



Tender Ref. No. CARS/ST/P-331/OTM/2023

Date: ২৬-০১-১৪৩০ বঙ্গাব্দ  
09-05-2023 খ্রিষ্টাব্দ

### Invitation for Tender (National)

Sealed Tenders (P-331) are hereby invited from reputed supplier for Supply, Installation, Testing and Commissioning of Equipment for CARS, University of Dhaka.

1.	Ministry/Division	Ministry of Education		
2.	Agency	University of Dhaka		
3.	Procuring Entity Name	Centre for Advanced Research in Sciences (CARS), University of Dhaka.		
4.	Procuring Entity Code	331		
5.	Procuring Entity District	Dhaka		
6.	Invitation for	Supply, Installation, Testing and Commissioning of Equipment for CARS		
7.	Invitation TenderRef No.	CARS/ST/P-331/OTM/2023		
8.	Date :	09-05-2023 খ্রিষ্টাব্দ		
<b>KEY INFORMATION</b>				
9.	Procurement Method	Open Tendering Method		
<b>FUNDING INFORMATION</b>				
10.	Budget and Source of Funds	Revenue Budget (RB)		
11.	Development Partner (if applicable)	N/A		
<b>PARTICULAR INFORMATION</b>				
12.	Project/Programme Code (if applicable)	Not used		
13.	Project/Programme Name (if applicable)	Not Applicable		
14.	Tender Package No.	Single lot		
15.	Tender Package Name	Supply, Installation, Testing and Commissioning of Equipment for CARS		
16.	Tender Publication Date	09-05-2023 খ্রিষ্টাব্দ		
17.	Tender Last Selling Date	<b>30-05-2023 খ্রিষ্টাব্দ Up to office hours</b>		
18.	Tender Closing Date and Time	<b>Date :</b>		<b>Time:</b>
		<b>31-05-2023 খ্রিষ্টাব্দ</b>		<b>11:00 am</b>
19.	Tender Opening Date and Time	<b>31-05-2023 খ্রিষ্টাব্দ</b>		<b>11:30 am</b>
20.	<b>Name &amp; Address of the Office(s)</b>	<b>Address(s)</b>		
	-Selling Tender Document (Principal)	(i) Centre for Advanced Research in Sciences (CARS), University of Dhaka.		
	-Receiving Tender Document	(i) Centre for Advanced Research in Sciences (CARS), University of Dhaka.		
	-Opening Tender Document	Centre for Advanced Research in Sciences (CARS), University of Dhaka.		
21.	Place/Date/Time of Pre-Tender Meeting	<b>Name/Address</b>	<b>Date:</b>	<b>Time</b>
<b>INFORMATION FOR TENDERER</b>				
22.	<b>Eligibility of Tenderer</b>	(i) Up to date Trade License (ii) Up to date VAT Registration Certificate (iii) Up to date Income Tax Clearance Certificate (iv) Experience Certificate in similar works of comparable value in a single tender in last five years as mentioned in TDS (v) Bank solvency Certificate (vi) Manufacturer Authorization letter for applicable Equipment. <b>(vii) Applicant must be owner of the firm or Representative of the firm will be authorized by the owner of the Firm signature with name and</b>		



