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

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

Case # 3052

Single Stage Two Envelop Procedure

Title of Tender:

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

TERMS AND CONDITIONS

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

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

Secretary, Purchase Committee COMSATS University Islamabad, Lahore Campus

Defence Road, Off Raiwind Road, Lahore.

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

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

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

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

• Please also attach the Certificate supporting being Active Taxpayer as per requirement of <u>FBR.</u> Signature & Stamp of Bidder

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

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

allow mode	nange in the Boo ed. Any additio el / brand or Pri tion of bid (fully	Please mention the quoted Model / Brand with meeting the all				
Sr. #	Item Name	Required S ₁	pecification	ons		specifications mentioned in BoQs
Iten	n Wise Basis	(Sr. # 1 to '	7)			
		General Features	• Ca _l	nfocal laser scanning microscope pability for Surface Topography e imaging system		
		Microscope	Fluoreso	ence system: LED source for een, Blue, and UV		
		Stogo	Stage type	ed stage-scanning X-Y axis: motorized and control through software Z axis resolution: 30 nm or better ed auto Focus/definite/adaptive	01	
		Stage	Stage siz standard slides, 35	ze: (should be able to hold d well plate, 25-mm × 75-mm 5-mm, 60-mm dishes, microtiter and coverslips		
01	Confocal		Apochro	omat 10x or better water based	01	
01	Microscope			omat 20x or better water based	01	
	_			omat 40x or better oil based omat 60x or 63 or better oil	01	
		Objective	-	omat 100x oil based	01	
			All other for object	r essential accessories required ctives & objectives which are to perform the desired		
			function			
		Illumin atia		ser: 405nm ser: 488nm		
		Illuminatio n		ser: 561±10 nm		
				ser 640 ±10 nm		
				els detector		
		Confocal	PMT de		02	
		Detectors	-	PMT detector	01	
		Fluorescenc e Detector	PMT de		V-1	

Spectral	Minimum 03 parallel simultaneous			
Detector	detection channels			
Spectral	400 nm (or less) to 720 nm (or more)			
Range	i i i i i i i i i i i i i i i i i i i			
Scanners	Galvanometric scanners or resonant scanner			
Pinhole	Adjustable pinhole with automatic mode			
	Motorized Beam splitter for maximum			
Beam path	lasers			
	Latest software to run the machine			
	Suitable software to run and program			
	the machine for live imaging, image			
	acquisition, post processing, 3D			
	visualization and data analysis			
	Lifetime license			
	Deconvolution Module			
	Colocalization Module			
Software	Multi-Channel module			
	Measurement Module			
	Image Analysis Module			
	Time Lapse Module			
	Z Stack Module			
	Extended Focus Module			
	Upgradable Upgradable			
	Multi User license			
	Full incubator			
	Suitable for live cell imaging			
Incubator	Temperature control			
or live cell	Humidity control 0			
maging	CO ₂ control			
	O ₂ control			
	Monochrome sCMOS			
Camera	4 mega pixel or better	01		
	Sensor with cooling technology			
Computer	suitable to run the machine and should			
System	be Provided by OEM			
	Vibration control table (provided by			
	OEM)			
	power supplies			
Accessories	Mounting Kit	01		
	Immersion Oil	100		
	Immersion On	mL		
	CO ₂ cylinder with 2 stage regulator	01		
JPS	As recommended by OEM			
	Comprehensive training including air			
Γraining	travel, boarding and lodging at OEM site			
	• 12 Months warranty from the			
Warranty	date of installation (parts and			
and others	service) with vendor having good			
	local reputation with running			

_	T				CUI-LHR-PUR-Tender-001
			machines and well- trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan		
		Purpose	This atmospheric plasma spray system should be capable of depositing Hydroxyapatite and/or titanium coatings onto biomedical implants including total hip replacement and total knee replacement implants.		
		Control Unit	 PLC unit to control all process Communication Interface Remote access for diagnostics 		
		Operating Terminal	 PC controlled terminal with window 10 based graphical user interface in the form of a software. Database of plasma sprayed biomedical coating recipes Data management system with real time data recording, visualization and analysis 		
		Plasma	Compatible DC Plasma Gun for Air		
		Gun	Plasma System		
02	Plasma Spray Unit	Plasma Power Supply	Current Range = 1000 A or better Continuous operation power = 100 kW or better Accuracy of DC supply =±1% or better	01	
			Electrical Efficiency = 90% or better		
			Ignition unit for plasma system with solid gun hose connection box		
		Gas Regulati	on system		
		Gas Regulators	Gas regulators for plasma system including gas controller with dynamic pressure compensation. Suitable controllers for; Argon Hydrogen Nitrogen Helium		
		Powder Feed			
		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.		
		Minimum feed range (g/min)	5 (or less)		

T .		CUI-LHR-PUR-Tender-001
Maximun Feed	60 (or more)	
(g/min)	(or more)	
Powder		
Hopper volume	2.5 (or more)	
(litres)	4	
Other Fea	tures	
Water	25 LW b	
Cooling	35 kW or better	
System		
Electrical		
Distribute		
including	Suitable breakers and power	
breakers	distribution cabinet and wiring.	
and		
switches		
	All requisite accessories to perform	
	aforementioned functions as intended	
Accessori	including gauges, valves, hosing,	
Accessor	regulators, gas cylinders, computer	
	system with software etc. must be	
	included	
Powders	 2 kilograms – Titanium powder 	
(Coating	 2 kilograms – Hydroxyapatite 	
grade)	powder	
	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	
Warranty	developing hydroxyapatite coatings	
and	on metal implants	
Company	 Local company should have a strong 	
profile	background in thermal spray	
	coatings (installation and services) in	
	Pakistan. A list of installations	
	should be provided.	
	 Proof of trainings and qualifications 	
	of engineers of the local company	
	should also be provided	
	Comprehensive training including	
	_	
	air travel, boarding and lodging on	
Tueinin	plasma spray system and	
Training Commission		
Commissi	8	
ning	Complete on-site installation and	
	demonstration (multiple runs) of	
	quality-adherent hydroxyapatite	
	coatings on metals	
Documen	All necessary brochures, letters of	
tion	authorization and certificates to	
11011	support all the aforementioned	

		_		(CUI-LHR-PUR-Tender-001
			requirements of the end-user must be included		
	1	Purpose of the Universal Testing Machine	 Tabletop/floor standing electromechanical universal testing machine capable of testing metals, ceramic and polymers under static uniaxial testing (tension & compression) complete with all accessories and grips including power backup. Accuracy of the machine should be according to ISO7500-1 and ISO9513 		
		Load Cell	±100 KN with Valid calibration Certificate ISO17025 (calibration certificate required)		
		Crosshead Speed (mm/min)	0.0005 (or lower) to 500 (or higher)		
	Universal Testing Machine	Test area height between crosshead and lower platen	1500 mm (or higher)	01	
03		Testing area height between connecting adaptors	0-1300 mm or better		
		Test Area Width	600 mm or higher		
		Testing Mode	Tension, Compression, Bending		
		Grips	 Universal Wedge Grip (100KN) with suitable insets for Round and Flat samples Max. Specimen Diameter = 30 mm or better Max Specimen Thickness = 25mm or better Max. Specimen Width = 40 mm or better Height of Inset = 50mm or better Jaws for flat sample = 0-20 mm thickness or better Jaws for round sample = 2mm - 24 mm or better 	1	
			 Wedge Screw Grips up to 10 kN Suitable to hold polymeric, wires, wood samples and composite samples 	1	

