COMSATS University Islamabad, Lahore Campus Defence Road, Off Raiwind Road, Lahore

Tender No. CUI-LHR-TN-13-20-1367

Case # 3051

Single Stage Two Envelop Procedure

Title of Tender:

<u>Lab Equipment for Establishment of Centre for Advanced Technologies in</u> Biomedical Materials (Knowledge Economy Initiative)

TERMS AND CONDITIONS

- 1. All pages of bidding documents are mandatory to be signed / stamped, meaning thereby bidder agrees to our terms & conditions mentioned herein, failing which the bid may be rejected.
- 2. Any addition, deletion or modification of any clause of the procurement terms & conditions/ BoQs of CUI Lahore Campus by any vendor will not be acceptable and may lead to rejection of the bid.
- 3. Only registered Suppliers, who are on Active Taxpayers List (ATL) of FBR, are eligible to participate in tender.
- 4. The contract will be executed and handed over in satisfactory conditions up to the entire satisfaction of COMSATS University Islamabad, Lahore Campus.
- 5. Documents along with Pay Order / Demand Draft amounting to Rs. 1,000/- as a tender document fee (Non-Refundable) shall be submitted in favor of COMSATS University Islamabad, Lahore Campus to the address given below. No bid will be accepted without tender documents' fee.
- 6. Part / Advance payments is not allowed.
- 7. The exact completion/installation/ delivery time from the date of the purchase / work order will be 120 days. The handing over / completion time for this contract is of critical importance.
- 8. Your bid proposal should be inclusive of freight and all other taxes and to be delivered at COMSATS University Islamabad (CUI), Lahore Campus's premises.
- 9. After opening of bids, CUI-Lahore Campus will examine the bids for completeness as per tender document.
- 10. Purchase order (s) will be awarded to the lowest or technically recommended bidder (s) on the basis of item wise / subtotal wise / grand total wise according to the nature of BoQs.
- 11. The bid should be submitted in a sealed envelope up to <u>May 14, 2020</u> on or before <u>1100hrs</u> and will be opened on the same date at 1130hrs in the presence of available bidders.
- **12.** COMSATS University Islamabad, Lahore Campus, will follow the PPRA rule of **single stage two envelope procedure**;
 - i. The bid shall comprise a single package containing **two separate envelopes**. Each envelope shall contain separately the **financial proposal** and the **technical proposal**;
 - ii. The envelopes shall be marked as "FINANCIAL PROPOSAL" and "TECHNICAL PROPOSAL" in bold and legible letters to avoid confusion;

- iii. Initially, only the envelope marked "TECHNICAL PROPOSAL" shall be opened;
- iv. The envelope marked as <u>"FINANCIAL PROPOSAL"</u> shall be retained in the custody of the procuring agency without being opened;
- v. The procuring agency shall evaluate the technical proposal in a manner prescribed in advance, without reference to the price and reject any proposal which does not conform to the specified requirements;
- vi. During the technical evaluation no **amendments** in the technical proposal shall be permitted;
- vii. The financial proposals of bids shall be opened publicly at a time, date and venue announced and communicated to the bidders in advance;
- viii. After the evaluation and approval of the technical proposal the procuring agency, shall at a time within the bid validity period, publicly open the financial proposals of the technically accepted bids only. The financial proposal of bids found technically nonresponsive shall be returned un-opened to the respective bidders;
 - ix. and
 - x. The bid found to be the lowest evaluated bid shall be accepted.
- 13. The envelope should be marked as under;

Secretary, Purchase Committee COMSATS University Islamabad, Lahore Campus

Defence Road, Off Raiwind Road, Lahore.

Tel: 042-111-001-007, Ext: 875

- 14. The envelope shall also bear the word "CONFIDENTIAL" and following identification quotation of "Lab Equipment for Establishment of Centre for Advanced Technologies in Biomedical Materials (Knowledge Economy Initiative)".
- 15. The bid form (BoQs) must be duly filled in, stamped and signed by the authorized representative of the bidder.
- 16. If the vendor fails to deliver the goods / services to COMSATS University Islamabad (CUI), Lahore Campus within the given deadline, any of the following can be opted by CUI Lahore campus on the recommendation of the end user and approval of the authority;
 - a. An extension in the delivery period may be granted in case a valid reason/justification with necessary documentary evidence is provided by the vendor supporting the reason for delay.
 - b. A penalty upto 10% of the invoice value may be charged.
 - c. Purchase order may be cancelled along with confiscation of earnest money if the vendor fails to deliver the goods / services after the initial or extended delivery time, as the case may be.
- 17. If the delivered goods / services are not according to the required quality standards / specifications, the same shall be liable to be rejected after inspection. The vendor would be required to supply as per requirements mentioned in our BoQs, otherwise the purchase / work order will be cancelled after due date with confiscation of earnest money.
- 18. Deduction of Income Tax and any other tax will be deducted at source according to Government prevailing rules.

- 19. Payment will be made on submission of Invoice in the name of "COMSATS University Islamabad (CUI), Lahore Campus" with a copy of delivery challan (s) after the complete order has been supplied, inspected and accepted which includes delivery / installation, and COMSATS acceptance / inspection thereof.
- 20. All prices should be valid for at least <u>120 days</u>. Withdrawal or any modification of the original offer within the validity period shall entitle CUI-Lahore Campus to forfeit the earnest money in favor of the CUI-Lahore Campus and / or put a ban on such vendor participation in tenders / works.
- 21. It is the sole responsibility of the agent / supplier / manufacturer to comply with the applicable laws, be national or international.
- 22. In case of any dispute or grievance, the matter shall be addressed as per PPRA rules.
- 23. The CUI-Lahore Campus reserves the right to modify the quantities of goods / services at any time before the award of purchase / work order.
- 24. Warranty mentioned in BoQs shall be provided from the date of installation or standard warranty whichever is higher
- 25. <u>05%</u> of the total value of the <u>Invoice</u> will be retained as security by COMSATS University Islamabad (CUI), Lahore Campus, and will be released after warranty period i.e. <u>As Mentioned in BoQs</u> which will be counted from the date of Installation / Completion of work / Supply.
- 26. The bidder is required to furnish in form of <u>Bank deposit/CDR / Pay order equivalent to 2% of the total Bid price as Earnest Money crossed in favor of "COMSATS University Islamabad, Lahore Campus".</u>
- 27. CUI Lahore Campus reserves the rights to reject the bid if;
 - i. Received without earnest money
 - ii. Received later than the date and time fixed for tender submission
 - iii. The tender is unsigned/unstamped
 - iv. The offer is ambiguous
 - v. The offer is conditional
 - vi. The offer is from a firm, which is black listed by any Govt. Office.
 - vii. The offer is received by telephone/telex/fax/telegram.
 - viii. Any unsigned / ambiguous erasing, cutting / overwriting etc. is made.
- 28. The bidder should furnish a certificate as worded below in token of acceptance of all the terms and conditions of the tender otherwise the tender will not be considered under any circumstances.
- 29. The undersigned affirm that the terms and conditions as contained in this document have been read and accepted and that in the event of selection of my/our rate the agreement in the prescribed form will be entered into:

•	Company / Vendor Name:
•	Postal Address:
•	<u>Tel. / Mobile:</u> <u>Email:</u>
•	<u>NTN# :</u> <u>GST#:</u>
•	Signature:

Please also attach the Certificate supporting being Active Taxpayer as per requirement of FBR.

BoQs of Lab Equipment for Establishment of Centre for Advanced Technologies in Biomedical Materials (Knowledge Economy Initiative)

<u>Technical Portion (Please mention the quoted model/ brand in technical portion with no mention of price otherwise the bid will be rejected)</u>

allowe model	ange in the BoQ ed. Any addition I/brand or Priction of bid (fully	Please mention the quoted Model / Brand with meeting the all specifications mentioned			
Sr. #	Item Name	Requi	rement / Specifications	Qty	in BoQs
			A system required to control a three electrode cell and measures the voltage difference between a Working Electrode and a Reference Electrode and to be used in the area of Photoelectrochemical sensing, electrochemical sensing and supercapacitor application.		
1	Potentiostat	Photo- Electrochemical Workstation	It should measure: Chopped Light Voltammetry Cyclic voltammetry Differential pulse voltammetry Impedance spectroscopy, Amperometry Chornoamperometry Galvanostatic charge discharge Battery cycling Linear sweep voltammetry	1	
		Electrochemical Impedance Spectroscopy (EIS) frequency range	10 μHz (or lower) to 8 MHz (or higher)		
		Maximum current	2A or better		
		Current Range	10 nA (or lower) to 1A (or higher)		
		Potential range	±10 V		
		Slots for additional hardware	5 or more		
		Photo- Electrochemical	LED Driver Kit with cover or LED Potentiostat		
		Light Emission Source	Light source setup (optical bench)		

	1	ı	CUI-LHR-PUR-Tender-00
	Switchable Light Source (Royal blue to UV 370 to 470 nm) or better		
	all required cable connectors, USB connector and charger adapter		
	Counter electrode (Pt) by OEM	2	
	References electrode (Ag/AgCl) by OEM	2	
Accessories	Reference electrode (Hg/HgCl ₂) by OEM	2	
	Working electrode (glassy carbon) by OEM	2	
	Electrode polishing kit by OEM	1	
	Basic Electrochemical Cell Setup	1	
	Unlimited licenses and free lifetime software upgrades.		
oftware	Must be compatible with all provided hardware	1	
	Advanced custom analysis with user-defined variables and models		
Computer	Computer compatible with system and recommended by OEM with genuine windows	1	
Power backup	As recommended by OEM for optimum operations		
with additional Servo Stabilizer	12 Months from the date of installation	1	
Installation	Complete Installation, operation, Onsite Training (installation)		
Warranty &	12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers		
Others	Proofs of trainings of company personnel/engineers should be provided		
	List of installations in Pakistan should be provided		

		I	1		COI-DIIK-I OK-TCHUCI-001
		Electrochemical Workstation	Electrochemical Workstation for electrochemical and electrochemiluminescence measurements. It should measure	1	
1.1	Potentiostat	Maximum current	40 mA or better		
		Current Ranges	1 nA to 10 mA or better		
		Potential range (DC)	`-4 to + 4 V or better		
		Light source	ECL Cell with detector Wavelength range (215-2500 nm or better)		
			Bulb life (1,000 hours or better)		
			all required cable connector,		
			USB connector and charger adapter		
			Counter electrode (Pt) by OEM	1	
			References electrode (Ag/AgCl) by OEM	1	
		Accessories	Reference electrode (Hg/HgCl ₂) by OEM	1	
			Screen printed carbon electrodes by OEM	150	
		Software	Unlimited licenses and free lifetime software upgrades.		
			Must be compatible with all provided hardware,		

CUI-LHR-PUR-Tender	CUI-L	HR-PU	UR-T	ender	-00
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	1	İ	1		COI-LIIK-I OK-Telluel-001
			Advanced custom analysis with user-defined variables and models		
		Computer	Computer compatible with system and recommended by OEM with genuine windows	1	
		Power backup with additional Servo Stabilizer	as recommended by OEM for optimum operations	1	
		Installation	Complete Installation, operation, Onsite Training		
		Warranty &	12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers		
		Others	Proofs of trainings of company personnel/engineers should be provided		
			List of installations in Pakistan should be provided		
		purpose	For safe working to perform chemical reactions		
		Internal Dimensions (mm)	1200x600x870 (WxDxH) or larger		
			Acid and alkali resistance base with aluminum frame		
			Tempered glass window		
			Air velocity 0.3m/s or better		
			Wash basin: alkali and acid resistant		
			Gas and water valves		
2	Fume		Base cabinet for storage of inflammable chemicals	10	
	Cupboards		Centrifugal blower for exhaust 900m ³ /h or better		
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		

	1				CUI-LHR-PUR-Tender-001		
		Purpose	For safe storage of cylinders				
		Capacity	To accommodate three (03) gas cylinder (50 Liters) or more				
		Exhaust system	Automatic system to detect gas leak with alarm				
			Hoop to prevent cylinder from falling				
		General features	Movable flaps Gas probe for detection of gas leak				
3	Storage cabinets		90 minutes fire-resistant or better Double door	03			
	cabinets	Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 				
	Rheometer	Purpose	Viscosity and Rheology measurement (including cross- linking density) of low viscosity liquids, visco-elastic liquids, gel like materials, semi- solids, melts, paste like materials, and reactive systems				
4		Operating mode	 strain control stress control, Shear rate control gap control rheology in rotation and oscillation mode 	1			
		Motor drive system	Air bearing				
			Minimum torque Rotation (μNm): 1 (or lower)				
		Basic	Minimum torque Oscillation (μNm): 1 (or lower) Maximum torque (mNm): 120				
		Requirements	(or more) Minimum speed (rotational): 10-3 rpm (or less)				
						Maximum speed (rotational): 1500 rpm (or more)	

	,		CUI-LHK-PUK-Tender-001
	Normal force range (N): 0.01 (or less) to 50 (or more)		
	Peltier temperature control module for cone and plate		
	Measuring plate with diameter of any range between 20-30 mm	1	
Accessories	Measuring plate of any range between 40-60mm	1	
Accessories	Measuring cone of any range between 20-35mm angle 1°	1	
	Measuring cone of any range between 20-35mm angle 0.5°	1	
Software	software including driver running under Microsoft windows with lifetime license		
Computer	Compatible with system with power back up	1	
Power backup with additional Servo Stabilizer	As recommended by OEM for optimum operations	1	
Warranty & Others	12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided		
Purpose	Qualitative and quantitative analysis of organic compounds e.g., drugs, vitamins, proteins, enzymes etc.		
General features	 Gradient pump with degasser, manual injector variable wavelength detector. 	01	
Gradient Pump	Dual pump with dual piston for binary solvents Pressure: up to 400 bar (or higher) Rate up to 5 mL/min (or higher)	01	
	Integrated Degassing Unit		
Manual Injector	Manual injector with sample injection valve and standard loop.	01	
Detector	Variable Wavelength Detector range: 190 nm(or less) to 600 nm (or more)	01	
	Computer Power backup with additional Servo Stabilizer Warranty & Others Purpose General features Gradient Pump Manual Injector	Accessories Peltier temperature control module for cone and plate	Corless) to 50 (or more) Peltier temperature control module for cone and plate Measuring plate with diameter of any range between 20-30 mm Measuring plate of any range between 40-60mm Measuring cone of any range between 40-55mm angle 10 Measuring cone of any range between 20-35mm angle 10 Measuring cone of any range between 20-35mm angle 10 Measuring cone of any range between 20-35mm angle 10 Measuring cone of any range between 20-35mm angle 10 Measuring cone of any range between 20-35mm angle 10 Measuring cone of any range between 20-35mm angle 10 Measuring cone of any range between 20-35mm angle 10 Measuring cone of any range between 20-35mm angle 10 Measuring cone of any range between 20-35mm angle 10 Measuring cone of any range between 20-35mm angle 10 Measuring cone of any range between 20-35mm angle 10 Measuring cone of any range between 20-35mm angle 10 Measuring cone of any range between 20-35mm angle 10 Measuring cone of any range between 20-35mm angle 10 Measuring cone of any range between 20-35mm angle 10 Measuring cone of any range between 20-35mm angle 10 Measuring cone of any range between 20-35mm angle 10 Measuring cone of any range between 20-35mm angle 10 Measuring cone of any range between 20-35mm angle 10 Measuring cone of any range between 20-35mm angle 10 Measuring cone of any range between 20-35mm angle 10 Measuring cone of any range between 20-35mm angle 10 Measuring cone of any range between 20-35mm angle 10 Measuring cone of any range between 20-35mm angle 10 Measuring cone of any range between 20-35mm angle 10 Measuring cone of any range between 20-35mm angle 10 Measuring cone of any range between 20-35mm angle 10 Measuring cone of any range between 20-35mm angle 10 Measuring cone of any range between 20-35mm angle 10 Measuring cone of any range between 20-35 Measuring cone of any range between 20-35 Measuring cone of any range to 50 Measuring cone of any range to 50 Measuring cone of any range to 50 Measur

	I		T		I	CUI-LHR-PUR-Tender-001
				partment: from 60°C or better range	01	
			Column C1	8 (compatible with	01	
		Accessories	quoted mac	hine)	U1	
			Column C8 quoted mac	(compatible with hine)	01	
			Compatible	sample injections	04	
		Power backup		ended by OEM	01	
		Computer system	As recommo	ended by OEM with dows	01	
		Warranty & Others	 12 Moninstallat service) good loc running trained Proofs of companing personning be provided List of it Pakistan provided 	ths from the date of ion (parts and with vendor having cal reputation with machines and well-engineers of trainings of y el/engineers should ided installations in a should be		
		Meter	Purpose of the pH meter pH range pH	To perform pH measurements 0-14 pH or better		
			resolution pH	±0.05 or better		
			pH	3 point calibration		
			calibration	or better	02	
			Temperat ure resolution	0.1°C or better		
			Temperat	Ambient to 60 °C		
4	nH clostwode		ure range	or better		
6	pH electrode	de	Temperat ure compensat ion	included		
			electrode		10	
			Temperatur	e probe	01	
					Mini mum	
					500	
		Accessories			ml	
			Standard bu	ıffer solutions	each to	
					cover	
					рН	
					range	
					0-14	

					CUI-LHR-PUR-Tender-001
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		
		Purpose of the High Vacuum pump Construction	Vacuum pump for attaining high vacuum for different laboratory equipments Rotary vane vacuum pump		
		Vacuum attainable	1x10 ⁻³ mbar or below	08	
		Pumping capacity	80 L/min or better		
		Safety	anti-suck back protection		
		Accessories	Vacuum oil	30 liters	
			Cold trap	5	
			Fine vacuum adsorption trap	5	
			Oil mist filter	08	
	High		Service kit (washers, seals, gaskets etc)	08	
7	Vacuum Pumps		Vacuum pipe with flanges both ends (I meter or more)	08 set	
			Vacuum seal with suitable clamps	08 set	
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		
	TT. 1	Purpose of the High Vacuum pump	Oil-less pump for attaining high vacuum		
	High	Construction	Scroll vacuum pump	0.2	
7.1	Vacuum Pump	Vacuum attainable	7x10 ⁻² mbar or less	02	
		Pumping capacity	100 L/min or more		

	T		1		CUI-LHR-PUR-Tender-001
			Service kit (washers, seals, gaskets etc)	01	
		Accessories	Vacuum pipe with flanges both ends (I meter or more)	02 set	
			Vacuum seal with suitable clamps	02 set	
		Warranty & Others	12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided		
		General Requirements	 Type: Diaphragm PTFE All parts which come into liquid contact should be acid, alkali, solvent resistant self-priming, maintenance free Adjustable flow rate 		
		Flow Parameters	Variable flow rates 10 ml/min (or lower) to 100ml/min (or higher)		
		Suction height ft. water	9 ft or higher		
		Maximum Pressure	1 bar or higher		
8	Dosing Pumps	Tubing	10 feet or more Acid, alkali and solvent resistant tube with all requisite connectors	3	
		Installation and training	Installation and training at installation site		
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		

			<u> </u>		CUI-LHR-PUR-Tender-001
		General Requirements	 Type: Diaphragm PTFE All parts which come into liquid contact should be acid, alkali, solvent resistant self-priming, maintenance free, dry running, adjustable flow rate 		
		Flow Parameters	 Variable flow rates 0.5 ml/min (or lower) to 20ml/min (or higher) 		
		Suction height ft. water	6 ft (or higher)		
		Maximum Pressure	1 bar (or higher)		
8.1	Dosing Pumps	Tubing	10 feet or more Acid, alkali and solvent resistant tube and connectors which could fit with the pump	2	
		Installation and training	Installation and training at installation site		
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		
		Purpose of the Filtration/solven t pump	Pump for vacuum filtration and solvent removal		
		Construction	Oil free pump		
		Vacuum attainable	75 torr or above	05	
		Maximum flow rate	10 L/min or above		
9	Filtration/ Solvent	Accessories	Vacuum/pressure regulator with gauge		
	Pumps	110005001105	Filter		
			Moisture trapper	05	
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of 		
			company		

					CUI-LHR-PUR-Tender-001
			personnel/engineers should be provided List of installations in Pakistan should be provided		
		Laboratory Freezer	Upright type		
		Chemical resistance	Yes		
		Door material	Steel or equivalent		
		Temperature range (programable)	Minus 20 °C (or lower) to 10 °C (or higher)	05	
10	Minus 20	Effective capacity	500 L or better		
10	Freezer		Power failure		
		Alarms	High Temperature		
			Low Temperature		
		Temperature Display	Digital display		
		stabilizer	As recommended by OEM	05	
		Warranty	1-year warranty for complete equipment		
		·	5 years compressor warranty		
		Purpose of the Vacuum pump	Vacuum pump for routine laboratory work and suitable for slightly aggressive or corrosive gases		
		Construction	Oil free vacuum pump		
		Vacuum attainable	75 mbar (or below)		
		Maximum flow rate	10 L/min (or above)		
11	Vacuum	Accessories	Vacuum/pressure regulator with gauge Filter	03	
11	Pump	Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		