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		<p><b>seal of the owner.</b> viii) Country of origin and made in country will be same. If differ then explain clearly with black and white. (ix) catalogue of the Equipment. (x) The Supplier has to avail an expert maintenance team, list of application training support team and needed submission of team member's list with Bio-data. (xi) Competency certificate of after sale service as mentioned in the TDS. Availability of Spare- Parts Certainty declaration at least 10 years. (xii) <b>Warranty:</b> 2 years, Installation and training must be provided by the supplier (free of cost).</p>		
23.	Brief Description of Goods	Supply, Installation, Testing and Commissioning of Equipment		
24.	Brief Description of Related Services	Supply, Installation, Testing and Commissioning of Equipment for CARS		
25.	Tender Document Price <b>TK.-3,000.00</b>	The Price of Tender Schedule as mentioned is to be deposited in <b>A/C No. 36000392, Janata Bank, T.S.C branch, Dhaka University</b> . Tender schedule and terms and conditions may be collected on submission of the deposit receipt from the above mentioned offices on all working days except on the date fixed for submitting the tender.		
26.	<b>Identification/Name of Goods</b>	<b>Location</b>	<b>Tender Security Amount in Taka</b>	<b>Completion Time</b>
	Equipment	CARS, DU.	<b>Equipment</b> 27,500.00	<b>90 days from the date of issuance a Purchase order (Supply of Goods)</b>
<b>PROCURING ENTITY DETAILS</b>				
27.	Name of Official Inviting Tender	Professor Dr. Ishtiaque M. Syed		
28.	Designation of Official Inviting Tender	Director		
29.	Address of Official Inviting Tender	Centre for Advanced Research in Sciences (CARS), University of Dhaka.		
30.	Contact details of Official Inviting Tender	9661900/Ext. 4616/ 4636.		
31.	The procuring entity reserves the right to accept or reject any or all tenders without assigning any reason whatsoever. The procuring authority also reserves the right to omit, increase or decrease the quantities of Equipment from the Tender. The suppliers must abide by the decision of the University authority. Tender form, schedule of requirements of supply, tender notice and terms and conditions etc. will form the integral part of the tender. The suppliers should write the <b>name of the item and the name of the firm on the envelope clearly</b> . Vat, Income Tax and other Taxes, if any, imposed by the Govt. will be deducted from their bills as per Govt. rules.			

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Director  
Centre for Advanced Research in Sciences (CARS)  
University of Dhaka



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## Section 6. Schedule of Requirements

*This Section provides the List of Goods and Delivery Schedule and List of Related Services and Completion Schedule and must be carefully prepared by a Procuring Entity for each object of procurement.*

Invitation for Tender No :

Date :

Tender Package No :

### A. List of Goods & Related services and Delivery Schedule

Item No.	Description of Item	Unit of Measurement	Quantity	Point of Delivery	Delivery Period Required
1	2	3	4	5	6

#### Equipment

Sl. No.	Product Specification	Pack size	Qty.
1	<p><b>Natural Convection Oven</b></p> <p><b>Features:</b></p> <p><b>Performance</b></p> <ul style="list-style-type: none"><li>- Control Temperature Range from ambient+10 °C to 250 °C</li><li>- Natural (Gravity) air convection for drying applications of fine powder and/or glassware</li><li>- Asymmetrically designed heating system enhances mild and uniform hot air circulation for better temperature uniformity</li><li>- 50mm thick high thermal efficiency mineral wool with woven aluminum barrier sheet saves energy and less dust</li></ul> <p><b>Controller</b></p> <ul style="list-style-type: none"><li>- DIGITAL MICROPROCESSOR PID TEMPERATURE CONTROLLER</li><li>Integrated Digital Microprocessor Control System</li><li>- GRAPHIC LCD DISPLAY</li><li>Back Light Graphic LCD Display provides user-friendly operating information</li><li>- UV COATED POLYCARBONATE TOUCH PANEL</li><li>Equipped with Capacitive LED Lighting Touch Button provides sensitive touching operation and durability</li><li>- ENCODER TYPE JOG DIAL</li><li>Push to Start and Stop, Rotary turn to change values provides easy and simple user interface</li><li>- 0.1 °C CONTROL RESOLUTION</li><li>- TURN-ON TIMER up to 99 hour 59 min and alarm</li><li>- TURN-OFF DELAY TIMER up to 99 hour 59 min and alarm</li><li>- Temperature and Timer Memory Function in frequent use</li><li>- 3-ZONE PID ALGORITHM</li></ul>	No's	1



