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

Tender No. CUI-LHR-TN-20-1437

Case # 3198

### **Single Stage Two Envelop Procedure**

Title of Tender:

<u>Lab Equipment on FOR Basis for Establishment of Centre for Advanced</u> Technologies in Biomedical Materials (CATBM PC-1)

### **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. In case more than one bidder have quoted same rates for an item; the bidder securing more items (in terms of cost) will be awarded the specific item.
- 11. Purchase order (s) will be awarded to the evaluated lowest or technically recommended bidder (s) on the basis of item wise / subtotal wise / grand total wise according to the nature of BoQs.
- 12. The bid should be submitted in a sealed envelope up to <u>December 28, 2020</u> on or before <u>1100hrs</u> and will be opened on the same date at 1130hrs in the presence of available bidders.
- **13.** 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.
- 14. 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

- 15. The envelope shall also bear the word "CONFIDENTIAL" and following identification quotation of "Lab Equipment on FOR Basis for Establishment of Centre for Advanced Technologies in Biomedical Materials (CATBM PC-1)".
- 16. The bid form (BoQs) must be duly filled in, stamped and signed by the authorized representative of the bidder.
- 17. 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.
- 18. 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.
- 19. Deduction of Income Tax and any other tax will be deducted at source according to Government prevailing rules.

- 20. 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.
- 21. 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.
- 22. It is the sole responsibility of the agent / supplier / manufacturer to comply with the applicable laws, be national or international.
- 23. In case of any dispute or grievance, the matter shall be addressed as per PPRA rules.
- 24. The CUI-Lahore Campus reserves the right to modify the quantities of goods / services at any time before the award of purchase / work order.
- 25. Warranty mentioned in BoQs shall be provided from the date of installation or standard warranty whichever is higher
- 26. <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.
- 27. 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>.
- 28. 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.
- 29. 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.
- 30. 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:
•	Tel. / Mobile: Email:
•	<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 on FOR Basis for Establishment of Centre for Advanced Technologies** in Biomedical Materials (CATBM PC-1)

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

allowed / bran	ange in the BoQ ed. Any addition d or Price). Any (fully or partial	Please mention the quoted Model / Brand with meeting the all specifications			
Sr. #	Equipmen t Name	Required Specifications		Qty	mentioned in BoQs
		Purpose of Ultrasonic Bath	For ultra-sonication in analytical, industrial and medical applications, including intensive cleaning		
		Material	Stainless Steel		
		Frequency range (kHz)	Variable frequency	03	
	Ultrasonic Bath	Timer	Must be present	03	
1		Temp. range (°C)	Up to 80 °C		
		Ultrasonic Power (W)	100 or higher		
		<b>Control Mode</b>	Digital		
		Capacity (L)	5 or more		
		Accessories	Basket	03	
		Accessories	Cover	03	
		Installation	Complete onsite installation		
			12 Months or more from		
		Warranty	the date of installation		
			(parts and service)		
			Type: Diaphragm PTFE		
			All parts which come into		
		General	liquid contact should be		
		Requirements	acid, alkali, solvent resistant		
			self-priming, maintenance free		
	Dosing		Adjustable flow rate		
2	Pumps		Variable flow rates	5	
	Lumps	Flow Parameters	maximum flow rate to be		
			between 75-200 ml/min		
			10 feet or more Acid, alkali	1	
		Tubing	and solvent resistant tube		
		_	with all requisite connectors		
		Installation	Complete onsite installation		

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		Warranty & Others	12 Months or more from the date of installation		
			(parts and service)		
		Type	Upright Type		
		Chemical	Yes		
		resistance			
		Variable	-8 (or higher) to -25 (or		
		temperature	lower)	02	
		range (°C)		-	
		Exterior Material	Steel		
	20.00	Effective capacity	300 L or higher		
3	-20 °C	Display	Digital display		
	Freezer	temperature	g		
		Voltage Stabilizer	As recommended by OEM	02	
		Installation	Complete onsite installation		
			• 12 Months or more from		
			the date of installation		
		Warranty	(parts and service)		
			• 5 years compressor		
			warranty		
		Type	Upright Type		
		Chemical	Yes		
		resistance			
	-20 °C Freezer	Temperature	-20 or lower		
		required		03	
		<b>Exterior Material</b>			
		<b>Effective capacity</b>	300 L or higher		
		Display	Digital display		
3.1		temperature			
		Voltage	As recommended by OEM	03	
		Stabilizer			
		Installation	Complete onsite installation		
			• 12 Months or more from		
		XX/	the date of installation		
		Warranty	(parts and service)		
			• 5 years compressor		
		+	Warranty		
		Purpose of the	Vacuum pump for routine laboratory work with		
		Vacuum pump	Vacuum/pressure gauge		
		Constant			
	Vacuum	Construction	Oil Free Vacuum Pump		
4	Pump	Vacuum attainable	60 torr or higher	03	
	1 ump	Installation	Complete onsite installation		
			12 Months or more from		
		Warranty &	the date of installation		
		Others	(parts and service)		
			A 3D Camera/Scanner for		
	2D		scanning of objects as 3D		
5	3D	Purpose	feed models for 3D printers,	01	
	Camera	•	with USB supported		
			interface		

	I	T 6	40350	Т	CUI-LHR-PUR-Tender-001
		Camera resolution	1.3 MP or higher		
		Scanning Volume	100 mm (or higher) * 100 mm (or higher) * 75 mm (or higher)		
		Accuracy	15 μm or better		
		Interface	USB 3.0		
		Output format	Must include .obj, .stl,		
		•	For image acquisition and		
		Software	analysis		
			Core i5 or better, licensed		
			windows 10, 16GB RAM,		
			500 GB or higher SSD		
			hard-disk, Dedicated		
		Computer	Graphics card 2 GB or	01	
			higher (must be compatible		
			with the 3D Scanner), with		
			power backup (UPS)		
			Scanner stand, bracket,		
		Accessories	turntable, requisite cables		
		Accessories	and all accessories which	-	
			are essential		
		Installation	Complete onsite installation		
			12 Months or more from		
		Warranty	the date of installation		
			(parts and service)		
			Syringe pump for		
			Fabrication of electrospun		
	Syringe	Purpose	matts and electrospraying		
			of solutions for specifically		
			biomedical applications		
			single channel syringe		
		Conoral fort	pumps for electrospinning,		
		General features	able to work under high		
			voltages (up to 50kv) with digital display		
			Channels		
			Single channel pumps with	03	
		umps	controllable flow rate. May		
			have ability to load multi		
6			syringes		
	Pumps		Working temperature		
		Syringe pump	5-40 °C (or better range)		
			Pumping rate		
			Digitally controlled variable		
			pumping rate		
			Pump rate accuracy : +/-		
			2%		
			Needle sets	03 or	
		Accessories	11 g to 27 g	more	
			Compatible with machine		
		computer	for data logging with 24	03	
		1	inch or bigger screen		
		Installation &	Complete onsite installation		
	<u>                                     </u>	training	and training		
	L	u aimiig	and training		

			1		CUI-LHR-PUR-Tender-001
		Warranty	12 Months or more from the date of installation (parts and service)		
		Purpose	Syringe pump for Fabrication of electrospun matts and electrospraying of solutions for specifically biomedical applications		
		General features	Two channel syringe pumps for electrospinning, able to work under high voltages (up to 50kv) with digital display		
6.1	Syringe pump	yringe Syringe pump wo wo s-4 Pun Dig pun	Channels Two-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. Working temperature 5-40 °C (or better range) Pumping rate Digitally controlled variable pumping rate Pump rate accuracy: +/-	01	
		Accessories	2% Needle sets 11 g to 27 g	01	
		Computer	coaxial needle set Compatible with machine for data logging with 24 inch or bigger screen	01	
		Installation & training	Complete onsite installation and training		
		Warranty	12 Months or more from the date of installation (parts and service)		
	Flow Pumps	General features	<ul> <li>Type: Peristaltic</li> <li>Variable-Speed</li> <li>Graphical LCD display</li> <li>Reversible motor with on/off/reverse possibility</li> </ul>		
7		Key Components	Complete Digital system Containing:  Variable-Speed Pump drive  Multiple pump heads  Tubing  Pump head Mounting Hardware	01	
		Pump Drive and Head	Variable-Speed Digital Drive with pump head	1	

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			having flow rate range 5 ml/min (or lower) to		
			2800ml/min: (or higher)		
		<b>Speed Resolution</b>	01 rpm		
		Speed Resolution	Provide Flow rate 1 or		
			lower to 450 ml/min or	1	
		Flow Tubing Set	higher		
		(20-25 feet	Provide Flow rate 50 or		
		length)	lower to 2000ml/min or	1	
			higher	•	
		Installation	Complete onsite installation		
		Instanation	12 Months or more from		
		Warranty &	the date of installation		
		Others	(parts and service)		
			■ Type: Peristaltic		
			<ul><li>Variable-Speed</li></ul>		
		General features	Graphical LCD display		
			<ul> <li>Reversible motor with</li> </ul>		
			on/off/reverse possibility		
			on/on/reverse possibility		
			Complete Digital system		
			Complete Digital system  Containing:	1	
			■ Variable-Speed Pump		
			• •		
		<b>Key Components</b>	drive		
		Rey Components	<ul><li>Multiple pump heads</li></ul>		
			■ Tubing		
			<ul><li>Pump head Mounting</li></ul>		
			Hardware		
			Variable-Speed Digital		
		Pump drive and	Drive with pump head		
	Flow Pumps	head	having flow rate range 1	1	
7.1		licau	ml/min (or lower) to		
			480ml/min or higher		
		Speed resolution	0.1 rpm		
		~peca resolution			
			• Provide Flow rate 10 or		
			lower to 200 ml/min or		
			better	20.25	
		Flow Tubing	• Can bear pressure	20-25 feet	
			minimum 2 bar or higher	each	
				cacii	
			Provide Flow rate 0.5 or		
			lower to 150 ml/min or		
			higher		
		Installation	Complete onsite installation		
			12 Months or more from the		
		Warranty &	date of installation (parts		
		Others	and service)		
<u></u>	l		and service)		

	T			1	CUI-LHR-PUR-Tender-001
8	Safety Cabinet	Purpose  Class Type Internal size (mm)  Filter  control  Chamber Materials  Window  Other features	CE certified Total exhaust cabinets for work with toxic chemicals and infectious agents  II  B2  Width =1100 or more Depth =550 or more Height = 550 or more HEPA/ULPA  Graphical LCD display  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	03	
		UPS backup	As recommended by OEM	03	
		Installation & training	Complete onsite installation and training		
		Warranty & Others	12 Months or more from the date of installation (parts and service)		
	Blue LED Lights	Purpose	Curing of dental composites using LED UV irradiation		
		General features	<ul> <li>Rechargeable</li> <li>Wireless useability</li> <li>Base-charger with hand piece holder</li> </ul>	03	
9		Wavelength (nm)	Any value between (380-520)		
9		Power	1250 mW/cm² or better		
		Accessories	extra tips	06	
		11000501105	extra battery	03	
		Warranty	12 Months or more from the date of installation (parts and service)		