		T			CUI-LHR-PUR-Tender-001
	Double Distillation unit	Purpose of the Double Distillation Unit	Water Distillation unit based on reverse osmosis		
12	along with water feed	Distilled water output	2 L/h or above	01	
	conversion unit (for water	Biological activity	pyrogen free		
	deionizer)	Safety control	visual flow		
		Purpose	Cell and tissue culture		
		Capacity	170 L or higher with 4 shelves minimum		
		Design	Non-segmented inner door, with water tray		
		Chamber	Single sheet Stainless steel 304 or Cu enriched stainless steel		
	CO ₂	Equipment stability	Vibration and turbulence protection	4	
		Temperature range	Ambient to 50° C (or better) Temperature stability 37°C ± 1°C		
		CO ₂	CO ₂ gas induction range of 0.2- 20 % or better		
			Digital CO2 sensor		
		sensor	Digital temperature sensor		
13		SCHSOI	Digital Humidity sensor		
	Incubators	Disinfection	High Temperature or UV disinfection		
		Alarm	With temperature and CO ₂ level, 72-hour data/chart logger or better		
		Necessary	CO ₂ cylinder	04	
		Accessories	Gas regulator.	04	
			Compatible UPS for 30-minute	04	
			 power backup 12 Months from the date of installation (parts and 		
		Warranty & Others	service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided		

Scope: Upright freezer which can be set at -80°C Temperature range		1				CUI-LHK-PUK-Tender-001
Power supply Purpose			Scope:			
Compressor Compressor Compressor Compressor Compressor Compressor Compressor Compressor Comparature Compatible with the power Complete installation with Company Com			range	-80°C (or lower)		
Temperature monitoring UPS Compatible with the power requirement for 30 min backup installation Complete installation with onsite training good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided Purpose Power supply for Fabrication of electrospun mats and electrospun god solutions Power supply with all accessories like cables and clips etc. Voltages Voltages Voltages Voltages Output Current 0.5 mA or better Output Current 0.5 mA or better Over voltage protection Over current protection Protection against output short circuit Over temperature protection Manual recovery after cutoff Digital output display AC insulation and reference				330L (or better)	1	
Temperature monitoring deviation digital display UPS compatible with the power requirement for 30 min backup Complete installation with onsite training 1			Compressor	double compressor		
UPS compatible with the power requirement for 30 min backup installation Complete installation with onsite training - 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided - List of installations in Pakistan should be provided - List of installations in Pakistan should be provided - List of installations in Pakistan should be provided Power supply for Fabrication of electrospraying of solutions - Power supply with all accessories like cables and clips etc. Voltages Up to 50KV or more Resolution 0.5 KV or better Output Current 0.5 mA or better Over voltage protection Over current protection Protection against output short circuit Over temperature protection Manual recovery after cutoff Digital output display AC insulation and reference						
Freezer (minus 80) Freezer (minus 80) installation Complete installation with onsite training 1 2 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided Power supply for Fabrication of electrospun matts and electrospun matts and electrospun with all accessories like cables and clips etc. Voltages Up to 50KV or more Resolution 0.5 KV or better Output Current 0.5 mA or better Over voltage protection Protection against output short circuit Over temperature protection Manual recovery after cutoff Digital output display AC insulation and reference			monitoring	digital display		
14		Franzor	UPS		1	
Warranty & Others Warranty & Others Warranty & Others Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided Purpose Power supply for Fabrication of electrospany matts and electrospany matts and electrosparaying of solutions Power supply with all accessories like cables and clips etc. Voltages Up to 50KV or more Resolution 0.5 KV or better Output Current 0.5 mA or better Over voltage protection Protection against output short circuit Over temperature protection Manual recovery after cutoff Digital output display AC insulation and reference	14		installation	onsite training		
Purpose electrospun matts and electrospraying of solutions Power supply with all accessories like cables and clips etc. Voltages Up to 50KV or more Resolution 0.5 KV or better Output Current 0.5 mA or better Over voltage protection Over current protection Protection against output short circuit Over temperature protection Manual recovery after cutoff Digital output display AC insulation and reference				 installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in 		
Power supply with all accessories like cables and clips etc. Voltages Up to 50KV or more Resolution 0.5 KV or better Output Current 0.5 mA or better Over voltage protection Protection against output short circuit Over temperature protection Manual recovery after cutoff Digital output display AC insulation and reference			Purpose	electrospun matts and		
Power supply General Features General Features Over voltage protection Protection against output short circuit Over temperature protection Manual recovery after cutoff Digital output display AC insulation and reference				accessories like cables and clips		
Power supply General Features General Features Over voltage protection Over current protection Protection against output short circuit Over temperature protection Manual recovery after cutoff Digital output display AC insulation and reference				S		
Power supply General Features Over voltage protection Over current protection Protection against output short circuit Over temperature protection Manual recovery after cutoff Digital output display AC insulation and reference						
General Features Over voltage protection Over current protection Protection against output short circuit Over temperature protection Manual recovery after cutoff Digital output display AC insulation and reference						
General Features Over current protection Protection against output short circuit Over temperature protection Manual recovery after cutoff Digital output display AC insulation and reference	15	Power supply			01	
Protection against output short circuit Over temperature protection Manual recovery after cutoff Digital output display AC insulation and reference			General	Over voltage protection		
Circuit Over temperature protection Manual recovery after cutoff Digital output display AC insulation and reference			Features	Over current protection		
Manual recovery after cutoff Digital output display AC insulation and reference						
Digital output display AC insulation and reference				Over temperature protection		
AC insulation and reference				Manual recovery after cutoff		

	T	1	Ţ		CUI-LHR-PUR-Tender-001
		UPS with servo stabilizer	As recommended by OEM	01	
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		
		Purpose	Power supply for Fabrication of electrospun matts and electrospraying of solutions		
			Power supply with all accessories like cables and clips etc.		
		General Features	Voltages Up to 30KV or more		
			Resolution 0.5 KV or better		
			Output Current Upto 0.5 mA or better Over voltage protection	01	
			Over current protection		
			Protection against output short circuit		
15.1	Power supply		Over temperature protection		
13.1	1 ower suppry		Manual recovery after cutoff		
			Digital output display		
			AC insulation and reference ground connecting to the earth		
		UPS with servo stabilizer	As recommended by OEM	01	
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		

	1	1			CUI-LITK-PUK-Tender-001
		Purpose	Syringe pump for Fabrication of electrospun matts and electrospraying of solutions		
			Two channel syringe pump for electrospinning, able to work under high voltages (up to 50kv or more) with digital display		
		General features	Channels Two-channel pump: should be controlled independently for individual syringe Flow rate, volume and time of infusion Compatible to work under high	03	
			voltage. Pumping rate Pumping rate: 3µl/ hr (or lower) to 19 ml/min (or higher)		
			Pump rate accuracy : ±2% or better		
			Needle sets	05	
			11 g to 27 g (any size in between)	sets	
			Multi option coaxial needle set ranging from 11g to 27g (any	02	
			size in between)	sets	
			Triaxial spinneret		
16	Syringe		Needle length should be 6cm	02	
10	pumps		with inner 22g, middle 18g and outer 14g	sets	
			Triaxial spinneret		
			Needle length should be 6cm	02	
			with inner 22g, middle 18g and	sets	
			outer 15g		
			Triaxial spinneret Needle length should be 6cm	02	
			with inner 22g, middle 18g and	sets	
		Accessories	outer 16g	seis	
			Tri-channel spinneret	02	
			Multi-nozzle spinnerets	02	
			Cold light source for observing the electrospinning process	01	
			50ml Glass syringes	05	
			(borosilicate) 20ml Glass syringes	05	
			(borosilicate) 10ml Glass syringes		
			(borosilicate)	10	
			(borosilicate)	10	
			2ml Glass syringes (borosilicate)	10	
		Power backup	As recommended by OEM	01	
	•	•			

					CUI-LHR-PUR-Tender-001
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		
		Purpose	Syringe pump for Fabrication of electrospun matts and electrospraying of solutions		
		General features	Four channel syringe pump for electrospinning, able to work under high voltages (up to 50kv or higher) with digital display		
		Syringe pump	Channels Four-channel pump: can be controlled independently for individual syringe Flow rate, volume and time of infusion can be controlled precisely. Compatible to work under high voltage. Pumping rate	01	
16.1	Syringe		Pumping rate: 3µl/hr (or less) to 19 ml / min (or higher) Pump rate accuracy : ±2% or better		
16.1	pumps		Needle sets 11 g to 27 g	05 set	
			Multi option coaxial needle set ranging from 11g to 27g	02 set	
			Triaxial spinneret Needle length should be 6cm with inner 22g, middle 18g and outer 14g	02 set	
		Accessories	Triaxial spinneret Needle length should be 6cm with inner 22g, middle 18g and outer 15g	02 set	
			Triaxial spinneret Needle length should be 6cm with inner 22g, middle 18g and outer 16g	02 set	
			Tri-channel spinneret	02	
			Multi-nozzle spinnerets also called islands in the sea spinneret	02	

	I	1			CUI-LHR-PUR-Tender-001
			Cold light source for observing the electrospinning process	01	
			50ml Glass syringes (borosilicate)	05	
			20ml Glass syringes (borosilicate)	05	
			10ml Glass syringes (borosilicate)	10	
			5ml Glass syringes (borosilicate)	10	
			2ml Glass syringes (borosilicate)	10	
		Power backup (optional)	As recommended by OEM	01	
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided Type: Peristaltic Variable-Speed 		
17	Elow Pumna	General features	 Graphical LCD display Contamination-free pump system and maintenance-free high-accuracy motor Self-priming To handle high and low viscosities liquids Reversible motor with on/off/reverse possibility 	01	
17 Flow Pu	Flow Pumps	Key Components	Complete Digital system Contain: Variable-Speed Pump drive Multiple pump heads Tubing Pump head Mounting Hardware		
		Pump drive	 Flow rate range (ml/min): 5 (or lower) to 2800 (or higher) Speed control sensitivity: ±2% or better 	1	
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		1			CUI-LHR-PUR-Tender-001
		Pump head	 Compatible with pump drive Rotor materials- Stainless steel Automatic tubing retention 	2	
			Material resistance and Compatible with pump head and pump drive		
		Pump tubing	Tubing set (20-25 feet Length) - Flow rate 1 to 450 ml/min or better	1	
			Tubing set (20-25 feet Length) - Flow rate 10 to 2000ml/min or better	1	
		Pump Head Mounting Hardware	Stainless steel material, Compatible with pump drive and pump head	1	
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 	1	
17.1	Flow Pumps	General features	 Type: Peristaltic Variable-Speed Graphical LCD display Contamination-free pump system and maintenance-free high-accuracy motor Self-priming To handle high and low viscosities liquids Reversible motor with on/off/reverse possibility 	1	
		Key Components	Complete Digital system Contain Variable-Speed Pump drive Multiple pump heads Tubing Pump head Mounting Hardware		
		Pump drive	• Flow rate range (ml/min): 1 (or lower) to 480 (or higher)	1	

					CUI-LHR-PUR-Tenger-001
			Speed control sensitivity:±1% or better		
			Compatible with pump drive		
			Rotor materials- Stainless		
		Pump head		2	
			steel		
			Automatic tubing retention		
			Material compatible with pump		
			head and pump drive		
			Tubing set (20-25 feet Length) - Flow rate 10 to 200 ml/min or	1	
		Pump tubing	better	1	
			Tubing set (20-25 feet Length) -		
			Flow rate 0.5 to 150 ml/min or	1	
			better		
		Pump Head	Stainless steel material,		
		Mounting	Compatible with pump drive	1	
		Hardware	and pump head		
			■ 12 Months from the date of		
			installation (parts and		
			service) with vendor having		
			good local reputation with		
			running machines and well- trained engineers		
		Warranty &	Proofs of trainings of		
		Others	company	1	
			personnel/engineers should		
			be provided		
			 List of installations in 		
			Pakistan should be		
			provided		
		General	Electrically operable		
		Features	Programmable		
			Working Temperature		
			(Maximum): 1700 °C		
			Continuous working		
			temperature: 1600 °C		
			Heating Rate: 1°C/min (or lower) to 15°C/min (or higher)		
			Temperature Accuracy: ±1°C		
			Step Size: 0.5 °C or better		
18	Furnace		length of maximum	01	
		Temperature	temperature zone: 60 mm or		
		Control	more		
			Tube Wall Thickness: not less		
			than 2 mm		
			High quality MoSi ₂ heating		
			element		
			Programming: Minimum 20		
			segment with parameters:		
			Heating ramp		
			Cooling ramp		
			Dwelling steps		

	1			T =			CUI-LHR-PUR-Tender-001
				Built-in over-temper alarm and thermocol alarm.			
				An additional B-type thermocouple		01	
	Acce			Adequate ceramic pr tube/sheath/sleeve fo thermocouple		02	
		Gas In-flow Assembly		Gas in-flow assembly of pressure regulatin flow meter			
	Water Cooled Flange System		Closed loop circulation cooling unit with at least vacuum-tight water-stainless-steel flanges fittings on the outlet	east 2 cooled s with			
		Warranty & Others		 12 Months from the installation (parts service) with veneral good local reputarunning machine trained engineers Proofs of training company personnel/engine be provided List of installation Pakistan should leave to the company the provided 	the date of s and dor having tion with s and well-gs of ers should		
		Stainless	Ma Dia	TM Standard terial: 316L meter: 10 mm oss-sectional: Round	1 meter	10	
	Raw materials	steel bar	Ma Dia	TM Standard terial: 316L meter: 20 mm oss-sectional: Round	each	10	
19		Raw naterials Titanium Bars St M (b Di C) St M (b Di D)	Ma (bio Dia	ndard: ASTM terial: Ti6Al4V ograde) meter: 10 mm oss-sectional: Round	1 meter each	10	
			Ma (bio Dia	ndard: ASTM terial: Ti6Al4V ograde) meter: 20 mm oss-sectional: Round	1 meter each	5	
		Platinum Wire	0.41 pur	mm diameter high ity	50cm	2	
		PTFE Sheet	Thi	ckness: 10 mm	Length × Width: 30 X 90	2	

			I				CUI-LHK-PUK-Tender-001
		PTFE Sheet	Thickness – 30 r	nm	Length × Width: 30 X 90	2	
	FTO (Fluorine-doped tin oxide) glass slide Indium tin oxide coated glass slide, rectangular		Inner Diameter: Outer Diameter		Length: 50 ft	50 ft	
			300 mm × 300 m mm (13 Ω•s q-1)	nm × 2.3	-	25	
			75 mm × 25 mm mm (15-25 Ω/sq)	ı × 1.1	-	25	
			40 mm with four (x4) mm T-Slots – each length of 6 meters Clear anodized finish		6 meters	15	
		T-slot Aluminum Frames	8 mm T Slots (x200)		-	x200	
			8mm T-Nuts (x200)		-	x200	
			8mm T-bolts (x2	200)	-	x200	
		Purpose	For biochemical and cell countin blood-derived sa serum etc (i.e. h	g) of whol amples lik	le blood or e plasma,		
			Display	Touch s			
20 Spectrophoto meter			Lamp		equivalent		
		Wavelengths range	nm (or l		01		
		Photo meter	absorbance	Absorba higher	ance 2.5 or		
			Measurement time	15 sec (0	or less)		
			Assay type	Absorbance, Endpoint, Kinetic			

					CUI-LHR-PUR-Tender-001
			 Endpoint without blank, 2 points (fixed time) with or without reagent blank Coagulation 		
		Detector	Photodiode detector 320 (or lower) –1100 nm (or higher)		
		Sample			
		volume	35µl or less		
		Working	25, 30 and 37 °C		
		Temperature	25, 50 and 57 C		
			Disposable Measuring tubes 5 mL	500	
		Accessories	Disposable Measuring tubes 10 mL	500	
			Disposable Measuring tubes 15 mL	500	
		General features	 Digital display Graphical user interface with compatibility to external mouse and keyboard 		
		Mode	Whole blood Capillary blood Prediluted blood		
	Hematolog y analyzer	Parameters (minimum)	 WBC; along with WBC differentials RBC HGB HCT MCV MCH PLT 	01	
		Sample volume	50 μL (or less)		
		Data storage	10,000 samples or more 60 samples/hour or		
		Efficiency	more	0.1	
		Accessories	• Keyboard	01	

	r	1	1			CUI-LHR-PUR-Tender-001
				• mouse	01	
				• waste liquid barrel	02	
				external barcode scanner and printer	01	
		UPS	Power Backup o	of 30 minutes at least	01	
		Warranty	installation with vendo reputation machines engineers Proofs of to personnel/en provided	from the date of (parts and service) r having good local with running and well-trained rainings of company ngineers should be llations in Pakistan rovided		
		General Features	Program3.5 liters	or higher		
21	High Temperature Furnace	Temperatu re Control	1700 °C Continuous wor 1650 °C Heating Rate: 1 15°C/min (or his Temperature Ac Step Size: 0.5 °C High quality Mc Programming: Is segment with pa Heating ramp Cooling ramp Dwelling steps Auto restore fur power failure	ccuracy: ±1°C C or better OSi ₂ heating element Minimum 20 nrameters: nction in case of mperature alarm and	01	
				-type thermocouple	01	
		Accessories	Adequate ceran tube/sheath/slee thermocouple		02	
		Gas In-flow System	To create inert a	-		
		Warranty & Others	installat service)	ths from the date of ion (parts and with vendor having cal reputation with		

	1	1			CUI-LHR-PUR-Tender-001
			running machines and well- trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided		
		Purpose	CE certified total exhaust cabinets for work with infectious agents		
		Class	п		
		Type	B2		
		Working area	12 square feet or bigger		
		Filter	HEPA/ULPA		
		control	Graphical LCD display containing: on/off fan control with adjustable air velocity Working window control LED lamp ON/OFF UV lamp ON/OFF Elapsed time counter and alarm for HEPA filter replacement	03	
		Chamber Materials	Stainless Steel		
		Window	Tempered glass		
22	Microbiology Safety Cabinet	Compatible Trolley	Yes		
		UV light	Yes		
		Total Exhaust	Yes		
		UPS backup	As recommended by OEM	03	
		installation	Complete installation with onsite training		
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		

					CUI-LHR-PUR-Tender-001
		Ultra sonicator	 400W or better process time 10 hours (or more) Operating frequency of 20 kHz (or more) Tuneable ultrasonic time Variable Amplitude (20% to 100% or better) Processing volume: Minimum 10 mL (or lower) and maximum 250 mL (or higher) Tunable pulse Microtip Probe (with any size 	03	
23	Ultrasonicato r probes	Titanium Tips	 between 3-4 mm) Replaceable Tip Probe with any size between 6-14 mm 	03	
		Accessory	Ultrasonic oscillating system(transducer)	03	
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		
24	Ultrasonicato r chambers	General features Ultrasonica	 Suitable for cleaning of metal, plastic, ceramic or glass parts especially for medical industry cleansing Should include but not be limited to Hot air-drying system Rinsing System Water circulation system Filtration mechanism Stainless Steel Construction (304 or higher grade) Digital temperature and timer display for each chamber Multi-Chamber Unit (4 or more) 1 chamber for ultrasonic wash 1 chamber for ultrasonic rinsing 1 chamber for compressed air bubble cleaning 1 chamber for hot air drying 3+1 or 4 in 1 combinations acceptable 	1	
		tor power	Up to 2000 W or higher		

					CUI-LHK-PUK-Tender-001
		Maximum Heating Temperatu re	Up to 80 °C or higher		
		Maximum load on the basket	15 kilograms or higher		
		Time	Up to 60 minutes or higherContinuous mode		
		Capacity	20 liter per chamber (or higher)		
		Independen t Precleaning Chamber	 Independent (not integrated) and additional precleaning chamber 15 Liter (or more) 80°C or higher Ultrasonicator power 1000W (or higher) 	1	
		Accessories and additional required functions	 Baskets All accessories required for the aforementioned to function completely as intended 		
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		
		Purpose	Curing of dental composites using LED UV irradiation		
25		General features	 Rechargeable Wireless use ability Base-charger with handpiece holder 		
	Blue LED	Power	1250 mW/cm² or better	02	
	Lights	Battery	Long-life, capable of multiple runs should part of provided equipment	02	
		Accessories	2 extra tips1 extra battery		
		Warranty	12-months or better		

				,		CUI-LHR-PUR-Tender-001
		Purpose	Curing of polyme Light	ers using LED UV		
		General features	LED UV light system for curing of large surface area			
		Peak wave lengths (nm)	365 nm ± 5 nm	400 ± 5 nm		
		Irradiance (W/cm²) at 10 mm distance	2.6 or better	5.5 or better		
		Optical power (W)	65 or better	135 or better		
25.1	Blue LED	Curing Area (mm)	75 (or higher) x 2 (or higher)	5	01	
	Lights		Protective Gear (shield, gloves)	eye wear, face		
		Accessories	All requisite acce aforementioned t intended			
		Installation	Complete installation and training			
		& Training	on installation sit			
		Warranty & Others	installation () with vendor reputation wit and well-train Proofs of tra personnel/eng provided List of instal should be pro	inings of company ineers should be lations in Pakistan vided		
		Purpose	Photopolymeriza	tion of polymers		
		General features	LED UV light sys having four indep	stem for spot curing pendent channels		
25.2	Blue LED Lights	Peak wave lengths (nm)	365, 385, 395 or 4	00 or 405	01	
		Watt/cm ²	aforementioned prespectively)	cable to each of the beak wavelengths,		
		Controller	 Simultaneous of control and pre- more) UV LED 	ogramming of 4 (or		