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	<p>- 3-POINT CALIBRATION / 1-POINT OFFSET CALIBRATION - POWER and TIMER RESTORE FUNCTION in case electric power outage - CLASS A PT-100 <math>\Omega</math> Sensor - RS-232C PC COMMUNICATION INTERFACE [OPTION]</p> <p><b>Construction</b> - Durable epoxy powder coated metallic casing - Corrosion resistant Stainless Steel 304 chamber - Double layered glass window for easy observation of samples - Ventilation damper</p> <p><b>Convenience</b> - Double layered tempered safety glass window for easy observation of samples - Removable and height adjustable shelf by 25mm spacing - Easy-to-open and air-tight one touch door latch - Opening size adjustable ventilation damper - Door switch cut-off heater and blower to protect user from exposure to hot air</p> <p><b>Safety</b> - DOOR SENSOR WITH DOOR OPEN AUDIO VISUAL ALARM - MAXIMUM TEMPERATURE LIMIT SETTING, CUT-OFF HEATER AND AUDIO VISUAL ALARM - DUAL OVER TEMPERATURE CUT-OFF BY CONTROLLER AND INDEPENDENT THERMOSTAT Controller Program cut-off heater and AUDIO VISUAL ALARM in case +10 °C above set temperature Independent analog thermostat cut-off heater 10% above set temperature - HIGH TEMPERATURE CUT-OFF AND AUDIO VISUAL ALARM - LOW TEMPERATURE CUT-OFF AND AUDIO VISUAL ALARM - PT SENSOR SHORT OR DISCONNECTION AUDIO VISUAL ALARM - OVER CURRENT CUT-OFF: Electrical Leakage Breaker</p> <p><b>Technical Specifications:</b> Heating System: Natural (Gravity) Air Convection Chamber Volume: Minimum 100 Liters Temp. Range: ambient + 10 °C ~ 250 °C Accuracy: <math>\pm 0.3</math> °C at 120 °C Uniformity: <math>\pm 3.0</math> °C at 120 °C Heat up time to 120 oC: 15 min Window Dims. (W x H mm): minimum 150 x 360 No. of Shelf Positions: 16 ea No. of Shelf included: 2 ea No. of Ventilation Damper: 1 ea Controller: Microprocessor PID Control Auto START / STOP Timer 3-Zone Temperature Control Algorithm 3-Point Temperature Calibration 1-Point Temperature Offset Calibration</p> <p>Sensor: Class A Pt-100 <math>\Omega</math> Sensor Safety: Over-Temperature Cut-Off Over Current Cut-Off Heater Output: 1.5 kW Material: Body - Epoxy Powder Coated Steel Chamber – Stainless Steel 304 Insulation – 50mm thick woven mineral wool including stainless steel wire shelf optional perforated stainless steel shelf Electrical Data: 220<math>\pm</math>10% VAC 50/60Hz 1-Phase Plug config.: CEE 7/7 Schuko or BS 1363</p>		
2	<p><b>Analytical Balance</b> <b>Technical Specifications:</b> <b>Metrological parameters</b> Maximum capacity [Max] : 220 g Minimum load: 10mg Readability [d]: 0.1mg Tare range: -220 g</p>	No's	1

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	<p>Verification scale interval [e]: 1mg Standard repeatability [5% Max]: 0.07mg Standard repeatability [Max]: 0.08mg Permissible repeatability [5% Max]: 0.09mg Permissible repeatability [Max]: 0.1mg Linearity: <math>\pm 0.2</math>mg Stabilization time: 2s Adjustment: internal (automatic) OIML Class: I Standard minimum weight (USP): 140mg Standard minimum weight (U=1%, k=2): 14mg Protection class: IP 43</p> <p><b>Physical parameters</b> Levelling system: manual Display: LCD (backlit) Weighing pan dimensions: <math>\phi 100</math>mm</p> <p><b>Communication interface</b> Communication interface: 2xRS232, 2xUSB-A (interchangeable), USB-B, Wi-Fi<sup>®</sup> (option)</p> <p><b>Electrical parameters</b> Power supply: 100 — 240 V AC 50 / 60 Hz</p> <p><b>Environmental conditions</b> Operating temperature: +10 — +40°C</p>		
3	<p><b>High Speed Centrifuge</b> <u>Feature</u></p> <ul style="list-style-type: none"> <li>Stainless steel working area, compact structure, can use 8 different rotors.</li> <li>The safety interlock system prevents the machine door from being opened during operation.</li> <li>Up to 10 programs can be stored, the last run program can be selected quickly.</li> <li>Unbalance sensor, power off when the machine runs over speed or overheats.</li> <li>Precise temperature control range: -20 — +40°C.</li> <li>Unlock the emergency door in the event of a power failure.</li> </ul> <p><u>Specifications</u></p> <ul style="list-style-type: none"> <li>Max speed: 16000rpm</li> <li>Maximum centrifugal force: 21800g</li> <li>Maximum capacity: 4x100 mm</li> <li>Speed Accuracy: <math>\pm 50</math>rpm</li> <li>Timer: 0-99 minutes</li> <li>Setting temperature: -20°C - +40°C</li> <li>Noise level: <math>\leq 60</math>dB(A)</li> <li>Working electrical condition: AC 220V &amp; 110V 50Hz 18A</li> </ul> <p><u>Supply configuration</u></p> <ul style="list-style-type: none"> <li>Main machine</li> <li>User manual</li> <li>Accessories included</li> </ul>	No's	1
4	<p><b>pH Meter</b> <u>Features:</u> The benchtop meter is the ideal laboratory instrument for reliable measurements. It is an accurate, easy-to-use solution for the measurement of pH/mV/ORP in the laboratory. <b>Repeatable/Efficient</b> - the instrument's automatic lock mode and end point sensing feature will lock in stable measurements for improved repeatability. <b>Convenient/Reliable</b> – simple calibration with automatic buffer recognition and calibration data is stored in memory.</p>	No's	1