Purpose of the LED Spot Curing System  General features  UV light system for spot curing having four independent channels  • 365 nm • 385 nm • 395 nm • 405 nm  Spot Size  Som (or less) to 15 mm (or more)  UV Intensity (variable)  Display  Digital display for operations  Radiometer and calibration kit Accessories  Protective gear  Extra set of LED head (01 each)  Installation & Training  Installation & Training  Warranty  Purpose  P					1	CUI-LHR-PUR-Tender-001
General features   Curing having four independent channels			LED Spot Curing	UV spot curing		
9.1 Blue LED Curing Unit  Blue LED Curing Unit  Blue LED Curing Unit  Blue LED Curing Unit  Display  Digital display for operations  Radiometer and calibration kit Protective gear Extra set of LED head (01 each)  Installation & Training  Installation all standard accessories with onsite training  Warranty  Display  Complete installation and all standard accessories with onsite training  Purpose			General features	curing having four independent channels		
Spot Size   Spot			LED Heads	<ul><li>385 nm</li><li>395 nm</li></ul>		
9.1 Curing Unit    Display   Digital display for operations   Radiometer and calibration kit		Di IID	Spot Size	5 mm (or less) to		
Display  Digital display for operations  Radiometer and calibration kit  Accessories  Protective gear Extra set of LED head (01 each)  Installation & Complete installation and all standard accessories with onsite training  12 months or more from the date of installation (parts and service)  High speed mixer is proposed to blend and grind a range of materials (ceramics, polymer etc)  Motor  70 Watts (or more)  Adjustable speeds  0-6000 rpm (or more)  Capacity  Other features  automatic shutoff	9.1	Curing		· · · · · · · · · · · · · · · · · · ·	01	
Accessories   Extra set of LED head (01 each)		Unit	Display	operations		
Extra set of LED head (01 each)  Installation & Complete installation and all standard accessories with onsite training  12 months or more from the date of installation (parts and service)  High speed mixer is proposed to blend and grind a range of materials (ceramics, polymer etc)  Motor 70 Watts (or more)  Adjustable speeds 0-6000 rpm (or more)  Capacity 0.5 L (or less) to 5 L (or more)  Other features automatic shutoff				kit		
Installation & Complete installation and all standard accessories with onsite training  12 months or more from the date of installation (parts and service)  High speed mixer is proposed to blend and grind a range of materials (ceramics, polymer etc)  Motor 70 Watts (or more)  Adjustable speeds 0-6000 rpm (or more)  Capacity 0.5 L (or less) to 5 L (or more)  Other features automatic shutoff			Accessories	Extra set of LED head (01		
With onsite training  12 months or more from the date of installation (parts and service)  High speed mixer is proposed to blend and grind a range of materials (ceramics, polymer etc)  Motor 70 Watts (or more)  Adjustable speeds  Capacity 0.5 L (or less) to 5 L (or more)  Other features automatic shutoff				Complete installation and all standard accessories		
Purpose  High speed mixer is proposed to blend and grind a range of materials (ceramics, polymer etc)  Motor  70 Watts (or more)  Adjustable speeds  0-6000 rpm (or more)  Capacity  Other features  automatic shutoff				12 months or more from the date of installation (parts		
Motor 70 Watts (or more)  Adjustable 9-6000 rpm (or more)  Capacity 0.5 L (or less) to 5 L (or more)  Other features automatic shutoff			Purpose	High speed mixer is proposed to blend and grind a range of materials		
Adjustable speeds  0-6000 rpm (or more)  Capacity  Other features  Other features  automatic shutoff			Motor		-	
Capacity  O.5 L (or less) to 5 L (or more)  Other features  automatic shutoff			Adjustable	, ,		
High				` ′ ′ ` `		
assambly for 0.5 I for		High	Other features			
10 Speed mixer Assemblies lower) to 1L (or more) 01 assembly for 2 L (or lower)	10	Speed		assembly for 2 L (or lower)	01	
(stainless steel) to 3 L (or more)  Assembly for 4 l (or lower)			(stainless steel)	Assembly for 4 l (or lower)		
to 5 L (or more)  Emulsification Shear Stator  Accessories  Emergency stop button with timer			Accessories	Emulsification Shear Stator Emergency stop button with		
Installation & Installation and on-site			Installation &			
training training						
Warranty and  12 Months or more from the date of installation			Warranty and	12 Months or more from		
Others (parts and service)			Others			

	1	T	Ι	ı	CUI-LHR-PUR-Tender-001
		Purpose	Precision cutting machine for cutting of metals,		
			ceramic and polymers.		
			The unit is capable of		
			precision cutting of samples		
			under gravity (manual cut		
			off). Equipped with		
			replaceable wearing plates including all the necessary		
			clamping devices, cut off		
			liquid and user manuals.		
			Cutting Capacity: minimum	01	
			dia 25 mm with x-axis	V1	
		Cutter features	adjustment of minimum 25		
			mm		
			working wheel		
			(replaceable): upto150 mm		
			(or higher)		
			Vertical movement: Sample		
			movement through Gravity		
			Variable Speed: minimum		
			300 rpm (or lower) to 1000		
	Precision Cutting Machine		rpm (or higher)		
			Sample vise universal	2	
		Accessories	Set of flanges	1	
			Oil for precision cutting		
			(litre)	5	
11			Diamond Cutt off		
			wheels:Dia150 x thickness	4 1	
			0.40 mm	1 pack	
			05 blades in one pack		
			Automated Hydraulic press		
		Sample mounting press	for mounting of cutting		
			samples with digital control		
			for heating time, molding		
			temperature, ramp control		
			and start & stop cycle		
			programming		
			• Temperature 200°C (or	01	
			higher)		
			Adjustable Heating and		
			Colling time		
			• Pressure 250 bar (or		
			higher)		
			- Any two Mold sizes in		
		Darwar I1	between 25-50mm		
		Power backup	As assessment of the OEM	01	
		with additional	As recommended by OEM	01	
		Servo Stabilizer			
		Installation &	Complete onsite installation		
		training	and training		
		Warranty &	12 Months or more from the		
		Others	date of installation (parts		
			and service)		

	Т				CUI-LHR-PUR-Tender-001
			A dental handpiece is a		
			hand-held, a mechanical		
			instrument used to perform		
		Purpose	a variety of common dental		
			procedures, oral surgery		
			and altering prostheses		
				1	
			1:1 straight	-	
			Titanium body or better		
	Bone	Body	quality		
12	Hand		Clean Head System	01	
12	piece		Autoclavable up to 120°C	01	
	straight	Application	For Bone or oral Surgery		
	, <b>.</b>	Rotation	Up to 40000 RPM or more	]	
		Features	External Irrigation	1	
			50 mm or adequate for	1	
		Extra-Long burs	microsurgery		
		Installation	Complete onsite installation	-	
		Installation	12 Months or more from	1	
		***			
		Warranty	the date of installation		
		-	(parts and service)		
		Purpose	A complete dental unit for		
	Dental		dental patient treatment		
			Computer control		
			motorized chair.		
			One touch pre-set memory		
			One touch zero return		
			system.		
		Dental Chair	Multicontrol Foot switch	1	
			for chair.	01	
			Up/down and back/forward		
			movements		
			Double articulating Head		
			rest adjustable for neck		
			positioning		
			Emergency stoppage switch		
			Air cylinder stable to stand		
13			any position.		
	Chair		3 hand pieces		
			Individual air pressure		
		Tray	controls		
			One 3-way syringe for		
			doctor with quick		
			disconnect tip for autoclave.		
			X-Ray Viewer		
			Water flow control		
			Single Unit Porcelain		
			Spittoon and Cup filler		
			removable and		
			autoclaveable		
		Cuaniday II:4	-Rotatable assistant Arm	1 1	
		Cuspidor Unit		1 1	
			III al value		
			High volume evacuator (air		
			operated)		

		T	T	1	CUI-LHK-PUK-Tender-001
		Junction Box	Air and Water supply lines with filters		
		Suction Machine	Suction motor rotation speed: 3000 rpm or higher		
			Tips with holders	3	
		Ultrasonic Scalar Built-in Kit	Autoclaveable hand piece	1	
			Autoclavable complete kit	1	
			High speed air turbine (Push Type 4 hole)	1	
		Air Turbine	Low speed air turbine with Contra angle hand piece attachment (key type 4 hole)	1	
		Installation & training	Complete onsite installation and training		
		Warranty	12 Months or more from the date of installation (parts and service)		
		vv ar r anty	<ul> <li>Oil free single stage</li> </ul>		
14	Compress	Purpose	compressor with air storage tank  suitable for high quality air demand for medical applications		
		Power	4kW (or higher)		
		Pressure	10 bar (or higher)	01	
		Receiver/air tank (litre)	270 (or higher)		
		pumping Capacity (litre)	350 (or higher)		
		Installation	Complete onsite installation		
		Warranty	12 Months or more from the date of installation (parts and service)		
	Crucible	General Features	<ul> <li>Purity Level: Pt ≥ 99.95%</li> <li>Volumetric Capacity: 5 mL</li> </ul>	01	
15		General Features	<ul> <li>Purity Level: Pt ≥ 99.95%</li> <li>Volumetric Capacity: 20 mL</li> </ul>	01	
		Quality	Purity certificate must be provided		

	T	1			CUI-LHR-PUR-Tender-001
		Purpose	Open Source printer for additive manufacturing of high-quality polymer and composite structures		
		build volume (cm)	22x15x15 or larger		
		<b>Dual extrusion</b>	Able to print with two different materials at a time		
		Layer Thickness (micron)	≤100		
		Build Platform	<ul> <li>Heated platform to temperature ≥ 100 °C</li> <li>Aluminum or glass materials</li> </ul>		
		Nozzle temperature	■ ≥180 °C		
		Filaments	<ul> <li>Filament needed – PLA,</li> <li>ABS, PCL (1 Kg each)</li> </ul>		
16	3D printer	Nozzel Diameter	0.3 to 0.5 (Any value in this	02	
	(FDM)	(mm)	<ul><li>range)</li><li>Can extrude filaments</li></ul>		
		Filament	from composites		
		extruder and	Should be compatible		
		winder	with the provided 3D printer		
		Softwares	• System supporting softwares		
		Comment	• should support STL files		
		Computer	Compatible with machine for data logging with 24		
			inch or bigger screen		
		Power back up	as recommended by OEM		
		T	for optimum operations		
		Installation &	Complete onsite installation		
		training Warranty	and training 12 Months or more from		
		vv arranty	the date of installation		
			(parts and service)		
			For amplification of DNA		
		Purpose	using polymerase chain reaction		
		Capacity	96-well x 0.2 ml tubes		
		Temp. Range	4°C (or below) to 99.9°C (or		
		, o	higher)		
	Thermal	Temp Accuracy Temperature	±0.5°C or better 3 or more		
17	cycler	Gradient zones	J of more	01	
		Display option	LCD display		
		Heating rate	Heating: 3.0°C /sec or more Cooling: 3.0°C /sec or more		
		Temperature	≤0.5°C		
		uniformity			
		Installation & training	Complete onsite installation and training		
	<u> </u>	u aming	anu u anning		

					CUI-LHR-PUR-Tender-001
		Warranty	12 Months or more warranty from the date of installation (Parts and services)		
		Liquid nitrogen supply tank	Tank made of stainless steel For safe supply and storage of liquid nitrogen		
		Capacity	100 Liters 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		
	T		Temperature Sensor		
18	Liquid nitrogen	Accessories	Pressure gauge	01	
	tank	Accessories	Liquid nitrogen level indicator		
			First Safety valve		
			Second Safety valve		
			Fill and withdraw valve		
			Solenoid valve		
			Pressure building valve		
		Installation & training	Complete onsite installation and training		
		Warranty & Others	12 Months or more from the date of installation (parts and service)		
		Liquid nitrogen tank for cell storage	CE certified Tank made of For safe storage of cells		
		Capacity	30 liters (or more)	01	
		Vial capacity (1.2-2 mL)	600 (or more)		
18.	Liquid	<b>Evaporation rate</b>	0.2 litres/ day (or lower)		
1	nitrogen tank		Vial rack	04	
			2 ml cryo-vial box	10	
		Accessories	1 ml cryo-vial box	10	
			0.5 ml cryo-vial box	5	
		Warranty & Others	12 Months or more from the date of installation (parts and service)		