				Т		CUI-LHR-PUR-Tender-001
		LED heads	each of the afrom within wavelength Interchange	s corresponding to 4 offered wavelengths the aforementioned requirements eable to any channel lual cable for each		
		Display	Digital display for programing and information			
		Time	Programable tin	me from 0.1 to 999 er		
		Intensity	Programable in to 100%	tensity 5% (or lower)		
			Radiometer and Protective Gear			
			shield, gloves)	(cyc wear, face		
			LED head focus	sing lenses		
		Accessories	LED head mou	nting clamps		
			Extension Cable			
			functioning of t			
		Installation	_	lation and training at		
		& Training Warranty & Others	installation with vendor reputation w and well-trai Proofs of to personnel/en provided	from the date of (parts and service) r having good local with running machines ined engineers rainings of company agineers should be allations in Pakistan povided		
		Purpose		High speed mixer is proposed to blend and grind a range of materials (ceramics, polymer etc)		
	High Speed		motor	3 HP (or higher)		
26	High Speed mixer	mixer	Adjustable speeds	1,700 rpm (or lower) to 18,000 rpm (or higher)	01	
		Shear blender	Capacity	1 gallon (or more)		
			Blade	Industrial grade Heavy duty stainless steel or better for chopping		

	1	1				CUI-LHR-PUR-Tender-001
				of both ceramics and polymer		
			Amperage	6.5 amps (or higher)		
			motor	1 HP (or more)		
			Adjustable speeds	8000 rpm (or more)		
			Capacity	1ml (or less) to 500mL (or more)	01	
			other features	automatic shutoff		
		Shear mixer	Frequency	60 hz (or higher)		
				assembly for 1ml (or lower) to 10mL (or more)	01	
			Assemblies (stainless steel)	assembly for 5ml (or lower) to 50mL (or more)	01	
				Assembly for 50ml (or lower) to 500mL (or more)	01	
		Installation	Installation and training	on-site (installation)		
		Warranty and Others	 12 Months installation with vendor reputation w and well-trai Proofs of trail personnel/en provided List of instashould be presented 	allations in Pakistan ovided		
		Purpose	be used for gene	ts motor system to eral oral surgery, well as for all kinds edures.		
		Motors	Motor System w	vith Handpiece 20:1		
27	Surgical	RPM	30 to 40,000 RP Brushless Motor			
	Implants Motors	Display	Easily Program Torque Keyboa	mable Speed and rd Interface	01	
		Coolant flow	Coolant flow rather	te: 1 – 75 ml/min or		
		Safety system		y system with optical signal and king of the motor		

Torque Built-In Torque Controller and Safety Overload Protection Warranty Purpose Protection and theid, mechanical instrument used to perform a variety of common dental procedures, including removing decay, polishing fillings, and altering prostheses Contra angle 20:1 Rotation 200,000 rpm (or more) Quadruple external spray, with microfilter Titanium Comfort Grip Single Water Spray Internal and External Irrigation Cellular Glass Optics chuck Ultra push Chuck Body Ceramic Bearings Sterilizatio 12 months or more from the date of installation Purpose Sterilizatio Autoclave Or Chemiclave Up To 275° F (135° C) (or higher) 12 months or more from the date of installation Purpose Warranty Drying Oven Min temp Ambient Control Min temp Ambient Control Shelf loading 2 or more Ventilation Ventilation hole with Stainless steel Cap Volume So Liter or more Circulation Forced Air Type Controller Digital controller						CUI-LHK-PUK-Tenger-vvi
Warranty 12 months or more from the date of installation			Torque			
Purpose Purpose procedures, including removing decay, polishing fillings, and altering prostheses 20:1 Rotation 200,000 rpm (or more) Properties Titanium Comfort Grip Single Water Spray Properties Chuck Ultra push Chuck Body Ceramic Bearings Sterilizatio n temp stability Warranty Warranty Dental Hand piece contra angle Properties Titanium Comfort Grip Single Water Spray of Internal Irrigation Cellular Glass Optics Chuck Ultra push Chuck Solid Titanium Body Ceramic Bearings Sterilizatio n temp stability Warranty intellation or more from the date of instability and for studies of samples and different temperatures Max temp 250 °C or more Min temp Ambient Control Resolution Shelf loading Ventilation Ventilation hole with Stainless steel Cap Volume 50 Liter or more Circulation Forced Air Type			Warranty	12 months or more from the date of		
28 Dental Hand piece contra angle 29 Dental Hand piece contra angle 20 Dental Hand piece contra angle 21 Dental Hand piece contra angle 22 Dental Hand piece contra angle 23 Dental Hand piece contra angle 24 Dental Hand piece contra angle 25 Dental Hand piece contra angle 26 Dental Hand piece contra angle 27 Dental Hand piece contra angle 28 Dental Hand piece contra angle water Spray 29 Dental Hand piece contra angle water Spray 29 Dental Hand piece contra angle water Spray 29 Dental Hand piece contra angle water Spray 20 Dental Hand piece contra angle water Spray 29 Dental Hand piece contra angle water Spray 20 Dental Hand piece contra angle water Spray, with microfilter 20 Dental Hand piece contra angle water Spray piece of the piece of the microfilter piece of the mi			Purpose	held, mechanical instrument used to perform a variety of common dental procedures, including removing decay, polishing fillings,		
Properties Properties				20:1		
Dental Hand piece contra angle Properties			Rotation	200,000 rpm (or more)		
Dental Hand piece contra angle Water spray Water spray Internal and External Irrigation Cellular Glass Optics chuck Ultra push Chuck Body Ceramic Bearings Sterilizatio n temp stability Warranty Izmonths or more from the date of installation Purpose Max temp Purpose Max temp 250 °C or more Min temp Ambient Control Resolution Shelf loading Ventilation Volume Volume Single Water Spray Internal and External Irrigation Autoclave Or Chemiclave Up To 275° F (135° C) (or higher) 12 months or more from the date of installation For drying of samples under heat and for studies of samples at different temperatures Max temp 250 °C or more Min temp Ambient Control 2 or more Ventilation Ventilation hole with Stainless steel Cap Volume 50 Liter or more Circulation Forced Air Type			Properties			
piece contra angle Water spray Internal and External Irrigation Cellular Glass Optics chuck Ultra push Chuck Body Ceramic Bearings Sterilizatio n temp stability Warranty Warranty 12 months or more from the date of installation For drying of samples under heat and for studies of samples at different temperatures Max temp 250 °C or more Min temp Ambient Control Resolution Shelf loading Ventilation Volume 50 Liter or more Circulation Forced Air Type		Dontal Hand		Titanium Comfort Grip		
spray Internal and External Irrigation Cellular Glass Optics chuck Ultra push Chuck Solid Titanium Body Ceramic Bearings Sterilizatio n temp stability Warranty 12 months or more from the date of installation For drying of samples under heat and for studies of samples at different temperatures Max temp 250 °C or more Min temp Ambient Control Resolution Shelf loading Ventilation Volume 50 Liter or more Circulation Forced Air Type	28	piece contra	Water	Single Water Spray	01	
chuck Ultra push Chuck Body Ceramic Bearings Sterilizatio n temp stability Warranty Purpose Max temp Or drying of samples under heat and for studies of samples at different temperatures Max temp Drying Oven Min temp Ambient Control Resolution Shelf loading Ventilation Volume Volume Volume Circulation Fordarying of samples under heat and for studies of samples at different temperatures Max temp 250 °C or more Min temp Ambient Control Resolution Shelf loading Ventilation hole with Stainless steel Cap Volume Forced Air Type		angie		Internal and External Irrigation		
Solid Titanium Body Ceramic Bearings Sterilizatio n temp stability Warranty 12 months or more from the date of installation Purpose Purpose Max temp 250 °C or more Min temp Ambient Control Resolution Shelf loading Ventilation Ventilation Ventilation Purpose Autoclave Or Chemiclave Up To 275° F (135° C) (or higher) 12 months or more from the date of installation For drying of samples under heat and for studies of samples at different temperatures 01 01 Ventilation Shelf loading Ventilation hole with Stainless steel Cap Volume 50 Liter or more Circulation Forced Air Type				Cellular Glass Optics		
Sterilizatio n temp stability Warranty Purpose Purpose Max temp 250 °C or more Min temp Control Resolution Shelf loading Ventilation Purpose Autoclave Or Chemiclave Up To 275° F (135° C) (or higher) Purpose installation For drying of samples under heat and for studies of samples at different temperatures Max temp 250 °C or more Min temp Ambient Control Resolution Shelf loading Ventilation hole with Stainless steel Cap Volume Circulation Forced Air Type			chuck	Ultra push Chuck		
Ceramic Bearings Sterilizatio Autoclave Or Chemiclave Up To 275° F (135° C) (or higher)			D. I	Solid Titanium Body		
n temp stability Warranty 12 months or more from the date of installation For drying of samples under heat and for studies of samples at different temperatures Max temp 250 °C or more Min temp Control Resolution Shelf loading Ventilation Ventilation hole with Stainless steel Cap Volume 50 Liter or more Circulation Forced Air Type			Body	Ceramic Bearings		
Purpose For drying of samples under heat and for studies of samples at different temperatures Max temp 250 °C or more Min temp Ambient Control Resolution \$\frac{\pmathcal{0}}{2}\$ or more Ventilation Ventilation hole with Stainless steel Cap Volume 50 Liter or more Circulation Forced Air Type			n temp			
Purpose and for studies of samples at different temperatures Max temp 250 °C or more Min temp Ambient Control Resolution \$\frac{\pmathbb{\text{D}}}{\pmathbb{\text{Resolution}}}\$ \\ \frac{\pmathbb{\text{Shelf}}}{\pmathbb{\text{Potatilation}}}\$ \\ \text{Ventilation} \\ \text{Ventilation hole with Stainless steel} \\ \text{Volume} \\ \text{Circulation} \\ \text{Forced Air Type} \end{array}			Warranty			
Drying Oven Min temp Ambient			Purpose	and for studies of samples at		
Drying Oven Control Resolution			Max temp	250 °C or more		
Drying Oven Resolution Shelf loading Ventilation Ventilation hole with Stainless steel Cap Volume Circulation Forced Air Type			Min temp	Ambient		
Ventilation Ventilation hole with Stainless steel Cap Volume 50 Liter or more Circulation Forced Air Type	29	Drying Oven		±0.1 °C or better	01	
Ventuation Cap Volume 50 Liter or more Circulation Forced Air Type				2 or more		
Circulation Forced Air Type			Ventilation			
			Volume	50 Liter or more		
Controller Digital controller			Circulation	Forced Air Type		
			Controller	Digital controller		

			D. 1. 11 CD		CUI-LIIK-I UK-Tender-001
		Display	Digital LCD		
		Timer	99 hr 59 min or more (Delay &		
		Auto	Continuous Function)		
		restart	Auto restart at the same program after power resumption		
		Material			
		Internal	Stainless Steel -304		
			Over Temp alarm		
		Safety	over Current Protector		
			Sensor Error Detector		
		Others	UL/CUL Certified		
			CE Certified		
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		
		Purpose	For drying of samples under heat and for studies of samples at different temperatures		
		Max temp	250 °C or more		
		Min temp	Ambient		
		Control Resolution	±0.1 °C or better		
		Shelf loading	2 or more		
		Ventilation	Ventilation hole with Stainless steel Cap		
		Volume	Minimum 100 Liter or more		
29.1	Drying Oven	Circulation	Forced Air Type	01	
		Controller	Digital controller		
		Display	Digital LCD		
		Timer	99 hr 59 min or more (Delay & Continuous Function)		
		Auto restart	Auto restart at the same program after power resumption		
		Material Internal	Stainless Steel -304		
		Safety	Over Temp alarm over Current Protector Sensor Error Detector		

		1	T		CUI-LHR-PUR-Tender-001
		Others	UL/CUL Certified CE Certified		
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		
		Purpose	For drying of samples under heat and for studies of samples at different temperatures		
		Max temp	250 °C or more		
		Min temp	Ambient		
		Control Resolution	±0.1 °C or better		
		Shelf loading	2 or more		
		Ventilation	Ventilation hole with Stainless steel Cap		
		Volume	Minimum 150 Liter or more		
		Circulation	Forced Air Type		
		Controller	Digital controller		
		Display	Digital LCD	-	
29.2	Drying Oven	Timer	99 hr 59 min or more (Delay & Continuous Function)	01	
		Auto	Auto restart at the same program		
		restart Material Internal	Stainless Steel -304	-	
		Safety	Over Temp alarm over Current Protector Sensor Error Detector		
		Others	UL/CUL Certified CE Certified		
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		

Max Capacity Max speed 14.000 rpm or more (100 rpm increments) 1.5/2 ml tubes along with suitable rotor and adopter capable of holding at least 12 samples at a time 0.5 ml tubes along with suitable rotor and adopter capable of holding at least 12 samples at a time 0.2 ml tubes along with suitable rotor and adopter capable of holding at least 12 samples at a time 0.2 ml tubes along with suitable rotor and adopter capable of holding at least 12 samples at a time 0.5 ml tubes along with suitable rotor and adopter capable of holding at least 12 samples at a time 0.5 ml tubes along with suitable rotor and adopter capable of holding at least 12 samples at a time 0.5 ml tubes along with suitable rotor and adopter capable of holding at least 12 samples at a time 0.5 ml tubes along with suitable rotor and adopter capable of holding at least 12 samples at a time 0.5 ml tubes along with suitable rotor and adopter capable of holding at least 12 samples at a time 0.5 ml tubes along with suitable rotor and adopter capable of holding at least 12 samples at a time 0.5 ml tubes along with suitable rotor and adopter capable of holding at least 12 samples at a time 0.5 ml tubes along with suitable rotor and adopter capable of holding at least 12 samples at a time 0.5 ml tubes along with suitable rotor and adopter capable of holding at least 12 samples at a time 0.5 ml tubes along with suitable rotor and adopter capable of holding at least 12 samples at a time 0.5 ml tubes along with suitable rotor and adopter capable of holding at least 12 samples at a time 0.5 ml tubes along with suitable rotor and adopter capable of holding at least 12 samples at a time 0.5 ml tubes along with suitable rotor and adopter capable of holding at least 12 samples at a time 0.5 ml tubes along with suitable rotor and adopter capable of holding at least 12 samples at a time 0.5 ml tubes along with suitable rotor and adopter capable of holding at least 12 samples at a time 0.5 ml tubes along with suitable rotor and adopter capable of holding at least						CUI-LHR-PUR-Tender-001
And a speed Rotor capacity and adaptor Timer Timer Features Warranty & Others Warranty & Others Purpose Purpose Purpose Purpose Purpose Wiscosity range Viscosity range Wiscosity range Purpose Rotor capacity and adaptor 1.5/2 ml tubes along with suitable rotor and adopter capable of holding at least 12 samples at a time 0.2 ml tubes along with suitable rotor and adopter capable of holding at least 12 samples at a time 1.5 we (or less) to 99 minutes (or more) Features LED with control panel 1.2 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided To measure the viscosity of a small volume of samples. Digital display for the results at various temperatures controlled by the temperature sensing system Viscosity range Rotational viscometer Temperatu 1.5 mPa (or less) to 1300 mPa s (or higher) Mode Rotational viscometer				12 or more x 2 mL		
Rotor capacity and adaptor 30 Centrifuge Contrifuge Centrifuge Contrifuge Centrifuge Contrifuge Contrifuge Contrifuge Centrifuge Contrifuge						
capacity and adaptor Centrifuge Centrifuge Centrifuge Centrifuge Centrifuge Timer Timer Centrifuge Centrifuge Timer Centrifuge Timer Centrifuge Centrifuge Timer Centrifuge Centrifuge Timer Centrifuge Centrifuge Centrifuge Centrifuge Timer Centrifuge			Rotor	rotor and adopter capable of holding at least 12 samples at a time		
adaptor adaptor adaptor 0.2 ml tubes along with suitable rotor and adopter capable of holding at least 12 samples at a time 15 sec (or less) to 99 minutes (or more) Features LED with control panel 1 2 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided To measure the viscosity of a small volume of samples. Digital display for the results at various temperatures controlled by the temperature sensing system Viscosity range Notational viscometer Temperatu 150 °C or higher 03 04 05 05 06 07 07 08 08 09 09 09 09 09 09 09 09			capacity	rotor and adopter capable of holding		
Timer 15 sec (or less) to 99 minutes (or more) Features LED with control panel 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided To measure the viscosity of a small volume of samples. Digital display for the results at various temperatures controlled by the temperature sensing system Viscosity range 1.5 mPa (or less) to 1300 mPa s (or higher) mode Rotational viscometer Temperatu 150 °C or higher 0.1				0.2 ml tubes along with suitable rotor and adopter capable of holding		
Features LED with control panel 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided To measure the viscosity of a small volume of samples. Digital display for the results at various temperatures controlled by the temperature sensing system Viscosity range Note: 1.5 mPa (or less) to 1300 mPa s (or higher) mode Rotational viscometer	30	Centrifuge	Timer	15 sec (or less) to 99 minutes (or	03	
Warranty & Others ** 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers ** Proofs of trainings of company personnel/engineers should be provided ** List of installations in Pakistan should be provided ** To measure the viscosity of a small volume of samples. Digital display for the results at various temperatures controlled by the temperature sensing system Viscosity range 1.5 mPa (or less) to 1300 mPa s (or higher)				<u> </u>		
Purpose for the results at various temperatures controlled by the temperature sensing system Viscosity range 1.5 mPa (or less) to 1300 mPa s (or higher) mode Rotational viscometer Temperatu 150 °C or higher 01			Warranty	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan 		
range higher) mode Rotational viscometer Temperatu 150 °C or higher			Purpose	volume of samples. Digital display for the results at various temperatures controlled by the		
Temperatu 150 °C or higher			_	1		
l l l l l l l l l l l l l l l l l l l			mode	Rotational viscometer		
	31	Viscometer		150 °C or higher	01	
Display digital			Display	digital		
Rotational speed 0.1 (or lower) to 6 (or higher) (RPM)			speed	0.1 (or lower) to 6 (or higher)		
Accuracy ±1% or better			Accuracy	±1% or better		
Measuring System spindles or cylinder systems				spindles or cylinder systems		
Sensor Temperature sensor			Sensor	Temperature sensor		

	1					CUI-LHR-PUR-Tender-001
		Repeatabili ty	±0.2% or bette	r		
		Warranty & Others	installation with vendon reputation machines engineers Proofs of to personnel provided	s from the date of n (parts and service) or having good local n with running and well-trained trainings of company engineers should be tallations in Pakistan provided		
22	32 Platinum Crucible	Crucible 1	Purity Level: P Volumetric Ca		1	
32		Crucible 2	Purity Level: P Volumetric Ca		1	
			X-Ray Generator	DC High Frequency		
33	Portable X- Ray	X-Ray system	X-ray Tube Exposure Time Setting Total Filtration:	Tube Voltage: 60 kV (or more) Tube Current:2 mA (or more) Anode Type: Stationary Anode Angle: 15- 25° Focal Spot: 0.6 mm (or less) Heat Capacity: 8.5 KHU (or more) 0.01-1.60 Sec. (0.01 Sec step) or better 1.6 mmAI or better	02	
			Active areas	35 mm x 25 mm or better 30 mm x 22 mm or better		
		Dental digital X-	Resolution	>20 lp/mm or better		
		ray Sensor	Total Cable Length	2.80 more		
			Image Pixels	1600 x 1200 or better		
		Warranty	12 months or minstallation	ore from the date of		

					CUI-LHK-PUR-Tender-001
		General feature	Fire resistant cabinet for storage of flammable chemicals with digital lock		
		Capacity	220 litre (or more)		
		Fire resistant time	90 min or more		
		Shelves	2 or more		
	Storage	Main body	Two layer anti fire steel plates with at least 1mm thickness of plates Liquid tank for leakage		
34	cabinet	features	Air vent	07	
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		
		Liquid nitrogen supply tank	Tank made of stainless steel For safe supply and storage of liquid nitrogen		
		Capacity	100 Litre or more		
		Tanks rating	22 psi or better		
			Cylindrical roller base		
			Cylinder hand truck with wheels		
			4 ft. flexible braided stainless-steel transfer hose or better		
			LN2 fill phase separator		
35	Liquid nitrogen tank		Temperature Sensor	01	
		accessories	Pressure gauge		
		uccessories	Liquid nitrogen level indicator		
			First Safety valve		
			Second Safety valve		
			Fill and withdraw valve		

		T			CUI-LHR-PUR-Tender-001
			Transfer hoses		
			Solenoid valve		
			Pressure building valve		
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		
		Liquid nitrogen tank for cell storage	CE certified Tank made of stainless steel For safe storage of cells		
		Capacity	30 litres (or more)	01	
		Vial capacity (1.2-2 mL)	600 (or more)		
		Evaporatio n rate	0.2 litres/ day (or lower)		
		Accessories	vial rack	06	
35.1	Liquid		1ml cryo-vial box	10	
	nitrogen tank		2ml cryo-vial box	10	
			0.5 ml cryo-vial box	5	
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		
		Purpose	Sterilization of Glassware, Surgical instruments, Media and biological waste		
36	36 Autoclave	Туре	Horizontal fully automatic Stainless Steel chamber	01	
		Capacity	Effective Chamber Capacity 50 L (or more)		

