Maximum 1 kW</p> <p>Power supply =230VAC, 50Hz, Single phase. (Warranty: 02 years Minimum)</p>			
41	Student Microscope	<p>Observation method=Brightfield</p> <p>Optical system=Infinity corrected</p> <p>Head=Binocular, 360 rotating</p> <p>Inclination=30°</p> <p>Interpupillary distance (mm)=48-75</p> <p>Dioptric adjustment=Should be on both tubes</p> <p>Eyepieces</p>	2		

10x, Higher eye point with fixing screws			
Field Number=20mm			
High eyepoint (For glass wearers) Should be available			
Nosepiece=Quadruple, Reversed, Bi-Directional			
Objective type=PLAN Achromatic			
Objectives=Should be anti-fungus treated			
Standard Magnification=40X to 1000X			
Standard objectives			
4x/0.10, W.D. 16.8 mm			
10x/0.25, W.D. 5.8 mm			
40x/0.65, W.D. 0.43 mm			
100x/1.25 (Oil), W.D. 0.13 mm			
100x/1.25 (Water), W.D. 0.13 mm			
Focusing System=Coaxial and Fine			
Fine resolution (μm) and Coarse total travel (mm) 4 μm , 18mm at least			
Stage Dimensions At least 150x135			
Stage XY Moving range (mm) 75x30			
Condenser Type			
Single Position Centrable Abbe condenser with focusable by rack and pinion and 1.25NA			

		Light source and power (W) X-LED ³ 3.6W			
		Lifetime of Power source= More than 65,000hours			
		Power Supply =External Multi-plug			
		Should include			
		· Dust cover			
		· Immersion oil-10ml			
		· Tension adjustment tool			
		· Microscope Slide packs(72/Pk) *02			
		(Warranty – 02 years Minimum)			
		· At least 10 years for microscope optical and mechanical parts			
		Spare parts availability= 10 years			
		Local Agent authorization letters =Yes			
		User reference list			
		More than 5 years			
42	Crucibles	Material: Made of high-quality glazed porcelain, suitable for high-temperature laboratory applications and ensuring excellent mechanical strength.	40		
		Functionality: Suitable for heating, ignition, and ashing of samples in laboratory procedures, including use in furnaces.			

		Chemical Resistance: Shall exhibit excellent resistance to acids, alkalis, and chemical reagents, ensuring stability during analytical processes.			
		Thermal Properties: Minimal thermal expansion			
		High resistance to thermal shock, reducing risk of cracking under rapid heating and cooling cycles			
		Temperature Resistance:			
		Surface Finish: Fully glazed surface, providing:			
		Smooth and non-porous finish			
		Easy cleaning and reduced contamination			
		Enhanced chemical resistance			
		Design & Construction:			
		Uniform wall thickness for even heat distribution			
		Stable base and proper shape for safe handling and furnace use			
		Optional lids (if required) shall ensure proper fitting			
		Standards & Certification:			
		Manufactured in compliance with relevant DIN standards for laboratory porcelain ware			
		Produced under ISO-certified manufacturing processes			
		Shall comply with Marienfeld Superior brand quality certifications			
		Diameter = 30mm			
		height= 35- 40mm			
		capacity= 15ml			
43	Petri Dish	Autoclavable glass	100		
		heat up to 200-degree Celsius			

		100X15MM			
		Operating temperature range should be 15 C - 35 C.			
44	Fume hood	Overall dimensions should be approximately (WxDxH) 1200x 850x 2350mm	1		
		Work chamber dimensions should be approximately (WxDxH) 960x 620x 1180mm			
		Cabinet outer surfaces should be made of high-quality 8mm porcelain white polypropylene			
		Inner working chamber should be high quality 8mm porcelain white polypropylene			
		Front Window Resistant to acid and alkali, Manual, 5mm toughened glass, height adjustable			
		Material Main Body – Dual wall construction made of Porcelain white PP, thickness 8 mm, integrally welded resistant to strong acid, alkali and anti-corrosion.			
		Should be included chemical storage base cabinet with 3 doors with 1 shelf, Base cabinet construction material should be anti-corrosion polypropylene			
		Air Volume (m ³ /h) @ 100% sash open, 1500-2000m ³ /h			
		Air velocity should be 0.3~0.8m/s			
		Exhaust duct opening diameter is 250mm			
		Should have a Built-in PP anti-corrosion centrifugal fan, rpm is 1400rpm, air volume 2000-2300m ³ /h, wind pressure 30-28 mmHg.			
		Max Opening Height 500mm			
		Noise ≤60dB			

