



## **Notice Inviting e-Tender**

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**Procurement of Various Dental Equipments at Dr R.Ahmed Dental College  
and Hospital**

(Submission of Bid through *online*)

<b>Bid Reference No.: WBMSCL/NIT-391/2023</b>	<b>Dated-14.07.2023</b>
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**Amendment I**

**REVISED TECHNICAL SPECIFICATION**

**Item – I**

## **Hard Tissue LASER**

### **(Department of Conservative Dentistry & Endodontics)**

Er: YAG-Power 20W, Energy – 1500mJ

Modes-SWEEPS, MAX, QSP, SSP, MSP, SP, LP, VLP, SMOOTH

Delivery – Optoflex

Nd: YAG-15W

Modes:- MSP,SP,VLP, 15/25ms

Delivery – dual fibre

Accessories Needed: Tips

**Certification:** CE/EC/UK CERT/US FDA/BIS

## **Item – II**

### **Dental Operating Microscope with microscopic co observation system**

#### **(Department of Conservative Dentistry & Endodontics)**

Magnification – 5-step magnification changer

Focus – Variable focus lens, working distance adjustable from 200 – 430 mm

Illumination – TriLED provides natural colored light at high intensities TriLED with LightBoost providing Xenon like intensities

Single – Handed

Operation – Unique user interface and intuitive balancing process allow smooth and effortless single handed operation of the microscope Tube Straight binocular Tube 1800 tiltable Tube Foldable Tube f170/f260 Eyepieces 10x wide – field eyepieces 12,5x wide-field eyepieces Augmented: Augmented Visualization kit includes Green Color Mode and enables: Visualization – Multispectral Mode, No Glare Mode, Multispectral Mode documentation

Essential: Integrated HD-video (1080p) recording on USB attached storage, HDMI output, trigger from microscope or with remote control Digital Data Management: Integrated HD video (1080p), HDMI output, APP for camera control including smart recording, media data management according to operator, Co-Observation Stereo co-observation package with straight tube, inclusive Beamsplitter, 10x eyepieces, 12,5x eyepieces Laser Adaption – adaptor for laser micromanipulator microscope focus lock – external focus slider that allows to jointly move microscope and laser focus point

**Accessories Needed:** Ultrasonic endodontic tips required for different tooth for every endodontic purpose.

**Certification:** CE/EC/UK CERT/US FDA/BIS

### Item - III

#### DSLR Camera(Department of Orthodontics)

- 1.Minimum 24 mega pixel
- 2.ISO 100 25600
- 3.Shutter speed 1/4000 to 30 secs
- 4.Accessories to be supplied :
  - a. Ringflash /twinflash,
  - b. Intra oral /Mirrors
  - c. Intra oral Photographic contrastor Macrolens (100 mm)
  - d. Photographic stand –Tripod

**Certification:** CE/EC/UK CERT/US FDA/BIS

## **Item – IV**

### **Reconstruction Surgical Operating Microscope with Microscopic Co observation System (Department of Periodontics)**

#### **1. Magnification:**

- a) The system must have a 5-step magnification changer with 6:1 ratio with magnification factors 0.4x-2.5x or more.
- b) The system must offer an optical magnification range from 1.4x to 25x or more with flat Apo chromatic Optics.
- c) The adjustment of the interpupillary distance must offer a distance from 55 mm to 75mm with diopter setting must offer a value between +5 and -8 dpt.
- d) The system must offer a field of view range from 8 mm to 151 mm

#### **2. Focusing System:** Apo chromatic, continuous 200-430 mm or more working range

#### **3. Tubes:**

- a) Main Surgeon Binocular Tube should be Tilttable tube 0 to 180 degree or better
- b) Eye piece 10x magnetic wide field eyepiece with integrated eye cups for Main Surgeon Binocular tube
- c) Left-Right optical tube movement  $\pm 25$  without changing eyepiece position.