					CUI-LHR-PUR-Tender-001
		Programs	With programs: for Solids, Waste destruction bags, Liquid waste, Liquid Media and Cleaning.		
		Heating Type	Integrated separate steam generator (no heating elements in sterilization chamber).		
		Steam	Up to 135°C (or higher)		
		Parameters	Pressure 4 bar (or higher)		
		Safety Lock	Specialized Safety door lock during operation and till cooling according to international Pressure Vessel Regulations		
		Pressure control	Electronic pressure transducer for pressure and temperature control		
		Sterilizatio n program	Multiple built in programs for waste destruction with ventilation of waste bags		
		Water inlet	Autofill function		
		Integrated Vacuum System	For improved air release and quicker drying		
		Rapid Cooling	Using cold water and sterile compressed air		
		Warranty	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		
		Purpose	Sterilization of Glassware, Surgical instruments, Media and biological waste		
		Туре	Vertical Laboratory Sterilizer, Fully automatic, Interior Chamber Stainless steel. Digital microprocessor controlled		
36.1	36.1 Autoclave Sterilizer	Sterilizatio n Temperatu re	Up to 135°C or higher	02	
		Programs	Multi-mode selection		
		Effective Capacity	50 Litre or higher		
		Safety	Over pressure power cut off Over temperature power cut off Current leak detection		

				1	CUI-LHR-PUR-Tender-001
		Rated working pressure	2.5 bar or higher		
		Controls	Digital Control Programmable or Built in Multiple Programs		
		Accessories	Drainage hose, Stainless steel baskets And all other requisite accessories for operation as aforementioned		
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		
		Purpose	Used for a broad range of mixing and agitation applications in the laboratory. Brushless dc motor		
		Speed range	5–50 rpm or better		
		Power restoration	Auto function restoration in case of power failure		
		Motion	Tilting/Rocking		
			LCD Display		
37	Shaker (Rocking platform)	Control	Knob or touch or pressing button	02	
	,	UPS	As recommended by OEM		
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		

	1				CUI-LHR-PUR-Tender-001
		Purpose of the Orbital Shaker	Used for a broad range of mixing and agitation applications in the laboratory.		
		Speed range	50-300 rpm or better		
		Motion	Orbital		
		Temperatu re range	Up to 60°C or better		
38	Shaker (Horizontal,	Control	LCD Display to control temperature, speed and time	02	
	Orbital)	UPS	As recommended by OEM		
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		
		Max Capacity	12 or more x 2 mL		
		Max speed	14,000 rpm or more (100 rpm increments)		
		Rotor capacity and adaptor	1.5/2 ml tubes along with suitable rotor and adopter capable of holding at least 12 samples at a time 0.5 ml tubes along with suitable rotor and adopter capable of holding at least 12 samples at a time		
		Timer	15 sec or less to 99 minutes or more		
39	Centrifuge	Features	LED with control panel	03	
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		

	1	T			CUI-LHR-PUR-Tender-001
		Purpose:	 Must be able to detect absorbance, luminescence, fluorescence, time-resolved fluorescence (TRF) in plate format real time kinetic monitoring. software controlled. 		
		Plate Type	96 well plate or more types of plate		
		Detection module	UV-Vis Fluorescence intensity Luminescence (Or more)		
		Light source	Xenon flash or Halogen lamp or better	01	
		Software	Protocol and full data analysis and reporting		
	Microplate Reader (Florescence, Multi Mode)	Spectral range	250 nm (or lower) - 900 nm (or higher)		
40		Temperatu re Control	65°C or more		
		Atmospheri c control unit	Regulate CO ₂ and O ₂		
		UPS backup	As recommended by OEM	01	
		Installation	Complete installation with onsite training		
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		
		Purpose	CE certified Total exhaust cabinets for work with toxic chemicals and infectious agents		
	Safety	Class	II		
41	Cabinet	Type	B2	02	
		Working area	12 square feet (or bigger)		
		Filter	HEPA/ULPA		

		T			CUI-LHR-PUR-Tender-001
		control	Graphical LCD display containing: on/off fan control with adjustable air velocity Working window control LED lamp ON/OFF UV lamp ON/OFF Elapsed time counter and alarm for HEPA filter replacement		
		Chamber Materials	Stainless Steel		
		Window	Tempered glass		
		Other features	Compatible trolleyUV lightTotal Exhaust		
		UPS backup	As recommended by OEM		
		Installation	Complete installation with onsite training		
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		
		Purpose	CE certified exhaust cabinets for work with toxic chemicals and infectious agents		
		Class	П		
		Type	A2		
		Working area	12 square feet (or bigger)		
		Filter	HEPA/ULPA		
41.1	Safety Cabinet	control	Graphical LCD display containing: on/off fan control with adjustable air velocity Working window control LED lamp ON/OFF UV lamp ON/OFF Elapsed time counter and alarm for HEPA filter replacement	6	
		Chamber Materials	Stainless Steel		
		Window	Tempered glass		
		Other features	Compatible trolleyUV lightTotal exhaust		

	I	T			CUI-LHR-PUR-Tender-001
		UPS backup	As recommended by OEM		
		Installation	Complete installation with onsite (installation) training		
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		
		General Features Drilling	 Benchtop Drill machine with digital system to read drilling speed and depth Keyless precision chuck Adjustable speed (RPM) Adjustable drilling height Multi gear Laser pointing system for precision drilling 		
		capacity in mild steel	13 mm (or higher)		
		Drill stoke	90 mm or better		
42	Drill Machine	Chuck jaw width range	1.5 300 mm or better	01	
		Power in put	700 Watt (or higher)		
		Warranty & Others	personnel/engineers should be provided List of installations in Pakistan should be provided		
43	Centrifugal Grinder	Bench Grinder	 General Features Torque 1400 in-lb or higher eye shields, spark deflectors, tool rests, adjusting wrench Overload Protection Tool-Free Adjustable Guard 3/4 hp induction motor or higher power 3,600 rpm or higher 	01	

	I			<u> </u>	CUI-LHR-PUR-Tender-001
			 wheel guards; 12-1/2-inch or more distance between wheels for larger and longer grinding applications Accessories Grinding wheel coarse (60 grit or finer) 	01	
			Accessories Grinding wheel fine (100 grit or finer)	01	
		Warranty and others	12 months from the date of installation with onsite training and installation		
		Angle grinder	 General features Power: 800 watts (or above) Cutting Wheel Size: 100 mm or equivalent Speed: 10,000 rpm (or higher) Spindle Size: M10 or equivalent Cable length: 2 meter (or more) Body Grip tool for firm hold Lock on switch for continuous use 	01	
		Warranty and others	12 months from the date of installation with onsite training and installation		
		General Features	Multi-purpose Manual/Stick TIG Should be able to weld Stainless Steel, Steel, Aluminum Display screen		
		Output Stick Welding Output	240 A (or higher) 180 A (230 V) @ 25% duty cycle or better		
44	Arc welder	TIG Welding Output	180 A (230 V) @ 30% duty cycle or better	01	
		Accessories	All requisite accessories to perform aforementioned tasks as highlighted in General Features should be provided (which includes but may not be limited to torches, regulators, gas cylinder)		
		Class of Protection	IP23S or better		
		Warranty & Others	 12 Months from the date of installation (parts and service) 		

					CUI-LHR-PUR-Tender-001
			with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided		
		Purpose	oil free single stage compressor with air storage tank suitable for high quality air demand for biomedical and pharmaceutical applications		
		Power	4kW (or higher)		
		Pressure	10 bar (or higher)		
		Receiver/ airtank (litre)	270 (or higher)		
45	Compressor	pumping Capacity (litre)	350 (or higher)	01	
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		
46	Manual & Power Tool and Consumables	Workstatio ns	6 ft or more length of Workstation for tool storage and tabletop for day to day work 30,000 cu. inch or more capacity load 24" or more professional working depth Workstation should be equipped with 15 or more, ball-bearing drawers that hold up to 100 lbs. or above with 200 lbs. or above capacity in the deeper drawers. Thick 18 Gauge or better Steel Body (powder coated) Auto Return Drawers 400 or more pieces	1	
		Mixed Tool SET	 Blow molded durable carry case Black chrome or better finish for anti-corrosion protection 	1 compl ete set	

			CUI-LHR-PUR-Tender-001
22V Brushless Cordless Drill & Impact Driver Kit	 Laser-etched markings for size visibility Quick release switch and reversible mechanism for easy operation Meets or exceeds ANSI specifications Chrome-molybdenum steel according to SAE and MM standards Should include but not necessarily be limited to; Utility Knife, 5m/16ft Tape Measure Screw drivers (different types) Adjustable Wrenches Hex. Key wrenches Pipe Wrench Pliers Dr. Specialty bits, sockets Hammers Extension Bar 22V Brushless 3/8 in. drill and impact driver Brushless motor for maximum runtime and durability Must have vibration reduction mechanism Torque control mechanism and Quick-change chucks – changing bits must be a fast and tool-free function Associated tools and drill bits High speed transmission with 2 or more speed settings With LED lights to illuminate the work surface Compact, lightweight design for tight spaces 2 extra batteries for drill as well as impact driver & charger Wide range of drill bits (hard coated & wear resistant) 	01	CUI-LHR-PUR-Tender-001
	 1-year warranty (or more) 		
	Integrated lithium ion Battery		
36V	Chuck Size 1/2" Cordless System		
Brushless	RPM 0-2000 or more	01	
Hammer drill	Multiple speed settings Must have vibration reduction		
	mechanism		
	Torque control mechanism and Quick-change chucks – changing		

			CUI-LHR-PUR-Tender-001
	bits must be fast and a tool-free function		
	Drilling through wood, metal, and plastic		
	2 extra Lithium Ion Batteries		
	Charger		
	Brad Point Drill & Masonry Bits (tungsten carbide tips)		
	Screws / Fasteners		
	HSS Drill Bits		
	Magnetic Bit Tip Holder		
	1" Bits, 2" Bits, 3-1/2" Bits		
	Nutdrivers		
	Ratcheting Screwdriver		
	Gauge		
	Sockets		
	Socket Adaptor		
	Storage box		
	1-year warranty (or more)		
	2-position switch to select standard or hammer drill functions		
	6.5 Amp or more power		
	Quick-change chucks – changing bits must be fast and tool-free		
	Working mode: Hammer drilling, Drilling, Chiseling		
Hammer	Active vibration reduction mechanism		
Drill (Corded)	Single-sleeved chuck for easy bit changes	01	
	Multi-position side handle for ease of use		
	1/2 in. chuck to accommodate larger bits along with associated bits		
	1-year warranty (or more)		
	To cut through metal15 Amperes or more		
Chop Saw	 15 Amperes or more 14 in. (or more) Chop Saw to cut 	01	
	■ 1-year warranty (or more)		

					CUI-LHR-PUR-Tender-001
			Jaw width 5-6-inch Jaw with Swivel Base		
			Opening capacity 5 inch or more		
		Multipurpo se Bench Vise	Throat depth 2 inches or more		
			Captured safety jaw to prevent slide from falling out	01	
			Fused steel handle		
			Anvil incorporated		
			Integrated pipe jaws		
		Purpose	Drop shape analyzer for static and dynamic contact angle measurement, surface and interfacial tension measurements, and surface free energy calculation		
		Measuring	Range: 0-180° or better		
		angle Range	Hardware accuracy: 0.3° Or better		
		Measuring range of	Range: 0.01 to 2000 mN/m or better		
		interface tension	Accuracy: 0.3 mN/m or better		
		Camera	Measuring speed: 2000 fps or better	1	
			Camera view angle (°): ±2.5 or better		
			IR cut filters		
			Resolution: 1200 x 1200 px		
47	Contact	Optics	Field of view 3.2 to 18.5 mm or better		
4,	Angle measurement	Illuminatio n	Adjustable LED		
			X, Y, Z axis movement		
		Stage	Tilting/ rotation for roll-off/		
			receding contact angle measurement Software control Automatic, with		
			glass and disposable syringes		
		Dosing	Accuracy 0.1µL or better	_	
		system	dosing speed 10-1000µL/minute or better	1	
			sample holder for manual dosing		
		Accessories	Disposable syringe of any volume between 200 uL to 1000 uL with needle (In addition to all standard syringes and needles)	1	
			Calibration standards for drop size analysis	1 Kit	

	T	1	1	Γ	CUI-LHR-PUR-Tender-001
		Environme ntal Chamber	For air controlled measurement	1	
			Software to determine static and dynamic contact angle measurement	1	
			Software to measure surface free energy of solids	1	
		Software	software to determine surface and interfacial tension of liquids	1	
			Software to control camera, illumination, temperature, dosing module, table movement, cuvette for pendant drop	1	
		Computer	Compatible with system with power back up	1	
		Power backup	As recommended by OEM	1	
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		
		Purpose	Thin sectioning of biological tissues at cryogenic temperature. The instrument should be complete with all accessories including blades, sample holders, knives etc necessary for smooth running.		
48	Cryostat	General Features	Temperature setting -35°C (or below) Section thickness setting 5µm (or below) to 100µm (or above) Specimen feed 15 mm or better Vertical specimen stroke 48 mm or better Freezing shelf temperature -35°C (or below)	01	
		Accessories	Tissue freezing medium 125ml Knife case large 01		

					CUI-LHR-PUR-Tender-001
			Cryostat oil 250ml		
			Knives 16 cm TC		
			03 Knives 16 cm long steel		
			03		
			Blades TC disposable 50		
			Blade high profile disposable 10		
			Blade low profile disposable 10		
		UPS backup	As recommended by OEM	01	
		installation	Complete installation with onsite training		
			• 12 Months from the date of installation (parts and service)		
			with vendor having good local reputation with running		
		Warranty	machines and well-trained engineers		
		& Others	• Proofs of trainings of company		
			personnel/engineers should be provided		
			• List of installations in Pakistan		
			should be provided software suite for computer-aided		
		Purpose	design (CAD), computer-aided		
			manufacturing (CAM), computer-		
		License	aided engineering (CAE),Multiuser (minimum 3 or		
			higher) - lifetime		
			• Educational/startup/incubator 3D and 2D drawings for CNC		
			operations		
	CAD licensed		Suitable file formats for use in		
49	software	Scope of	commercial CAD/CAM equipment e.g. CNC machines, 3D printers	01	
		Application s	3D visualization		
			Parts modeling		
			Biomedical device designs		
			Must be from world renowned		
		Others	company having a track record of providing CAD/CAM solutions to industries		
			Surgical light source to illuminate		
50	Surgical light	D	the Operating area. Facilitation in surgical procedures for animal	02	
50	for OT	Purpose	trials. Compact exam light for surgical procedures on experimental	02	
		animals.			

		1	1		CUI-LHK-PUK-Tender-001
		Light source	LED		
		Installation type	Floor standing Six-dimensional joint; 360°,		
		турс	Multiple luminescence		
			Illumination depth:		
		Luminance	≥600(mm) ≥2°C,		
			Higher than 100000 Lux.Color		
			Spot Diameter:150 mm (or higher)		
		Light- adjusting mode	four grade dimmer system or better		
		Lamp automatic switching time	0.2S, Color indication index: ≥97%,		
		Warranty	12 Months from the date of installation		
		Purpose	Operating Table for surgical procedures on small and medium sized animals. Made of Stainless steel 304.		
		Tabletop dimensions	Equal to 60 x 22 in (or higher)		
51	Operating Table	Adjustable Height	Table height electronically adjustable ranging 28 to 40 inch or betters	02	
	Table	Heated Top	Durable stainless steel tabletop with electronic heating system		
		Drain hole	Built-in drain hole at the table top		
		Load capacity	Higher 120 Kg (or higher)		
		Warranty	12 Months from the date of installation		
			Cages size(internal dimensions): ~ 600mm x ~ 450mm x ~ 450 mm (LXBXH)		
			Made of S.S 304 material with duly spot welded and finished joints		
			Each cage should be Independent and movable		
	Trolley with	Rabbit	AISI 304 quality stainless steel		
52	in built rabbit cages	Cages	material Fitted with tag holder	48	
	- *************************************		Gap between S.S rods used in cage		
			walls: ~7mm Cage door with fixed label holder		
			and arrangement for food hopper and fixing water bottle.		
			The door must be made of wire mesh of ~2.5mm and ~5mm SS rod		
		<u> </u>	mesh of ~2.5mm and ~5mm SS rod		

					CUI-LHR-PUR-Tender-001
			welded on a frame of ~5mm SS rod and covered with 22 swg Sheet. Floor grill		
			Bottom floor net of ~ 12 x 26 mm must be made of ~2.5mm and ~5mm SS wire welded on a frame of ~5mm SS rod. Floor net must be fixed and non-removable type.		
			Tray Excreta tray made of 22swg S.S sheet with turned and smoothed edges, and removable for cleaning		
		Bottles	Polypropylene water bottle of capacity ~650ml fitted S.S bent type nozzle	48	
		Trolley	Three rack moveable trolleys with wheels must be made up of ~20mm x 20mm x 16swg S.S to accommodate aforementioned 6 rabbit cages each	8	
		Purpose	Anesthesia system for ethical precise delivery of anesthetic to prepare small animals for surgical procedures. Safe for surgical personnel.		
		Range	Flow rates from 25 ml/hour (or lower)to 1 L/hour (or higher)		
53	Low-Flow Anesthesia	Number of animals	Anesthetize multiple animals at once (minimum 2)	02	
	System	Air compressor	Built-in		
		Monitoring	Built-in display for real-time monitoring		
		Accessories	All the required hardware and connections included in the system		
		Warranty	12 Months from the date of installation		
	Anesthesia	Purpose	Rodent face masks made from clear acrylic to anesthetize or resuscitate the rodents.		
54	Mask/ Breathing Circuit	features	Large anesthesia mask with co-axial non-rebreathing system diameter: ~44mm, depth: ~33mm,	04	
	Circuit	Diaphragm	Includes diaphragm material (200g or more).		
		Purpose	Benchtop model for removing water from numerous small sample loads		
		Exterior	Cubic or rectangular (Corrosion resistant)		
55	Freeze Dryer	Temperatu re	-80 °C (or lower)	02	
		Water capture capacity	1.5 litres/24 hours (or higher)		

					CUI-LHR-PUR-Tender-001
		Solvents	Water		
			Stainless steel drying chamber		
		Drying Chamber	Transparent door		
			Stainless steel trays		
		Condenser	stainless-steel collector coil condenser		
		Refrigerati on system	CFC-free		
		Vacuum	Rotary vane vacuum pump		
		system	Ultimate vacuum: 0.002 mbar or below		
		Control panel	Touch screen display panel shows operating parameters, set-up parameters and alarm messages		
			Alarm system.		
		Safety controls	Vacuum control option to maintain set point		
			Auto restore functions in case of power failure		
		Accessories	Freeze drying flasks (100ml) 4 Nos		
			Power stabilizer		
		Warranty	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		
		Purpose	Histology of preserved soft and hard tissue		
		Nature	Fully-Motorized/ automated Microtome with foot pedal		
	Automated	Automatic unlock handwheel	To instantly switch from manual to automatic mode		
56	Microtome	Sectioning Speed	up to 400 mm/s (or higher)	02	
		Vertical stroke	Vertical stroke 70 mm or better		
		Clamp	universal cassette clamp large		
		Specimen orientation	Horizontal: ± 8° or better Vertical: ± 8° or better		

	I	T a	I		CUI-LHR-PUR-Tender-UUI
		Section thickness	0.5 (or lower) - 100 (or higher)		
			0.5 (01 10wer) - 100 (01 mgner)		
		range (µm)			
		Trimming Section thickness range (µm)	5 (or lower) - 500 (or higher)		
		Control panel	LCD display		
		Holder for blade	Blade holder base with cutting protection for safety Should be able to hold high- and low-profile blades		
		Waste tray	Should be included		
		Specimen Retraction	Should be included		
		Accessories	Compatible blades & all requisite accessories needed to perform the aforementioned functions		
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		
		Purpose of Microplate Spectropho tometer	Microplate Spectrophotometer is used for DNA and RNA quantitation, cytotoxicity assays, Reporter gene assay, Enzyme assays RNA, DNA and Protein		
		Application			
		S Light Source	quantification and kinetic assays Xenon Flash lamp		
57	Microplate Reader	Wavelength Range	300 nm (or lower) to 950 nm (or higher)	01	
	Keauei	Measureme nt Speed	15 seconds or less		
		Plate Type	96 well plates or more		
		UPS	As recommended by OEM		
		computer	As recommended by OEM		

Bid Evaluation Criteria

All bids shall be evaluated in accordance with the following evaluation criteria and other terms & conditions set forth in this bidding document.

- a. The bids shall be evaluated to strictly ensure that the quoted brand/ model meet all the BoQ/ specification requirements given in the tender document for each item.
- b. In addition to the BoQ requirements, vendors must meet the vendor qualification criteria /company profile requirements (if any), as set forth in this tender document.
- c. Supporting literature of the quoted model must be attached for verification & technical evaluation of the required specification by the technical committee. In case of any clash is found between the quoted model and the supported literature may lead to rejection of bid.
- d. The vendor must have an authorized dealer certificate against all items except Sr. # 50, 51, 52, 53 & 54 of the quoted product/Item (Certificate with current year's validity) of Original Manufacturer for all Equipment which shall be also verifiable from the Principal / Manufacture Website or through email. It must be attached with bid otherwise such item/bid may be rejected.