_	1	ı			CUI-LHR-PUR-Tender-001
			 Compression plates suitable for 100 kN 	1	
		Extensomet	 Axial Extensometer clip on gauges for flat and round sample Type 3542 or equivalent. Gauge Length: 10 mm Measuring Strain= +80%, -10% Flat sample Range = up to 12 mm x 31 mm or better Round Sample Diameter = upto 25 mm or better Axial Extensometer clip on gauges for flat and round sample Type 3542 or equivalent. Gauge Length: 50 mm Measuring Strain= +80%, -10% Flat sample Range = up to 12 mm x 31 mm or better 	1	
		Software	 Round Sample Diameter = upto 25 mm or better Complete software with programming option for tailoring the test based on need. Multiple sequences and program and profile saving options. Auto machine stiffness calculation and data correction. Fully licensed and free upgradeable 		
		Workstatio n	Suitable workstation as recommended and endorsed by OEM		
		Power backup	As recommended by OEM with proof of the recommendation by the OEM		
		Warranty & Others	 Minimum period of 1 year including service and parts and training at installation site Company must have a track record of supplying mechanical testing equipment in Pakistan with a list of installations provided 		
		Purpose	To print disposable screen printed electrode on various substrates with variety of printing material		
04	Screen Printer	General features	 Automatic feeder with touch control panel Static eliminator Auto registration for printing Auto delivery CCD camera 	1	
		Printing area (mm)	300*400 or better		

		CUI-LHR-PUR-Tender-00
Printing speed-stroke	300 or better	
(mm/s) Screen frame thickness (mm)	25 or better	
Off- contact- standby height	10 or better	
(mm) Squeegee- coater speed (mm/sec.)	10 (or lower) to 300 (or higher)	
Alignment precision	0.02 mm or better	
	Machine body is powder coating.	
Other	corrosion and rust resistant printing table	
Features	Emergency button	
	Motor controlled in 3 axis movement	
	Printing screens of different patterns and sizes (patterns and sizes would be provided later by the end user)	05
	Squeegee holders of three different sizes) compatible to the model)	02
Accessorie		02
	Silver paste	50 g
	Graphite paste	1 kg
Power backup	As recommended by OEM for optimum operations	
	12 Months warranty from the date of installation (parts and service) with vendor having good local reputation with running machines and well- trained engineers	
Warranty & Others	 Proofs of trainings of company personnel/engineers should be provided 	
	 List of installations in Pakistan Training (at installation site) and installation 	

	1	_	1		UI-LIIK-PUK-Tender-voi
		Purpose of Micro Array Scanner Application s	To use biomaterials induced gene expressions in cells and animal models for use in functional biology, cellomics, gene expression and drug discovery research.	-	
		Scan Time	15 minutes or less	_	
		Laser source	1. 532nm±10 2. 635±10	_	
		Laser channels	2 or more		
		Sample type	Standard Microscope Slide/Glass Slide		
		Detector	Photomultiplier (PMT) minimum 1		
		Maximum Scan Area	20 x 70 mm or better		
		Maximum Resolution	2.5 microns or better		
05	Microarray Scanner	Fluorophor e	Cy3, Cy5, Alexa555, Alexa 647, Alexa 660, including suitable filter for these dyes	01	
		UPS	as recommended by OEM		
		Computer	Computer with licensed image analysis software with power backup	-	
		Trining	Comprehensive training including air travel, boarding and lodging at OEM site	-	
			12 Months warranty from the date of installation (parts and service) with vendor having good local reputation with running machines and well- trained engineers		
		Warranty	Proofs of trainings of company personnel/engineers should be provided		
			 List of installations in Pakistan Training (at installation site) and installation 		

	1	1			UI-LIIK-I UK-Tenger-001
		Purpose	Inverted microscope suited for investigation of live cells, fixed cells and bacteria.		
		General features	 Trinocular inverted microscope with bright field, phase contrast and camera having antifungal optical system. Should have capability to upgrade into a fluorescent microscope. 	04	
		Objectives	4x 10x 20x	01 each	
			40x		
				02	
			10 × zoom	pair	
		Adjustable		S	
		Eye Piece		02	
			20 X zoom	pair	
				S	
			The stage should be capable of handling		
	Inverted Microscope	Stage	cell culture flasks (T75 Flask) Petri dish and well plates. Movement 126 (or higher)*78 mm (or higher)	01	
0.0			Auxiliary stage attachable		
06			Universal holder		
	•		Slide holder		
			Teraski holder		
			High luminescent white LED light		
		Illuminatio	Accepts 2 filters		
		n	Heat absorbing filter and diffuser		
			Extra long working distance (ELWD)		
			condenser		
			Vertical objective movement	4	
			Via nosepiece up/down movement	4	
		Focusing	Coarse stroke: 37.7 mm per rotation or better sensitivity (could be more or less		
			up to 2.5 mm)	1	
			Fine stroke 0.2 mm per rotation (or		
			lower)		
			Compatible with microscope having 5		
			megapixels or better	_	
			CMOS based sensor for detection of		
			high-quality images	1	
		Camera	CMOS sensor size =1/1.8 inch or better	01	
		Camera	Recordable pixels All pixels = 2880 x 2048 or better	VI	
			Selectable ISO Range = 50 - 3200 or better		
			Live display mode = All pixels (2880 x	1	
			2048): 15 fps or better		
		1	- <i>y</i>	1	1

	T	1		(CUI-LHR-PUR-Tender-001
			Exposure time 100μ sec (or lower) to 30 sec (or better)		
			Interface: USB3.0 (connect with PC),		
			External trigger along with software		
		Computer system for camera	As recommended by OEM	01	
		Training	On spot training (installation site)		
		Warranty and others	 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 Proofs of trainings of company personnel/engineers should be provided List of microscope installations in Pakistan and end user satisfaction certificate/s should be provided 		
		Purpose	Microscope for observing and recording images of surfaces and microstructures of metals and ceramics		
		General features	Inverted microscope with following observation methods	01	
		Objectives	4x or 5x	01	
		compatible	10x	01	
		for all	20x	01	
		optical	50 x or 60x	01	
6.1	Inverted	options	100x	01	1
0.1	Microscope		10 v =====	01	1
		Eye Piece	10 × zoom	set	
		,	15x or higher	01 set	
		Illuminatio	LED Illuminator	SCI	-
		n	Dight handed stage with Warmian		-
		Stages	Right-handed stage with Vernier calibration		
		Condenser	Universal		†
		Camera	Compatible with microscope having 5 megapixels or better CCD based sensor for detection of high-quality images	01	
		1 - 1 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -	Sensor size =1 inch or better		

	1	1			UI-LHR-PUR-Tender-001
			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 for camera	As recommended by OEM	01	
		Installation and Training	Complete installation and Installation site training		
		Warranty & Others	 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 Proofs of trainings of company personnel/engineers should be provided List of microscope installations in Pakistan and end user satisfaction certificate/s should be provided 		
		Purpose	 Precision cutting of samples with 3D automated moment controllable with programming PLC Replaceable wearing plates including all the necessary clamping devices, cutting liquid and as well as mounting press to ease the holding of delicate samples. All necessary documentation along with power backup. 		
7	Precision Cutting Machine	General features	Variable speed 100 (or lower) to 4000 (or higher) rpm Working wheel diameter (replaceable): 150 mm (or more) Cutting diameter = 75 mm (or more) Fully automatic XYZ axis X = 60 mm or more Y = 210 mm or more Z = 45 mm or more X-axis resolution = 0.016 mm or better Adjustable table feed rate = 10 – 1000 µm/sec or better Fully programable with LED based GUI interface Thin section grinding feature	1	