#### **4.**

#### **5. Illumination:**

- a) The system must offer LED illumination which includes 3 individual LEDs for RGB
- b) The system must offer LED illumination with Xenon-like brightness
- c) Working distance of 200 mm, the system must offer a typical light intensity of 170Klux
- d) The system must offer a 5,500 K cooling LED system far away from field of view for better cleaning.
- e) The system must offer a one finger activation of the True Light mode for handling composite materials in a natural light environment.
- f) The system must offer a one finger activation of an integrated Fluorescence Mode for

caries and composite detection

- g) The system must offer a one finger activation of an integrated polarization filter.
- h) The system must offer a one finger activation of the Orange Color Mode for composite materials

## **6. Integrated HD Camera:**

- a) The system must offer a fully integrated medical grade video camera for surgical microscope positioning with no additional load, no interfering lateral imbalance and no impact by external cables
- b) The system must offer an integrated medical grade HD video camera in Full HD resolution with image capture and video recording functions along with monitor with at least 24 inch size.

**6) Handgrip:** Strong handgrips for adjustment of total microscope along with single button operation for all the operation like illumination, filter change (Green, Yellow), working distance

## **7. Stand:**

- a) Floor stand with Auto Balance or Hydraulic balancing system.
- b) Each castor must provide a cable detector.
- c) The system must offer a 120 coupling.

## **8) Fluorescence:**

- a) The system must offer an integrated Fluorescence Mode that supports detection of carious substances and composite filling materials.
- b) The system must offer integrated crossed polarizer that remove specular reflections and aid in color mapping and shading
- c) The system must offer a light mode that prevents premature curing for typical composite materials for more than 60 seconds while preserving perception of color and depth.

**9) Stand Height & Length:** Height: 1700 mm or more & Arm length: 1500 mm or more.

**10) GUI:** User specific start position.

**11) Electrical Data:** Voltage 230V  $\pm 10\%$ , Frequency: 50 Hz

**12. Side Co-observer Attachments:** Stereo co-observation with binocular view.

**13. Accessories needed :** 1 No. Of Periodontal Microsurgical Instrument set

**14. Certification:** CE/EC/UK CERT/US FDA/BIS

### ITEM – V

## Dental Milling Machine CAD-CAM

### (Department of Prosthodontics & Crown & Bridge)

#### Online UPS for CAD CAM System

#### Milling Unit

1. **Dimensions (in mm)** – should be within a range of 450-760 x 450-1040, 580-1950
2. **Approximate weight** – should be within a range of 50 kg to 130kg
3. **Vacuum pump** – should have high displacement pump to suck the dust should be standardized.
4. **Axes** – should have minimum 5, with simultaneous motion.
5. **Axis setting angle** – A – 360 degree
6. **Axis setting angle** – B – should be within a range of + 30 degree to +35 degree and -30 degree to -40 degree.
7. **Automatic tool change** – should be fully automatic with minimum 5 tool changer, having air pressure of >0.5 npa. Should have broken tool detection as well as tool length measurement.
8. **Number of Tools per process and tool library** – should be in the range of 6 – 17 tools at least.
9. **Tool diameter** – should have an approximate of 2+1+0.6 (Ø4)
10. **Dry and wet milling** – both should be available
11. **Average milling time** – should be minimum, can be in the range of Zirconia-815 minutes, Wax – 3-7 minutes, PMMA-<12 minutes.
12. **Nesting** – should have a feature of nesting.
13. **Positioning accuracy** – should be approximately 0.2mm
14. **Milling accuracy** – should be in the accurate, may be in the range of 3-6 microns.