	1	T	T			CUI-LHR-PUR-Tender-001
		Purpose	The laser syste capable of high laser marking non-metals) and cutting (soft magnetic capability to particle desired function achieved by a	h accuracy (metals & nd laser naterials). The erform on can be		COI-LIIR-I OR-Telluct-uul
			or two indeper			
			meeting the sp			
			Laser power	150 (or		
			(W)	higher)		
			Laser source	CO <sub>2</sub>		
			Laser focus	Auto		
			Working	1300 (or		
			area (mm x	higher) x900		
			mm) Position	(or higher) ±0.05 mm or	-	
			accuracy	better		
			Smallest achievable	1x1 mm (or		
	CNC	Laser Cutting	feature	lower)		
19	Laser Cutting Machine		Connectivity	Computer with software and 24 inch or better	01	
	(With additional			Screen Canal duam		
	laser			Corel draw, Autocad,		
	marking		Supporting	photoshop		
	requiremen		graphic	and other		
	t)		formats	widely used		
				standard		
				formats		
			Laser Power (W)	50 or better		
			Laster Type	Fiber		
			Marking	0.1 (or		
			depth (mm)	higher)		
			Working	100 x 100		
			Area (mm) Working	(or higher)	-	
		Laser Marking	Working accuracy (mm)	0.01 or better	01	
		Laser warking	Smallest achievable	0.2 or better	U1	
			feature (mm)			
			Operation	Computer with software and 24 inch or better		
				screen		

	T		1	1		CUI-LHR-PUR-Tender-001				
				Corel draw,						
				Autocad,						
			Supporting	photoshop						
			graphic	and other						
			formats	widely used						
			Torings	standard						
				formats						
			G '4 11							
			Suitable powe							
			the system. In							
		Power backup	separate syste							
			provided then	two separate						
			backups are r	equired						
		Installation &	Complete onsi	te installation						
		training	and training							
		v. wg	12 Months or	more from						
		XX7 4 0								
		Warranty &	the date of ins							
		Others	(parts and ser	vice)						
			The laser syste	em should be						
		Purpose	capable of hig							
		1	laser cutting.	<b>J</b>						
			Laser power	150 (or						
				`						
			(W)	higher)						
			Laser source	CO <sub>2</sub>						
			Laser focus	Auto						
			Wayling	1200 (22						
			Working	1300 (or						
			area (mm x	higher) x900						
			mm)	(or higher)						
			Position	±0.05 mm or						
							accuracy	better		
	CNC		Smallest	1v1 mm (on						
	Laser		achievable	1x1 mm (or						
			feature	lower)						
	Cutting	Laser Cutting		Computer	01					
	Machine			with						
19.				software						
1	(Without		Connectivity							
1	additional			and 24 inch						
	laser			or better						
	marking			screen						
	requiremen			Corel draw,						
	_			Autocad,						
	t)		Supporting	photoshop						
			graphic	and other						
			formats	widely used						
			101 IIIats	standard						
				formats						
		Power backup	As recommend	ded by OEM						
		Installation &	Complete onsi	te installation						
		training	and training							
	1		12 Months or	more from						
		Wannante								
		Warranty &	the date of ins							
		Others	(parts and ser	vice)						
1										

					CUI-LHR-PUR-Tender-001
20	Drill Machine	Drilling capacity in mild steel Drill stoke Power in put Installation & training Warranty & Others	<ul> <li>Benchtop Drill machine with digital system to read drilling speed and depth</li> <li>Keyless precision chuck</li> <li>Adjustable speed (RPM)</li> <li>Adjustable drilling height</li> <li>Multi gear</li> <li>Laser pointing system for precision drilling</li> <li>13 mm (or higher)</li> <li>90 mm or better</li> <li>700 Watt (or higher)</li> <li>Complete onsite installation and training</li> <li>Months or more from the date of installation (parts and service)</li> </ul>	01	
		Bench grinder	<ul> <li>eye shields, spark deflectors, tool rests, adjusting wrench</li> <li>Overload Protection</li> <li>Tool-Free Adjustable Guard</li> <li>3/4 hp induction motor or higher power</li> <li>3,600 rpm or higher</li> <li>wheel guards</li> <li>12 inch or more distance between wheels for larger and longer grinding applications</li> </ul>	01	
		Accessories	Grinding wheel coarse (40-60 grit)	01	
21	Centrifuga l Grinder	ACCESSULIES	Grinding wheel fine (100- 150 grit)	01	
		Angle grinder	General features  Power: 800 watts (or above)  Cutting Wheel Size: 100 mm or equivalent  Speed: 10,000 rpm (or higher)  Cable length: 2 meter (or more)  Body Grip tool for firm hold  Lock on switch for continuous use  Complete with all accessories  Complete onsite installation	01	
			Complete ousite installation		

					CUI-LHR-PUR-Tender-001
		Warranty and others	12 months or more from the date of installation (parts and services)		
		General Features	Multi-purpose  Manual/Stick  TIG  Should be able to weld Stainless Steel, Steel, Aluminum  Display screen		
		Stick Welding Output TIG Welding	180 A (230 V) @ 25% duty cycle or better  180 A (230 V) @ 30% duty		
22	Arc welder	Output  Accessories	cycle or better  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 Installation &	IP21S or better  Complete onsite installation		
		training Warranty & Others	and training  12 Months or more from the date of installation (parts and services)		
23	Manual & Power Tool and Consumab les	Workstations	6 feet or more length of Workstation for tool storage and tabletop for day to day work 30,000 cu. inch or more capacity load 2 feet 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.  Powdered coated Steel Body Thick 18 Gauge or better Auto Return Drawers	01	
		Mixed Tool SET	<ul> <li>400 or more pieces</li> <li>Blow molded durable carry case</li> <li>Meets or exceeds ANSI specifications</li> </ul>	1 complet e set	

					CUI-LHR-PUR-Tender-001
			Chrome-molybdenum     steel eccepting to SAE		
			steel according to SAE and MM standards		
			Should include but not		
			necessarily be limited to;		
			<ul><li>Utility Knife,</li></ul>		
			• 5m/16ft Tape Measure		
			• Screw drivers (different		
			types)		
			<ul> <li>Adjustable Wrenches</li> </ul>		
			<ul><li>Hex. Key wrenches</li></ul>		
			<ul><li>Pipe Wrench</li></ul>		
			<ul><li>Pliers</li></ul>		
			<ul><li>Dr. Specialty bits,</li></ul>		
			sockets		
			• Hammers		
			Extension Bar		
			18v Brushless 3/8 in. drill	01	
			<ul><li>and impact driver</li><li>High speed transmission</li></ul>		
			with 2 or more speed		
			settings		
			<ul><li>With LED lights to</li></ul>		
			illuminate the work		
			surface		
		Brushless	<ul><li>Compact, lightweight</li></ul>		
		Cordless Drill &	design for tight spaces		
		Impact Driver	<ul><li>2 extra batteries for</li></ul>		
		Kit	drill as well as impact		
			driver & charger		
			<ul> <li>Wide range of drill bits</li> </ul>		
			(hard coated & wear		
			resistant)		
			12 Months or more		
			warranty from the date of installation (parts and		
			services)		
			Integrated lithium ion		
			Battery		
			Torque: 1,220 in-lbs		
			Variable speed		
			2 extra Lithium Ion		
			Batteries		
			Charger		
			Power 36V		
		Brushless	Brad Point Drill &	01	
		Hammer drill	Masonry Bits (tungsten	V1	
			carbide tips)		
			Screws / Fasteners		
			HSS Drill Bits		
			Magnetic Bit Tip Holder		
			1" Bits, 2" Bits, 3-1/2" Bits		
			Nut drivers		
			Ratcheting Screwdriver		
1			Gauge		

	1	T		CUI-LHR-PUR-Tender-001
		Sockets		
		Socket Adaptor		
		Storage box		
		12 Months or more		
		warranty from the date of		
		installation (parts and		
		services)		
		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	3000rpm	01	
	Drill (Corded)	Single-sleeved chuck for	01	
		easy bit changes		
		Multi-position side handle		
		for ease of use		
		1/2 in. chuck to		
		accommodate larger bits		
		along with associated bits		
		12 Months or more		
		warranty from the date of		
		installation (parts and		
		services)		
		To cut through metal		
		• 15 A or more	0.1	
		14 in. (or more) Chop Saw	01	
		to cut		
	Chop Saw	12 Months or more		
		warranty from the date of		
		installation (parts and		
		services)		
		Jaw width 5-6-inch Jaw		
		with Swivel Base		
		Opening capacity 5 inch or		
		more		
		Throat depth 2 inches or		
		more		
		Captured safety jaw to	01	
		prevent slide from falling	UI	
	Multipurpose	out		
	Bench Vise	Fused steel handle		
		1 used steel named		
		Anvil incorporated		
		Integrated pipe jaws		
		12 Months or more		
		warranty from the date of		
		installation (parts and		
1	1	services)		

		1			CUI-LHR-PUR-Tender-001
		CAD/CAM/CAE software License	software suite for computer-aided design (CAD), computer-aided manufacturing (CAM), computer-aided engineering (CAE),  • Multiuser • Educational/startup/inc ubator	01	
			Design Module		
			Lathe/ Swiss Lathe module		
			Milling 3d module including 4 axis rotary		
			Art module		
			Wire EDM Module		
			ProDrill Module		
			True Shape Nesting Functionality		
	CAD licensed software	ensed	Rast2Vec Functionality	01	
			Router 3D Module		
24			Data translations (including but not limited to): ASCII, CADL, DWG, DXF, EPS, IGES, Inventor (IPT, IDW, IAM),		
			Key Creator (CKD), Parasolids, Rhino 3DM, SOLIDWORKS (SLDPRT, SLDASM, SLDDRW), SAT (ACIS Solids), Solid Edge (PAR & PSM), SpaceClaim (SCDOC), STEP, STL, VDA		
			Life time license		
		Computer	Workstation should be provided with specs to support aforementioned softwares. should include original windows with SSD hard disc, adequate graphics card and 24 inch screen	01	
		Installation & training	Complete onsite installation and training		
		8	Company having a track		
		Others	record of providing CAD/CAM solutions to		
			industries		

				Т	CUI-LHR-PUR-Tender-001
			This atmospheric plasma		
			spray system should be		
			capable of depositing		
			Hydroxyapatite and/or		
		Purpose	titanium coatings onto		
			biomedical implants		
			including total hip		
			replacement and total knee		
			replacement implants.		
			PLC unit to control all		
		Control Unit	process		
		Control Cint	<b>Communication Interface</b>		
			PC controlled terminal with		
		Operating	window 10 based graphical		
		Terminal	user interface in the form of		
			a software.		
			Power 50 KW or above		
		Plasma Gun	Compatible Plasma Gun		
			Current = upto 1000 A or		
			higher		
		Plasma Power	Continuous operation		
		Supply	power = 50 kW or higher	-	
			Ignition unit for plasma		
		) / O	system		
		Mass flow	Gases (x3)		
	Plasma	controller	Powder (x1)		
25	Spray Unit		Adequate controllers with	01	
	Spray Cint	ay Omt	builtin safety and pressure		
			tested cylinders with		
			certificates		
			Argon (2 stage regulator x1		
		Gas Regulators	and cylinder x2)		
		and cylinders	Hydrogen (2 stage regulator		
			x1 and cylinder x2)		
			Nitrogen (2 stage regulator		
			x1 and cylinder x2)		
			Helium (2 stage regulator		
			x1 and cylinder x2)		
		Powder Feeder			
			H2-h		
			High precision wear and		
			maintenance free powder		
		Powder feeder	feed system for all typical		
		unit	thermal spray powders		
			including powder flow		
			sensor and hosing suitable		
			to layout.		
		Powder Henner			
		Powder Hopper volume (litres)	2.5 (or more)		
		Other Features			
		Water Cooling	Compatible water cooling		
1		System	system		