		T		CUI-LHR-PUR-Tender-0
		Laser based positioning		
		Digital display with PLC for automated cutting		
		Recirculating cooling system		
		Stand for specimen Vises	2	
		Universal Specimen Vise	2	
		Vise for Biomedical Samples	2	
		Diamond Cut-Off Wheels: Dia. 125 x thickness 0.38mm	5 blade s	
	Accessories	Diamond Cut-off wheels: Dia. 150 x thickness 0.40 mm	5 blade s	
	Accessories	Abrasive Cut-off wheels 0.25 mm x 200 mm	25 wheel s	
		Blade dressing unit during grinding	1	
		Dressing medium	10	
		Mounting medium (phenolic resin)	5 kg	
		Oil for precision cutting	10 liters	
	Sample mounting press	Automated Hydraulic press with digital control for heating time, molding temperature, ramp control and start & stop cycle programming Temperature 200°C (or higher) Pressure 300 bar (or higher) Any two Mold sizes in between 25-50mm	01	
	Power backup with additional Servo Stabilizer	As recommended by OEM	01	
	Warranty & Others	 12 Months from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan should be provided 		

						CUI-LHR-PUR-Tender-001
Sub	Total Basis	(Sr. # 8 to 1	1)			
		Purpose	parts including bone screws. Capable of ma 6Al-4V materi With double hounit including	chining sophisticated g dental implants and chining 316L and Tials ead, tools and cooling all accessories for amanufacturing		
			Turning Diameter Main Spindle (mm)	20 or better		
			Sub spindle turning diameter (mm)	20 or better		
			Turning Length rotation (mm)	190/250 or better		
		Swiss Turn	Turning Length non bush in mm	50 or better		
		NC ouble	Turning Length Fixed bush (mm)	280/220 or better		
	Swiss Turn		Main Spindle Drilling/tapping capacity (mm)	Φ10/M8 or better		
8	CNC Double Head		Sub Spindle Drilling/tapping capacity (mm)	Φ8/M8 or better	01	
	machining center		Cross Drilling/tapping (mm)	Φ8/M6 or better		
			Number of outer dia. Tool Holder (pcs) ~ 12mm	6 or better		
			Number of internal dia. tool holder (pcs) ~ Φ 22mm	4 or better		
		Tooling	Spindle-1 Cross Live Tool Holder – Er-16 (pcs)	5 or better		
		L	Sub Spindle Face Live Tool Holder (pcs)	8 or better		
			Control Axis (with c-axis) pcs	8 or better		
			Main/sub spindle bore dia (mm)	26 or better		
			Main/sub spindle speed (rpm)	10000/8000 or better		

				CUI-LHR-PUR-Tender-001
		X1/Z1/Y1/X2/Z2/ Y2 Rapid Traverse (m/min)	24 or better	
N	Movements and	Spindle-1 cross drilling maximum speed (rpm)	8000 or better	
	Rotation	Spindle-2 face drilling maximum speed (rpm)	8000 or better	
		Controller	FANUC 32i or equivalent or better	
P	Power and	Power Requirement	25 KVA (or lower)	
L	Lubrication	Lubrication Capacity in Liter	2 (or higher)	
		Cooling Tank Capacity in liter	200 (or higher)	
		High pressure coolant system 70 bar with sub coolant tank and cutting oil cooler	01 set	
		External Tool holder (6 tools)	01 set	
		Internal tool holder (4 tools)	01 set	
		Side drilling tool holder (5 tools)	01 set	
		Complete Whirling Threading Unit with inserts and insert holders	01 set	
A	Accessories	Parts catcher	1	
	-	Parts conveyer	1	
		Tools and toolbox	1 set	
		Lighting Device	1	
		Rotary guide bushing holder 190 mm stoke or better	1	
		Spindle servo motor	1	
		Main spindle c- axis	1	
		Cutting coolant and inspection	1	
		Cut-off inspection	1	

	T	T =. =		 JUI-LHK-PUK-Tenger-vvi	-
		Sub spindle and	1		
		sub spindle c-axis			
		Sub spindle tool			
		holder for 8	1		
		position milling			
		& drilling			
		Stationary tool	4		
		holder (sub	1		
		spindle)			
		Power tool	1		
		holder ER16	_		
		Chuck Gripper	1		
		Hexagonal			
		Punching tool	1		
		holder			
		Guide bush and	1		
		safety lock	1		
		Non guide bush	1		
		holder	1		
		Spindle Collet	1		
		ER 16 M2 inner	1		
		tools holders	1		
		ER 16 collet set	1		
		3 position OD			
		tool holder sub	1		
		spindle	1		
		Deep Hole			
		drilling device	1		
		Y2-axis	1		
		Chip conveyer &	1		
		cart	1		
		Operational &			
		maintenance	1 Set		
		manual in	1 500		
		English			
		Voltage Stabilizer			
		As recommended b			
			tooled up along with		
			m to manufacture 3		
		components of den	tal implants as per		
		attached drawing			
			ply dental implants		
	Machine	samples before ship			
	installation	installation, commi	<i>O</i> ,		
	and dental		ufacturing of dental		
	implants		rawing available at		
	trial	Page # 47 to 49) b	y maker's engineers		
	production	at installation site i			
	production		ould have established		
		setup and good rep			
		CNC operation, re			
			ssioning staff trained		
		by OEM (certificat			
			ndle troubleshooting.		
	1			1	

		1			CUI-LHR-PUR-Tender-001
			2 end user certificates from satisfied customers in Pakistan must be provided Warranty: Minimum period of 1 year including		
			service and parts Comprehensive training including air travel, boarding and lodging at OEM		
9	5 axis CNC machining Center	Purpose X/Y/Z travel in mm Rotary Table diameter (mm) Maximum weight on table (kg) Tilting A- axis (degree) Rotary C- axis (degree) Controller Main spindle	 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 400/500/400 or better 300 or better 100 (or more) +110/-20 or better range 360 FANUC 0iM or equivalent or better 15000 (or more) 	01	
		speed (rpm) tool length (mm)	300 (or more)		
		Tool fitting standards	BT40/DIN69871/CAT40/HSK A63		
		Rapid Traverse X/Y/Z (m/min)	48/48/48 or better		
		Tool magazine and ATC (Nos)	24 or better		
		Maximum	A-axis (rpm) 25 or better		
		speed	C-axis (rpm) 25 or better		

				JUI-LHK-PUK-Tender-001
	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 Programme r	LCD touch display with USB port and PCMICA Card		
	Voltage Stabilizer	As recommended by OEM		
		Machine should be tooled up along with necessary tooling for manufacturing of bone plates and hip stems. Vendor must		
	Machine	provide installation, commissioning, training which include manufacturing of		
	installation and	bone plates by maker's engineers at installation site in CUI, Lahore.		
	implants trial	Local company should have established setup and good reputation along with		
	production	CNC operation, repair,		
		installation/commissioning staff trained		
		by OEM (certificate required), along		
		with facilities to handle troubleshooting. 2 end user certificates from satisfied		
		customers in Pakistan must be provided		
	Warranty	Warranty:		
	& Service	Minimum period of 1 year including		
		service and partCapable of machining sophisticated		
		parts including biomedical metallic implants.		
		• Capable of machining 316L and Ti-		
	Purpose	6Al-4V materials.Capable of producing round heads		
A. 4		with precise curvature e.g. femoral		
10 Automatic CNC Lathe Machine		heads and including suitable attachments and accessories	01	
	Swing over bed (mm)	450 or better		
	Turning diameter	100 or better		
	(mm)			
	Bar capacity	30 (or higher)		
	(mm)	(% mg.w.)		