	LED lamp: 1 unit of 24W, 6000K white light lamp		
	Power Supply AC 220V, 50/60Hz		
	Work surface should be chemical resistant epoxy resin 19mm		
	Standard Accessory - LED light, Base cabinet, 10A socket x 4, Water tap (PP), Gas tap (PP), Gas & Water remote control, Water Sink		
	Microprocessor control system, with air volume is controlled by damper valve system and LED display		
	Ducting with PVC 225mm pipe with appropriate blower and bends should be provided and installed by the supplier.		
	Bidders must support compliance to the given specifications with manufacturer's original brochures		
	The equipment shall be warranted for period of not less than 24 calendar months from the date of successful commissioning on a full "parts & labor" replacement basis. The tenderer shall specify in detail the servicing and repair facilities and means available to them both (locally and from manufacturers) to implement such a warranty without under delay in Sri Lanka.		
	Bidders must support compliance to the given specifications with manufacturer's original brochures		
	Bidders must provide documentary evidence on their technical capacity (trained staff, testing equipment for calibration & maintenance support as per manufacturer		

	<p>service/technical manuals) to carry out installation and service.</p>		
	<p>(Warranty for 2 years Minimum) period for the whole system from the date of installation and commissioning the equipment.</p>		
	<p>Free regular preventive service maintenance should be provided during the warranty period with free labor and parts.</p>		
	<p>Specify the details of preventive maintenance and any calibration procedures needed after 2 years warranty period. Specify the details of the cost for annual maintenance service and after the warranty period.</p>		
	<p>Installation and onsite training should be provided free of charge</p>		
	<p>Local agent must ensure repairing of machine in sudden out of order situation within three days. Any cost of service arranged at private sector due to delays in repair more than 3 days, should be borne by the local agent</p>		
	<p>There should be quality after sale service. Provide details.</p>		
	<p>Provide the letter of authorization from the manufacturer</p>		
	<p>Spare parts of the system should be available at least for a period of 5 years after installation and provide the fixed prices of spare parts of the system for a period of 5 years.</p>		

		Operational conditions (temperature and humidity) of the machine should be compatible with local settings. Provide the details			
45	Glass Spreader	145x59x5mm spreading bacteria culture on solid agar media	10		
46	Dissection Tray	Aluminum tray with wax, size: 300 x 200 x 45 mm	30		
47	Refrigerator	Total Capacity=250 Liters Shelves= Spill-proof adjustable shelves Cooling Method=No Frost Refrigerant=R600a (Eco-friendly) Compressor Inverter Technology Temperature Control Mechanical Thermostat Voltage/Frequency =220-240V AC / 50Hz Product Dimensions (H x W x D) =Approx. 1480 x 540 x 712 mm Packaging Dimensions (H x W x D) =Approx. 1550 x 585 x 755 mm Net Weight=Approx. 51.5 kg Gross Weight=Approx. 56.3 kg Insulation=2-Inch-thick thermal insulated wall Material=multi-layer coated cabinets and doors	1		

		Tubing =Copper tubing for efficient cooling			
		Defrost=No Frost system			
		Lighting=Bright and long-lasting LED light			
		Outer Doors and locks			
		Double door + door lock			
		(Warranty – 02 years Minimum)			
		2 Years Manufacturer Warranty			
		5 Years Body Corrosion Warranty			
		10 Years Compressor Warranty			
48	Mixer Grinder	Bench-top laboratory grinder / mini pulverize	1		
		Suitable for dry powder preparation			
		Capacity 1 Batch capacity: 50 g – 500 g per cycle			
		Grinding Performance			
		Final particle size: ~75 µm to fine powder			
		Adjustable fineness 3 Uniform particle size distribution			
		Motor & Power 1 Motor power: 0.75 – 1 HP (≈ 500 – 750 W)			
		Power supply: 220–240 V, 50 Hz 5. Construction			
		Grinding chamber: Stainless Steel (SS 304 / SS 316)			
		Disc / blade type grinding 3 Corrosion-resistant body 6. Feed & Output 1 Max feed size: ≤ 5–6 mm 2 Output: ≤ 100 mesh powder			
		Safety Features = Lid safety interlock 2 Overload / thermal protection			

	<p>Operation & Control</p> <p>Simple ON/OFF switch</p> <p>Optional timer 3 Adjustable sieve / grinding gap</p> <p>Dimensions & Weight 1 Approx size: 50 × 30 × 30 cm 2 Weight: 15 – 35 kg</p> <p>Applications = Soil, plant, biological samples, Chemicals and food analysis</p> <p>Cleaning & Maintenance</p> <p>Easy to dismantle, Washable chamber</p> <p>Warranty - 02 years Minimum, 01 year warranty Local service support</p>		
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