	T	T .	1	Т	CUI-LHR-PUR-Tender-001
		Electrical Distributor including breakers and switches	Suitable breakers and power distribution cabinet and wiring.		
		Accessories	All requisite accessories to perform aforementioned functions as intended including gauges, valves, hosing, regulators, gas cylinders, computer system with software etc. must be included		
		Computer	As recommended by OEM with power backup and 24 inch screen		
		Powders (Coating grade)	<ul> <li>2 kilograms – Titanium powder</li> <li>2 kilograms – Hydroxyapatite powder</li> </ul>		
		Warranty and Company profile	12 months or more from date of installation (including service and parts) and technical support from local company and OEM for coatings development and troubleshooting.  OEM should have experience of developing hydroxyapatite coatings on metal implants		
		Installation and training	Complete on-site installation, demonstration and training (multiple runs) of quality-adherent hydroxyapatite coatings on metals		
		Purpose	Electrochemical Power supply for anodizing of biomedical implants		
		General features	Programmable electrochemical power supply Constant Voltage mode		
26	Electroche mical Power supply with tank	Modes	Constant Voltage mode (Max Load regulation = 0.02% of voltage)  Constant Current Mode (Max Load regulation = 0.02% of current)	01	
		Output voltages (V)	Minimum = 0  Maximum = 200 (or higher)  Readback Accuracy 0.07 % or better  Resolution 0.015 % or better		

		O4 4	Minimum	1	CUI-LHR-PUR-Tender-001
		Output current	Minimum = 0		
		(A)	Maximum = 15 (or higher)		
		Power (kW)	5 or better		
		Display	Digital display for different		
		2 is plany	information		
			Acid and temperature		
		Accessories	resistant tanks suitable for	04	
			anodization		
		UPS (online with dry batteries)	As recommended by OEM	01	
			AS recommended by OEM		
		Computer	with power backup and 24	01	
			inch screen		
		Installation and	Onsite installation and		
		Training	training		
			12 months or more from the		
		Warranty	date of installation (parts		
			and services)		
		Purpose	To pack medical devices		
			• Seal Lengths: 8, 11, 16		
			inches or better		
		<b>Seal Dimensions</b>	• Seal Widths: 1/4, 3/8		
			inches		
			or higher		
			Vacuum pressure upto		
			26 in Hg standards or		
	Vacuum	Vacuum and flow	better		
	Packing		• suction flow 1.3 SCFM or		
27	Unit		better	01	
	Cint	Materials used	Stainless Steel Enclosure		
		Operating mode	5 or more Selectable modes		
		Display	Digital		
		UPS backup	As recommended by OEM		
		Ingtall-4' 0	Complete		
		Installation &	Complete onsite installation		
		training	and training		
		Warranty &	12 Months from the date of		
		Others	installation (parts and		
			service) Surgical light source to		
			illuminate the Operating		
			area. Facilitation in surgical		
		Purpose	procedures for animal		
		1 ui posc	trials. Compact exam light		
			for surgical procedures on	02	
	Surgical		experimental animals.		
28	light for	Light source	LED		
-0	OT	Light intensity	≥ 80,000 LUX		
		Features Features	Adjustable height		
		accessories	Spare Bulb	02	
		Installation	Complete onsite installation		
			12 Months or more from		
		Warranty	the date of installation		
			(parts and Service)		
	l	I .	1 11		

					CUI-LHR-PUR-Tender-001
		Purpose	Operating Table for surgical procedures on small and medium sized animals. Made of Stainless steel. Imported or Locally manufactured		
		Tabletop dimensions (inch)	50 x 24 or higher.		
		Adjustable Height	Table height Hydraulically adjustable		
29	Operating Table	Heated Top	Durable stainless steel tabletop with electronic heating system or Or Heating pad should be provided	02	
		Drain hole	Built-in drain hole at the table top		
		Load capacity	120 kg or more		
		Warranty	12 Months or more from the date of installation (parts and Service)		
	Low-Flow Anesthesia System	Purpose	Anesthesia system for delivery of anesthetic to prepare small animals for surgical procedures.		
		Tidal volume	25 ml or less 1L or more		
		Number of animals	Single or multi		
30		Working pressure	0.3 MPa	02	
		Oxygen flush	30 L/min or more		
		Accessories	All the required hardware and connections included in the system		
		Warranty	12 Months or more from the date of installation (parts and Service)		
31	Trolley with inbuilt Rabbit cages	Trolleys	Mild steel with powder coating (Blue color)  made up of angle 20mm x 20mm  Gauge Thickness 16 Swg  Four castor wheels of size 4 inches must be provided.  Each trolley must can accommodate 03 rabbit cages each size of 600mm x 450mm x 450 mm  Trolley must have feature	08 trolleys	
	<u> </u>	<u> </u>	of attaching the second	1	

					CUI-LHK-PUK-Tender-001
			trolley by special type of		
			locking system provided.		
			These add on can be		
			continued till N numbers		
			the user wishes		
			Cages size: 600mm x	24	
			450mm x 450 mm (LXBXH)	cages	
			Made of S.S 304 material		
			with duly spot welded and		
			finished joints		
			AISI 304 quality stainless		
			steel material		
			Fitted with tag holder		
			Gap between S.S mesh with		
			7mm spacing		
			Design to ensure perfect fit		
			and locking throughout the		
			Complete cage body		
			Cage door has a fixed label		
			holder and arrangement for		
			food hopper and fixing		
		D-LL4 C	water bottle.		
		Rabbit Cages	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 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.		
			Water Bottles		
			Polypropylene water bottle	24	
		Bottles	of capacity 650ml fitted S.S	Bottles	
			bent type nozzle	Dotties	
		General Feature	Rodent face masks made		
		General Peature	from clear acrylic to		
			anesthetize or resuscitate		
			the rodents.		
	Anesthesia	Sizo			
22	Mask/Brea	Size	Large anesthesia mask with		
32	thing		co-axial non-rebreathing	04	
	Circuit		system		
	Circuit		44mm diameter		
			38mm deep		
				. 1	
		Diaphragm	Includes extra diaphragm		

					CUI-LHK-PUK-Tender-001
		Purpose	Microscope for observing and recording images of surfaces and microstructures of metals and ceramics		
		General features	Inverted microscope with following observation methods  • Bright field  • Dark field  • Differential Interference Contrast  • Polarized Light	01	
			4x or 5x	01	
		Objectives	10x	01	
		compatible for all	20x	01	
		optical options	50 x or 60x	01	
		optical options	100x	01	
		E D:			
		Eye Piece	10 × zoom	01 set	
		111	15x or higher	01 set	
		Illumination	LED	02	
		Stages	Right-handed stage with		
			Vernier calibration		
		Condenser	Universal		
33	Inverted Microscop e	Camera	Compatible with microscope having 5 megapixels or better  CCD based sensor for		
			detection of high-quality images Sensor size =1 inch or better		
			Recordable pixels All pixels = 2748 x 2200 or better	01	
			Live display mode = All pixels (2748 x 2200)@ 7.5		
			fps or better Exposure time 0.06 msec to 1000 sec or better		
			Interface: USB 3.0 (connect with PC) with software		
		Computer system with software for live imaging	As recommended by OEM with 24 inch or higher screen with UPS	01	
		Computer system with software for post image processing	As recommended by OEM with 24 inch or higher screen with UPS	01	
		Installation & training	Complete onsite installation and training		
		Power Backup	As recommended by OEM with dry batteries		
			• 12 Months or more from		
		Warranty &	the date of installation		
				1	
		Others	(parts and service) with vendor having good local		

CUI-LHR	-PUR-T	ender-001
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			reputation with running machines and well-trained engineers  Proofs of trainings of company Personnel/engineers should be provided		
		Purpose	4+1 or pure 5 axis Capable of machining sophisticated parts including biomedical metallic implants Capable of machining 316L and Ti-6Al-4V materials Capable of producing bone fixation plates and hip stems should come with all suitable attachments and accessories With CE marked declaration	01	
		X/Y/Z travel in mm	350/300/250 or better		
	5 axis CNC	Rotary Table diameter (mm)	250 or better		
34	machining Center	Maximum weight on table (kg)	50 (or more)		
	(With tooled up	Tilting A-axis (degree)	+110/-20 or better range		
	package requireme nt)	Rotary C-axis (degree)	360		
	nt)	Controller	FANUC 0iM or equivalent or better		
		Main spindle speed (rpm)	10000 (or more)		
		tool length (mm)	250 (or better)		
		Tool fitting standards	BT40/DIN69871/CAT40/ HSK A63		
		Rapid Traverse X/Y/Z (m/min)	30/30/24 or better		
		Tool magazine and ATC (Nos)	24 or better		
		Maximum	A-axis (rpm) 25 or better		
		speed	C-axis (rpm) 25 or better		
		Position Accuracy (mm)	± 0.008		

1		T	CUI-LHR-PUR-Tender-001
Repeat Accuracy (mm)	± 0.006		
Lubrication	Auto lubrication with low lubrication fault		
	High pressure chip flush system	01	
	Chip Conveyor	01	
	Spindle oil cooler & Heat exchanger	01	
Standard Accessories	pressure coolant through spindle (20 bar or better)	01 set	
	Connectivity through ethernet, RS232 port		
	Lamp		
	cycle finish alarm		
Software and Programmer	Post processor for CAD to NC conversion and Machine definitions LCD display with USB port and PCMICA Card		
Voltage Stabilizer	As recommended by OEM		
Machine installation and implants trial production	Machine should be tooled up along with necessary tooling for manufacturing of bone plates and total hip replacement stems. Vendor must provide installation, commissioning, training which include trial manufacturing of basic parts at installation site in CUI, Lahore. Local company should have established setup and good reputation along with CNC operation, repair, installation/commissionin g staff trained by OEM (certificate required) Proof of facilities to handle troubleshooting of machine.		