Turning length (mm) Stroke X/Z (mm) 100 or better 140 or better	
(mm) Stroke X/Z 140 or better	
Stroke X/Z 140 or better	
1 140 or netter	
X/Z axis	
traverse 15 or better	
(mm)	
Position a see	
Accuracy 0.008 mm or better	
Main	
spindle 6000 or better	
speed (rpm)	
Turret tools 8 (or more)	
OD tool	
size (mm)	
boring tool gire (mm) $\Phi 20$ (or larger)	
size (mm) \text{(of farger)}	
Inner	
cutting Φ8, 10mm & 12mm	
sleeve (mm)	
c-axis yes	
3 position	
sarvo fogo	
live tool or Should be included	
better	
4 position	
SOPYO OPOSS	
live tool +Y Should be included	
axis	
Accessories	
4" Jaw 01	
Chuck	
Collet 01	
Chuck	
Part	
Conveyer 1 set	
and part	
catcher	
Heat 1	
exchanger	
Coolant	
device with 01	
spiash	
guard	
Tools with 01 set	
tool box	
Controller EANICO: on agriculant on bottom	
FANUC Of or equivalent or better	
Voltage stabilizar As Recommended by OEM	
stabilizer As Recommended by GEW	

	7	,	•				CUI-LHR-PUR-Tender-001	
		Machine installat	set CN ins ion by wit 2 e cus	up and NC ope stallation OEM the facil and use stomer	npany should have established I good reputation along with ration, repair, on/commissioning staff trained (certificate required), along ities to handle troubleshooting. r certificates from satisfied s in Pakistan must be provided a period of 1 year including			
		Warran	TX7		nd parts			
		Purpose			The laser system should be capable of high accuracy laser marking (metals & nonmetals) and laser cutting (soft materials). The capability to perform desired function can be achieved by a single system or two independent systems meeting the specifications			
			Laser p	ower	150 (or higher)			
		(W		ource	CO_2			
			Laser fo		Auto			
		<u> </u>	Working area (mm mm)		ıg	1300 (or higher) x900 (or higher)		
			Position accuracy		±0.05 mm or better			
	CNC Laser		Smalles achieva feature		1x1 mm (or lower)	01		
11	Cutting Machine		Connec	tivity	Computer with software should be included			
			Suppor graphic formats	; S	Corel draw, Autocad, photoshop and other widely used standard formats			
			Trouble ting		Remote access option			
			Laser P (W)	ower	50 or better			
			Laster	Туре	Fiber			
		Laser Marki ng	Markin depth (1	_	0.1 (or higher)	01		
			ng	Workin accurac (mm)	e y	0.01 or better		
			Smalles achieva feature (mm)	ble	0.2 or better			
	<u>I</u>	1	()		<u> </u>			

		operation	Computer with software should be included		
		Supporting graphic formats	Corel draw, Autocad, photoshop and other widely used standard formats		
		Troubleshoo ting	Remote access option		
	Power back	case two sepai	r back up for the system. In rate systems are provided then backups are required		
	Warra nty & Others	(parts and good local machines) Proofs of to personnel	s from the date of installation l service) with vendor having reputation with running and well-trained engineers trainings of company engineers should be provided tallations in Pakistan should be		

Purchase Order against Sr. # 8 to 11 shall be issued on Sub Total Basis

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 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.

				and total will also be corr		ccordingly.		
	ange in the BoQ			Duita a da la a	4-1' C2E-			
	, is allowed. Any			Prices to be quoted in C&F with all freight & packing charges at Lahore Airport				
	· · · · · · · · · · · · · · · · · · ·		•	ïcation in CUI-Lahore Ca แรง	impus	& packing	charges at Lan	ore Airport
Sr. #	Equipmen t Name		Required Specifications				Unit Price (C&F Lahore Airport) with mentioning of Quoted Currency	Total Price (C&F Lahore Airport) with mentioning of Quoted Currency
Item	Wise Basis	s (Sr. # 1 to	7)					
				focal laser scanning				
				oscope				
		General		ability for Surface				
		Features		ography				
				imaging system				
		Microscop	Inverted microscope with DIC Fluorescence system: LED source for Red, Green, Blue,					
		e						
			and UV	r Keu, Green, Diue,				
				d stage-scanning				
			Motorize					
			Stage type	X-Y axis: motorized	01			
				and control through software				
				Z axis resolution: 30				
				nm or better				
		Stage	Motoriza					
	Confocal	Stage		Motorized auto Focus/definite/adaptive system				
01	Microscop			e: (should be able to				
	e		_	dard well plate, 25-				
				<u> </u>				
				mm × 75-mm slides, 35-mm, 60-mm dishes, microtiter				
				d coverslips				
				nat 10x or better				
			water bas		01			
				nat 20x or better				
			water bas		01			
				nat 40x or better oil				
			based	nat 40x of Detter on	01			
		Objective		nat 60x or 63 or				
			better oil		01			
				nat 100x oil based	01			
				essential accessories	VI			
				for objectives &				
			_	•				
		ļ	objectives	s which are essential				

				 <u>:UI-LHR-PUR-</u>	I chuci-vvi
		to perform the desired			
		functions			
		Diode laser: 405nm			
	Illuminati	Diode laser: 488nm			
	on	Diode laser: 561±10 nm			
		Diode laser 640 ±10 nm			
	Confocal	3 Channels detector			
	Detectors	PMT detectors	02		
	Detectors	GaAsP PMT detector	01		
	Fluorescen				
	ce	PMT detector			
	Detector				
	Spectral	Minimum 03 parallel			
	Detector	simultaneous detection			
		channels			
	Spectral	400 nm (or less) to 720 nm (or			
	Range	more) Galvanometric scanners or			
	Scanners	resonant scanner			
		Adjustable pinhole with			
	Pinhole	automatic mode			
		Motorized Beam splitter for			
	Beam path	maximum lasers			
		Latest software to run the			
		machine			
		Suitable software to run and			
		program the machine for live			
		imaging, image acquisition,			
		post processing, 3D			
		visualization and data analysis			
		Lifetime license			
		Deconvolution Module			
	Software	Colocalization Module			
		Multi-Channel module			
		Measurement Module			
		Image Analysis Module			
		Time Lapse Module			
		Z Stack Module			
		Extended Focus Module			
		Upgradable			
		Multi User license			
		Full incubator			
		Suitable for live cell imaging			
	Incubator	Temperature control	01		
	for live cell	Humidity control	01		
	imaging	CO ₂ control			
		O ₂ control			
		Monochrome sCMOS			
	Camera	4 mega pixel or better	01		
		Sensor with cooling technology			
	G .	suitable to run the machine			
	Computer	and should be Provided by			
i .	System	OEM	I	I	i e