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	<ul style="list-style-type: none"> <li>➤ Single measurement of pH, mV (ORP) and temperature</li> <li>➤ Large, high contrast, LCD display; displays pH/mV and temperature simultaneously</li> <li>➤ Simple calibration with automatic buffer recognition</li> <li>➤ Automatic lock mode and end point sensing feature will lock in stable measurements</li> </ul> <p><b>Instrument-only Specifications</b></p> <p><b>Range</b> pH: -2.0 to 16.0 pH units mV: -1999.9 to 1999.9 mV Temperature: 0.0 to 100°C (32.0 to 212°F)</p> <p><b>Resolution</b> pH: 0.01 pH units mV: 0.1 mV Temperature: 0.1°C</p> <p><b>Accuracy</b> pH: ±0.01 pH units mV: ±0.05% FS ±1 digit Temperature: +0.2°C</p> <p>System Accuracy (instrument, sensor , +cable) 0.2°C +1 LSD</p> <p><b>General Specifications</b> Display: Graphic LCD display, 93 mm wide x 58 mm high pH Buffer Recognition : US (pH 4.01, 7.00, 10.01) or NIST (pH 4.00, 6.86, 9.18), user selectable pH Electrode Offset Recognition: ±100 mV at pH 7.00 or +108.3/-91.7 mV at pH 6.86 pH Electrode Slope Recognition: ±30% at pH 4.00, 4.01, 9.18 and 10.01 pH Temperature Compensation: Automatic/Manual 0.0 to 100°C Input Impedance: &gt;1012 Ω Temperature Sensor: Thermistor, 10 kΩ at 25°C Operating Temperature Range: From 0 to 50°C Relative Humidity: up to 90% Power: 6 x 1.5 Volt AA batteries Certifications: CE, cETLus; electrical protective class III Audio Feedback: All touch keys End Point Sensing &amp; Hold : Yes</p>		
5	<p><b>Fume Hood</b></p> <p><b>Technical Specifications:</b> Size: Minimum 1200 x 850 x 2350 mm Tops: Minimum 20mm thick ceramic worktop, Including a low-power PP centrifugal fan and minimum 250mm diameter hose with length is minimum 2m. External body manufactured of minimum 1.2mm cold-rolling steel with epoxy powder coated. internal and movable guide plate made of minimum 6mm thick phenolic resin panel, based on steel body with glass for safety, Window: minimum 6mm thickness Tempered safety glass, Lighting equipment: minimum 2*20W antiseptis daylight lamp, lamp house is insulated with gas. Lightness on table not lower than 800LUX. cold water outlet with cup sink, gas outlet, and 250mm diameter PP air outlet, minimum four 10A, 220v, electric socket, Operation panel: lighting switch, ON/OFF switch for fan, ON/OFF switch for power. The Fume hood has to be fully installed</p>	No's	1
6	<p><b>Hot plate Magnetic Stirrer Digital with Sensor and Stand</b></p> <p><b>Features:</b></p> <ul style="list-style-type: none"> <li>➤ LCD display for precise monitoring of speed and temperature</li> <li>➤ Built-in PID controller ensures the safe heating of the medium with overheating protection</li> <li>➤ Max. heating plate temperature at 550°C</li> <li>➤ Glass ceramic work plate provides excellent chemical resistant performance and most efficient heat transfer</li> <li>➤ External temperature control accuracy of ±0.2°C possible by connecting the temperature sensor (PT 1000)</li> <li>➤ Digital speed control with Max. speed at 1500rpm</li> <li>➤ Outstanding brushless DC motor performance enables more stirring power</li> <li>➤ Two rotating knobs enable the easy and direct change of speed and temperature</li> <li>➤ The "HOT" warning will flash when the work plate temperature is above 50°C even if the hotplate is turned off</li> <li>➤ Remote function provide PC control and data transmission</li> </ul>	No's	1