	I	I		1	CUI-LHR-PUR-Tender-001
			2 end user certificates from satisfied customers in Pakistan must be provided		
		Warranty & Service	Warranty: Minimum period of 1 year including service and parts		
	5 axis CNC machining Center  (Without tooled up package	Purpose	4+1 or pure 5 axis Capable of machining sophisticated parts including biomedical metallic implants Capable of machining 316L and Ti-6Al-4V materials Capable of producing bone fixation plates and hip stems should come with all suitable attachments and accessories With CE marked declaration	01	
		X/Y/Z travel in mm	350/300/250 or better		
		Rotary Table diameter (mm)	250 or better		
34. 1		Maximum weight on table (kg)	50 (or more)		
		Tilting A-axis (degree)	+110/-20 or better range		
	requireme nt)	Rotary C-axis (degree)	360		
		Controller	FANUC 0iM or equivalent or better		
		Main spindle speed (rpm)	10000 (or more)		
		tool length (mm)	250 (or better)		
		Tool fitting standards	BT40/DIN69871/CAT40/ HSK A63		
		Rapid Traverse X/Y/Z (m/min)	30/30/24 or better		
		Tool magazine and ATC (Nos)	24 or better		
		Maximum speed	A-axis (rpm) 25 or better		
		- P	C-axis (rpm) 25 or better		

	T =	T	1	CUI-LHR-PUR-Tender-001
	Position Accuracy (mm)	± 0.008		
	Repeat Accuracy (mm)	± 0.006		
	Lubrication	Auto lubrication with low lubrication fault		
		High pressure chip flush system	01	
		Chip Conveyor	01	
		Spindle oil cooler & Heat exchanger	01	
	Standard Accessories	pressure coolant through spindle (20 bar or better)	01 set	
		Connectivity through ethernet, RS232 port		
		Lamp		
		cycle finish alarm		
	Software and Programmer	Post processor for CAD to NC conversion and Machine definitions LCD display with USB port and PCMICA Card		
	Voltage Stabilizer	As recommended by OEM		
	Machine installation and implants trial production	<ul> <li>Vendor must provide installation, commissioning, training which include trial manufacturing of basic parts at installation site in CUI, Lahore.</li> <li>Local company should have established setup and good reputation along with CNC operation, repair, installation/commissioning staff trained by OEM (certificate required)</li> <li>Proof of facilities to handle troubleshooting of machine.</li> <li>2 end user certificates from satisfied customers in Pakistan must be provided</li> </ul>		
	Warranty & Service	Warranty: Minimum period of 1 year		
Signatura & Stam		including service and parts		

#### **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. # 2, 9, 9.1, 12, 13, 14, 15, 18, 18.1, 20, 21, 22, 23, 28, 29, 30, 31, 32 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.

			totals and grand total will also		ected accord	ingly.			
allowe model	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			
Sr. #	Equipmen t Name	Required Specific	cations	<u>Otv</u>	Quoted Model / Brand / Make	Unit Price (Rs)	Total Price (Rs)		
		Purpose of analytical, industrial and Ultrasonic Bath medical applications, including intensive cleaning							
		Material	Stainless Steel						
		Frequency range (kHz)	Variable frequency	03					
		Timer	Must be present	03					
1	Ultrasonic	Temp. range (°C)	Up to 80 °C						
	Bath	Ultrasonic Power (W)	100 or higher						
		<b>Control Mode</b>	Digital						
		Capacity (L)	5 or more						
		Accessories	Basket	03					
			Cover	03					
		Installation	Complete onsite installation						
		Warranty	12 Months or more from the date of installation (parts and service)						
			Type: Diaphragm PTFE						
		General Requirements	All parts which come into liquid contact should be acid, alkali, solvent resistant						
		requirements	self-priming, maintenance free						
2	Dosing		Adjustable flow rate	05					
4	Pumps		Variable flow rates	05					
		Flow Parameters	maximum flow rate to be						
			between 75-200 ml/min						
			10 feet or more Acid, alkali						
		Tubing	and solvent resistant tube						

Installation

with all requisite connectors

**Complete onsite installation** 

					CUI-	LHK-PUK-T	enuer-oor
		Warranty &	12 Months or more from				
		Others	the date of installation				
			(parts and service)				
		Type	Upright Type				
		Chemical	Yes				
		resistance		]			
		Variable	-8 (or higher) to -25 (or				
		temperature	lower)	02			
		range (°C)		~			
		<b>Exterior Material</b>	Steel				
	0 -	Effective capacity	300 L or higher				
3	-20 °C	Display	Digital display				
	Freezer	temperature	2 1				
		Voltage	As recommended by OEM	02			
		Stabilizer					
		Installation	Complete onsite installation				
			• 12 Months or more from				
			the date of installation				
		Warranty	(parts and service)				
			• 5 years compressor				
			warranty				
		Type	Upright Type				
		Chemical	Yes				
		resistance	ies				
		Temperature	-20 or lower	]			
		required	-20 or lower				
		<b>Exterior Material</b>	Steel	03			
		Exterior Material	Steel				
		Effective capacity	300 L or higher				
	-20 °C	Display					
3.1	Freezer	temperature	Digital display				
	FICCZCI	Voltage					
		Stabilizer	As recommended by OEM	03			
		Installation	Complete onsite installation				
		Installation	-				
			• 12 Months or more from				
			the date of installation				
		Warranty	(parts and service)				
			• 5 years compressor				
			warranty				
		D 6.3	Vacuum pump for routine				
		Purpose of the	laboratory work with				
		Vacuum pump	Vacuum/pressure gauge				
			, ,				
	<b>X</b> 7	Construction	Oil Free Vacuum Pump				
4	Vacuum	Vacuum		03			
	Pump	attainable	60 torr or higher				
		Installation	Complete onsite installation	]			
		Installation					
		Warranty &	12 Months or more from				
		Others	the date of installation				
			(parts and service)				
5		Purpose	A 3D Camera/Scanner for scanning of objects as 3D	01			
	<u> </u>		scanning of objects as 3D				

	I	T	Ι		CUI-	LHR-PUR-T	enuer-vor
			feed models for 3D printers, with USB supported interface				
		Camera resolution	1.3 MP or higher				
		Scanning Volume	100 mm (or higher) * 100 mm (or higher) * 75 mm (or higher)				
		Accuracy	15 μm or better				
		Interface	USB 3.0				
		Output format	Must include .obj, .stl,	]			
		Software	For image acquisition and analysis				
	3D Camera	Computer	Core i5 or better, licensed windows 10, 16GB RAM, 500 GB or higher SSD hard-disk, Dedicated Graphics card 2 GB or higher (must be compatible with the 3D Scanner), with power backup (UPS)	01			
		Accessories	Scanner stand, bracket, turntable, requisite cables and all accessories which are essential	-			
		Installation	Complete onsite installation				
		Warranty	12 Months or more from the date of installation (parts and service)				
		Purpose	Syringe pump for Fabrication of electrospun matts and electrospraying of solutions for specifically biomedical applications				
		General features	single channel syringe pumps for electrospinning, able to work under high voltages (up to 50kv) with digital display				
6	Syringe Pumps		Channels Single channel pumps with controllable flow rate. May have ability to load multi syringes	03			
		Syringe pump	Working temperature 5-40 °C (or better range)				
			Pumping rate Digitally controlled variable pumping rate				
			Pump rate accuracy : +/- 2%				
		Accessories	Needle sets 11 g to 27 g	03 or more			

	Γ		T	ı	CUI	-LHR-PUR-TO	ender-uu1
			Compatible with machine				
		computer	for data logging with 24	03			
			inch or bigger screen				
		Installation &	Complete onsite installation				
		training	and training				
			12 Months or more from				
		Warranty	the date of installation				
			(parts and service)				
			Syringe pump for				
			Fabrication of electrospun				
		Purpose	matts and electrospraying				
		F 000	of solutions for specifically				
			biomedical applications				
			Two channel syringe pumps				
			for electrospinning, able to				
		General features	work under high voltages				
		General reacutes	(up to 50kv) with digital				
			, ,				
			display Channels				
			Two-channel pump: can be	0.1			
			controlled independently	01			
			for individual syringe Flow				
			rate, volume and time of				
			infusion can be controlled				
			precisely. Compatible to				
6.1	Syringe	Syringe pump	work under high voltage.				
0.1	pump		Working temperature				
	1 1		5-40 °C (or better range)				
			Pumping rate				
			Digitally controlled variable				
			pumping rate				
			Pump rate accuracy : +/-	1			
			2%				
			Needle sets				
		Accessories	11 g to 27 g	01			
		ACCUSSUI ICS	coaxial needle set	01			
			Compatible with machine	0.1			
		Commutar	1 -	Λ1			
		Computer	for data logging with 24	01			
		Ing4all-42 0	inch or bigger screen				
		Installation &	Complete onsite installation				
		training	and training				
		***	12 Months or more from				
		Warranty	the date of installation				
			(parts and service)				
			■ Type: Peristaltic				
			<ul> <li>Variable-Speed</li> </ul>				
		General features	Graphical LCD display				
			Reversible motor with				
	Flow						
7	Flow		on/off/reverse possibility	01			
	Pumps		Complete Digital system				
			Containing:				
		<b>Key Components</b>	<ul> <li>Variable-Speed Pump</li> </ul>				
			drive				
			<ul> <li>Multiple pump heads</li> </ul>				
			Transpie pump neuro				

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			<ul><li>Tubing</li><li>Pump head Mounting Hardware</li></ul>				
		Pump Drive and Head	Variable-Speed Digital Drive with pump head having flow rate range 5 ml/min (or lower) to 2800ml/min: (or higher)	1			
		<b>Speed Resolution</b>	01 rpm				
		Flow Tubing Set (20-25 feet	Provide Flow rate 1 or lower to 450 ml/min or higher	1			
		length)	Provide Flow rate 50 or lower to 2000ml/min or higher	1			
		Installation	Complete onsite installation				
		Warranty & Others	12 Months or more from the date of installation (parts and service)				
		General features	<ul> <li>Type: Peristaltic</li> <li>Variable-Speed</li> <li>Graphical LCD display</li> <li>Reversible motor with on/off/reverse possibility</li> </ul>				
		Key Components	Complete Digital system Containing:  Variable-Speed Pump drive  Multiple pump heads  Tubing  Pump head Mounting Hardware	1			
7.1	Flow Pumps	Pump drive and head	Variable-Speed Digital Drive with pump head having flow rate range 1 ml/min (or lower) to 480ml/min or higher	1			
		Speed resolution	0.1 rpm				
		Flow Tubing	Provide Flow rate 10 or lower to 200 ml/min or better     Can bear pressure minimum 2 bar or higher Provide Flow rate 0.5 or lower to 150 ml/min or higher	20- 25 feet each			
		Installation	Complete onsite installation				

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		Warranty & Others	12 Months or more from the date of installation (parts				
		Other 8	and service)				
			CE certified Total exhaust				
			cabinets for work with toxic				
		Purpose	chemicals and infectious				
			agents				
		Class	II				
		Type	B2				
			Width =1100 or more				
		Internal size	Depth =550 or more				
		(mm)	Height = 550 or more				
		Filter	HEPA/ULPA				
		1 HILEI					
			• Graphical LCD display				
			• on/off fan control with	03			
			adjustable air velocity	03			
			Working window				
0	Safety	control	control				
8	Cabinet		• LED lamp ON/OFF				
			• UV lamp ON/OFF				
			• Elapsed time counter				
			and alarm for HEPA				
			filter replacement				
		Chamber	Stainless Steel				
		Materials					
		Window	Tempered glass				
		Other features	<ul><li>Compatible trolley</li></ul>				
			■ UV light				
		UPS backup	As recommended by OEM	03			
		Installation &	Complete onsite installation				
		training	and training				
		Warranty &	12 Months or more from				
		Others	the date of installation				
		Julia	(parts and service)				
		Purpose	Curing of dental composites				
		Larpose	using LED UV irradiation				
			<ul> <li>Rechargeable</li> </ul>				
		General features	<ul> <li>Wireless useability</li> </ul>				
		Jones as reactines	<ul><li>Base-charger with hand</li></ul>	03			
			piece holder				
9	Blue LED	Wavelength (nm)	Any value between (380-				
9	Lights	9 , ,	520)				
	8	Power	1250 mW/cm <sup>2</sup> or better				
		A	extra tips	06			
		Accessories	extra battery	03			
			12 Months or more from				
		Warranty	the date of installation				
		, , and and y	(parts and service)				
		Purpose of the	(parts and service)				
		LED Spot Curing	UV spot curing				
	Blue LED	System System	o r spot caring				
9.1	Curing	General features	UV light system for spot	01			
	Unit	Julia italuits	curing having four				
			independent channels				
	l .		macpenaent channels			<u> </u>	