	1		T707		 UI-LHK-PUK-	renuer our
			Vibration control table			
			(provided by OEM)			
			power supplies			
		Accessorie	Mounting Kit	01		
		s	Immersion Oil	100 mL		
			CO ₂ cylinder with 2 stage regulator	01		
		UPS	As recommended by OEM			
		Training	Comprehensive training including air travel, boarding and lodging at OEM site			
		Warranty and others	12 Months warranty from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers Proofs of trainings of company personnel/engineers should be provided List of installations in Pakistan			
	Plasma Spray Unit	Purpose	This atmospheric plasma spray system should be capable of depositing Hydroxyapatite and/or titanium coatings onto biomedical implants including total hip replacement and total knee replacement implants.			
		Control Unit	 PLC unit to control all process Communication Interface Remote access for diagnostics 			
02		Operating Terminal	 PC controlled terminal with window 10 based graphical user interface in the form of a software. Database of plasma sprayed biomedical coating recipes Data management system with real time data recording, visualization and analysis 	01		
		Plasma	Compatible DC Plasma Gun			
		Gun	for Air Plasma System			
		Plasma Power	Current Range = 1000 A or better Continuous operation power = 100 kW or better			
	anature & Stam	Supply	Accuracy of DC supply =±1% or better			

		C	JI-LHK-PUK-	i chaci-ooi
	Electrical Efficiency = 90% or better			
	Ignition unit for plasma			
	system with solid gun hose			
	connection box			
Gas Regulati	ion system			
Gas Regulators	Gas regulators for plasma system including gas controller with dynamic pressure compensation. Suitable controllers for;			
	ArgonHydrogenNitrogenHelium			
Powder Feed	ler			
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.			
Minimum feed range (g/min)	5 (or less)			
Maximum Feed (g/min)	60 (or more)			
Powder Hopper volume (litres)	2.5 (or more)			
Other Featur	res			
Water Cooling System	35 kW or better			
Electrical Distributo r including breakers and switches	Suitable breakers and power distribution cabinet and wiring.			
Accessorie s	All requisite accessories to perform aforementioned functions as intended including gauges, valves, hosing, regulators, gas			
	cylinders, computer system with software etc. must be included 2 kilograms – Titanium			
Powders (Coating grade)	powder 2 kilograms – I itanium powder 2 kilograms – Hydroxyapatite powder			

		1				UI-LHK-PUK-	T CHUCI-001
			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				
		Warranty	of developing hydroxyapatite				
		and	coatings on metal implants				
		Company	Local company should have a				
		profile	strong background in thermal				
		prome	0 0				
			spray coatings (installation				
			and services) in Pakistan. A				
			list of installations should be				
			provided.				
			Proof of trainings and				
			O				
			qualifications of engineers of				
			the local company should also				
			be provided				
			 Comprehensive training 				
			including air travel,				
			boarding and lodging on				
			plasma spray system and				
		Training	development of				
		_	hydroxyapatite coatings at				
		&	manufacturer site				
		Commissio	 Complete on-site 				
		ning	_				
			installation and				
			demonstration (multiple				
			runs) of quality-adherent				
			hydroxyapatite coatings on				
			metals				
			All necessary brochures,				
			letters of authorization and				
		Document	certificates to support all the				
		ation	aforementioned requirements				
			of the end-user must be				
			included				
			TT 11 . (6)				
			electromechanical universal				
			testing machine capable of				
		Durmaga af	testing metals, ceramic and				
		Purpose of	polymers under static				
		the	uniaxial testing (tension &				
		Universal	compression) complete with				
	Universal	Testing					
03	Testing	Machine	all accessories and grips	01			
	Machine		including power backup.	U 1			
	Maciline		 Accuracy of the machine 				
			should be according to				
			ISO7500-1 and ISO9513				
			±100 KN with Valid				
		Load Cell	calibration Certificate				
		Loau Cii	ISO17025 (calibration				
			certificate required)				
L		<u> </u>			l	i	l .

	T		 UI-LHK-PUK-	Tender oor
Crosshead Speed (mm/min)	0.0005 (or lower) to 500 (or higher)			
Test area height				
between crosshead and lower	1500 mm (or higher)			
platen Tosting				
Testing area height between connecting adaptors	0-1300 mm or better			
Test Area Width	600 mm or higher			
Testing Mode	Tension, Compression, Bending			
Grips	 Universal Wedge Grip (100KN) with suitable insets for Round and Flat samples Max. Specimen Diameter = 30 mm or better Max Specimen Thickness = 25mm or better Max. Specimen Width = 40 mm or better Height of Inset = 50mm or better Jaws for flat sample = 0-20 mm thickness or better Jaws for round sample = 2mm - 24 mm or better Wedge Screw Grips up to 10 kN Suitable to hold polymeric, wires, wood samples and composite samples Compression plates suitable for 100 kN 	1 1		
Extensome ter	 Axial Extensometer clip on gauges for flat and round sample Type 3542 or equivalent. Gauge Length: 10 mm Measuring Strain= +80%, -10% Flat sample Range = up to 12 mm x 31 mm or better Round Sample Diameter = upto 25 mm or better 	1		

	1		1		<u> </u>	UI-LHK-PUK-	T CHUCH-001
			 Axial Extensometer clip on gauges for flat and round sample Type 3542 or equivalent. Gauge Length: 50 mm Measuring Strain= +80%, -10% Flat sample Range = up to 12 mm x 31 mm or better Round Sample Diameter = upto 25 mm or better 	1			
		Software	 Complete software with programming option for tailoring the test based on need. Multiple sequences and program and profile saving options. Auto machine stiffness calculation and data correction. Fully licensed and free upgradeable 				
		Workstati on	Suitable workstation as recommended and endorsed by OEM				
		Power backup	As recommended by OEM with proof of the recommendation by the OEM				
		Warranty & Others	Minimum period of 1 year including service and parts and training at installation site Company must have a track record of supplying mechanical testing equipment in Pakistan with a list of installations provided				
		Purpose	To print disposable screen- printed electrode on various substrates with variety of printing material				
04	04 Screen Printer	General features	 Automatic feeder with touch control panel Static eliminator Auto registration for printing Auto delivery CCD camera 	1			
		Printing area (mm) Printing speed- stroke (mm/s)	300*400 or better 300 or better				

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fr th	creen rame nickness nm)	25 or better			
O co st he	ff- ontact- andby eight nm)	10 or better			
co	queegee- oater oeed nm/sec.)	10 (or lower) to 300 (or higher)			
	lignment recision	0.02 mm or better			
		Machine body is powder coating.			
	ther	corrosion and rust resistant printing table			
F	eatures	Emergency button Motor controlled in 3 axis			
		movement			
		Printing screens of different patterns and sizes (patterns and sizes would be provided later by the end user)	05		
	ccessorie	Squeegee holders of three different sizes) compatible to the model)	02		
S		Flood coater of two different sizes compatible to the model	02		
		Silver paste	50 g		
		Graphite paste	1 kg		
	ower ackup	As recommended by OEM for optimum operations			
W	/arranty	12 Months warranty from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers			
&	Others	Proofs of trainings of company personnel/engineers should be provided List of installations in Polyiston			
		List of installations in Pakistan Training (at installation site) and installation			

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		Purpose of Micro Array Scanner	To use biomaterials induced gene expressions in cells and animal models			
		Applicatio ns	for use in functional biology, cellomics, gene expression and drug discovery research.			
		Scan Time Laser source	15 minutes or less 3. 532nm±10 4. 635±10			
		Laser channels	2 or more			
		Sample type	Standard Microscope Slide/Glass Slide			
		Detector	Photomultiplier (PMT) minimum 1			
		Maximum Scan Area	20 x 70 mm or better			
		Maximum Resolution	2.5 microns or better			
		Fluoropho re	Cy3, Cy5, Alexa555, Alexa 647, Alexa 660, including suitable filter for these dyes			
05	Microarra y Scanner	UPS	as recommended by OEM	01		
		Computer	Computer with licensed image analysis software with power backup			
		Trining	Comprehensive training including air travel, boarding and lodging at OEM site			
			12 Months warranty from the date of installation (parts and service) with vendor having good local reputation with running machines and well-trained engineers			
		Warranty	Proofs of trainings of company personnel/engineers should be provided			
			List of installations in Pakistan Training (at installation site) and installation			