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	<p><b>Technical Specifications:</b> Dimension of work plate [W x D]: Minimum 184x184mm (7 inch) Work plate material: Glass ceramic Motor type: Brushless DC motor Motor rating input: Minimum 18W Motor rating output: Minimum 10W Power: Minimum 1050W Heating output: Minimum 1000W Voltage: 100-120/200-240V 50/60Hz Stirring positions: 1 Max. stirring quantity, [H<sub>2</sub>O]: 20L Max. magnetic bar[length]: 80mm Speed range: 100-1500rpm, resolution <math>\pm 1</math>rpm Speed display: LCD Temperature display: LCD Heating temperature range: Room Temp.-550°C, increment 1°C Control accuracy of work plate: <math>\pm 1^\circ\text{C}</math>(<math>&lt;100^\circ\text{C}</math>) <math>\pm 1\%</math>(<math>&gt;100^\circ\text{C}</math>) Over temperature protection: 580°C Temperature display accuracy: <math>\pm 0.1^\circ\text{C}</math> External temperature sensor: PT1000 (accuracy <math>\pm 0.2</math>) "Hot" warning: 50°C Data connector: RS232 Protection class: IP21 Permissible ambient temperature and humidity: 5-40°C, 80%</p>		
7	<p><b>Bottle Top Dispenser</b> <b>Features:</b> - Excellent chemical resistance, components are made of PTFE, FEP, BSG, PP - Fully autoclavable at 121°C - Four ranges of bottle-top dispenser covering a volume range from 1 mL to 10mL - Easy for cleaning and maintenance - The optional flexible discharge tube with safety handle permits fast and precise dispensing - Vapor pressure Max. 500mbar viscosity max. 500mm<sup>2</sup>/s temperature max. 40°C density max. 2.2g/cm<sup>3</sup> Dispensmate should be supplied with S40, GL32, GL38, GL25, GL28 sized adaptors <b>Technical Specifications:</b> Volume Range mL: 2.5~25 ml Graduation mL: 0.5 ml A<math>\leq</math>± (%): 0.5 % A<math>\leq</math>± (μL): 125 μL CV<math>\leq</math> (%): 0.1 % CV<math>\leq</math> (μL): 25 μL</p>	No's	1

**Warranty :**

1. 24 Months from the date of installation for the all equipment and computer accessories

**Country of Origin :** USA/UK/EU/Japan/Australia/Canada/Singapore/Equivalent.

## Section 7. Technical Specifications.

The Goods and Related Services shall comply with following Technical Specifications:

Item No	Name of Item or Related Service	Technical Specification and Standards
»	CARS	Supplier