	Ι	T		1	COL	LHK-PUK-10	nuci-001
	(UV LCD	LED Heads	• 365 nm				
	Curing		• 385 nm				
	Unit)		• 395 nm				
			• 405 nm				
		Spot Size	5 mm (or less) to				
			15 mm (or more)				
		UV Intensity	Upto 13 W/cm2 or better				
		(variable)	_				
		Diamlary	Digital display for				
		Display	operations				
			Radiometer and calibration				
			kit				
		Accessories	Protective gear				
			Extra set of LED head (01				
			each)				
		Installation &	Complete installation and				
		Training	all standard accessories				
		11 aiiiiig	with onsite training				
			12 months or more from the				
		Warranty	date of installation (parts				
			and service)				
			High speed mixer is				
		Purpose	proposed to blend and				
		Turpose	grind a range of materials				
			(ceramics, polymer etc)	_			
		Motor	70 Watts (or more)	_			
		Adjustable speeds	0-6000 rpm (or more)				
		Capacity	0.5 L (or less) to 5 L (or more)				
		Other features	automatic shutoff	1			
	III:ab		assembly for 0.5 L (or	1			
10	High		lower) to 1L (or more)	01			
10	Speed	Assemblies	assembly for 2 L (or lower)	01			
	mixer	(stainless steel)	to 3 L (or more)				
			Assembly for 41 (or lower)				
			to 5 L (or more)				
			<b>Emulsification Shear Stator</b>				
		Accessories	<b>Emergency stop button with</b>				
			timer				
		Installation &	Installation and on-site				
		training	training				
		Warranty and	12 Months or more from				
		Others	the date of installation				
		Omers	(parts and service)				
			Precision cutting machine				
		Purpose	for cutting of metals,				
	D		ceramic and polymers.				
4.4	Precision		The unit is capable of				
11	Cutting		precision cutting of samples	01			
	Machine	Cutter features	under gravity (manual cut				
			off). Equipped with				
			replaceable wearing plates				
			including all the necessary				

	I	T	T .		 LIIK-I UK-I	11401-001
			clamping devices, cut off			
			liquid and user manuals.	-		
			Cutting Capacity: minimum			
			dia 25 mm with x-axis			
			adjustment of minimum 25			
			mm			
			working wheel			
			0			
			(replaceable): upto150 mm			
			(or higher)			
			Vertical movement: Sample			
			movement through Gravity			
			Variable Speed: minimum			
			300 rpm (or lower) to 1000			
			rpm (or higher)			
			Sample vise universal	2		
			Set of flanges	1		
			Oil for precision cutting	5		
		Accessories	(litre)	3		
		11CC35011C5	Diamond Cutt off			
			wheels:Dia150 x thickness	1		
			0.40 mm	pack		
			05 blades in one pack	Puch		
			Automated Hydraulic press			
			for mounting of cutting			
			samples with digital control			
			for heating time, molding			
			temperature, ramp control			
			and start & stop cycle			
			programming			
		Sample mounting	• Temperature 200°C (or	01		
		press		01		
		1	higher)			
			Adjustable Heating and			
			Colling time			
			• Pressure 250 bar (or			
			higher)			
			- Any two Mold sizes in			
			between 25-50mm			
		Power backup	NOTITE OF COMME			
		with additional	As macommonded by OEM	01		
			As recommended by OEM	O1		
		Servo Stabilizer				
		Installation &	Complete onsite installation			
		training	and training			
		Wannantra	12 Months or more from the			
		Warranty &	date of installation (parts			
		Others	and service)			
			A dental handpiece is a			
			hand-held, a mechanical			
			T			
		Purpose	instrument used to perform			
	Bone	•	a variety of common dental			
	Hand		procedures, oral surgery			
12			and altering prostheses	01		
	piece		1:1 straight	]		
	straight		Titanium body or better	1		
		Body	quality			
				1		
			Clean Head System			
1		mn of Diddon	<u> </u>	]		

	1	<u> </u>	T		CUI	I-LHK-PUK-T	enaer-001
			Autoclavable up to 120°C				
		Application	For Bone or oral Surgery				
		Rotation	Up to 40000 RPM or more				
		Features	External Irrigation				
		Extra-Long burs	50 mm or adequate for microsurgery				
		Installation	Complete onsite installation				
		Warranty	12 Months or more from the date of installation (parts and service)				
		Purpose	A complete dental unit for dental patient treatment				
			Computer control motorized chair.				
			One touch pre-set memory One touch zero return				
			system.				
			Multicontrol Foot switch for chair.	01			
		Dental Chair	Up/down and back/forward				
			movements				
			Double articulating Head				
			rest adjustable for neck positioning				
			Emergency stoppage switch				
			Air cylinder stable to stand				
			any position.				
			3 hand pieces				
	Dontal		Individual air pressure controls				
13	Dental Chair	Tray	One 3-way syringe for				
	Chan	liay	doctor with quick				
			disconnect tip for autoclave.				
			X-Ray Viewer				
			Water flow control				
			Single Unit Porcelain Spittoon and Cup filler				
			removable and				
			autoclaveable				
		Cuspidor Unit	-Rotatable assistant Arm	1			
			High volume evacuator (air				
			operated)				
			Water operated Saliva				
			ejector				
		<b>Junction Box</b>	Air and Water supply lines				
		Junction Dox	with filters				
		1	Suction motor rotation				
		<b>Suction Machine</b>		'			
		Suction Machine	speed: 3000 rpm or higher	2			
		Suction Machine Ultrasonic Scalar	speed: 3000 rpm or higher Tips with holders Autoclaveable hand piece	3			

					C01-	LHK-PUK-10	iluci-001
			High speed air turbine (Push Type 4 hole)	1			
		Air Turbine	Low speed air turbine with Contra angle hand piece attachment (key type 4 hole)	1			
		Installation & training	Complete onsite installation and training				
		Warranty	12 Months or more from the date of installation (parts and service)				
		Purpose	<ul> <li>Oil free single stage compressor with air storage tank</li> <li>suitable for high quality air demand for medical applications</li> </ul>				
		Power	4kW (or higher)				
14	Compress	Pressure	10 bar (or higher)	01			
14	or	Receiver/air tank (litre)	270 (or higher)	01			
		pumping Capacity (litre)	350 (or higher)				
		Installation	Complete onsite installation				
		Warranty	12 Months or more from the date of installation (parts and service)				
			<ul> <li>Purity Level: Pt ≥         99.95%</li> <li>Volumetric Capacity: 5         mL</li> </ul>	01			
15	Crucible	General Features	<ul> <li>Purity Level: Pt ≥         99.95%</li> <li>Volumetric Capacity: 20         mL</li> </ul>	01			
		Quality	Purity certificate must be provided				
		Purpose	Open Source printer for additive manufacturing of high-quality polymer and composite structures				
		build volume (cm)	22x15x15 or larger				
16	3D printer	Dual extrusion	Able to print with two different materials at a time	02			
	(FDM)	Layer Thickness (micron)	≤100				
		Build Platform	<ul> <li>Heated platform to temperature ≥ 100 °C</li> <li>Aluminum or glass materials</li> </ul>				
		Nozzle temperature	■ ≥180 °C				

		1	T		C 0 1	-LHK-PUK-I	chaci ooi
		Filaments	<ul> <li>Filament needed – PLA,</li> <li>ABS, PCL (1 Kg each)</li> </ul>				
		Nozzel Diameter	0.3 to 0.5 (Any value in this	-			
		(mm)	range)				
		()	• Can extrude filaments	1			
		Filament	from composites				
		extruder and	• Should be compatible				
		winder	with the provided 3D				
			printer				
			System supporting				
		Softwares	softwares				
		2010	• should support STL				
			files				
		Commutan	Compatible with machine				
		Computer	for data logging with 24 inch or bigger screen				
			as recommended by OEM	-			
		Power back up	for optimum operations				
		Installation &	Complete onsite installation	1			
		training	and training				
			12 Months or more from	]			
		Warranty	the date of installation				
			(parts and service)				
			For amplification of DNA				
		Purpose	using polymerase chain				
		C ''	reaction				
		Capacity	96-well x 0.2 ml tubes				
		Temp. Range	4°C (or below) to 99.9°C (or higher)				
		Temp Accuracy	±0.5°C or better	-			
		Temperature					
		Gradient zones	3 or more				
17	Thermal	Display option	LCD display	01			
	cycler	Heating rate	Heating: 3.0°C /sec or more	01			
			Cooling: 3.0°C /sec or more				
		Temperature	≤ <b>0.5</b> °C				
		uniformity Installation &	Complete ancite installation				
		training	Complete onsite installation and training				
		······································	12 Months or more	+			
		***	warranty from the date of				
		Warranty	installation (Parts and				
			services)				
		Liquid nitrogen	Tank made of stainless steel				
		supply tank	For safe supply and storage				
			of liquid nitrogen				
		Capacity	100 Liters or more	-			
	Liquid	Tanks rating	22 psi or better	-			
18	nitrogen		Cylinder hand truck with	01			
	tank		Cylinder hand truck with wheels				
		Accessories	4 ft. flexible braided	-			
		Accessories	stainless-steel transfer hose				
			or better				
			LN2 fill phase separator	1			
	1	-1	in phase separator	1		1	

	I	I		-		CUI	LHK-PUK-16	muci-001
			Temperature S					
			Pressure gauge					
			Liquid nitroger	n level				
			indicator					
			First Safety val					
			Second Safety					
			Fill and withdr	aw valve				
			Solenoid valve					
			Pressure buildi					
		Installation &	Complete onsit	e installation				
		training	and training					
		Warranty &	12 Months or n					
		Others	date of instal	lation (parts				
			and service)					
		Liquid nitrogen	CE certified Ta	ink made of				
		tank for cell	For safe storag					
		storage	_					
		Capacity	30 liters (or mo	ore)	01			
		Vial capacity	600 (or more)					
10	Liquid	(1.2-2 mL)	` ′					
18.	nitrogen	Evaporation rate	0.2 litres/ day (	or lower)				
1	tank		Vial rack		04			
	· ·	Accessories	2 ml cryo-vial h		10			
			1 ml cryo-vial b		10			
			0.5 ml cryo-via		5			
		Warranty &	12 Months or n					
		Others	the date of inst					
			(parts and serv					
			The laser system					
			capable of high	•				
			laser marking (					
			non-metals) an cutting (soft ma					
		Purpose	capability to pe	*				
			desired functio					
	CNC		achieved by a s					
	Laser		or two indepen					
	Cutting		meeting the spe					
	Machine		Laser power	150 (or				
	Wiacillic		(W)	higher)				
10	With		Laser source	CO <sub>2</sub>				
19	additional		Laser focus	Auto				
	laser		Working	1300 (or				
	marking		area (mm x	higher) x900				
	requiremen		mm)	(or higher)				
	t		Position	±0.05 mm or	01			
		Laser Cutting	accuracy	better	01			
			Smallest					
			achievable	1x1 mm (or				
			feature	lower)				
				Computer				
			Connectivity	with				
			Connectivity	software				
				and 24 inch				

	1			T	r	CUI-	LHR-PUR-T	ender-001
				or better screen Corel draw,				
			Supporting graphic formats	Autocad, photoshop and other widely used standard formats				
			Laser Power (W)	50 or better				
			Laster Type	Fiber				
			Marking	0.1 (or				
			depth (mm)	higher)	-			
			Working Area (mm)	100 x 100 (or higher)				
			Working accuracy	0.01 or better				
			(mm)					
		Laser Marking	Smallest achievable feature (mm)	0.2 or better	01			
		Laser Warking	Operation	Computer with software and 24 inch or better screen	O1			
			Supporting graphic formats	Corel draw, Autocad, photoshop and other widely used standard formats				
			Suitable powe	'				
		Power backup	the system. In separate system provided then backups are re	case two ms are two separate				
		Installation & training	Complete onsi					
			12 Months or	more from				
		Warranty & Others	the date of ins (parts and ser					
19.	CNC Laser	Purpose	The laser syste capable of high laser cutting.	h accuracy				
1	Cutting Machine	Laser Cutting	Laser power (W) Laser source	150 (or higher) CO <sub>2</sub>	01			
	(Without		Laser focus	Auto				