					1	UI-LIIK-I UK-	1
		Purpose	Inverted microscope suited for investigation of live cells, fixed cells and bacteria.				
		General features	 Trinocular inverted microscope with bright field, phase contrast and camera having antifungal optical system. Should have capability to upgrade into a fluorescent microscope. 	04			
			4x	0.1			
			10x	01			
		Objectives	20x	eac			
			40x	h			
			403	02			
			10 v				
		Adjustable	10 × zoom	pai			
		Eye Piece		rs	-		
				02			
			20 X zoom	pai			
				rs			
		Stage	The stage should be capable of handling cell culture flasks				
	Inverted		(T75 Flask) Petri dish and well				
06	06 Microscop e		plates.				
			Movement 126 (or higher)*78	01			
			mm (or higher)	01			
			Auxiliary stage attachable				
			Universal holder				
			Slide holder				
			Teraski holder				
			High luminescent white LED light				
		Illuminati	Accepts 2 filters				
		on	Heat absorbing filter and diffuser				
			Extra long working distance (ELWD) condenser				
			Vertical objective movement				
			Via nosepiece up/down				
			movement				
			Coarse stroke: 37.7 mm per				
		Focusing	rotation or better sensitivity				
			(could be more or less up to 2.5				
			mm)				
			Fine stroke 0.2 mm per				
			rotation (or lower)		_		
			Compatible with microscope				
			having 5 megapixels or better				
		Camera	CMOS based sensor for	01			
			detection of high-quality				
<u></u>			images				

			CMOC 1/4 0 · ·		UI-LIIK-I UK-	
			CMOS sensor size =1/1.8 inch or better			
			Recordable pixels All pixels = 2880 x 2048 or better			
			Selectable ISO Range = 50 -			
			3200 or better			
			Live display mode = All pixels			
			(2880 x 2048): 15 fps or better			
			Exposure time 100µ sec (or lower) to 30 sec (or better)			
			Interface: USB3.0 (connect			
			with PC), External trigger			
			along with software			
		Computer system for camera	As recommended by OEM	01		
		Training	On spot training (installation site)			
			12 Months or more from the			
			date of installation (parts and			
			service) with vendor having good local reputation with			
			running machines and well-			
		Warranty	trained engineers			
		and others	Proofs of trainings of company			
			personnel/engineers should be provided			
			List of microscope installations			
			in Pakistan and end user			
			satisfaction certificate/s should be provided			
			Microscope for observing and			
		Purpose	recording images of surfaces			
		1 ui post	and microstructures of metals			
			and ceramics			
			Inverted microscope with following observation methods			
			Bright field			
		General features	• Dark field	01		
		leatures	• Differential			
	Inverted		Interference Contrast Polarized Light			
6.1	Microscop	OF: 4:	• Polarized Light 4x or 5x	01		
e	Objectives compatible	10x	01			
	for all	20x	01			
	optical	50 x or 60x	01			
	options	100x	01			
		10 × zoom	01			
	Eye Piece	20011	set			
			15x or higher	01		
		Illuminati	LED Illuminator	set		
	on					

			Dialet hand July 20			UI-LIIK-I UK-	
		Stages	Right-handed stage with Vernier calibration				
		Condenser	Universal				
		Condenser	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 =				
		Camera	2748 x 2200 or better	01			
		Cumera	Live display mode = All pixels	01			
			(2748×2200) @ 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 for	As recommended by OEM	01			
		camera					
		Installatio	Complete installation and				
		n and	Installation site training				
		Training	Instanation site training				
			12 Months or more from the				
			date of installation (parts and				
			service) with vendor having				
			good local reputation with				
			running machines and well-				
		Warranty	trained engineers				
		& Others	Proofs of trainings of company				
			personnel/engineers should be				
			provided List of microscope installations				
			in Pakistan and end user				
			satisfaction certificate/s should				
			be provided				
			• Precision cutting of				
			samples with 3D				
			automated moment				
			controllable with				
			programming PLC				
			 Replaceable wearing plates 				
			including all the necessary				
	Precision	Purpose	clamping devices, cutting				
7	Cutting		liquid and as well as				
	Machine		mounting press to ease the				
			holding of delicate				
			samples.				
			All necessary				
			documentation along with				
		Conomel	Power backup.		-		
		General features	Variable speed 100 (or lower)	1			
	<u> </u>	reatures	to 4000 (or higher) rpm		l .		

	T	T	,	C	UI-LHK-PUK-	ı enaer-vv1
		Working wheel diameter				
		(replaceable): 150 mm (or				
		more)				
		Cutting diameter = 75 mm (or				
		more)				
		Fully automatic XYZ axis				
		X = 60 mm or more				
		Y = 210 mm or more				
		Z = 45 mm or more				
		X-axis resolution = 0.016 mm				
		or better				
		Adjustable table feed rate = 10				
		– 1000 μm/sec or better				
		Fully programable with LED				
		based GUI interface				
		Thin section grinding feature				
		Laser based positioning				
		Digital display with PLC for				
		automated cutting				
		Recirculating cooling system				
		Stand for specimen Vises	2			
	Accessorie	Universal Specimen Vise	2			
		Vise for Biomedical Samples	2			
		Diamond Cut-Off Wheels: Dia.	5			
		125 x thickness 0.38mm	blad			
			es 5			
		Diamond Cut-off wheels: Dia.	blad			
		150 x thickness 0.40 mm	es			
	S	Abrasive Cut-off wheels 0.25	25			
	S	mm x 200 mm	whe			
			els			
		Blade dressing unit during	1			
		grinding	10			
		Dressing medium	10			
		Mounting medium (phenolic resin)	5 kg			
		One	10			
		Oil for precision cutting	liter			
		Automated Hydraulic press	S			
		with digital control for heating				
		time, molding temperature,				
		ramp control and start & stop				
	Sample	cycle programming				
	mounting	• Temperature 200°C (or	01			
	press	higher)				
		• Pressure 300 bar (or				
		higher)				
		- Any two Mold sizes in				
		between 25-50mm				
	Power					
	backup	As recommended by OEM	01			
	with	135 I COMMICHAEL BY OEM	01			
	additional					

		ı				 UI-LIIK-I UK-	001
		Servo Stabilizer					
		Warranty & Others	installation service) with good local is running is well-trained Proofs of company personnel/en be provided List of in Pakistan provided	trainings of			
Sub	Total Basis	(Sr. # 8 to					
		Purpose	 and bone sc Capable of 316L and T materials With double and cooling 	d parts ental implants rews. machining i-6Al-4V e head, tools unit including ies for dental			
			Turning Diameter Main Spindle (mm)	20 or better			
8	Swiss Turn CNC Double Head		Sub spindle turning diameter (mm)	20 or better	01		
	machining center		Turning Length rotation (mm)	190/250 or better			
		Swiss Turn CNC	Turning Length non bush in mm	50 or better			
			Turning Length Fixed bush (mm)	280/220 or better			
			Main Spindle Drilling/tappi ng capacity (mm)	Φ10/M8 or better			
			Sub Spindle Drilling/tappi ng capacity (mm)	Φ8/M8 or better			