Financial Portion (Price and Brand/Model to be mention only in Financial Proposal in a separate sealed envelope) Strictly on our BoQs Form.

Vendors are required to provide both unit and total price of each item and calculations must be made carefully to avoid mistakes. However, in case, total price does not match with the unit price and quantity due to calculation error or typo error, any of the following can be opted

- 1. The bid may be rejected on the reason of ambiguity (OR)
- 2. Unit price will be considered as final and total price of the respective item will be calculated by multiplying it with the quantity required. Sub-totals and grand total will also be corrected accordingly.

No change in the BoQs (Specs & Qty.) of CUI-Lahore Campus, as detailed below, is allowed. Any additional information may be mentioned in the blank columns (i.e. model / brand or Price). Any modification in CUI-Lahore Campus BoQ may lead to rejection of bid (fully or partially)

Prices should be quoted inclusive of all applicable taxes

(fully	or partially).						
Sr. #	Item Name	Requirement /	Requirement / Specifications			Unit Price (Rs)	Total Price (Rs)
1	Potentiostat	Photo- Electrochemi cal Workstation	A system required to control a three electrode cell and measures the voltage difference between a Working Electrode and a Reference Electrode and to be used in the area of Photo-electrochemical sensing, electrochemical sensing and supercapacitor application. It should measure: Chopped Light Voltammetry Cyclic voltammetry Differential pulse voltammetry Impedance spectroscopy, Amperometry Chornoamperomet ry Galvanostatic charge discharge Battery cycling Linear sweep voltammetry	1			
		Electrochemi cal	10 μHz (or lower) to 8 MHz (or higher)				

			CUI-LHR-PUR	-Tende
Impedance				
Spectroscopy				
(EIS)				
frequency				
range				
Maximum				
	2A or better			
current	10 1 (1) (1)			
Current	10 nA (or lower) to 1A			
Range	(or higher)			
Potential				
range	±10 V			
Slots for				
additional	5 or more			
	3 of more			
hardware	I ED D : IZV :VI			
	LED Driver Kit with			
	cover or LED			
	Potentiostat			
	Light source setup			
Photo-	(optical bench)			
Electrochemi	Switchable Light			
cal Light	Source (Royal blue to			
Emission	UV 370 to 470 nm) or			
Source	better			
	all required cable			
	connectors, USB			
	connector and charger			
	adapter			
	Counter electrode			
		2		
	(Pt) by OEM			
	References electrode	2		
	(Ag/AgCl) by OEM	4		
	Reference electrode	2		
	(Hg/HgCl ₂) by OEM	_		
	Working 1 4 3			
Accessories	Working electrode			
	(glassy carbon) by	2		
	OEM			
	Electrode polishing kit	1		
	by OEM	1		
	Basic Electrochemical	1		
	Cell Setup	1		
	_			
	Unlimited licenses and			
	free lifetime software			
	upgrades.			
	Must be compatible			
	with all provided			
Software		1		
	hardware			İ
	Advanced custom			
	analysis with user-			
	defined variables and			
	models			
	models			<u> </u>

	1	1	1		CUI-LHR-PUR	k-Tender-UUI
		Computer	Computer compatible with system and recommended by OEM with genuine windows	1		
		Power backup with additional Servo	As recommended by OEM for optimum operations 12 Months from the	1		
		Stabilizer	date of installation			
		Installation	Complete Installation, operation, Onsite Training (installation)			
		Warranty &	12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained			
		Others	Proofs of trainings of company personnel/engineers should be provided			
			List of installations in Pakistan should be provided Electrochemical			
			Workstation for electrochemical and electrochemiluminesce nce measurements. It should measure			
			 Cyclic voltammetry Differential pulse voltammetry Amperometry 			
1.1	1.1 Potentiostat	Electrochemi cal Workstation	 Chornoamperomet ry Pulse	1		
			 Linear Sweep potentiometry Potentiometric strippin analysis Measure intensity 			
			of light emitted by electrochemilumin escent molecule			
			 Measure intensity of light (emitted by electrochemilumin 			

	7			CUI-LHR-PUR	- 1 ender-001
	escent molecule) as				
	a function of				
	wavelength				
Maximum	40 mA or better				
current	TO IIIA OF Detter				
Current	1 nA to 10 mA or				
Ranges	better				
Potential					
range (DC)	1 4 to 1 4 W on botton				
range (DC)	`-4 to + 4 V or better				
	ECL Cell with				
	detector				
	Wavelength range				
	(215-2500 nm or				
	better)				
Light source	Bulb life (1,000 hours				
	or better)				
	all required cable				
	connector, USB				
	connector and charger				
	adapter				
	Counter electrode (Pt)	1			
	by OEM	1			
	References electrode	_			
	(Ag/AgCl) by OEM	1			
Accessories	(0 0) •				
	Reference electrode	1			
	(Hg/HgCl ₂) by OEM	_			
	Screen printed carbon				
	electrodes by OEM	150			
	Unlimited licenses and				
	free lifetime software				
	upgrades.				
	Must be compatible				
Software	with all provided				
	hardware,				
	Advanced custom				
	analysis with user-				
	defined variables and				
	models				
	Computer compatible				
	with system and				
Computer	recommended by	1			
	OEM with genuine				
	windows				
Power					
backup with	as recommended by				
additional	OEM for optimum	1			
Servo	operations				
Stabilizer					
	Complete Installation,				
Installation	operation, Onsite				
	Training				ii
Warranty &	12 Months from the				
Others	date of installation				
Others	(parts and service)				
-			•	·	· · · · · · · · · · · · · · · · · · ·

CUI-LHR-PUR-Tender-001 with vendor having good local reputation with running machines and welltrained engineers **Proofs of trainings of** company personnel/engineers should be provided List of installations in Pakistan should be provided For safe working to perform chemical purpose reactions Internal 1200x600x870 **Dimensions** (WxDxH) or larger (mm) Acid and alkali resistance base with aluminum frame **Tempered glass** window Air velocity 0.3m/s or 10 better Wash basin: alkali and acid resistant General features Gas and water valves Base cabinet for storage of Fume inflammable chemicals 2 **Cupboards** Centrifugal blower for exhaust 900m³/h or better 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines Warranty & and well-trained **Others** engineers **Proofs of trainings** company of personnel/engineer should be provided List of installations in Pakistan should be provided

	I				I	CUI-LHR-PUR	- 1 ender-001
		Purpose	For safe storage of cylinders				
			To accommodate three				
		Capacity	(03) gas cylinder (50				
		Cupacity	Liters) or more				
			Automatic system to				
		Exhaust	detect gas leak with				
		system	alarm				
			Hoop to prevent				
			cylinder from falling				
		General	Movable flaps				
			Gas probe for				
		features	detection of gas leak				
			90 minutes fire-				
			resistant or better				
	Stores		Double door				
3	3 Storage cabinets		■ 12 Months from	03			
	cabinets		the date of				
			installation (parts				
			and service) with				
			vendor having				
			good local				
			reputation with				
			running machines				
		Warranty &	and well-trained				
		Others	engineers				
			Proofs of trainings				
			of company				
			personnel/engineer				
			s should be				
			provided				
			List of installations				
			in Pakistan should				
			be provided				
			Viscosity and				
			Rheology				
			measurement				
			(including cross-				
			linking density) of low				
		Purpose	viscosity liquids, visco-				
			elastic liquids, gel like				
			materials, semi- solids,				
			melts, paste like				
_	Dh.		materials, and reactive	4			
4	Rheometer		systems	1			
			• strain control				
			• stress control,				
		0	Shear rate control				
		Operating	• gap control				
		mode	• rheology in				
			rotation and				
			oscillation mode				
		Motor drive					
		system	Air bearing				
		system					

				 CUI-LHR-PUR	-Tender-001
		Minimum torque			
		Rotation (µNm): 1 (or			
		lower)			
		Minimum torque			
		Oscillation (µNm): 1			
		(or lower)			
		Maximum torque			
		(mNm): 120 (or more)			
	Basic	Minimum speed			
	Requirement	(rotational): 10 ⁻³ rpm			
	s	(or less)			
		Maximum speed			
		(rotational): 1500 rpm (or more)			
		Normal force range			
		(N): 0.01 (or less) to 50			
		(or more)			
		Peltier temperature			
		control module for			
		cone and plate			
		Measuring plate with			
		diameter of any range	1		
	Accessories	between 20-30 mm	-		
		Measuring plate of			
		any range between 40-	1		
		60mm			
	Accessories	Measuring cone of any			
		range between 20-	1		
		35mm angle 1°			
		Measuring cone of any			
		range between 20-	1		
		35mm angle 0.5°			
		software including			
	Software	driver running under			
	Soleware	Microsoft windows			
		with lifetime license			
		Compatible with			
	Computer	system with power	1		
		back up			
	Power				
	backup with	As recommended by			
	additional	OEM for optimum	1		
	Servo	operations			
	Stabilizer				
		12 Months from the			
		date of installation			
	Warranty &	(parts and service)			
	Others	with vendor having			
		good local reputation			
		with running machines			

	T			Т	 CUI-LHR-PUR	k- Lender-vv
			and well-trained engineers			
			Proofs of trainings of			
			company personnel/engineers should be provided			
			List of installations in Pakistan should be provided			
		Purpose	Qualitative and quantitative analysis of organic compounds e.g., drugs, vitamins, proteins, enzymes etc.			
		General features	 Gradient pump with degasser, manual injector variable wavelength detector. 	01		
		Gradient Pump	Dual pump with dual piston for binary solvents Pressure: up to 400			
			bar (or higher) Rate up to 5 mL/min (or higher) Integrated Degassing	01		
	IIDI C		Unit			
5	HPLC	Manual Injector	Manual injector with sample injection valve and standard loop.	01		
		Detector	Variable Wavelength Detector range: 190 nm(or less) to 600 nm (or more)	01		
			Colum Compartment: from ambient to 60°C or better range	01		
		Accessories	Column C18 (compatible with quoted machine)	01		
		Accessories	Column C8 (compatible with quoted machine)	01		
			Compatible sample injections	04		
		Power backup	As recommended by OEM	01		
		Computer system	As recommended by OEM with original windows	01		

	T		_			-	CUI-LHR-PUR	- 1 ender-uu1
		Warranty & Others	the data install: and se vendor good le reputa runnin and we engine Proofs of comperson s should provid List of install:	ation (parts rvice) with r having ocal tion with ng machines cell-trained ers of trainings pany nel/engineer ld be ed ations in an should be ed				
6	pH electrode	Meter	Purpose of the pH meter pH range pH resolution pH accuracy pH calibration Tempera ture resolution Tempera ture range Tempera ture	To perform pH measurem ents 0-14 pH or better 0.01 or better ±0.05 or better 3 point calibration or better 0.1°C or better Ambient to 60 °C or better	02			
			compens ation electrode Temperati	included ure probe	10 01			
		Accessories	Standard l solutions		Mini mum 500 ml each to cove r pH rang			

	T.				CUI-LHK-	I CIL I
				e 0- 14		
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineer s should be provided List of installations in Pakistan should be provided 			
		Purpose of the High Vacuum pump Construction	Vacuum pump for attaining high vacuum for different laboratory equipments Rotary vane vacuum			
		Vacuum	pump 1x10 ⁻³ mbar or below	08		
		attainable Pumping	80 L/min or better			
		Capacity Safety	anti-suck back protection			
			Vacuum oil	30 liters		
			Cold trap	5		
7	High Vacuum		Fine vacuum adsorption trap	5		
	Pumps	Accessories	Oil mist filter	08		
		Accessories	Service kit (washers, seals, gaskets etc)	08		
			Vacuum pipe with flanges both ends (I meter or more)	08 set		
			Vacuum seal with suitable clamps	08 set		
		Warranty & Others	■ 12 Months from the date of installation (parts and service) with vendor having good local reputation with			

			1		CUI-LHR-PUR	- Tenuer-001
			running machines and well-trained engineers Proofs of trainings of company personnel/engineer s should be provided List of installations in Pakistan should be provided			
		Purpose of the High Vacuum pump Construction Vacuum attainable Pumping capacity	Oil-less pump for attaining high vacuum Scroll vacuum pump 7x10 ⁻² mbar or less 100 L/min or more	02		
	High	Accessories	Service kit (washers, seals, gaskets etc) Vacuum pipe with flanges both ends (I meter or more) Vacuum seal with	01 02 set		
7.1	Vacuum Pump	Warranty & Others	suitable clamps 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided	set		
8	Dosing Pumps	General Requirement s	Type: Diaphragm PTFE All parts which come into liquid contact should be acid, alkali, solvent resistant self-priming, maintenance free Adjustable flow rate	3		
		Flow Parameters	Variable flow rates			

					CUI-LHK-PUK	- 1 chact-oot
			10 ml/min (or lower) to 100ml/min (or higher)			
		Suction height ft. water	9 ft or higher			
		Maximum Pressure	1 bar or higher			
		Tubing	10 feet or more Acid, alkali and solvent resistant tube with all requisite connectors			
		Installation and training	Installation and training at installation site			
		Warranty & Others	■ 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers ■ Proofs of trainings of company personnel/engineer s should be provided ■ List of installations in Pakistan should be provided			
8.1	Dosing Pumps	General Requirement s	 Type: Diaphragm PTFE All parts which come into liquid contact should be acid, alkali, solvent resistant self-priming, maintenance free, dry running, adjustable flow rate 	2		
		Flow Parameters	 Variable flow rates 0.5 ml/min (or lower) to 20ml/min (or higher) 			
		height ft. water	6 ft (or higher)			
		Maximum Pressure	1 bar (or higher)			

					CUI-LHR-PUR	- 1 Chuci-001
			10 feet or more Acid, alkali and solvent			
			resistant tube and			
		Tubing	connectors which			
			could fit with the			
			pump Installation and			
		Installation	II II			
		and training	training at installation site			
			■ 12 Months from			
			II II			
			the date of			
			installation (parts			
			and service) with			
			vendor having			
			good local			
			reputation with			
		XX7 4 0	running machines			
		Warranty &	and well-trained			
		Others	engineers			
			 Proofs of trainings 			
			of company			
			personnel/engineer			
			s should be			
			provided			
			 List of installations 			
			in Pakistan should			
		D C	be provided			
		Purpose of the	Pump for vacuum			
		Filtration/sol	filtration and solvent			
			removal			
		vent pump Construction	Oil free pump			
		Vacuum		0.7		
		attainable	75 torr or above	05		
		Maximum				
		flow rate	10 L/min or above			
			Vacuum/pressure			
			regulator with gauge			
		Accessories	Filter			
	Filtration/		Moisture trapper	05		
9	Solvent		■ 12 Months from			
	Pumps		the date of			
	-		installation (parts			
			and service) with			
			vendor having			
			good local			
		Warranty &	reputation with			
		Others	running machines			
		Others	and well-trained			
			engineers			
			Proofs of trainings			
			of company			
			personnel/engineer			
			s should be			
			provided			

	1					CUI-LHR-PUR	R-Tender-001
			 List of installations in Pakistan should be provided 				
		Laboratory Freezer	Upright type				
		Chemical resistance	Yes				
		Door material	Steel or equivalent				
		Temperature range (programabl e)	Minus 20 °C (or lower) to 10 °C (or higher)	05			
10	Minus 20 Freezer	Effective capacity	500 L or better				
		Alarms	Power failure High Temperature Low Temperature				
		Temperature Display	Digital display				
		stabilizer	As recommended by OEM	05			
		Warranty	1 year warranty for complete equipment 5 years compressor warranty	-			
		Purpose of the Vacuum pump	Vacuum pump for routine laboratory work and suitable for slightly aggressive or corrosive gases				
		Construction	Oil free vacuum pump				
		Vacuum attainable	75 mbar (or below)				
		Maximum flow rate	10 L/min (or above)				
		Accessories	Vacuum/pressure regulator with gauge Filter				
11	Vacuum Pump	Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineer s should be provided 	03			

			T	1	CUI-LIIK-I	'UR-Tender-00
			 List of installations in Pakistan should be provided 			
	Double Distillation	Purpose of the Double Distillation Unit	Water Distillation unit based on reverse osmosis			
12	unit along with water feed	Distilled water output	2 L/h or above	01		
	conversion unit (for water	Biological activity	pyrogen free			
deionizer)		Safety control	visual flow			
		Purpose	Cell and tissue culture			
		Capacity	170 L or higher with 4 shelves minimum			
	CO ₂ Incubators	Design	Non-segmented inner door, with water tray			
		Chamber	Single sheet Stainless steel 304 or Cu enriched stainless steel			
		Equipment stability	Vibration and turbulence protection	4		
		Temperature range	Ambient to 50° C (or better) Temperature stability 37°C ± 1°C			
13		CO ₂	CO ₂ gas induction range of 0.2-20 % or better			
		sensor	Digital CO2 sensor Digital temperature sensor Digital Humidity			
		Disinfection	sensor High Temperature or UV disinfection			
		Alarm	With temperature and CO ₂ level, 72-hour data/chart logger or better			
			CO ₂ cylinder	04		
		Necessary	Gas regulator.	04		
		Accessories	Compatible UPS for 30 minute power backup	04		

					CUI-LHR-PUR	- render-ou
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 			
		Scope: Temperature range Effective capacity	Upright freezer which can be set at -80°C -80°C (or lower) 330L (or better)	1		
		Compressor Temperature monitoring	double compressor Alarm for temperature deviation digital display compatible with the			
		UPS	power requirement for 30 min backup Complete installation	1		
		installation	with onsite training 12 Months from			
14	Freezer (minus 80)	Warranty & Others	the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/enginee rs should be provided List of installations in Pakistan should be provided			

	1				CUI-LHR-PUR	- 1 enuer-vvi
		Purpose	Power supply for Fabrication of electrospun matts and electrospraying of solutions Power supply with all accessories like cables			
			and clips etc. Voltages Up to 50KV or more			
			Resolution 0.5 KV or better Output Current			
			0.5 mA or better Over voltage protection	01		
		General Features	Over current protection Protection against			
			output short circuit Over temperature protection			
1.5			Manual recovery after cutoff			
15	Power supply		AC insulation and reference ground connecting to the			
		UPS with servo stabilizer	As recommended by OEM	01		
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/enginee rs should be provided List of installations in Pakistan should be provided 			
15.1	Power supply	Purpose	Power supply for Fabrication of electrospun matts and	01		

	1	T	,		CUI-LHR-PUR	- 1 ender-001
			electrospraying of solutions			
			Power supply with all accessories like cables and clips etc.			
			Voltages Up to 30KV or more			
			Resolution 0.5 KV or better			
			Output Current Upto 0.5 mA or better			
			Over voltage			
		General	protection			
		Features	Over current protection			
			Protection against			
			output short circuit			
			Over temperature			
			protection			
			Manual recovery after cutoff			
			Digital output display			
			AC insulation and reference ground			
			connecting to the			
			earth			
		UPS with servo stabilizer	As recommended by OEM	01		
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided. 			
			provided List of installations in Pakistan should be provided			
	G .		Syringe pump for Fabrication of			
16	Syringe pumps	Purpose	electrospun matts and electrospraying of	03		
			solutions			

				 CUI-LHR-PUR	-Tender-001
		Two channel syringe	T		
		pump for			
		electrospinning, able			
		to work under high			
		voltages (up to 50kv			
		or more) with digital			
		display			
		Channels			
		Two-channel pump:			
		should be controlled			
	General	independently for			
	features	individual syringe			
		Flow rate, volume and			
		time of infusion			
		Compatible to work			
		under high voltage.			
		Pumping rate			
		Pumping rate: 3µl/ hr			
		(or lower) to 19			
		ml/min (or higher)			
		Pump rate accuracy :			
		±2% or better			
		Needle sets	0.5		
		11 g to 27 g (any size in	05		
		between)	sets		
		Multi option coaxial			
		needle set	02		
		ranging from 11g to	02		
		27g (any size in	sets		
		between)			
		Triaxial spinneret			
		Needle length should	02		
		be 6cm with inner 22g,	02		
		middle 18g and outer	sets		
		14g			
		Triaxial spinneret			
		Needle length should			
		be 6cm with inner 22g,	02		
	Accessories	middle 18g and outer	sets		
		15g			
		Triaxial spinneret			
		Needle length should	0.5		
		be 6cm with inner 22g,	02		
		middle 18g and outer	sets		
		16g			
		Tri-channel spinneret	02		
		Multi-nozzle			
		spinnerets	02		
		Cold light source for			
		observing the			
		electrospinning	01		
		process 50ml Class syrings			
		50ml Glass syringes	05		
		(borosilicate)			

					ı	CUI-LHK-PUK	- Tenuer-001
			20ml Glass syringes (borosilicate)	05			
			10ml Glass syringes				
			(borosilicate)	10			
			5ml Glass syringes (borosilicate)	10			
			2ml Glass syringes (borosilicate)	10			
		Power	As recommended by	0.4			
		backup	OEM	01			
			■ 12 Months from				
			the date of				
			installation (parts and service) with				
			vendor having				
			good local				
			reputation with				
			running machines				
		XX7 4 0	and well-trained				
		Warranty & Others	engineers • Proofs of				
		Others	trainings of				
			company				
			personnel/enginee				
			rs should be				
			provided				
			List of installations in				
			Pakistan should				
			be provided				
			Syringe pump for				
		D	Fabrication of				
		Purpose	electrospun matts and electrospraying of				
			solutions				
			Four channel syringe				
			pump for				
		General	electrospinning, able				
		features	to work under high voltages (up to 50kv				
			or higher) with digital				
16.1	Syringe		display	01			
	pumps		Channels				
			Four-channel pump:				
			can be controlled				
			independently for individual syringe				
		Syringe	Flow rate, volume and				
		pump	time of infusion can				
			be controlled				
			precisely. Compatible				
			to work under high				
			voltage.				