15. **Spindle speed** – should be good with high frequency, having minimum motor capacity of 7 Ncm motor, may be in the range of 3000 rpm to >70,000rpm
16. **Spindle power** – (motor power) should be the range of 350W to 800W.
17. **Maximum feed rate** – should be approximately 3000mm/min.
18. **Materials that can be processed** – Zirconium oxide, PMMA, Wax, Composite, Hybrid ceramics, Lithium di-silicate, Co-Cr sintered, Ti performs, PEEK, Glass fibre resin, Transparent acrylic PMMA, Splint PMMA and other hard / soft dental materials.
19. **Product type and quantity** – should be able to handle all dental work, like – Crown approximately 500, Bridge approximately 14-78 units, Inlays, Onlays, Veneers, Telescopic crowns, Bite raising appliances, axial temporary rests, Full and partial dentures, Digital models, Implant related works, Implant bridges with gingival sections, etc.
20. **Blank holder** – should be fully automatic and exchangeable.
21. **Material open system** – should be able to take standard blocks/discs by more than one manufacturer.
22. **Block size** - should be able to accommodate assorted sizes and shapes, round diameters with step ranging from 98110mm, height – 10-40mm, lengths of and above 500mm.
23. **Block holder** – should be available.
24. **Electro –spindle** – Should be of approximately 2.1kV, with rpm ranging up to 50,000.
25. **Attached bar/tool** – Should have a shank diameter of about 4mm and length of about 45 mm
26. **Milling range** – should be in the rage of 167/206/104 along X/Y/Z
27. **Engine speed** – should be the range of 7-10 Ncm
28. **Spindle cooling** – should have compressed air of 0.25-0.35 npa
29. **Sound level** – should be minimum
30. **Collect chuck** – should be available
31. **Should have auto-calibration**
32. **E-fuse**-should be available in range of 3-15 amp
33. **Body make** – should be of good quality, may be of Aluminum.
34. **Required air compressor pressure** – should be of minimum 7 bar or 6 lt/min
35. **Compressor** – should be oil free compressor with dryer should be fitted with –
  - a. Built in thermo cutoff to save the motor the motor during excess heat
  - b. Auto head air release valve
  - c. Automatic cut off
  - d. Safety release valve
  - e. Drain valve
  - f. Pressure gauge
36. **Input Voltage** – should be AC-200-240 Volts with 50-60 Hz
37. **Warranty** – 2 Years
38. **Certification** – ISO & CE
39. **Monitor** – should be touch screen

## **Furnace:**

1. **Dimension (in mm)** – should be within a range of 350x500x7000 to 500x700x900
2. **Weight** – should be within a range of 25 kg to 70 kg.
3. **Voltage** – should be within a range of 200-240v, 220/240
4. **Frequency** – should be within a range of 50-60 Hz
5. **Normal capacity** – should have wattage of about approximately 3500W, should be able to accommodate 40/60 to 120 single unit as well as single full arch bridge's
6. **Sintering temperature** – should be in the range of 1600°C to 2000°C minimum and should have the capacity to raise to maximum temperature to process zirconia blocks.
7. **Program types** – should be able to do all these following required process: Speed control, Conventional sintering, Pre-drying and speed sintering, auto-start, service program, individual customized programs, option of calibrating device temperatures, etc.
8. **Should be able to sinter** – Zirconia and pre sintered non precious metal.
9. **Should be able to sinter** at least 120 crowns together and have a provision of additional trays.
10. **Should be able to** pre-dry and speed sinter in one step.
11. **Chamber** – Should have minimum 2 chambers
12. Should have a high temperature micro processor and should have a controlled fully automatic high performance system.
13. **Display** – should have LED display.
14. **Should have a proper** Thermal Protection.
15. **Fuse** – Should be of 15 amps.
16. **Should have fast sintering**, of approximately 20 minutes and less than equal to 75 minutes for single crowns and bridges, maximum sintering time of bridges extending up to 120 minutes.
17. **Should have an option of removable furnace head**, for exchange of thermocouple.

## **Scanner and accessories:**

1. Intra-oral and Extra-oral scanner
2. Should have a high performance table top, user friendly interface, should be able to export data into most common formats.
3. Scanner should have open interface so that in can scan STL files to be loaded in other CAD programs.
4. **Open system**- Should be able to read and store all formats.
5. **DICOM viewer** – should have compatible software to integrated CBCT and CT data.
6. **Scan accuracy** – should be within a range of 2 microns to 5 microns.
7. **Scanning speed** – should be able to scan a full arch within 16-60 seconds.
8. **Data processing** – should be automatic