	1		1			CUI	LHR-PUR-TO	ender-oor
	additional		Working	1300 (or				
	laser		area (mm x	higher) x900				
	marking		mm)	(or higher)				
	requiremen		Position	±0.05 mm or				
	t)		accuracy	better				
			Smallest					
			achievable	1x1 mm (or				
			feature	lower)				
			Teature	Computer				
				with				
				software				
			Connectivity					
				and 24 inch				
				or better				
				screen				
				Corel draw,				
				Autocad,				
			Supporting	photoshop				
			graphic	and other				
			formats	widely used				
				standard				
				formats				
		Power backup	As recommen					
		Installation &	Complete onsi					
		training	and training	ite instanation				
		training	12 Months or	mana fuam				
		XX/ 4 0						
		Warranty &	the date of ins	tallation				
		Others	(parts and ser	vice)				
			with digita	Drill machine al system to ng speed and				
			<ul><li>depth</li><li>Keyless pr</li></ul>	ecision chuck				
		General Features		e speed (RPM)				
			Adjustable	e drilling				
			height					
			Multi gear					
20	Drill			iting system	01			
-0	Machine		for precisi	on drilling	01			
		Drilling capacity	12 ( h:-	I				
		in mild steel	13 mm (or hig	ner)				
		Drill stoke	90 mm or bett	er				
		Power in put	700 Watt (or l	nigher)				
		Installation &	Complete onsi					
		training	and training					
			12 Months or	more from				
		Warranty &	the date of ins					
		Others	(parts and ser					
			• eye shield					
				s, spark , tool rests,				
	Centrifuga		adjusting					
21		Bench grinder	•	Protection	01			
	l Grinder							
				Adjustable				
			Guard					

	I	T	T		CUI	LHR-PUR-T	CHUCI-001
		Accessories	<ul> <li>3/4 hp induction motor or higher power</li> <li>3,600 rpm or higher</li> <li>wheel guards</li> <li>12 inch or more distance between wheels for larger and longer grinding applications</li> <li>Grinding wheel coarse (40-60 grit)</li> <li>Grinding wheel fine (100-150 grit)</li> </ul>	01			
		Angle grinder	General features  Power: 800 watts (or above)  Cutting Wheel Size: 100 mm or equivalent  Speed: 10,000 rpm (or higher)  Cable length: 2 meter (or more)  Body Grip tool for firm hold  Lock on switch for continuous use  Complete with all accessories	01			
		Warranty and others	Complete onsite installation 12 months or more from the date of installation (parts				
		General Features Stick Welding	and services)  Multi-purpose  Manual/Stick  TIG  Should be able to weld Stainless Steel, Steel, Aluminum  Display screen  180 A (230 V) @ 25% duty cycle or better				
22	Arc	Output TIG Welding Output	180 A (230 V) @ 30% duty cycle or better	01			
	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)				
		Class of Protection	IP21S or better				

		T.			CUI	-LHK-PUK-I	chaci-001
		Installation & training	Complete onsite installation and training				
		Warranty & Others	12 Months or more from the date of installation				
		Others	(parts and services)				
			6 feet or more length of Workstation for tool				
			storage and tabletop for day to day work				
			30,000 cu. inch or more capacity load				
			2 feet or more professional				
			working depth				
			Workstation should be	1			
		XX7 1 4 4*	equipped with 15 or more,				
		Workstations	ball-bearing drawers that				
			hold up to 100 lbs. or above				
			with 200 lbs. or above				
			capacity in the deeper				
			drawers.				
			Powdered coated Steel				
			Body				
			• Thick 18 Gauge or				
			better				
			<b>Auto Return Drawers</b>				
			<ul><li>400 or more pieces</li></ul>				
			<ul><li>Blow molded durable</li></ul>				
	Manual &		carry case	1			
	Power Tool and		<ul><li>Meets or exceeds ANSI</li></ul>	com			
23			specifications	plete			
	Consumab		• Chrome-molybdenum	set			
	les		steel according to SAE				
	103		and MM standards Should include but not				
			necessarily be limited to;				
			<ul><li>Utility Knife,</li></ul>				
		Mixed Tool SET	• 5m/16ft Tape Measure				
			<ul> <li>Screw drivers (different</li> </ul>				
			types)				
			<ul> <li>Adjustable Wrenches</li> </ul>				
			<ul><li>Hex. Key wrenches</li></ul>				
			<ul><li>Pipe Wrench</li></ul>				
			<ul><li>Pliers</li></ul>				
			<ul><li>Dr. Specialty bits,</li></ul>				
			sockets				
			• Hammers				
			<ul><li>Extension Bar</li></ul>				
			18v Brushless 3/8 in. drill and impact driver	01			
		Brushless	<ul> <li>High speed transmission</li> </ul>				
		Cordless Drill &	with 2 or more speed				
		Impact Driver Kit	settings				
		IXIL	• With LED lights to				
			illuminate the work surface				
			Surface				

			CUI-	LHR-PUR-T	ender-001
	<ul> <li>Compact, lightweight design for tight spaces</li> <li>2 extra batteries for drill as well as impact driver &amp; charger</li> <li>Wide range of drill bits (hard coated &amp; wear resistant)</li> <li>Months or more warranty from the date of installation (parts and services)</li> <li>Integrated lithium ion Battery</li> </ul>		CUI-	LHK-PUK-16	ender-001
Brushless Hammer drill	Torque: 1,220 in-lbs Variable speed 2 extra Lithium Ion Batteries Charger Power 36V 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 Nut drivers Ratcheting Screwdriver Gauge Sockets Socket Adaptor Storage box 12 Months or more warranty from the date of installation (parts and	01			
Hammer Drill (Corded)	services)  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  3000rpm  Single-sleeved chuck for easy bit changes  Multi-position side handle for ease of use  1/2 in. chuck to accommodate larger bits along with associated bits	01			

	T		T	1	CUI	-LHK-PUK-T	chuci-001
			12 Months or more warranty from the date of installation (parts and services)				
		Chop Saw	<ul> <li>To cut through metal</li> <li>15 A or more</li> <li>14 in. (or more) Chop Saw to cut</li> </ul>	01			
		Chop Su.	12 Months or more warranty from the date of installation (parts and services)				
			Jaw width 5-6-inch Jaw with Swivel Base				
			Opening capacity 5 inch or more				
			Throat depth 2 inches or more				
		Multipurpose Bench Vise	Captured safety jaw to prevent slide from falling out	01			
		Denen Vise	Fused steel handle				
			Anvil incorporated				
			Integrated pipe jaws				
			12 Months or more warranty from the date of installation (parts and services)				
		CAD/CAM/CAE software License	software suite for computer-aided design (CAD), computer-aided manufacturing (CAM), computer-aided engineering (CAE),	01			
			<ul><li>Multiuser</li><li>Educational/startup/inc ubator</li></ul>				
24	CAD licensed software		Design Module Lathe/ Swiss Lathe module Milling 3d module including 4 axis rotary				
		CAM Machining software	Art module Wire EDM Module ProDrill Module True Shape Nesting	01			
			Functionality Rast2Vec Functionality Router 3D Module				
			Data translations (including but not limited to): ASCII,				

	I	I			 LIIN-I UN-I	
			CADL, DWG, DXF, EPS, IGES, Inventor (IPT, IDW, IAM),			
			Key Creator (CKD), Parasolids, Rhino 3DM,			
			SOLIDWORKS (SLDPRT,			
			SLDASM, SLDDRW), SAT			
			(ACIS Solids), Solid Edge (PAR & PSM), SpaceClaim			
			(SCDOC), STEP, STL,			
			VDA			
			Life time license			
			Workstation should be			
			provided with specs to support aforementioned			
			softwares. should include			
		Computer	original windows with SSD	01		
			hard disc, adequate			
			graphics card and 24 inch			
		Installation &	screen  Complete onsite installation			
		training	and training			
			Company having a track			
		Others	record of providing			
			CAD/CAM solutions to industries			
			This atmospheric plasma			
			spray system should be			
			capable of depositing			
		D.	Hydroxyapatite and/or			
		Purpose	titanium coatings onto biomedical implants			
			including total hip			
			replacement and total knee			
			replacement implants.			
		Cantual Unit	PLC unit to control all			
		Control Unit	process  Communication Interface	-		
			PC controlled terminal with	-		
		Operating	window 10 based graphical			
25	Plasma	Terminal	user interface in the form of	01		
	Spray Unit		a software.  Power 50 KW or above	••		
		Plasma Gun	Compatible Plasma Gun	-		
			Current = upto 1000 A or	-		
			higher			
		Plasma Power	Continuous operation			
		Supply	power = 50 kW or higher  Ignition unit for plasma	_		
			system			
		Mass flow	Gases (x3)			
		controller	Powder (x1)			
			Adequate controllers with			
		Gas Regulators	builtin safety and pressure			
		and cylinders	tested cylinders with certificates			
	lianatuus P- Star	<u> </u>		<u> </u>		

		1	CU.	<u>I-LHR-PUR-To</u>	enaer-vv1
		Argon (2 stage regulator x1			
		and cylinder x2)			
		Hydrogen (2 stage regulator x1 and cylinder x2)			
		Nitrogen (2 stage regulator			
		x1 and cylinder x2)			
		Helium (2 stage regulator			
		x1 and cylinder x2)			
	Powder Feeder				
	Powder feeder unit	High precision wear and maintenance free powder feed system for all typical thermal spray powders including powder flow sensor and hosing suitable to layout.			
	Powder Hopper volume (litres)	2.5 (or more)			
	Other Features				
	Water Cooling	Compatible water cooling			
	System	system			
	Electrical				
	Distributor	Suitable breakers and			
	including breakers and	power distribution cabinet and wiring.			
	switches	and wiring.			
	Accessories	All requisite accessories to perform aforementioned functions as intended including gauges, valves, hosing, regulators, gas cylinders, computer system with software etc. must be			
	Computer	As recommended by OEM with power backup and 24 inch screen			
	Powders	2 kilograms – Titanium powder • 2 kilograms –			
	(Coating grade)	Hydroxyapatite powder			
		12 months or more from date of installation			
		(including service and			
		parts) and technical support			
	Warranty and	from local company and OEM for coatings			
	Company profile	development and			
	July brome	troubleshooting.			
		OEM should have			
		experience of developing			
		hydroxyapatite coatings on			
		metal implants			
	Installation	Complete on-site			
	Installation and training	installation, demonstration and training (multiple runs)			
	training	of quality-adherent			
Signature & Sta		or quanty auntient		_1	l