		T	CUI-LHR-PUR	- 1 ender-001
	Pumping rate Pumping rate: 3µl/hr (or less) to 19 ml / min (or higher)			
	Pump rate accuracy : ±2% or better			
	Needle sets 11 g to 27 g	05 set		
	Multi option coaxial needle set ranging from 11g to 27g	02 set		
	Triaxial spinneret Needle length should be 6cm with inner 22g, middle 18g and outer 14g	02 set		
	Triaxial spinneret Needle length should be 6cm with inner 22g, middle 18g and outer 15g	02 set		
	Triaxial spinneret Needle length should be 6cm with inner 22g, middle 18g and outer 16g	02 set		
Accessories	Tri-channel spinneret	02		
	Multi-nozzle spinnerets also called islands in the sea spinneret	02		
	Cold light source for observing the electrospinning process	01		
	50ml Glass syringes (borosilicate)	05		
	20ml Glass syringes (borosilicate)	05		
	10ml Glass syringes (borosilicate)	10		
	5ml Glass syringes (borosilicate)	10		
	2ml Glass syringes (borosilicate)	10		
Power backup (optional)	As recommended by OEM	01		

	T	ı	1		1	CUI-LHR-PUR	k- 1 ender-vv1
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 				
17	Flow Pumps	General features	 Type: Peristaltic Variable-Speed Graphical LCD display Contamination-free pump system and maintenance-free high-accuracy motor Self-priming To handle high and low viscosities liquids Reversible motor with on/off/reverse possibility 	01			
		Key Components	Complete Digital system Contain: Variable-Speed Pump drive Multiple pump heads Tubing Pump head Mounting Hardware				
		Pump drive	Flow rate range (ml/min): 5 (or lower) to 2800 (or higher)	1			

		T	T		
			Speed control sensitivity: ±2%		
			or better		
		Pump head	 Compatible with pump drive Rotor materials- Stainless steel Automatic tubing retention 	2	
			Material resistance and Compatible with pump head and pump drive		
		Pump tubing	Tubing set (20-25 feet Length) - Flow rate 1 to 450 ml/min or better	1	
			Tubing set (20-25 feet Length) - Flow rate 10 to 2000ml/min or better	1	
		Pump Head Mounting Hardware	Stainless steel material, Compatible with pump drive and pump head	1	
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/enginee rs should be provided List of installations in Pakistan should be provided 	1	
17.1	Flow Pumps	General features	 Type: Peristaltic Variable-Speed Graphical LCD display Contamination-free pump system and 	1	

T	1	1	 CUI-LHR-PUR	K-Tender-00
	maintenance-free			
	high-accuracy			
	motor			
	Self-priming			
	To handle high and			
	low viscosities			
	liquids			
	■ Reversible motor			
	with on/off/reverse			
	possibility			
	Complete Digital			
	system Contain			
	■ Variable-Speed			
	Pump drive			
Key	 Multiple pump 			
Components	heads			
Components	■ Tubing			
	Pump head			
	Mounting Mounting			
	Hardware			
	 Flow rate range 			
	(ml/min): 1 (or			
	lower) to 480 (or			
Pump drive	higher)	1		
	Speed control			
	sensitivity: ±1%			
	or better			
	 Compatible with 			
	pump drive			
D 1 1	• Rotor materials-			
Pump head	Stainless steel	2		
	Automatic tubing			
	retention			
	Material compatible			
	with pump head and			
	pump drive			
	Tubing set (20-25 feet			
	Length) - Flow rate 10	1		
Pump tubing	to 200 ml/min or	1		
	better			
	Tubing set (20-25 feet			
	Length) - Flow rate	1		
	0.5 to 150 ml/min or better			
	Stainless steel			
Pump Head	material, Compatible			
Mounting	with pump drive and	1		
Hardware	pump head			
***	■ 12 Months from			
Warranty &	the date of	1		
Others	the date of	- 1		

	T	T	1		1	CUI-LHK-PUK	Tenuer our
			and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/enginee rs should be provided List of installations in Pakistan should be provided				
		General Features	Electrically operable Programmable				
18	Furnace	Temperature Control	Working Temperature (Maximum): 1700 °C Continuous working temperature: 1600 °C Heating Rate: 1°C/min (or lower) to 15°C/min (or higher) Temperature Accuracy: ±1°C Step Size: 0.5 °C or better length of maximum temperature zone: 60 mm or more Tube Wall Thickness: not less than 2 mm High quality MoSi2 heating element Programming: Minimum 20 segment with parameters: Heating ramp Cooling ramp Dwelling steps Built-in over- temperature alarm and thermocouple failure alarm.	01			
		Accessories	An additional B-type thermocouple Adequate ceramic protection tube/sheath/sleeve for B-type thermocouple	01			

	1					 CUI-LHK-PUK	- 1 chact-001
		Gas In-flo Assembly	w consis	n-flow assembly sting of pressure ating valve flow			
		Water Co Flange System	oled coolin least 2 water steel f fitting side	ating water ag unit with at vacuum-tight -cooled stainless- langes with s on the outlet			
		Warranty Others	& the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance of the instance	Months from e date of stallation (parts ad service) with ndor having od local putation with nning machines ad well-trained gineers roofs of trainings company ersonnel/enginee should be evided st of stallations in akistan should be evided			
	Stainless steel bar As St		ASTM Standard Material: 316L Diameter: ASTM Standard Material: 316L Diameter:	10 1 meter each	10		
19	Raw materials	Titaniu	Standard: ASTM Material: Ti6Al4V (biograde) Diameter:		10		
	m B		Standard: ASTM Material: Ti6Al4V (biograde) Diameter:		5		

		1			1	CUI-LHK-PUI	X-1 ender-001
		Platinu m Wire	0.4mm diameter high purity	50cm	2		
		PTFE Sheet	Thickness: 10 mm	Length × Width: 30 X 90	2		
		PTFE Sheet	Thickness – 30 mm	Length × Width: 30 X 90	2		
		PTFE Tubing	Inner Diameter: 3 mm Outer Diameter: 4 mm	Length: 50 ft	50 ft		
		FTO (Fluorin e-doped tin oxide) glass slide	300 mm × 300 mm × 2.3 mm (13 Ω•s q-1)	-	25		
		Indium tin oxide coated glass slide, rectangu lar	75 mm × 25 mm × 1.1 mm (15-25 Ω/sq)	-	25		
		T-slot Aluminu	40 mm with four (x4) 8 mm T-Slots — each length of 6 meters Clear anodized finish	6 meters	15		
		m Frames	8 mm T Slots (x200)	-	x200		
			8mm T-Nuts (x200)	-	x200		
			8mm T-bolts (x200)	-	x200		
20	Spectrophoto meter	Purpose	For biochemical (chemistry and counting) of whor blood-derived like plasma, ser hematology)	cell ole blood d samples	01		

1	1	1			CUI-LHK-PUK	-1 chuci-ooi
		Display	Touch screen			
		Lamp	Quartz halogen lamp or equivalent			
	Photometer	Wavelengt hs range	340 (or lower)-620 nm (or higher)			
		absorbanc e	Absorbance 2.5 or higher			
		Measurem ent time	15 sec (or less)			
		Assay type	 Absorba nce, Endpoin t, Kinetic, Fixed Time, Endpoin t with Sample Blank, Endpoin t without blank, 2 points (fixed time) with or without reagent blank Coagula tion 			
		Detector	Photodiode detector 320 (or lower) – 1100 nm (or higher)			
		Sample volume				
			35µl or less			
		Working Temperatu re	25, 30 and 37 °C			
		Accessorie	Disposable Measuring tubes 5 mL	500		
		S	Disposable Measuring tubes 10 mL	500		

		T .	ı	 LHR-PUR-Tender-001
		Disposable Measuring tubes 15 mL	500	
	General features	Digital display Graphic al user interface with compati bility to external mouse and keyboar d		
	Mode	 Whole blood Capillar y blood Predilut ed blood 	ar d ut od 01	
Hem ogy analy	S	 WBC; along with WBC different ials RBC HGB HCT MCV MCH PLT 		
	Sample	50 μL (or		
	Volume Data storage	less) 10,000 samples or more		
	Efficiency	60 samples/hour or more		
		• Keyboard	01	
		• mouse	01	
	Accessorie	waste liquid barrel	02	
	S	 external barcode scanner and printer 	01	

	1	1			ı	CUI-LHK-PUK	- T CHUCI-UUI
		UPS	Power Backup of 30 minutes at least	01			
			• 12 Months from the				
			(parts and service) with				
			vendor having good				
			local reputation with				
		***	running machines and				
		Warrant	well-trained engineers				
		y	■ Proofs of trainings of				
			company				
			personnel/engineers				
			should be provided				
			 List of installations in 				
			Pakistan should be				
			provided				
			Electrically				
		General	operable				
		Features	 Programmable 				
			■ 3.5 liters or higher				
			Working Temperature				
			(Maximum): 1700 °C				
			Continuous working				
			temperature: 1650 °C				
			Heating Rate: 1°C/min (or				
			lower) to 15°C/min (or				
			higher)				
			Temperature Accuracy: ±1°C				
		T	Step Size: 0.5 °C or better	01			
		Tempera ture	High quality MoSi ₂ heating element				
		Control	Programming: Minimum				
			20 segment with				
	High		parameters:				
21	Temperature		Heating ramp				
	Furnace		Cooling ramp				
			Dwelling steps				
			Auto restore function in				
			case of power failure				
			Built-in over-temperature				
			alarm and thermocouple				
			failure alarm.				
			An additional B-type	01			
			thermocouple	V1			
		Accessor	Adequate ceramic				
		ies	protection	02			
			tube/sheath/sleeve for B-	UZ			
			type thermocouple				
		Gas In-					
		flow	To create inert atmosphere				
		System					
		Warrant	■ 12 Months from the				
		y &	date of installation				
1		Others	(parts and service)				

		1	1		CUI-LHK-PUK	K- I chuci-vv
			with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineer s should be provided List of installations in Pakistan should be provided			
		Purpose	CE certified total exhaust cabinets for work with infectious agents			
		Class	II			
		Type	B2			
		Working area	12 square feet or bigger			
		Filter	HEPA/ULPA			
22	Microbiology Safety	control	Graphical LCD display containing: on/off fan control with adjustable air velocity Working window control LED lamp ON/OFF UV lamp ON/OFF Elapsed time counter and alarm for HEPA filter replacement	03		
	Cabinet	Chambe r Material s	Stainless Steel			
		Window	Tempered glass			
		Compati ble Trolley	Yes			
		UV light	Yes			
		Total Exhaust	Yes			
		UPS backup	As recommended by OEM	03		
		installati	Complete installation with onsite training			
		on Warrant y &	12 Months from the date of installation			
		9 & Others	(parts and service)			

	T T	Т		CUI-LHR-PUR	- I endei
		with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided			
	Ultra sonicato r	 400W or better process time 10 hours (or more) Operating frequency of 20 kHz (or more) Tuneable ultrasonic time Variable Amplitude (20% to 100% or better) Processing volume: Minimum 10 mL (or lower) and maximum 250 mL (or higher) Tunable pulse 	03		
23 Ultrasonicato r probes	Titaniu	 Microtip Probe (with any size between 3-4 mm) Replaceable Tip Probe with any size between 6-14 mm 	03		
	Accessor y Warrant y & Others	 Ultrasonic oscillating system(transducer) 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 	03		

24 Ultrasonicato r chambers	General	 Suitable for cleaning of metal, plastic, ceramic or glass parts especially for medical industry cleansing Should include but not be limited to Hot air-drying system Rinsing System Water circulation system Filtration mechanism Stainless Steel Construction (304 or higher grade) Digital temperature and timer display for each chamber Multi-Chamber Unit (4 or more) 1 chamber for ultrasonic wash 1 chamber for compressed air bubble cleaning 1 chamber for hot air drying 3+1 or 4 in 1 combinations	1		
	Ultrason icator power	Up to 2000 W or higher			
	Maximu m Heating Tempera ture	Up to 80 °C or higher			
	Maximu m load on the basket	15 kilograms or higher			
	Time	Up to 60 minutes or higherContinuous mode			
	Capacity	20 liter per chamber (or higher)			
	Indepen dent Preclean ing Chambe	 Independent (not integrated) and additional precleaning chamber 	1		

							CUI-LHK-PUK	- 1 ender-vv1
		A 222222	 80°C or high Ultrasonicate power 1000V higher) 	or				
		Accessor ies and addition al required function s	 Baskets All accessories required for aforemention function com as intended 	the red to				
		Warrant y & Others	 12 Months from the of installation (passervice) with having good reputation with remachines and trained engineers Proofs of training company personnel/engineers should be provided List of installating Pakistan should provided 	rts and vendor local unning well- ngs of ers ed ons in				
		Purpose	 Curing of dental composites using UV irradiation 					
		General features	RechargeableWireless use abilBase-charger with handpiece holder	h				
	Blue LED	Power	1250 mW/cm ² or bet	ter				
25	Lights	Battery	Long-life, capable of multiple runs should of provided equipme	part	02			
		Accessor ies	2 extra tips1 extra battery					
		Warrant y	12-months or better					
		Purpose	Curing of polymers u					
25.1	Blue LED	General features	LED UV light system curing of large surfa area		01			
	Lights	Peak wave lengths (nm)	365 nm ± 5 nm 400 ± 5 nm					

		1	T			CUI-LHR-PUR	- 1 ender-001
		Irradian ce (W/cm²) at 10 mm distance	2.6 or better	5.5 or bette r			
		Optical power (W)	65 or better	135 or bette r			
		Curing Area (mm)	75 (or higher) x 25 (or higher)				
		Accessor	Protective Gear (eye face shield, gloves)	wear,			
		ies	All requisite accesso the aforementioned function as intended	to			
		Installati on & Training	Complete installatio training on installati	on site			
		Warrant y & Others	 12 Months from to of installation (paservice) with having good reputation with remachines and trained engineers Proofs of trainic company personnel/engine should be provided List of installating Pakistan should provided 	rts and vendor local unning well- ings of ers ed			
		Purpose General features	Photopolymerization polymers LED UV light system spot curing having for independent channe	n for our			
25.2	Blue LED	Peak wave lengths (nm)	365, 385, 395 or 400		01		
23.2	Lights	Watt/cm	9 or better (applicable to each of the aforementioned peak wavelengths, respectively)		V1		
		Controll er	 Simultaneous or individual control programming of 4 more) UV LED cu heads 	(or			

		T	I		T	CUI-LHR-PUR	- Tender-001
		LED heads	 2 LED heads corresponding to each of the 4 offered wavelengths from within the aforementioned wavelength requirements Interchangeable to any channel with individual cable for each head Digital display for operations, programing and important information 			CUI-LHR-PUR	- 1 ender-001
		Time	Programable time from 0.1 to 999 seconds or better				
		Intensity	Programable intensity 5% (or lower) to 100%				
			Radiometer and calibration kit Protective Gear (eye wear, face shield, gloves)				
		Accessor	LED head focusing lenses LED head mounting				
			clamps				
			Extension Cable All requisite accessories for ensuring functioning of the machine as aforementioned				
		Installati on & Training	Complete installation and training at installation site				
		Warrant y & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 				
26	High Speed mixer	Purpose	High speed mixer is proposed to blend and grind a range of materials	01			

	ı				 CUI-LHR-PUF	K- 1 ender-t
			(ceramics, polymer etc)			
		motor	3 HP (or higher)			
		Adjusta ble speeds	1,700 rpm (or lower) to 18,000 rpm (or higher)			
		Capacit y	1 gallon (or more)			
	Shear blender	Blade	Industrial grade Heavy duty stainless steel or better for chopping of both ceramics and polymer			
		Ampera	6.5 amps (or			
		ge motor	higher) 1 HP (or more)			
		Adjusta ble speeds	8000 rpm (or more)	01		
		Capacit y	1ml (or less) to 500mL (or more)			
		other features	automatic shutoff			
		Freque ncy	60 hz (or higher)			
	Shear mixer		assembly for 1ml (or lower) to 10mL (or more)	01		
		Assemb lies (stainles s steel)	assembly for 5ml (or lower) to 50mL (or more)	01		
			Assembly for 50ml (or lower) to 500mL (or more)	01		
	Installation		on and on-site ion) training			
	Warranty and Others		onths from the of installation			

					I	CUI-LHR-PUR	- 1 chuci -001
			 (parts and service) with vendor having good local reputation with running machines and well- trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 				
		Purpose Motors	Surgical implants motor system to be used for general oral surgery, implantology as well as for all kinds of surgical procedures. Motor System with Handpiece 20:1				
	Surgical Implants Motors	RPM	30 to 40,000 RPM or better Brushless Motor				
		Display	Easily Programmable Speed and Torque Keyboard Interface				
27		Coolant flow	Coolant flow rate: 1 – 75 ml/min or better	01			
		Safety system	Intelligent safety system with acoustical and optical signal and additional blocking of the motor drive				
		Torque	5 to 70Ncm or better Built-In Torque Controller and Safety Overload Protection				
		Warranty	12 months or more from the date of installation				
28	Dental Hand piece contra angle	Purpose	A dental drill or handpiece is a hand-held, mechanical instrument used to perform a variety of common dental procedures, including removing decay, polishing fillings, and altering prostheses	01			
		Contra angle	20:1				
		Rotation	200,000 rpm (or more)				

		1			CUI-LIIK-I UK	
		Properties	quadruple external spray, with microfilter			
			Titanium Comfort Grip			
			Single Water Spray			
		Water spray	Internal and External Irrigation			
		spr.uj	Cellular Glass Optics			
		chuck	Ultra push Chuck			
		D 1	Solid Titanium Body			
		Body	Ceramic Bearings			
		Sterilizatio	Autoclave Or			
		n temp stability	Chemiclave Up To 275° F (135° C) (or higher)			
		Warranty	12 months or more from the date of installation			
		Purpose	For drying of samples under heat and for studies of samples at			
			different temperatures			
		Max temp	250 °C or more			
		Min temp	Ambient ±0.1 °C or better 2 or more			
		Control Resolution				
		Shelf loading				
		Ventilation	Ventilation hole with Stainless steel Cap			
		Volume	50 Liter or more			
		Circulation	Forced Air Type			
29	Drying Oven	Controller	Digital controller	01		
		Display	Digital LCD	01		
		Timer	99 hr 59 min or more (Delay & Continuous Function)			
		Auto restart	Auto restart at the same program after power resumption			
		Material Internal	Stainless Steel -304			
		G . 0 .	Over Temp alarm			
		Safety	over Current Protector Sensor Error Detector			
		Othors	UL/CUL Certified			
		Others	CE Certified			
		Warmarite	• 12 Months from the			
		Warranty & Others	date of installation (parts and service)			
		a others	with vendor having			
	Sanatura P. Stam					

						CUI-LHK-PUK	- I Chaci-ooi
			good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided				
		Purpose	For drying of samples under heat and for studies of samples at different temperatures				
		Max temp	250 °C or more				
		Min temp	Ambient				
		Control Resolution	±0.1 °C or better				
		Shelf loading	2 or more				
		Ventilation	Ventilation hole with Stainless steel Cap				
		Volume	Minimum 100 Liter or more				
		Circulation	Forced Air Type				
		Controller	Digital controller				
29.1	Drying Oven	Display	Digital LCD	01			
		Timer	99 hr 59 min or more (Delay & Continuous Function)				
		Auto restart	Auto restart at the same program after power resumption				
		Material Internal	Stainless Steel -304				
		Safety	Over Temp alarm over Current Protector Sensor Error Detector				
		Others	UL/CUL Certified CE Certified				
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines 				

	1	T	1		T	CUI-LHR-PUR	k- 1 ender-001
			and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided				
		Purpose	For drying of samples under heat and for studies of samples at different temperatures				
		Max temp	250 °C or more				
		Min temp	Ambient				
		Control Resolution	±0.1 °C or better				
		Shelf loading	2 or more				
		Ventilation	Ventilation hole with Stainless steel Cap				
		Volume	Minimum 150 Liter or more				
		Circulation	Forced Air Type				
29.2	Drying Oven	Controller	Digital controller	01			
		Display	Digital LCD				
		Timer	99 hr 59 min or more (Delay & Continuous Function)				
		Auto restart	Auto restart at the same program after power resumption				
		Material Internal	Stainless Steel -304				
		Safety	Over Temp alarm over Current Protector Sensor Error Detector				
		Others	UL/CUL Certified CE Certified				
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines 				

	T				T	CUI-LHR-PUR	- 1 ender-001
			 and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 				
		Max Capacity	12 or more x 2 mL				
		Max speed	14,000 rpm or more (100 rpm increments)				
30	Centrifuge	Rotor capacity and adaptor	1.5/2 ml tubes along with suitable rotor and adopter capable of holding at least 12 samples at a time 0.5 ml tubes along with suitable rotor and adopter capable of holding at least 12 samples at a time 0.2 ml tubes along with suitable rotor and adopter capable of holding at least 12 samples at a time 15 sec (or less) to 99	. 03			
		Timer Features	minutes (or more) LED with control panel				
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 				
31	Viscometer	Purpose	To measure the viscosity of a small volume of samples. Digital display for the results at various temperatures controlled by the temperature sensing system	01			

						CUI-LHK-PU	Tender oor
		Viscosity range	1.5 mPa (or le mPa s (or high				
		mode	Rotational vis	cometer			
		Temperatu re Sensor	150 °C or high	ner			
		Display	digital				
		Rotational speed (RPM)	0.1 (or lower) higher)	to 6 (or			
		Accuracy	±1% or better				
		Measuring System	spindles or cy systems	linder			
		Sensor	Temperature	sensor			
		Repeatabili ty	±0.2% or bett	er			
		Warranty & Others	and well- engineers Proofs of of compa personne s should provided List of in	of on (parts ice) with aving al on with machines trained s trainings any l/engineer be stallations an should			
32	Platinum	Crucible 1	Purity Level: 99.95% Volumetric Ca 10mL		1		
	Crucible	Crucible 2	Purity Level: 99.95% Volumetric C: 30mL	apacity:	1		
	Portable Y-	X-Ray	X-Ray Generator	DC High Frequen cy Tube			
33	Portable X-Ray	rtable A-		Voltage: 60 kV (or more)	02		

	I			1			CUI-LHR-PUR	- 1 chact-001
				Tube				
				Current				
				:2 mA				
				(or				
				more)				
				Anode				
				Type:				
				Stationa				
				ry				
				Anode				
				Angle:				
				15-25°				
				Focal				
				Spot: 0.6				
				mm (or				
				less)				
				Heat				
				Capacit				
				y: 8.5				
				KHU (or				
				more)				
				0.01-				
			Exposure	1.60 Sec.				
			Time Setting	(0.01 Sec				
			Time Setting	step) or				
				better				
			T-4-1	1.6				
			Total Filtration:	mmAI				
			Filtration:	or better				
			Active areas	35 mm x				
				25 mm				
				or better				
				30 mm x				
				22 mm				
				or better				
		Dental		>20				
		digital X-	Resolution	lp/mm				
		ray Sensor	Kesolution	or better				
			Total Cable	2.80				
			Length	more				
				1600 x				
			Image Pixels	1200 x 1200 or				
			image i ixels	better				
			12 months or					
		Warranty	the date of ins					
			Fire resistant					
		General		capinet				
		feature	for storage of flammable che	miaals				
	Storage cabinet	leature						
			with digital lo	ск				
34		Capacity	220 litre (or m	ore)	07			
		Fire						
		resistant	90 min or more					
		time						
	i		•			i.		