9. **Scan process** – should be Automatic and Digital using minimum 2 synchronized axis upto 5 axis with light projection.
10. Customisation of acquisition – should be able to customize the acquisition strategies and parameters.
11. Should be able to scan – articulators and have auto articulation, impressions, triple trays, single side and double side trays, full arch scan, implant impressions and abutments, etc.
12. Should be able to scan texture.
13. Should have universal scan and free scanning sequences.
14. Should be able capture hand drawn margins should be accurately.
15. Should have colour output.
16. **Precision** – should have Auto focus, should able to do automatic positioning of models, should have blue light technologies, should be able to do HD scanning etc.
17. Should have multi-die scanning.
18. **Number of units** – should be able to acquire complete arch / aw / stumps/ minimum 10 units.
19. Should have DNA speed matching and articulator scan.
20. Should have fixator scan
21. Should have open scanning
22. **Model holder** – should have an integrated magnetic model holder.
23. **Die holder** – should have multi die holders for minimum 10 crowns in single fast scanning.
24. **Camera** - should be high resolution, HD, C-clam, minimum – 2.2 MP
25. **Dimension** – should be compact, within a range of 3000x350x300 to 4500x800x500.
26. **Intermaxillary relation** – should be able to - register all types of bite registrations, transfer accessories for transferring articulated models, virtual articulation normal to full arch with functionalities of adjustment of condylar guidance, Bennet angle, retrusion, protrusion etc to design a fully anatomical framework, according to dynamic occlusion, record dynamic occlusion.
27. **PC and software** –
  - a. Should incorporate most upto date technologies support multicore CPU and should have advantage of 64 bit operative system.
  - b. Designing software should have feature of precision recognition of margins, automatic bridge connector design, tooth libraries, individual tooth part and compilations.
  - c. Should have in-built shade guide.
  - d. Should have large indication spectrum with fully automatic features for anatomically reduced crowns and bridges, inlays, reducing was ups, press over, telescopic, virtual articulator, possibility to upgrade implant abutment software, bar and precision attachment, abutment/screws retained long span bridge, etc.

### **Accessories to be supplied:**

- i) Requires separate air conditioned floor area
- ii) Consumable milling materials ceramic / acrylic / wax ingots / zirconia etc required  
CAD Disc – 98/10 – 20pc, 98/12-20pc, 98/14-19pc, 98/16-10pc, 98/118-10pc, 98/20-10pc.  
Wax Disc – 98/10-20pc, 98/12-20pc, 98/14-19pc, 98/16-10pc, 98/1810pc, 98/20-10pc.  
  
Colouring Disc all shades (A to D) – 10pc each  
  
Dipping colouring liquid – all shade (A to D) – 5 bottles each
- iii) Computer with accessories
- iv) Milling burs/blades/tools all size 10 pc each  
Zirconia polishing and Finishing kit – 2 pc each

**Certification:** CE/EC/UK CERT/US FDA/BIS

### **Item –VI**

### **Reconstructive Surgical Microscope with Co observation System** **(Department of Oral & Maxillofacial Surgery)**

1. Fully Apochromatic optics
2. 6:1 zoom, motorized
3. Laser auto focus
4. 200-500 working length
5. Eyepiece 10x
6. Xenon 300w/led light source with backup light
7. Automatic zoom synchronized light
8. Binocular 180 degree tiltable
9. Suspension system with height, lateral movement adjustable floor stand with position locking
10. Stereo Co observation system for assistant with 360 degree rotation
11. Adjustable diapter for eyepiece

- 12. Adjustable eyepiece distance 55-75mm
- 13. Pistol handle with hand control switch
- 14. Foot control switch
- 15. Full, HD video Camera support with video output and Recording system
- 16. **Certification** : CE/EC/UK CERT/US FDA/BIS

### **ITEM –VII**

#### **New Dental Concious Sedation Machine(Dept.of Pedodontrics and Preventive Dentistry)**

New Dental Conscious sedation machine – Analog/matrix /Porter USA .Complete set includes sedation mixture , O2 NOS Nitrous Oxide Cylinder , O2 NOS Oxygen Cylinder ,20 pieces of disposable mask and breathing circuit

**Certification** : CE/EC/UK CERT/US FDA/BIS