				 CUI-LHR-PUR-	1 ender-001
		Cross Drilling/tappi ng (mm)	Φ8/M6 or better		
		Number of outer dia. Tool Holder (pcs) ~ 12mm	6 or better		
		Number of internal dia. tool holder (pcs) ~ Ф22mm	4 or better		
Т	ooling	Spindle-1 Cross Live Tool Holder – Er-16 (pcs)	5 or better		
		Sub Spindle Face Live Tool Holder (pcs)	8 or better		
		Control Axis (with c-axis) pcs	8 or better		
		Main/sub spindle bore dia (mm)	26 or better		
		Main/sub spindle speed (rpm)	10000/8000 or better		
		X1/Z1/Y1/X2/ Z2/Y2 Rapid Traverse (m/min)	24 or better		
s	Aovement and Rotation	Spindle-1 cross drilling maximum speed (rpm)	8000 or better		
	S d	Spindle-2 face drilling maximum speed (rpm)	8000 or better		
		Controller	FANUC 32i or equivalent or better		
	Power and Lubricatio Power Requirem	Requirement	25 KVA (or lower)		
n		Lubrication Capacity in Liter	2 (or higher)		
As	Accessorie	Cooling Tank Capacity in liter	200 (or higher)		

			-LIIK-I UK-	
High pressure coolant system 70 bar with sub coolant tank and cutting oil cooler External Tool holder (6	01 set 01 set			
Internal tool holder (4 tools)	01 set			
Side drilling tool holder (5 tools)	01 set			
Complete Whirling Threading Unit with inserts and insert holders	01 set			
Parts catcher	1			
Parts conveyer	1			
Tools and toolbox	1 set			
Lighting Device	1			
Rotary guide bushing holder 190 mm stoke or better	1			
Spindle servo motor	1			
Main spindle c-axis	1			
Cutting coolant and inspection	1			
Cut-off inspection	1			
Sub spindle and sub spindle c-axis	1			
Sub spindle tool holder for 8 position milling & drilling	1			
Stationary tool holder (sub spindle)	1			
Power tool holder ER16	1			

	1	1		 I-LHK-PUK-	t chact-oot
	Chuck Gripper	1			
	Hexagonal				
	Punching tool	1			
	holder	1			
	Guide bush				
	and safety	1			
	lock				
	Non guide	1			
	bush holder	1			
	Spindle Collet	1			
	ER 16 M2				
	inner tools	1			
	holders				
	ER 16 collet	1			
	set				
	3 position OD tool holder	1			
	sub spindle	1			
	Deep Hole	_			
	drilling device	1			
	Y2-axis	1			
	Chip conveyer	1			
	& cart	1			
	Operational &				
	maintenance	1 Set			
	manual in				
	English Voltage Stabili	707			
	Voltage Stabiliz As recommend				
	Machine should				
	along with tool				
	program to ma	0			
		dental implants			
	as per attached				
	Vendor should	supply dental			
	implants sampl				
	shipment and p				
	installation, con				
	tallatio training which manufacturing				
ins n a					
		age # 47 to 49)			
	plants by maker's eng				
tria					
	oduction Lahore.	,			
	Local company	should have			
	established setu	ip and good			
	reputation alon				
	operation, repa				
	installation/con				
	staff trained by (certificate requ				
	with facilities to				
	troubleshooting				
	· · · · · · · · · · · · · · · · · · ·		<u> </u>	 	

		T	T		<u> </u>	<u>UI-LHR-PUR-'</u>	1 enaer-vv1
			certificates from satisfied customers in Pakistan must be provided Warranty: Minimum period of 1 year including service and parts Comprehensive training				
			including air travel, boarding and lodging at OEM site				
		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				
		X/Y/Z travel in mm	400/500/400 or better				
	5 axis	Rotary Table diameter (mm)	300 or better				
9	CNC machining Center	Maximum weight on table (kg)	100 (or more)	01			
		Tilting A- axis (degree)	+110/-20 or better range				
		Rotary C- axis (degree)	360				
		Controller	FANUC 0iM or equivalent or better				
		Main spindle speed (rpm)	15000 (or more)				
		tool length (mm)	300 (or more)				
		Tool fitting standards	BT40/DIN69871/CAT40/HSK A63				
		Rapid Traverse	48/48/48 or better				

				 υU	I-LHK-PUK-	i chaci-ooi
X/Y/Z						
(m/m Tool	1f1)					
maga and A (Nos)	ATC	24 or better				
Maxi speed		A-axis (rpm) 25 or better				
		C-axis (rpm) 25 or better				
Lubr n	icatio	Auto lubrication with low lubrication fault				
		High pressure chip flush system	01			
		Chip Conveyor	01			
		Spindle oil cooler & Heat exchanger	01			
Stand Acces	lard ssorie	pressure coolant through spindle (20 bar or better)	01 set			
		Connectivity through ethernet, RS232 port				
		Lamp				
		cycle finish alarm				
Softw and Progr	vare ramm	LCD touch display with USB port and PCMICA Card				
Volta Stabi		As recommended by OEM				
		Machine should be tooled up along with necessary tooling for manufacturing of bone plates and hip stems. Vendor must provide installation,				
Mach instal n and	llatio	commissioning, training which include manufacturing of bone plates by maker's engineers at installation site in CUI, Lahore.				
impla trial prod	ants uction	Local company should have established setup and good reputation along with CNC operation, repair,				
		installation/commissioning staff trained by OEM (certificate required), along with facilities to handle				
		troubleshooting. 2 end user certificates from satisfied				

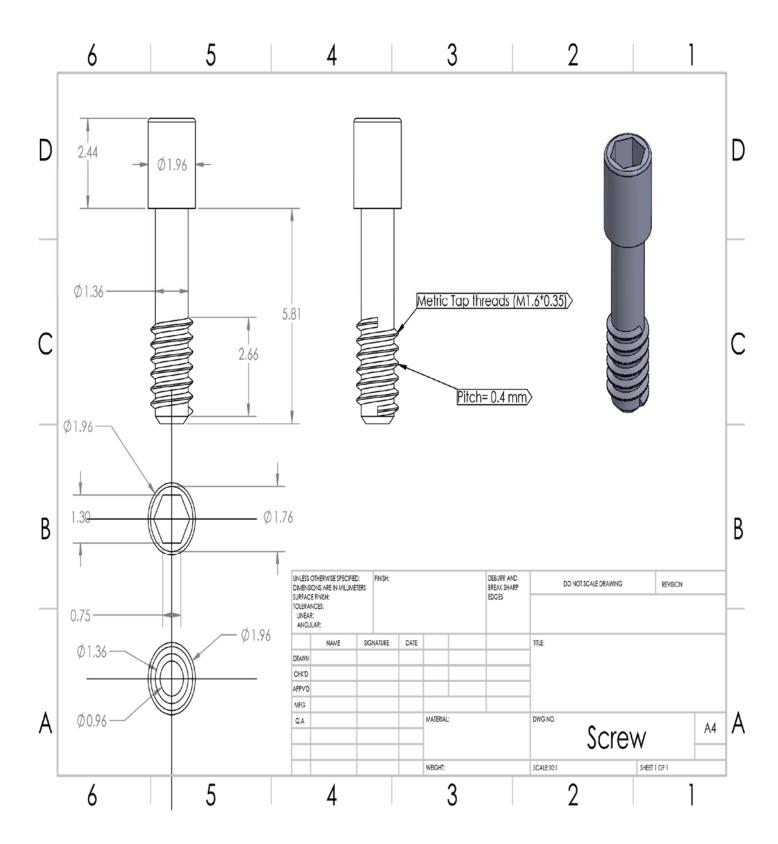
		1		, ,		UI-LHK-PUK-	renuer-oor
			customers in Pakistan must be provided				
		Warranty & Service	Warranty: Minimum period of 1 year including service and part				
		Purpose	 Capable of machining sophisticated parts including biomedical metallic implants. Capable of machining 316L and Ti-6Al-4V materials. Capable of producing round heads with precise curvature e.g. femoral heads and including suitable attachments and accessories 				
		Swing over bed (mm) Turning	450 or better				
		diameter (mm) Bar	100 or better				
	Automatic	capacity (mm) Turning	30 (or higher)				
10	CNC Lathe	length (mm)	100 or better	01			
	Machine	Stroke X/Z (mm)	140 or better				
		X/Z axis traverse (mm)	15 or better				
		Position Accuracy	0.008 mm or better				
		Main spindle speed (rpm)	6000 or better				
		Turret tools	8 (or more)				
		OD tool size (mm)	16				
		boring tool size (mm)	Φ20 (or larger)				
		Inner cutting	Ф8, 10mm & 12mm				