Shelves 2 or more Two layer anti fire steel plates with at least Imm thickness of plates Liquid tank for leakage Air vent 1 2 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnet/engineers should be provided 1 Liquid nitrogen supply tank Capacity 1 2 2 psi or better Cylinder land truck with wheels 4 (f. flexible braided stainless-steel transfer hose or better LN2 fill phase separator LN2 fill phase separator Temperature Sensor Pressure gauge Liquid nitrogen land withdraw valve First Safety valve Second Safety valve Fill and withdraw valve Transfer hoses Solenoid valve		I	1	T			CUI-LHK-PUK	1-1-11uc1-001
Main body features Main body features Air vent 1 2 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnet/engineers should be provided List of installations in Pakistan should be be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided Capacity Capacity 100 Litre or more Tanks 22 psi or better Cylindrical roller base Cylinder hand truck with wheels 4 ft. flexible braided stainless-steel transfer hose or better LN2 fill phase separator Temperature Sensor Pressure gauge Liquid nitrogen level indicator First Safety valve Second Safety valve Fill and withdraw valve Transfer hoses			Shelves	2 or more				
Main body features Company Company Company				Two layer anti fire steel				
features Liquid tank for leakage Air vent 1.2 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided Liquid nitrogen supply tank Liquid nitrogen supply tank Capacity Capacity 100 Litro or more Tanks actes For safe supply and storage of liquid nitrogen Tanks taning Cylindrical roller base Cylindre hand truck with wheels 4 ft. flexible braided stainless-steel transfer hose or better 1.N2 fill phase separator Temperature Sensor Pressure gauge Liquid nitrogen level indicator First Safety valve Second Safety valve Fill and withdraw valve Transfer hoses								
Air vent Air vent - 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers - Proofs of trainings of company personnel/engineers should be provided - Liquid nitrogen supply tank - Liquid nitrogen supply tank - Capacity - Capacity - Capacity - Capacity - Capacity - Tanks rating - Cylindrical roller base - Cylinder hand truck with wheels - 4 ff. flexible braided stainless-steel transfer hose or better - L.N2 fill phase separator - Temperature Sensor - Pressure gauge - Liquid nitrogen level indicator - First Safety valve - Second Safety valve - Fill and withdraw valve - Transfer hoses								
Second Safety valve Fill and withdraw valve			features	Liquid tank for leakage				
date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers - Proofs of trainings of company personnel/engineers should be provided - List of installations in Pakistan should be provided be provided and storage of liquid nitrogen supply tank nitrogen (Capacity) 100 Litre or more Tanks 22 psi or better Cylinder hand truck with wheels 4 ft. flexible braided stainless-steel transfer hose or better LN2 fill phase separator Temperature Sensor Pressure gauge Liquid nitrogen liquid nitrogen liquid nitrogen liquid nitrogen level indicator First Safety valve Second Safety valve Fill and withdraw valve Transfer hoses				Air vent				
Warranty & Others Warranty & Others Warranty & Others Warranty & Others Warranty & Others Warranty & Others Warranty & Others Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided Tank made of stainless steel For safe supply and storage of liquid nitrogen supply tank Capacity 100 Litre or more Tanks rating 22 psi or better Cylindrical roller base Cylinder hand truck with wheels 4 ft. ft. ft. ft. ft. ft. ft. ft. ft. ft.				■ 12 Months from the				
with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided Liquid nitrogen supply tank Capacity 100 Litre or more Tanks 22 psi or better Cylindrical roller base Cylindrical roller base Cylindrical roller base Cylinder hand truck with wheels 4 ft. ff. exible braided stainless-steel transfer hose or better LN2 fill phase separator Temperature Sensor Pressure gauge Liquid nitrogen level indicator First Safety valve Second Safety valve Fill and withdraw valve Transfer hoses				date of installation				
Warranty & Others Warranty & Others Warranty & Others Proofs of trainings of company personnel/engineers should be provided Liquid nitrogen supply tank Capacity Tanks 22 psi or better rating Cylindrical roller base Cylindre hand truck with wheels 4 ft. flexible braided stainless-steel transfer hose or better LN2 fill phase separator Temperature Sensor Pressure gauge Liquid nitrogen level indicator First Safety valve Second Safety valve Fill and withdraw valve Transfer hoses								
Warranty & Others Warranty & Others Warranty & Others Proofs of trainings of company personnel/engineers should be provided Liquid nitrogen supply tank Capacity Tanks accessories Liquid nitrogen tank								
Warranty & Others Warranty & Others Proofs of trainings of company personnel/engineers should be provided Liquid nitrogen supply tank Capacity Capacity Capacity Capacity Columer hands of stainless steel For safe supply and storage of liquid nitrogen ditrogen Capacity Capacity Columer hand truck with wheels 4 ft. flexible braided stainless-steel transfer hose or better LN2 fill phase separator Temperature Sensor Pressure gauge Liquid nitrogen level indicator First Safety valve Second Safety valve Fill and withdraw valve Transfer hoses								
Warranty & Others Soft								
& Others Proofs of trainings of company personnel/engineers should be provided Liquid nitrogen supply tank Capacity Tanks and of stainless steel For safe supply and storage of liquid nitrogen Tanks 22 psi or better Cylinder hand truck with wheels 4 ft. flexible braided stainless-steel transfer hose or better LN2 fill phase separator Temperature Sensor Pressure gauge Liquid nitrogen level indicator First Safety valve Second Safety valve Fill and withdraw valve Transfer hoses			Warranty					
- Proofs of trainings of company personnel/engineers should be provided - List of installations in Pakistan should be provided - List of installations in Pakistan should be provided - List of installations in Pakistan should be provided - List of installations in Pakistan should be provided - List of installations in Pakistan should be provided - List of installations steel From safe supply and storage of liquid nitrogen - Capacity 100 Litre or more Tanks								
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Description Description								
should be provided List of installations in Pakistan should be provided Tank made of stainless steel For safe supply and storage of liquid nitrogen Capacity 100 Litre or more Tanks rating 22 psi or better Cylinder hand truck with wheels 4 ft. flexible braided stainless-steel transfer hose or better LN2 fill phase separator Temperature Sensor Pressure gauge Liquid nitrogen level indicator First Safety valve Second Safety valve Fill and withdraw valve Transfer hoses								
in Pakistan should be provided Tank made of stainless steel For safe supply and storage of liquid nitrogen Capacity Tanks rating Cylindrical roller base Cylinder hand truck with wheels 4 ft. flexible braided stainless-steel transfer hose or better LN2 fill phase separator Temperature Sensor Pressure gauge Liquid nitrogen level indicator First Safety valve Second Safety valve Fill and withdraw valve Transfer hoses				should be provided				
Liquid nitrogen supply tank Capacity Capacity 100 Litre or more Tanks 22 psi or better Cylinder hand truck with wheels 4 ft. flexible braided stainless-steel transfer hose or better LN2 fill phase separator Temperature Sensor Pressure gauge Liquid nitrogen level indicator First Safety valve Second Safety valve Fill and withdraw valve Transfer hoses								
Liquid nitrogen supply tank Capacity Interior Tanks and storage of liquid nitrogen Capacity Interior Tanks and truck with wheels 4 ft. flexible braided stainless-steel transfer hose or better LN2 fill phase separator Temperature Sensor Pressure gauge Liquid nitrogen tank accessories Liquid nitrogen level indicator First Safety valve Second Safety valve Fill and withdraw valve Transfer hoses								
Steel For safe supply and storage of liquid nitrogen supply tank Capacity 100 Litre or more Tanks rating 22 psi or better Cylinder hand truck with wheels 4 ft. flexible braided stainless-steel transfer hose or better LN2 fill phase separator Temperature Sensor Pressure gauge Liquid nitrogen level indicator First Safety valve Second Safety valve Fill and withdraw valve Transfer hoses								
Capacity 100 Litre or more								
Capacity 100 Litre or more Tanks rating 22 psi or better Cylindrical roller base Cylinder hand truck with wheels 4 ft. flexible braided stainless-steel transfer hose or better LN2 fill phase separator Temperature Sensor Pressure gauge Liquid nitrogen level indicator First Safety valve Fill and withdraw valve Transfer hoses								
Capacity 100 Litre or more Tanks rating 22 psi or better Cylindrical roller base Cylinder hand truck with wheels 4 ft. flexible braided stainless-steel transfer hose or better LN2 fill phase separator Temperature Sensor Pressure gauge Liquid nitrogen level indicator First Safety valve Second Safety valve Fill and withdraw valve Transfer hoses			supply tank					
Tanks rating Cylindrical roller base Cylinder hand truck with wheels 4 ft. flexible braided stainless-steel transfer hose or better LN2 fill phase separator Temperature Sensor Pressure gauge Liquid nitrogen level indicator First Safety valve Second Safety valve Fill and withdraw valve Transfer hoses			Capacity	-				
Cylindrical roller base Cylinder hand truck with wheels 4 ft. flexible braided stainless-steel transfer hose or better								
Cylindrical roller base Cylinder hand truck with wheels 4 ft. flexible braided stainless-steel transfer hose or better LN2 fill phase separator Temperature Sensor Pressure gauge Liquid nitrogen level indicator First Safety valve Second Safety valve Fill and withdraw valve Transfer hoses				22 psi or better				
Cylinder hand truck with wheels 4 ft. flexible braided stainless-steel transfer hose or better LN2 fill phase separator Temperature Sensor Pressure gauge Liquid nitrogen level indicator First Safety valve Second Safety valve Fill and withdraw valve Transfer hoses			Tating	Cylindrical roller base				
With wheels 4 ft. flexible braided stainless-steel transfer hose or better				Cylinder hand truck				
Stainless-steel transfer hose or better LN2 fill phase separator Temperature Sensor Pressure gauge Liquid nitrogen level indicator First Safety valve Second Safety valve Fill and withdraw valve Transfer hoses				•				
Liquid nitrogen tank								
Liquid nitrogen tank accessories LN2 fill phase separator Temperature Sensor Pressure gauge Liquid nitrogen level indicator First Safety valve Second Safety valve Fill and withdraw valve Transfer hoses								
nitrogen tank Temperature Sensor Pressure gauge Liquid nitrogen level indicator First Safety valve Second Safety valve Fill and withdraw valve Transfer hoses				hose or better				
Temperature Sensor Pressure gauge Liquid nitrogen level indicator First Safety valve Second Safety valve Fill and withdraw valve Transfer hoses	35			LN2 fill phase separator	01			
Accessories Liquid nitrogen level indicator First Safety valve Second Safety valve Fill and withdraw valve Transfer hoses				Temperature Sensor				
First Safety valve Second Safety valve Fill and withdraw valve Transfer hoses			accessories					
Second Safety valve Fill and withdraw valve Transfer hoses			accessories					
Fill and withdraw valve Transfer hoses				First Safety valve				
Transfer hoses				Second Safety valve				
				Fill and withdraw valve				
Solenoid valve				Transfer hoses				
				Solenoid valve			ī.	
Pressure building valve				Pressure building valve				

		T			1	CUI-LHR-PUR	Tenaci ooi
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 				
		Liquid nitrogen tank for cell storage	CE certified Tank made of stainless steel For safe storage of cells				
		Capacity	30 litres (or more)	01			
		Vial capacity (1.2-2 mL)	600 (or more)				
		Evaporatio n rate	0.2 litres/ day (or lower)				
			vial rack	06			
		Accessories	1ml cryo-vial box	10			
		Accessories	2ml cryo-vial box	10			
35.1	Liquid		0.5 ml cryo-vial box	5			
	nitrogen tank	Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 				
36	36 Autoclave	Purpose	Sterilization of Glassware, Surgical instruments, Media and biological waste Horizontal fully	01			
		Type	automatic Stainless Steel				

			CUI-LHK-PUK	- 1 chact-out
	chamber			
	. Effective Chamber			
Capac	city Capacity 50 L (or more)			
	With programs: for			
	Solids, Waste			
Progr	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s			
liogi	waste, Liquid Media			
	and Cleaning.			
	Integrated separate			
Heati				
Туре	heating elements in			
	sterilization chamber).			
	Un to 135°C (or higher)			
Steam	1 2 2			
Paran	neters Pressure 4 bar (or			
	higher) Specialized Safety door			
	lock during operation			
	and till cooling			
Safety	V Lock according to			
	international Pressure			
	Vessel Regulations			
	Electronic pressure			
Press				
contro	_			
	control			
	Multiple built in			
Steril	1 8			
n pro	~			
	ventilation of waste bags Autofill function			
Water	r inlet Autofill function			
Integr	_			
Vacui				
System				
Rapid				
Coolin	ng sterile compressed air 12 Months from			
	• 12 Months from the date of			
	installation (parts			
	and service) with			
	vendor having			
	good local			
	reputation with			
	running machines			
Warr	anty and well-trained			
	engineers			
	 Proofs of trainings 			
	of company			
	personnel/engineer s should be			
	provided			
	List of installations			
	in Pakistan should			
	be provided			
<u> </u>		<u> </u>		

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	Purpose	Glassware, Surgical instruments, Media and biological waste				
	Туре	Vertical Laboratory Sterilizer, Fully automatic, Interior Chamber Stainless steel. Digital microprocessor controlled				
	Sterilizatio n Temperatu re	Up to 135°C or higher				
	Programs	Multi-mode selection				
	Effective Capacity	50 Litre or higher				
	Safety	Over pressure power cut off Over temperature power cut off Current leak detection				
	Rated working pressure	2.5 bar or higher	02			
Sterilizer	Controls	Digital Control Programmable or Built in Multiple Programs				
	Accessories	Drainage hose, Stainless steel baskets And all other requisite accessories for operation as aforementioned				
	Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineer s should be provided List of installations in Pakistan should 				
Shaker (Rocking platform)	Purpose	Used for a broad range of mixing and agitation applications in the	02			
_	Shaker (Rocking	Type Sterilizatio n Temperatu re Programs Effective Capacity Safety Rated working pressure Controls Accessories Warranty & Others	Autoclave Sterilizer Autoclave Sterilizer Accessories Purpose Glassware, Surgical instruments, Media and biological waste Vertical Laboratory Sterilizer, Fully automatic, Interior Chamber Stainless steel. Digital microprocessor controlled Sterilizatio n Temperatu re Programs Multi-mode selection Effective Capacity Over pressure power cut off Over temperature power cut off Current leak detection Rated working pressure Autoclave Sterilizer Autoclave Sterilizer Accessories Accessories Digital Control Programs built in Multiple Programs Drainage hose, Stainless steel baskets And all other requisite accessories for operation as aforementioned 1 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineer s should be provided List of installations in Pakistan should be provided Shaker (Rocking Purpose Used for a broad range of mixing and agitation 02	Purpose instruments, Media and biological waste Vertical Laboratory Sterilizer, Fully automatic, Interior Chamber Stainless steel. Digital microprocessor controlled Sterilizatio n Temperatu re Programs Multi-mode selection Effective Capacity Over pressure power cut off Current leak detection Rated working 2.5 bar or higher Autoclave Sterilizer igital Control Programmable or Built in Multiple Programs Drainage hose, Stainless steel baskets And all other requisite accessories for operation as aforementioned - 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and service) with vendor having good local reputation with running machines and well-trained engineers - Proofs of trainings of company personnel/engineer s should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided Veed for a broad range of mixing and agitation 02	Purpose Glassware, Surgical instruments, Media and biological waste Vertical Laboratory Sterilizer, Fully automatic, Interior Chamber Stainless steel. Digital microprocessor controlled Sterilizatio Temperatu re Programs Multi-mode selection Effective Capacity Over pressure power cut off Current leak detection Rated working pressure Digital Control Programmable or Built in Multiple Programs Drainage hose, Stainless steel baskets And all other requisite accessories for operation as aforementioned - 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers - Proofs of trainings of company personnel/engineer s should be provided - List of installations in Pakistan should be provided - List of installations in Pakistan should be provided (Rocking) Purpose Glassware, Surgical and since and believe to the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel of the steel	

			laboratory. Brushless dc motor		CUI-LHK-PUK	Tender vor
		Speed	5–50 rpm or better			
		Power restoration	Auto function restoration in case of power failure			
		Motion	Tilting/Rocking			
		Control	LCD Display			
		Control	Knob or touch or pressing button			
		UPS	As recommended by OEM			
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineer s should be provided List of installations in Pakistan should be provided 			
		Purpose of the Orbital Shaker	Used for a broad range of mixing and agitation applications in the laboratory.			
		Speed range	50-300 rpm or better			
		Motion	Orbital			
	Shaker	Temperatu re range	Up to 60°C or better			
38	1	Control	LCD Display to control temperature, speed and time	02		
		UPS	As recommended by OEM	1		
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local 			

	1		1		ı	CUI-LHR-PUR	- 1 chuch-001
			reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineer s should be provided List of installations in Pakistan should be provided				
		Max Capacity	12 or more x 2 mL				
		Max speed	14,000 rpm or more (100 rpm increments)				
		Rotor capacity and adaptor	1.5/2 ml tubes along with suitable rotor and adopter capable of holding at least 12 samples at a time 0.5 ml tubes along with suitable rotor and adopter capable of holding at least 12 samples at a time 15 sec or less to 99				
		Timer	minutes or more				
39	Centrifuge	Features	LED with control panel	03			
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 				
40	Microplate Reader (Florescence, Multi Mode)	Purpose:	 Must be able to detect absorbance, luminescence, fluorescence, time-resolved fluorescence (TRF) in plate format real time kinetic monitoring. software controlled. 	01			

			1	T	CUI-LHR-PUR	- 1 chuci-vvi
		Plate Type Detection	96 well plate or more types of plate UV-Vis Fluorescence intensity			
		module	Luminescence (Or more)			
		Light source	Xenon flash or Halogen lamp or better			
		Software	Protocol and full data analysis and reporting			
		Spectral range	250 nm (or lower) - 900 nm (or higher)			
		Temperatu re Control	65°C or more			
		Atmospheri c control unit	Regulate CO ₂ and O ₂			
		UPS backup	As recommended by OEM	01		
		Installation	Complete installation with onsite training			
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 			
		Purpose	CE certified Total exhaust cabinets for work with toxic chemicals and infectious agents			
41	Safety Cabinet	Class	II	02		
		Type	B2			
		Working area	12 square feet (or bigger)			
	Sanatura & Stam	Filter	HEPA/ULPA			