### Equipment

Sl. No.	Product Specification
1	<p><b>Natural Convection Oven</b></p> <p><b>Features:</b></p> <p><b>Performance</b></p> <ul style="list-style-type: none"><li>- Control Temperature Range from ambient+10 °C to 250 °C</li><li>- Natural (Gravity) air convection for drying applications of fine powder and/or glassware</li><li>- Asymmetrically designed heating system enhances mild and uniform hot air circulation for better temperature uniformity</li><li>- 50mm thick high thermal efficiency mineral wool with woven aluminum barrier sheet saves energy and less dust</li></ul> <p><b>Controller</b></p> <ul style="list-style-type: none"><li>- DIGITAL MICROPROCESSOR PID TEMPERATURE CONTROLLER Integrated Digital Microprocessor Control System</li><li>- GRAPHIC LCD DISPLAY Back Light Graphic LCD Display provides user-friendly operating information</li><li>- UV COATED POLYCARBONATE TOUCH PANEL Equipped with Capacitive LED Lighting Touch Button provides sensitive touching operation and durability</li><li>- ENCODER TYPE JOG DIAL Push to Start and Stop, Rotary turn to change values provides easy and simple user interface</li><li>- 0.1 °C CONTROL RESOLUTION</li><li>- TURN-ON TIMER up to 99 hour 59 min and alarm</li><li>- TURN-OFF DELAY TIMER up to 99 hour 59 min and alarm</li><li>- Temperature and Timer Memory Function in frequent use</li><li>- 3-ZONE PID ALGORITHM</li><li>- 3-POINT CALIBRATION / 1-POINT OFFSET CALIBRATION</li><li>- POWER and TIMER RESTORE FUNCTION in case electric power outage</li><li>- CLASS A PT-100 Ω Sensor</li><li>- RS-232C PC COMMUNICATION INTERFACE [OPTION]</li></ul> <p><b>Construction</b></p> <ul style="list-style-type: none"><li>- Durable epoxy powder coated metallic casing</li><li>- Corrosion resistant Stainless Steel 304 chamber</li><li>- Double layered glass window for easy observation of samples</li><li>- Ventilation damper</li></ul> <p><b>Convenience</b></p> <ul style="list-style-type: none"><li>- Double layered tempered safety glass window for easy observation of samples</li><li>- Removable and height adjustable shelf by 25mm spacing</li><li>- Easy-to-open and air-tight one touch door latch</li><li>- Opening size adjustable ventilation damper</li><li>- Door switch cut-off heater and blower to protect user from exposure to hot air</li></ul> <p><b>Safety</b></p>



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	<ul style="list-style-type: none"> <li>- DOOR SENSOR WITH DOOR OPEN AUDIO VISUAL ALARM</li> <li>- MAXIMUM TEMPERATURE LIMIT SETTING, CUT-OFF HEATER AND AUDIO VISUAL ALARM</li> <li>- DUAL OVER TEMPERATURE CUT-OFF BY CONTROLLER AND INDEPENDENT THERMOSTAT Controller Program cut-off heater and AUDIO VISUAL ALARM in case +10 °C above set temperature Independent analog thermostat cut-off heater 10% above set temperature</li> <li>- HIGH TEMPERATURE CUT-OFF AND AUDIO VISUAL ALARM</li> <li>- LOW TEMPERATURE CUT-OFF AND AUDIO VISUAL ALARM</li> <li>- PT SENSOR SHORT OR DISCONNECTION AUDIO VISUAL ALARM</li> <li>- OVER CURRENT CUT-OFF: Electrical Leakage Breaker</li> </ul> <p><b>Technical Specifications:</b> Heating System: Natural (Gravity) Air Convection Chamber Volume: Minimum 100 Liters Temp. Range: ambient + 10 °C ~ 250 °C Accuracy: ± 0.3 °C at 120 °C Uniformity: ± 3.0 °C at 120 °C Heat up time to 120 oC: 15 min Window Dims. (W x H mm): minimum 150 x 360 No. of Shelf Positions: 16 ea No. of Shelf included: 2 ea No. of Ventilation Damper: 1 ea Controller: Microprocessor PID Control Auto START / STOP Timer 3-Zone Temperature Control Algorithm 3-Point Temperature Calibration 1-Point Temperature Offset Calibration</p> <p>Sensor: Class A Pt-100 Ω Sensor Safety: Over-Temperature Cut-Off Over Current Cut-Off Heater Output: 1.5 kW Material: Body - Epoxy Powder Coated Steel Chamber – Stainless Steel 304 Insulation – 50mm thick woven mineral wool including stainless steel wire shelf optional perforated stainless steel shelf</p> <p>Electrical Data: 220±10% VAC 50/60Hz 1-Phase Plug config.: CEE 7/7 Schuko or BS 1363</p>
2	<p><b>Analytical Balance</b> <b>Technical Specifications:</b> <b>Metrological parameters</b> Maximum capacity [Max] : 220 g Minimum load: 10mg Readability [d]: 0.1mg Tare range: -220 g Verification scale interval [e]: 1mg Standard repeatability [5% Max]: 0.07mg Standard repeatability [Max]: 0.08mg Permissible repeatability [5% Max]: 0.09mg Permissible repeatability [Max]: 0.1mg Linearity: ±0.2mg Stabilization time: 2s Adjustment: internal (automatic) OIML Class: I Standard minimum weight (USP): 140mg Standard minimum weight (U=1%, k=2): 14mg Protection class: IP 43 <b>Physical parameters</b> Levelling system: manual Display: LCD (backlit) Weighing pan dimensions: ø100mm <b>Communication interface</b></p>