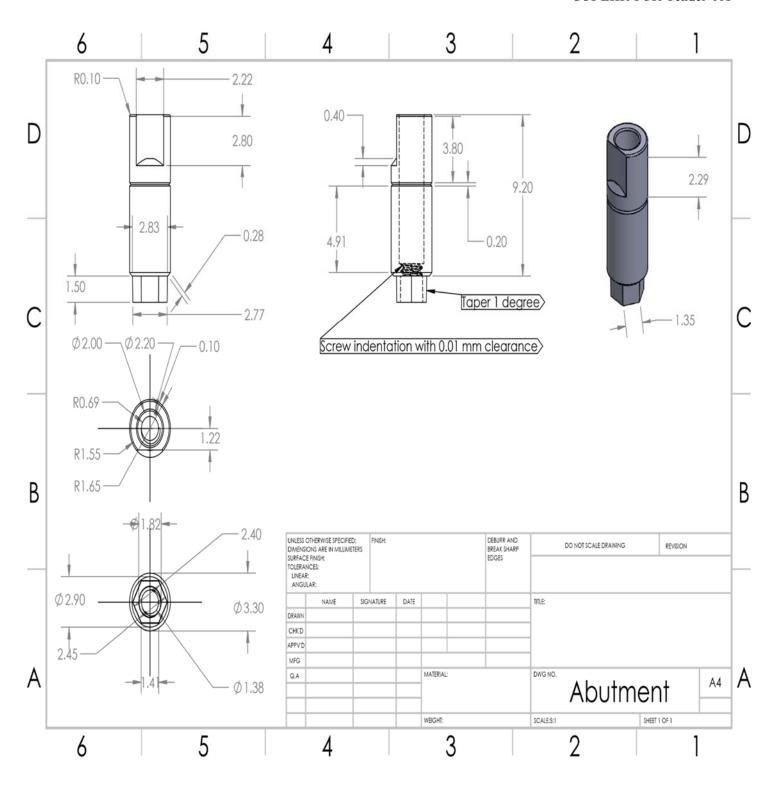
		 	JI-LHK-PUK-	render-001
sleeve (mm)				
c-axis	yes			
3 position servo face live tool or better	Should be included			
4 position servo cross live tool +Y axis	Should be included			
Accessories				
4" Jaw Chuck	01			
Collet Chuck	01			
Part Conveyer and part catcher	1 set			
Heat exchanger	1			
Coolant device with splash guard	01			
Tools with tool box	01 set			
Controller	FANUC Oi or equivalent or better			
Voltage stabilizer	As Recommended by OEM			
Machine installatio n	Local company should have established setup and good reputation along with CNC operation, repair, installation/commissioning staff trained by OEM (certificate required), along with facilities to handle			
	troubleshooting. 2 end user certificates from satisfied customers in Pakistan must be provided			

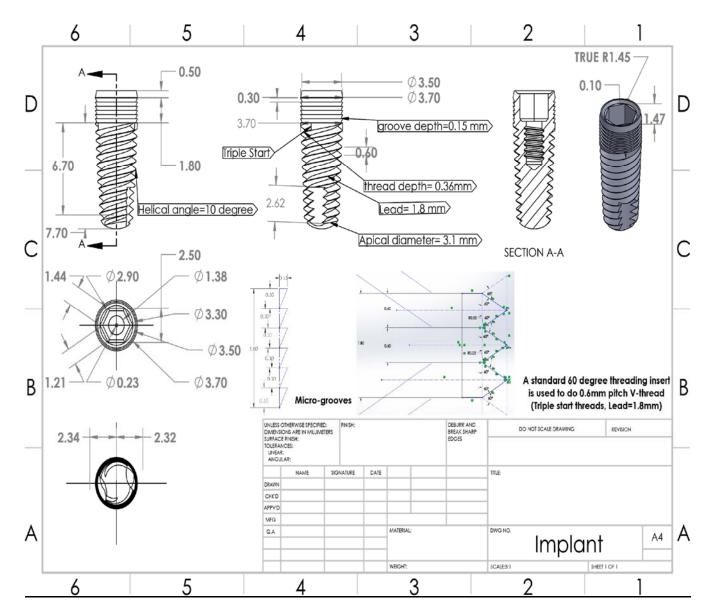
	T	1			1	<u> </u>	UI-LHK-PUK-	i enuer-oor
		Warranty		um period of 1 year				
			includi	ng service and parts				
		Purpose		The laser system should be capable of high accuracy laser marking (metals & non-metals) and laser cutting (soft materials). The capability to perform desired function can be achieved by a single system or two independent systems meeting the specifications				
			Laser power (W)	150 (or higher)				
	CNC Laser Cutting Machine		Laser source	CO ₂				
		Laser Cutting	Laser focus	Auto				
11			Working area (mm x mm)	1300 (or higher) x900 (or higher)				
			Position accuracy	±0.05 mm or better	01			
			Smallest achievab le feature	1x1 mm (or lower)				
			Connecti vity	Computer with software should be included				
			Supporti ng graphic formats	Corel draw, Autocad, photoshop and other widely used standard formats				
			Troubles hooting	Remote access option				
		Laser	Laser Power (W)	50 or better	01			
		Markin g	Laster Type	Fiber	O1			

			1	C	UI-LHK-PUK-	renaer-oor
	Marking depth (mm)	0.1 (or higher)				
	Working accuracy (mm)	0.01 or better				
	Smallest achievab le feature (mm)	0.2 or better				
	operatio n	Computer with software should be included				
	Supporti ng graphic formats	Corel draw, Autocad, photoshop and other widely used standard formats				
	Troubles hooting	Remote access option				
Power back	system. In	oower back up for the a case two separate re provided then two backups are required				
Warra ty & Others	12 Moinstall service good larunning traine Proofs compashould List of	onths from the date of lation (parts and le) with vendor having local reputation with long machines and welld engineers of trainings of lany personnel/engineers discontinuity be provided land should be provided				
Sub Total Amount (C Currency (for Sr. # 8		e Airport) with men	tioning of	Quote	d	

Reference Diagram for Sr. #8 i.e. Swiss Turn CNC Double Head machining center







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. Vendor will be responsible for Onsite Installation, Commissioning & Training of the delivered equipment's.
- iii. Purchase / work order (s) will be awarded on Item wise Basis for Sr. # 1 to 7 & on Sub Total Basis for Sr. # 8 to 11.
- iv. Kindly attach the Tender fee with Technical Bid and Bid money / CDR with Financial Bid.
- v. Multiple rates of an item may also lead to the rejection of bid / item.