	1				CUI	<u>-LHR-PUR-1</u>	enaer-uu i
			hydroxyapatite coatings on metals				
		Purpose	Electrochemical Power supply for anodizing of biomedical implants Programmable				
		General features	electrochemical power supply				
		Modes	Constant Voltage mode (Max Load regulation = 0.02% of voltage)	01			
		Wides	Constant Current Mode (Max Load regulation = 0.02% of current)				
			Minimum = 0	01			
		04	Maximum = 200 (or higher)				
		Output voltages (V)	Readback Accuracy 0.07 % or better				
	Electroche mical Power supply with tank		Resolution 0.015 % or better				
		Output current	Minimum = 0				
26		(A)	Maximum = 15 (or higher)				
		Power (kW)	5 or better				
		Display	Digital display for different information				
		Accessories	Acid and temperature resistant tanks suitable for anodization	04			
		UPS (online with dry batteries)	As recommended by OEM	01			
		Computer	AS recommended by OEM with power backup and 24 inch screen	01			
		Installation and Training	Onsite installation and training				
		Warranty	12 months or more from the date of installation (parts and services)				
	Vacuum	Purpose	To pack medical devices				
27	Vacuum Packing Unit	<b>Seal Dimensions</b>	<ul> <li>Seal Lengths: 8, 11, 16 inches or better</li> <li>Seal Widths: 1/4, 3/8 inches or higher</li> </ul>	01			

		T	T		CUI-	LHR-PUR-TO	
		Vacuum and flow	<ul> <li>Vacuum pressure upto 26 in Hg standards or better</li> <li>suction flow 1.3 SCFM or better</li> </ul>				
		Materials used	Stainless Steel Enclosure				
		Operating mode	5 or more Selectable modes				
		Display	Digital				
		UPS backup	As recommended by OEM				
		Installation & training	Complete onsite installation and training				
		Warranty & Others	12 Months from the date of installation (parts and service)				
	S	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.	02			
28	Surgical light for	Light source	LED				
	OT	Light intensity	≥ 80,000 LUX				
		Features	Adjustable height				
		accessories	Spare Bulb	02			
		Installation	Complete onsite installation				
		Warranty	12 Months or more from the date of installation (parts and Service)				
		Purpose	Operating Table for surgical procedures on small and medium sized animals. Made of Stainless steel. Imported or Locally manufactured				
		Tabletop dimensions (inch)	50 x 24 or higher.				
29	Operating Table	Adjustable Height	Table height Hydraulically adjustable	02			
		Heated Top	Durable stainless steel tabletop with electronic heating system or Or Heating pad should be provided				
		Drain hole	Built-in drain hole at the table top				

	T				CUI	-LHK-PUK-T	ender-vvi
		Load capacity	120 kg or more				
		Warranty	12 Months or more from the date of installation (parts and Service)				
		Purpose	Anesthesia system for delivery of anesthetic to prepare small animals for surgical procedures.				
		Tidal volume	25 ml or less 1L or more				
	Low-Flow	Number of animals	Single or multi				
30	Anesthesia System	Working pressure	0.3 MPa	2			
		Oxygen flush	30 L/min or more	1			
		Accessories	All the required hardware and connections included in the system				
		Warranty	12 Months or more from the date of installation (parts and Service)				
31	Trolley with inbuilt	Trolleys	<ul> <li>Mild steel with powder coating (Blue color)</li> <li>made up of angle 20mm x 20mm</li> <li>Gauge Thickness 16 Swg</li> <li>Four castor wheels of size 4 inches must be provided.</li> <li>Each trolley must can accommodate 03 rabbit cages each size of 600mm x 450mm x 450 mm</li> <li>Trolley must have feature of attaching the second trolley by special type of</li> </ul>	08 troll eys			
	Rabbit cages		locking system provided. These add on can be continued till N numbers the user wishes	24			
			Cages size: 600mm x 450mm x 450 mm (LXBXH)	cage s			
		Rabbit Cages	Made of S.S 304 material with duly spot welded and finished joints				
			AISI 304 quality stainless steel material				
			Fitted with tag holder				}
			Gap between S.S mesh with 7mm spacing				

	1	I			 LIIK-I UK-I	iluci-001
			Design to ensure perfect fit			
			and locking throughout the			
			complete cage body			
			Cage door has a 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 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.			
			Water Bottles			
			Polypropylene water bottle	24		
		Bottles	of capacity 650ml fitted S.S	Bottl		
			bent type nozzle	es		
		General Feature	Rodent face masks made			
		General Feature	from clear acrylic to			
			anesthetize or resuscitate			
ı			the rodents.			
1	Anesthesia	Size				
22	Mask/	Size	Large anesthesia mask with			
32	Breathing		co-axial non-rebreathing	04		
	Circuit		system			
	Circuit		44mm diameter			
			38mm deep			
		Diaphragm	Includes extra diaphragm			
			material (200g or more).			
			Microscope for observing			
			and recording images of			
		Purpose	surfaces and			
			microstructures of metals			
			and ceramics			
			Inverted microscope with			
	Inverted		following observation			
33	Micro		methods			
			Bright field			
	scope	General features	Dark field	01		
			Differential Interference			
			Contrast			
			Polarized Light	2.1		
			4x or 5x	01		
			10x	01		

	•	20	0.4	C01-	LHK-PUK-16	iluci-001
	ojectives	20x 50 x or 60x	01 01			
	mpatible for all tical options	100x	01			
Op.	ucai options	100x	01			
Ev	e Piece	10 × zoom	set			
	e i iece		01			
		15x or higher	set			
Illu	umination	LED	02			
Sta	ages	Right-handed stage with Vernier calibration				
Co	ondenser	Universal				
Са	ımera	Compatible with microscope having 5 megapixels or better  CCD based sensor for detection of high-quality images  Sensor size =1 inch or better  Recordable pixels All pixels = 2748 x 2200 or better  Live display mode = All pixels (2748 x 2200)@ 7.5 fps or better  Exposure time 0.06 msec to 1000 sec or better	01			
	omputer system	Interface: USB 3.0 (connect with PC) with software  As recommended by OEM				
	th software for e imaging	with 24 inch or higher screen with UPS	01			
wit pos	omputer system th software for st image ocessing	As recommended by OEM with 24 inch or higher screen with UPS	01			
	stallation & aining	Complete onsite installation and training				
Po	wer Backup	As recommended by OEM with dry batteries				
	arranty & hers	<ul> <li>12 Months or more from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers</li> <li>Proofs of trainings of company Personnel/engineers should be provided</li> </ul>				

		I	I		001	LIIK-I UK-I	7114161 001
		Purpose	4+1 or pure 5 axis Capable of machining sophisticated parts including biomedical metallic implants Capable of machining 316L and Ti-6Al-4V materials Capable of producing bone fixation plates and hip stems should come with all suitable attachments and accessories With CE marked declaration	01			
		X/Y/Z travel in mm Rotary Table	350/300/250 or better				
		diameter (mm)	250 or better				
		Maximum weight on table (kg)	50 (or more)				
	5 axis	Tilting A-axis (degree)	+110/-20 or better range				
	CNC machining	Rotary C-axis (degree)	360				
24	Center	Controller	FANUC 0iM or equivalent or better				
34	(With tooled up	Main spindle speed (rpm)	10000 (or more)				
	package	tool length (mm)	250 (or better)				
	requireme nt)	Tool fitting standards	BT40/DIN69871/CAT40/HS K A63				
		Rapid Traverse X/Y/Z (m/min)	30/30/24 or better				
		Tool magazine and ATC (Nos)	24 or better				
		Maximum speed	A-axis (rpm) 25 or better				
			C-axis (rpm) 25 or better				
		Position Accuracy (mm)	± 0.008				
		Repeat Accuracy (mm)	± 0.006				
		Lubrication	Auto lubrication with low lubrication fault				
			High pressure chip flush system	01			
			Chip Conveyor	01			
		Standard Accessories	Spindle oil cooler & Heat exchanger	01			
			pressure coolant through	01			
			spindle (20 bar or better)	set			
			Connectivity through ethernet, RS232 port				
6	Signature & Stai	mm of Diddon					

	T .	T		1	 -LHK-PUK-10	Linder our
			Lamp			
			cycle finish alarm			
		Software and Programmer	Post processor for CAD to NC conversion and Machine definitions LCD display with USB port and PCMICA Card			
		Voltage Stabilizer	As recommended by OEM			
		Machine installation and implants trial production	Machine should be tooled up along with necessary tooling for manufacturing of bone plates and total hip replacement stems.  Vendor must provide installation, commissioning, training which include trial manufacturing of basic parts at installation site in CUI, Lahore.  Local company should have established setup and good reputation along with CNC operation, repair, installation/commissioning staff trained by OEM (certificate required)  Proof of facilities to handle			
		Warranty & Service	troubleshooting of machine. 2 end user certificates from satisfied customers in Pakistan must be provided Warranty: Minimum period of 1 year			
		service	including service and parts			
	5 axis CNC machining	Purmaga	4+1 or pure 5 axis Capable of machining sophisticated parts including biomedical metallic implants Capable of machining 316L and Ti-6Al-4V materials	Δ1		
34.	Center  (Without tooled up package requireme nt)	Purpose	Capable of producing bone fixation plates and hip stems should come with all suitable attachments and accessories With CE marked declaration	01		
		X/Y/Z travel in mm	350/300/250 or better			
		Rotary Table diameter (mm)	250 or better			

				CUI-	LHR-PUR-Te	end
	Maximum weight on table (kg)	50 (or more)				
	Tilting A-axis (degree)	+110/-20 or better range				
	Rotary C-axis (degree)	360				
Ī	Controller	FANUC 0iM or equivalent or better				
	Main spindle speed (rpm)	10000 (or more)				
	tool length (mm)	250 (or better)				
Ī	Tool fitting	BT40/DIN69871/CAT40/HS				
	standards	K A63				
	Rapid Traverse X/Y/Z (m/min)	30/30/24 or better				
	Tool magazine and ATC (Nos)	24 or better				
	Maximum speed	A-axis (rpm) 25 or better				
	specu	C-axis (rpm) 25 or better				
f	Position Accuracy (mm)	± 0.008				
	Repeat Accuracy (mm)	± 0.006				
	Lubrication	Auto lubrication with low lubrication fault				
	Standard Accessories	High pressure chip flush system	01			
		Chip Conveyor	01			
		Spindle oil cooler & Heat exchanger	01			
		pressure coolant through	01			
		spindle (20 bar or better)	set			
		Connectivity through				
		ethernet, RS232 port				
		Lamp				
		cycle finish alarm				
	Software and Programmer	Post processor for CAD to				
		NC conversion and				
- 1		Machine definitions				
		LCD display with USB port and PCMICA Card				
ŀ	Voltage Stabilizer	As recommended by OEM				
		Vendor must provide installation,				]
		commissioning, training				
	Machine installation and	which include trial				
	implants trial	manufacturing of basic				
	production	parts at installation site				
	P. ounction	in CUI, Lahore.				
		Local company should				
0	n of Bidder	have established setup				

	and good reputation along with CNC operation, repair, installation/commissioni ng staff trained by OEM (certificate required) • Proof of facilities to handle troubleshooting of machine. • 2 end user certificates from satisfied customers in Pakistan must be provided	
Warranty & Service	Warranty: Minimum period of 1 year including service and parts	

## **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. Item at Sr. # 19 includes an additional laser marking requirement and item at Sr. # 19.1 excludes this option, only one of these options will be selected based on budget provisions.
- iii. Item at Sr. # 34 includes a tooled up package requirement and items at Sr. # 34.1 excludes this option, only one of these options will be selected based on budget provisions.
- iv. Lowest Vendor are required to provide the samples against the Sr. # 31 i.e. (Trolley with inbuilt Rabbit cages) before the bulk supply.
- v. Vendor will be responsible for Installation & Commissioning of the delivered equipment's.
- vi. Purchase / work order (s) will be awarded on Item wise Basis.
- vii. Kindly attach the Tender fee with Technical Bid and Bid money / CDR with Financial Bid.
- viii. Multiple rates of an item may also lead to the rejection of bid / item.