	1				CUI-LHR-PUR-Tender-0
		control	Graphical LCD display containing: on/off fan control with adjustable air velocity Working window control LED lamp ON/OFF UV lamp ON/OFF Elapsed time counter and alarm for HEPA filter replacement		
		Chamber Materials	Stainless Steel		
		Window	Tempered glass		
		Other features	 Compatible trolley UV light Total Exhaust 		
		UPS backup	As recommended by OEM		
		Installation	Complete installation with onsite training		
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		
		Purpose	CE certified exhaust cabinets for work with toxic chemicals and infectious agents		
		Class	II		
41.1	Safety Cabinet	Type	A2	6	
	Cubinet	Working area	12 square feet (or bigger)		
		Filter	HEPA/ULPA		
		control	Graphical LCD display containing:		

	T	1			I	CUI-LHR-PUR	- 1 ender-001
		Chamber Materials Window Other features	on/off fan control with adjustable air velocity Working window control LED lamp ON/OFF UV lamp ON/OFF Elapsed time counter and alarm for HEPA filter replacement Stainless Steel Tempered glass Compatible trolley UV light Total exhaust			CUI-LIIK-I UK	-Tender-out
		UPS	As recommended by				
		backup	OEM				
		Installation	Complete installation with onsite (installation) training				
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 				
42	Drill Machine	General Features	 Benchtop Drill machine with digital system to read drilling speed and depth Keyless precision chuck Adjustable speed (RPM) Adjustable drilling height Multi gear Laser pointing system for precision drilling 	01			
		Drilling capacity in mild steel	13 mm (or higher)				

					CUI-LIIK-I UN	
		Drill stoke	90 mm or better			
		Chuck jaw width range	1.5 300 mm or better			
		Power in put	700 Watt (or higher)			
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 			
			General Features			
43	Centrifugal Grinder	Bench Grinder	 Torque 1400 in-lb or higher eye shields, spark deflectors, tool rests, adjusting wrench Overload Protection Tool-Free Adjustable Guard 3/4 hp induction motor or higher power 3,600 rpm or higher wheel guards; 12-1/2-inch or more distance between wheels for larger and longer grinding applications 	01		
			 Accessories Grinding wheel coarse (60 grit or finer) 	01		
			Accessories Grinding wheel fine (100 grit or finer)	01		
		Warranty and others	12 months from the date of installation with onsite training and installation			
	Sanatura & Stam	Angle grinder	General features	01		

			1		CUI-LHR-PUR	t-1 chaci-001
		Warranty	 Power: 800 watts (or above) Cutting Wheel Size: 100 mm or equivalent Speed: 10,000 rpm (or higher) Spindle Size: M10 or equivalent Cable length: 2 meter (or more) Body Grip tool for firm hold Lock on switch for continuous use 12 months from the date of installation with 			
		and others	onsite training and installation			
		General Features	Multi-purpose Manual/Stick TIG Should be able to weld Stainless Steel, Steel, Aluminum Display screen			
		Output	240 A (or higher)			
		Stick Welding Output	180 A (230 V) @ 25% duty cycle or better			
		TIG Welding Output	180 A (230 V) @ 30% duty cycle or better			
44	Arc welder	Accessories	All requisite accessories to perform aforementioned tasks as highlighted in General Features should be provided (which includes but may not be limited to torches, regulators, gas cylinder)	01		
		Class of Protection	IP23S or better			
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with 			

	1	I		I	CUI-LHR-PUR	
		and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided oil free single stage				
	Purpose	storage tank suitable for high quality air demand for biomedical and pharmaceutical applications				
		,				
Compressor	Pressure Receiver/ai r tank (litre)	10 bar (or higher) 270 (or higher)				
	pumping Capacity (litre)	350 (or higher)	01			
	Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 				
Manual & Power Tool and Consumables	Workstatio ns	6 ft or more length of Workstation for tool storage and tabletop for day to day work 30,000 cu. inch or more capacity load 24" or more professional working depth Workstation should be	1			
	Manual & Power Tool and	Power Pressure Receiver/ai r tank (litre) pumping Capacity (litre) Warranty & Others Manual & Power Tool and Workstatio ns	Compressor Purpose Power	and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided Ites single stage compressor with air storage tank suitable for high quality air demand for biomedical and pharmaceutical applications Power 4kW (or higher) Pressure 10 bar (or higher) Receiver/air r tank (litre) pumping Capacity (litre) Pumping Capacity (litre) Warranty & Others Warranty & Others Warranty & Others Manual & Power Tool and Consumables Manual & Workstation in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provide	and well-trained engineers Profs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided oil free single stage compressor with air storage tank suitable for high quality air demand for biomedical and pharmaceutical applications Power 4kW (or higher) Pressure 10 bar (or higher) Receiver/air r tank (litre) pumping Capacity (litre) 350 (or higher) (litre) 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided at the company personnel/engineers should be provided List of installations in Pakistan should be provided at the company personnel/engineers should be provided at the company personnel/engineers should be provided at the company personnel/engineers should be provided at the company personnel/engineers should be provided at the company personnel/engineers should be provided at the company personnel/engineers should be provided at the company personnel/engineers should be provided at the company personnel/engineers should be provided at the company personnel/engineers should be provided at the company personnel/engineers should be provided at the company personnel/engineers should be provided at the company personnel/engineers should be provided at the company personnel/engineers should be provided at the company personnel/engineers should be provided at the company personnel/engineers should be provided at the company personnel/engineers should be provided at the company personnel/engineers should be provided at the company personnel/engineers should be provided at the company personnel/engineers should be provided at the company personnel/engineers should be provided at the company personnel/engineers should be provided at t	and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided Oil free single stage compressor with air storage tank suitable for high quality air demand for biomedical and pharmaccutical applications Power 4kW (or higher) Pressure 10 bar (or higher) Receiver/air tank (litre) Pumping Capacity (litre) 10 bar (or higher) Pressure 10 bar (or higher) Pressure 10 bar (or higher) (litre) 11 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided List of installations Workstation for tool storage and tabletop for day to day work 30,000 cu. Inch or more capacity load 24" or more capacity load 24" or more professional working depth Workstation should be equipped with 15 or

			CUI-LHR-PUR	k- 1 ender-001
	drawers that hold up to 100 lbs. or above with 200 lbs. or above capacity in the deeper drawers. Thick 18 Gauge or better Steel Body (powder coated) Auto Return Drawers 400 or more pieces			
Mixed Tool SET	 Blow molded durable carry case Black chrome or better finish for anti-corrosion protection Laser-etched markings for size visibility Quick release switch and reversible mechanism for easy operation Meets or exceeds ANSI specifications Chrome-molybdenum steel according to SAE and MM standards Should include but not necessarily be limited to; Utility Knife, 5m/16ft Tape Measure Screw drivers (different types) Adjustable Wrenches Hex. Key wrenches Pipe Wrench Pliers Dr. Specialty bits, sockets Hammers Extension Bar 	1 com plete set		
22V Brushless Cordless Drill & Impact Driver Kit	 22V Brushless 3/8 in. drill and impact driver Brushless motor for maximum runtime and durability Must have vibration reduction mechanism 	01		

 ı			 CUI-LHR-PUR	-Tender-001
	 Torque control mechanism and Quick-change chucks – changing bits must be a fast and tool-free function Associated tools and drill bits High speed transmission with 2 or more speed settings With LED lights to illuminate the work surface Compact, lightweight design for tight spaces 2 extra batteries for drill as well as impact driver & charger Wide range of drill bits (hard coated & wear resistant) 1-year warranty (or 		CUI-LHR-PUR	-Tender-001
36V Brushless Hammer drill	more) Integrated lithium ion Battery Chuck Size 1/2" Cordless System RPM 0-2000 or more Multiple speed settings Must have vibration reduction mechanism Torque control mechanism and Quick- change chucks — changing bits must be fast and a tool-free function Drilling through wood, metal, and plastic 2 extra Lithium Ion Batteries Charger Brad Point Drill & Masonry Bits (tungsten carbide tips) Screws / Fasteners HSS Drill Bits	01		

	· · · · · · · · · · · · · · · · · · ·				CUI-LHR-PUR	A-Tender-001
		Magnetic Bit Tip Holder				
		1" Bits, 2" Bits, 3-1/2"				
		Bits	_			
		Nutdrivers				
		Ratcheting Screwdriver				
		Gauge				
		Sockets				
		Socket Adaptor	1			
		Storage box	1			
		1 year warranty (or				
		more) 2-position switch to				
		select standard or				
		hammer drill functions				
		6.5 Amp or more power				
		Quick-change chucks –				
		changing bits must be				
		fast and tool-free				
		Working mode:				
		Hammer drilling, Drilling, Chiseling				
		Active vibration				
	Hamı Drill	reduction mechanism	- 01			
	(Cord	Single-sleeved chuck for				
		easy bit changes				
		Multi-position side				
		handle for ease of use				
		1/2 in. chuck to	1			
		accommodate larger				
		bits along with				
		associated bits	-			
		1-year warranty (or more)				
		■ To cut through metal				
		• 15 Amperes or more				
	Chan	14 in. (or more) Chop	01			
	Chop	Saw to cut	U1			
		1-year warranty (or more)				
		Jaw width 5-6-inch Jaw				
	N/I14.	with Swivel Base				
	se Be	Opening capacity 5 inch	01			
	Vise	or more	01			
	V 13C	Throat depth 2 inches				
		or more				

	T		1		CUI-LHR-PUR	- 1 ender-vv1
			Captured safety jaw to prevent slide from falling out			
			Fused steel handle			
			Anvil incorporated			
			Integrated pipe jaws			
		Purpose	Drop shape analyzer for static and dynamic contact angle measurement, surface and interfacial tension measurements, and surface free energy calculation			
		Measuring angle Range	Range: 0-180° or better			
	Contact		Hardware accuracy: 0.3° Or better			
		Measuring range of	Range: 0.01 to 2000 mN/m or better			
		interface tension	Accuracy: 0.3 mN/m or better			
		Camera	Measuring speed: 2000 fps or better	1		
			Camera view angle (°): ±2.5 or better			
47			IR cut filters			
47	Angle measurement		Resolution: 1200 x 1200 px			
		Optics	Field of view 3.2 to18.5 mm or better			
		Illuminatio n	Adjustable LED			
			X, Y, Z axis movement			
		Stage	Tilting/ rotation for roll- off/ receding contact			
			angle measurement			
			Software control			
			Automatic, with glass			
			and disposable syringes Accuracy 0.1µL or			
		Dosing	better			
		_	dosing speed 10-	1		
		system	1000μL/minute or			
			better			
			sample holder for			
			manual dosing			
	•					

		Disposable syringe of			
	Accessories	any volume between 200 uL to 1000 uL with needle (In addition to all standard syringes and needles)	1		
		Calibration standards for drop size analysis	1 Kit		
	Environme ntal Chamber	For air controlled measurement	1		
		Software to determine static and dynamic contact angle measurement	1		
	Software	Software to measure surface free energy of solids	1		
		software to determine surface and interfacial tension of liquids	1		
		Software to control camera, illumination, temperature, dosing module, table movement, cuvette for pendant drop	1		
	Computer	Compatible with system with power back up	1		
	Power backup	As recommended by OEM	1		
	Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 			
Cryostat	Purpose	biological tissues at cryogenic temperature. The instrument should be complete with all	01		
	Cryostat	Computer Power backup Warranty & Others	Environme ntal Chamber For air controlled measurement Software to determine static and dynamic contact angle measurement Software to measure surface free energy of solids Software to determine surface and interfacial tension of liquids Software to control camera, illumination, temperature, dosing module, table movement, cuvette for pendant drop Computer Computer Compatible with system with power back up Power backup As recommended by OEM 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided List of installations in Pakistan should be provided Thin sectioning of biological tissues at cryogenic temperature. The instrument should	Calibration standards for drop size analysis Kit Environme ntal Chamber For air controlled measurement Software to determine static and dynamic contact angle measurement Software to measure surface free energy of solids Software Software to determine surface and interfacial tension of liquids Software to control camera, illumination, temperature, dosing module, table movement, cuvette for pendant drop Computer Computer Compatible with system with power back up Power backup As recommended by OEM 1 Power date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided Thin sectioning of biological tissues at cryogenic temperature. The instrument should be complete with all	Calibration standards for drop size analysis Environme ntal Chamber Software to determine static and dynamic contact angle measurement Software to measure surface free energy of solids Software to determine surface and interfacial tension of liquids Software to control camera, illumination, temperature, dosing module, table movement, cuvette for pendant drop Computer Computer Compatible with system with power back up Power backup As recommended by OEM • 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers • Proofs of trainings of company personnel/engineers should be provided • List of installations in Pakistan should be provided Thin sectioning of biological tissues at cryogenic temperature. The instrument should be complete with all

-				CUI-LHR-PUR	- I ender-
		blades, sample holders,			
		knives etc necessary for			
		smooth running.			
		Temperature setting			
		-35°C (or below)			
		Section thickness setting			
		5μm (or below)			
		to			
		100μm (or above)			
	General	Specimen feed			
	Features	15 mm or better			
		Vertical specimen			
		stroke			
		48 mm or better			
		Freezing shelf			
		temperature			
		-35°C (or below)			
		Tissue freezing medium			
		125ml			
		Knife case large			
		01			
		Cryostat oil			
		250ml			
		Knives 16 cm TC			
		03			
	Accessories	Knives 16 cm long steel			
	Accessories	03			
		Blades TC disposable			
		50			
		Blade high profile			
		disposable			
		10			
		Blade low profile			
		disposable			
		10			
Į	UPS	As recommended by	01		
l	oackup	OEM	U1		
		Complete installation			
1	nstallation	with onsite training			
		• 12 Months from the			
		date of installation			
		(parts and service)			
		with vendor having			
		good local			
		reputation with			
		running machines			
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Warranty	and well-trained			
	& Others	engineers			
		• Proofs of trainings			
		of company			
		personnel/engineers			
		should be provided			
		List of installations			
		in Pakistan should be provided			
		he previded			

			 		1	CUI-LHR-PUR	- 1 elluel -001
		Purpose	software suite for computer-aided design (CAD), computer-aided manufacturing (CAM), computer-aided engineering (CAE), • Multiuser				
		License	(minimum 3 or higher) - lifetime • Educational/startup/ incubator				
		Scope of Application	3D and 2D drawings for CNC operations				
49	CAD licensed software		Suitable file formats for use in commercial CAD/CAM equipment e.g. CNC machines, 3D printers	01			
		S	3D visualization				
			Parts modeling				
			Biomedical device designs				
		Others	Must be from world renowned company having a track record of providing CAD/CAM solutions to industries				
		Purpose	Surgical light source to illuminate the Operating area. Facilitation in surgical procedures for animal trials. Compact exam light for surgical procedures on experimental animals.				
		Light source	LED				
50	Surgical light for OT	Installation type	Floor standing Six-dimensional joint; 360°,	02			
	101 0 1		Multiple luminescence				
		Luminanaa	Illumination depth: ≥600(mm) ≥2°C,				
		Luminance	Higher than 100000 Lux.Color				
			Spot Diameter:150 mm (or higher)				
		Light- adjusting mode	four grade dimmer system or better				
		Lamp automatic	0.28, Color indication index: ≥97%,				

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		switching time					
		Warranty	12 Months from the date of installation				
51	Operating Table	Purpose	Operating Table for surgical procedures on small and medium sized animals. Made of Stainless steel 304.	02			
		Tabletop dimensions	Equal to 60 x 22 in (or higher)				
		Adjustable Height	Table height electronically adjustable ranging 28 to 40 inch or betters				
		Heated Top tabletop with electronic heating system Built-in drain hole at					
		Drain hole	Built-in drain hole at the table top				
		Load capacity	Higher 120 Kg (or higher)				
		Warranty	12 Months from the date of installation				
52	Trolley with in built rabbit cages	Rabbit Cages	Cages size(internal dimensions): ~ 600mm x ~ 450mm x ~ 450 mm (LXBXH) Made of S.S 304 material with duly spot welded and finished joints Each cage should be Independent and movable AISI 304 quality stainless steel material Fitted with tag holder Gap between S.S rods used in cage walls: ~7mm Cage door with fixed label holder and arrangement for food hopper and fixing water bottle. The door must be made of wire mesh of ~2.5mm and ~5mm SS rod welded on a frame of ~5mm SS rod and covered with 22 swg	48			

	1	1			CUI-LHR-PUR	- Telluel-001
			Floor grill Bottom floor net of ~ 12 x 26 mm must be made of ~2.5mm and ~5mm			
			SS wire welded on a frame of ~5mm SS rod. Floor net must be fixed and non-removable			
			type. Tray			
			Excreta tray made of 22swg S.S sheet with turned and smoothed			
			edges, and removable for cleaning			
		Bottles	Polypropylene water bottle of capacity ~650ml fitted S.S bent type nozzle	48		
		Trolley	Three rack moveable trolleys with wheels must be made up of ~20mm x 16swg S.S to accommodate aforementioned 6 rabbit	8		
		Purpose	cages each Anesthesia system for ethical precise delivery of anesthetic to prepare small animals for surgical procedures. Safe for surgical			
		Range	personnel. Flow rates from 25 ml/hour (or lower)to 1 L/hour (or higher)			
53	Low-Flow Anesthesia System	Number of animals	Anesthetize multiple animals at once (minimum 2)	02		
	System	Air compressor	Built-in			
		Monitoring	Built-in display for real- time monitoring			
		Accessories	All the required hardware and connections included in the system			
		Warranty	12 Months from the date of installation			
54	Anesthesia Mask/ Breathing	Purpose	Rodent face masks made from clear acrylic to anesthetize or resuscitate the rodents.	04		
	Circuit	features	Large anesthesia mask with co-axial non-			

	T .		T			CUI
			rebreathing system			
			diameter: ~44mm,			
			depth: ~33mm,			
		Diaphragm	Includes diaphragm			
		T as	material (200g or more).			
			Benchtop model for			
		Purpose	removing water from			
		F	numerous small sample			
			loads			
		Exterior	Cubic or rectangular			
			(Corrosion resistant)			
		Temperatu	-80 °C (or lower)			
		re Water				
		capture	1.5 litres/24 hours (or			
		capture	higher)			
		Solvents	Water			
		-	Stainless steel drying			
			chamber			
		Drying				
		Chamber	Transparent door			
			Stainless steel trays			
			stainless-steel collector			
		Condenser	coil condenser			
		Dofwiga				
		Refrigerati	CFC-free			
		on system				
		Vacuum system	Rotary vane vacuum pump Ultimate vacuum: 0.002			
55	Freeze Dryer			02		
			mbar or below			
			Touch screen display			
		Control	panel shows operating			
			parameters, set-up			
		panel	parameters, set-up			
	Freeze Dryer		messages			
			Alarm system.			
			Vacuum control option			
		Safety	to maintain set point			
		controls	*			
			Auto restore functions			
			in case of power failure			
			Freeze drying flasks			
			(100ml)			
		Accessories	4 Nos			
			Power stabilizer			
					1	
			12 Months from			
		Warranty	the date of			١
			installation (parts			١
			and service) with			

	1		Ţ		-	CUI-LHR-PUR	- 1 chuci-vvi
			vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineer s should be provided List of installations in Pakistan should be provided				
		Purpose	Histology of preserved soft and hard tissue				
		Nature	Fully-Motorized/ automated Microtome with foot pedal				
		Automatic unlock handwheel	To instantly switch from manual to automatic mode				
		Sectioning Speed	up to 400 mm/s (or higher)				
		Vertical stroke	Vertical stroke 70 mm or better				
56	Automated	Clamp	universal cassette clamp large	02			
30	Microtome	Specimen orientation	Horizontal: ± 8°or better Vertical: ± 8° or better				
		Section thickness range (µm)	0.5 (or lower) - 100 (or higher)				
		Trimming Section thickness range (µm)	5 (or lower) - 500 (or higher)				
		Control panel	LCD display				
		Holder for blade	Blade holder base with cutting protection for safety Should be able to hold high- and low-profile blades				

						CUI-LIIK-I UK	
		Waste tray	Should be included				
		Specimen Retraction	Should be included				
		Accessories	Compatible blades & all requisite accessories needed to perform the aforementioned functions				
		Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 				
		Purpose of Microplate Spectropho tometer	Microplate Spectrophotometer is used for DNA and RNA quantitation, cytotoxicity assays, Reporter gene assay, Enzyme assays				
		Application s	RNA, DNA and Protein quantification and kinetic assays				
		Light Source	Xenon Flash lamp				
57	Microplate Reader	Wavelength Range	300 nm (or lower) to 950 nm (or higher)	01			
		Measureme nt Speed	15 seconds or less				
		Plate Type	96 well plates or more				
		UPS	As recommended by OEM				
		computer	As recommended by OEM				
		Warranty & Others	• 12 Months from the date of installation (parts and				

Special Terms and conditions;

- i. Please submit the technical and financial bid (rates) on our prescribed BoQs Form and clearly mention the quoted model / brands, with complete terms and conditions signed, stamped with both bids, otherwise your bid (s) may be rejected.
- ii. Lowest Vendor are required to provide the samples against the Sr. # 52 i.e. (Trolley within built rabbit cages) before the bulk supply.
- iii. Vendor will be responsible for Installation & Commissioning of the delivered equipment's.
- iv. Purchase / work order (s) will be awarded on Item wise Basis.
- v. Kindly attach the Tender fee with Technical Bid and Bid money / CDR with Financial Bid.
- vi. Multiple rates of an item may also lead to the rejection of bid / item.