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	<p>Communication interface: 2×RS232, 2×USB-A (interchangeable), USB-B, Wi-Fi (option)</p> <p><b>Electrical parameters</b> Power supply: 100 — 240 V AC 50 / 60 Hz</p> <p><b>Environmental conditions</b> Operating temperature: +10 — +40°C</p>
3	<p><b>High Speed Centrifuge</b></p> <p><b>Feature</b></p> <ul style="list-style-type: none"> <li>Stainless steel working area, compact structure, can use 8 different rotors.</li> <li>The safety interlock system prevents the machine door from being opened during operation.</li> <li>Up to 10 programs can be stored, the last run program can be selected quickly.</li> <li>Unbalance sensor, power off when the machine runs over speed or overheats.</li> <li>Precise temperature control range: -20 — +40oC.</li> <li>Unlock the emergency door in the event of a power failure.</li> </ul> <p><b>Specifications</b></p> <ul style="list-style-type: none"> <li>Max speed: 16000rpm</li> <li>Maximum centrifugal force: 21800g</li> <li>Maximum capacity: 4x100 mm</li> <li>Speed Accuracy: ±50rpm</li> <li>Timer: 0-99 minutes</li> <li>Setting temperature: -20oC - +40oC</li> <li>Noise level: ≤60dB(A)</li> <li>Working electrical condition: AC 220V &amp; 110V 50Hz 18A</li> </ul> <p><b>Supply configuration</b></p> <ul style="list-style-type: none"> <li>Main machine</li> <li>User manual</li> <li>Accessories included</li> </ul>
4	<p><b>pH Meter</b></p> <p><b>Features:</b> The benchtop meter is the ideal laboratory instrument for reliable measurements. It is an accurate, easy-to-use solution for the measurement of pH/mV/ORP in the laboratory.</p> <p><b>Repeatable/Efficient</b> - the instrument's automatic lock mode and end point sensing feature will lock in stable measurements for improved repeatability.</p> <p><b>Convenient/Reliable</b> – simple calibration with automatic buffer recognition and calibration data is stored in memory.</p> <ul style="list-style-type: none"> <li>➤ Single measurement of pH, mV (ORP) and temperature</li> <li>➤ Large, high contrast, LCD display; displays pH/mV and temperature simultaneously</li> <li>➤ Simple calibration with automatic buffer recognition</li> <li>➤ Automatic lock mode and end point sensing feature will lock in stable measurements</li> </ul> <p><b>Instrument-only Specifications</b></p> <p><b>Range</b> pH: -2.0 to 16.0 pH units mV: -1999.9 to 1999.9 mV Temperature: 0.0 to 100°C (32.0 to 212°F)</p> <p><b>Resolution</b> pH: 0.01 pH units mV: 0.1 mV Temperature: 0.1°C</p> <p><b>Accuracy</b> pH: ±0.01 pH units mV: ±0.05% FS ±1 digit Temperature: +0.2°C</p> <p>System Accuracy (instrument, sensor , +cable) 0.2°C +1 LSD</p> <p><b>General Specifications</b> Display: Graphic LCD display, 93 mm wide x 58 mm high pH Buffer Recognition : US (pH 4.01, 7.00, 10.01) or NIST (pH 4.00, 6.86, 9.18), user selectable</p>

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	<p>pH Electrode Offset Recognition: <math>\pm 100</math> mV at pH 7.00 or <math>+108.3/-91.7</math> mV at pH 6.86  pH Electrode Slope Recognition: <math>\pm 30\%</math> at pH 4.00, 4.01, 9.18 and 10.01  pH Temperature Compensation: Automatic/Manual 0.0 to 100°C  Input Impedance: <math>&gt;1012 \Omega</math>  Temperature Sensor: Thermistor, 10 k<math>\Omega</math> at 25°C  Operating Temperature Range: From 0 to 50°C  Relative Humidity: up to 90%  Power: 6 x 1.5 Volt AA batteries  Certifications: CE, cETLus; electrical protective class III Audio Feedback: All touch keys  End Point Sensing &amp; Hold : Yes</p>
5	<p><b>Fume Hood</b>  <b>Technical Specifications:</b>  Size: Minimum 1200 x 850 x 2350 mm  Tops: Minimum 20mm thick ceramic worktop, Including a low-power PP centrifugal fan and minimum 250mm diameter hose with length is minimum 2m. External body manufactured of minimum 1.2mm cold-rolling steel with epoxy powder coated. internal and movable guide plate made of minimum 6mm thick phenolic resin panel, based on steel body with glass for safety,  Window: minimum 6mm thickness Tempered safety glass, Lighting equipment: minimum 2*20W antiseptis daylight lamp, lamp house is insulated with gas. Lightness on table not lower than 800LUX. cold water outlet with cup sink, gas outlet, and 250mm diameter PP air outlet, minimum four 10A, 220v, electric socket, Operation panel: lighting switch, ON/OFF switch for fan, ON/OFF switch for power. The Fume hood has to be fully installed</p>
6	<p><b>Hot plate Magnetic Stirrer Digital with Sensor and Stand</b>  <b>Features:</b></p> <ul style="list-style-type: none"> <li>➤ LCD display for precise monitoring of speed and temperature</li> <li>➤ Built-in PID controller ensures the safe heating of the medium with overheating protection</li> <li>➤ Max. heating plate temperature at 550°C</li> <li>➤ Glass ceramic work plate provides excellent chemical resistant performance and most efficient heat transfer</li> <li>➤ External temperature control accuracy of <math>\pm 0.2^\circ\text{C}</math> possible by connecting the temperature sensor (PT 1000)</li> <li>➤ Digital speed control with Max. speed at 1500rpm</li> <li>➤ Outstanding brushless DC motor performance enables more stirring power</li> <li>➤ Two rotating knobs enable the easy and direct change of speed and temperature</li> <li>➤ The "HOT" warning will flash when the work plate temperature is above 50°C even if the hotplate is turned off</li> <li>➤ Remote function provide PC control and data transmission</li> </ul> <p><b>Technical Specifications:</b>  Dimension of work plate [W x D]: Minimum 184x184mm (7 inch)  Work plate material: Glass ceramic  Motor type: Brushless DC motor  Motor rating input: Minimum 18W  Motor rating output: Minimum 10W  Power: Minimum 1050W  Heating output: Minimum 1000W  Voltage: 100-120/200-240V 50/60Hz  Stirring positions: 1  Max. stirring quantity, [H<sub>2</sub>O]: 20L  Max. magnetic bar[length]: 80mm  Speed range: 100-1500rpm, resolution <math>\pm 1</math>rpm  Speed display: LCD  Temperature display: LCD  Heating temperature range: Room Temp.-550°C, increment 1°C  Control accuracy of work plate: <math>\pm 1^\circ\text{C} (&lt;100^\circ\text{C}) \pm 1\% (&gt;100^\circ\text{C})</math>  Over temperature protection: 580°C  Temperature display accuracy: <math>\pm 0.1^\circ\text{C}</math>  External temperature sensor: PT1000 (accuracy <math>\pm 0.2</math>) "Hot" warning: 50°C  Data connector: RS232  Protection class: IP21  Permissible ambient temperature and humidity: 5-40°C, 80%</p>
7	<p><b>Bottle Top Dispenser</b>  <b>Features:</b>  - Excellent chemical resistance, components are made of PTFE, FEP, BSG, PP</p>



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<p>- Fully autoclavable at 121°C - Four ranges of bottle-top dispenser covering a volume range from 1 mL to 10mL - Easy for cleaning and maintenance - The optional flexible discharge tube with safety handle permits fast and precise dispensing - Vapor pressure Max. 500mbar viscosity max. 500mm<sup>2</sup>/s temperature max. 40°C density max. 2.2g/cm<sup>3</sup> DispenseMate should be supplied with S40, GL32, GL38, GL25, GL28 sized adaptors</p> <p><b>Technical Specifications:</b> Volume Range mL: 2.5~25 ml Graduation mL: 0.5 ml A<sub>±</sub> (%): 0.5 % A<sub>±</sub> (μL): 125 μL CV<sub>≤</sub> (%): 0.1 % CV<sub>≤</sub> (μL): 25 μL</p>
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**Warranty :** 24 Months from the date of installation for the all equipment

**Country of Origin :** USA/UK/EU/Japan/Australia/Canada/Singapore/Equivalent.