

Attention
Subject/ tender no. 57/2023/114
Supply for Tumors Center & Cardiac Disease Center
Diyala Health Directorate

We enlisted hereunder the specifications for **Cardiac Disease Center**, kindly requested to take it into consideration

Equipment for cardiac disease center

1- HEART-LUNG BYPASS UNITS

- ❖ Application: Heart-lung bypass units are external systems that circulate, oxygenate, and filter the blood, acting as a temporary substitute for circulatory and pulmonary function. (often used for open-heart surgery).

Part I:

- ❖ **Configuration:** Modular/console.
 - Pump positions, max ≥ 4 .
- ❖ **Pump Type:**
 - *Centrifugal*: Optional.
 - *Roller*: Yes.
 - Bidirectional: Yes.
 - Directional lock: Yes.
- ❖ **Drive system:** Direct drive or Belt.
- ❖ **Flow rate, L/min:** 0- ≥ 10 arterial.
- ❖ **Head sizes, cm:** ≥ 8.5
- ❖ **Tubing sizes, cm:** ≥ 0.3
- ❖ **Occlusion adjustment method:** Any with lock.
- ❖ **Master/slave:** Yes.
- ❖ **DISPLAYS (CHANNELS):**
 - Flow rate: Yes.
 - Temperature: ≤ 8 .
 - Pressure: ≤ 8 .

- Timers: ≤ 6 .
- Cardioplegia monitor: Yes.
- ❖ **ALARMS:** Yes, Audible and visual.
- ❖ **SAFETY DEVICES:**
 - Level detector: Yes .
 - Bubble detector: Yes ,Ultrasonic.
 - Roller pump-head covers: Yes.
- ❖ **FEATURES:**
 - Pulsatile pumping: according to manufacturer.
 - Venous flow clamp: Yes.
 - Separated heater/ cooler: Yes.
 - Writing table: Yes.
 - Lamp: Yes.
 - Accessory outlets: Yes.
- ❖ **CONNECTORS:** blood: inlet/outlet, others should be specified by manufacture.
- ❖ **PATIENT MONITOR INTERFACE:** Yes.
- ❖ **NETWORK CONNECTION TYPE:** Yes.
- ❖ **SELF DIAGNOSTICS:** Yes.
- ❖ **Line power:** (220 -240) Volt, 50 /60Hz, 3 pin Plug (G type).
- ❖ **AUX POWER SYSTEM:**
 - Type: built-in Battery preferred or UPS
 - Operating time, hr: ≥ 1 .
 - Charging time, hr: ≤ 16
 - Manual crank: Yes.

Part II

- ❖ **COMPATIBLE OXYGENATORS:** Yes.
 - ❖ **TYPE** : Hollow-fiber membrane, other specified by manufacture.
 - ❖ **Blood FLOW RATE, L/min:** ≤ 8 .
 - ❖ **MEMBRANE**
 - Material: Polypropylene or Polymethylpentene or better.
 - Surface area, m²: ≤ 2.2
 - Coating: according to manufacturer.
- ❖ **RESERVOIR** (if needed)

- Shell: Hard, other should be specified.
- Capacity, mL: ≤ 4500 .
- ❖ **STATIC PRIMING VOLUME, mL:** ≤ 400 .
- ❖ **INTEGRAL HEAT EXCHANGER:** Yes.
- ❖ **SIZES AVAILABLE:**(adult, pediatric type or infant) per user request.

❖ **Environmental requirements:** The equipment suitable for working in the climate conditions of Iraq in terms of temperature & humidity.

2- DEVICE NAME: Circulatory Assist Units, Intra-Aortic Balloon

APPLICATIONS	Adult
CONFIGURATION	Stand-alone, mobile
MODES OF OPERATION	Automated, manual
TIMING LOGIC	YES
INFLATION VOLUME ADJUST Increments, cc	≤ 0.5
TRIGGERING MODES <i>"Various triggering modes allow clinicians to select the appropriate treatment method based on the patient's unique needs."</i>	ECG, pressure, , pacer V/AV, others to be specified .
MAX PUMP RATE, bpm	≥ 200
FREQUENCY WEANING	1:1, 1:2, 1:3 or better
SIGNAL INPUTS ECG Arterial pressure Fluid-filled transducer Fiberoptic sensor	Yes Yes Yes Yes
AUTO CONDENSATION REMOVAL	Yes

DISPLAY Type Parameters QRS indicator Lead select	LCD or better ECG; systolic/diastolic pressure, alarms ,or more Yes Yes
ALARMS Trigger loss Vacuum/pressure loss Balloon disconnect Balloon leak Low battery Temporary alarm silencing other	Yes Yes Yes Yes Yes Yes Should be specified
DATA MANAGEMENT Events stored Printing facility	Alarms and others Preferred
STRIP RECORDER	Yes
BALLOON SIZES Compatibility	≥ 4 sizes , ≤ 50 , cc ≥ 2 manufacturers
HELIUM CYLINDER SIZE Volume, L Pressure	≥ 93 , refillable or ≥ 100 , disposable or ≥ 0.49 for(compressed) $\geq 2,200$ psi
Balloon catheters	Start up Qty for 5 patients
BATTERY TYPE OPERATING TIME, hr CHARGING TIME, hr	Rechargeable ≥ 2 hr ≤ 8 (100%)
Power supply	- Medical approved power supply board - 220/240 VAC, 50/60 Hz -Three pin G type plug - Stabilizing circuits or device

3- DEVICE NAME: **Defibrillator – Monitor**

Acuity Area	OR. , ICU. PICU , CCU , wards
Energy selection	<p>-External: (≤ 2 -≥ 200)J Biphasic Pediatric / Neonatal: (2-20) J. -Internal: MAX. 50 J</p>
Paddles (adult + pediatric)	<p>External</p> <p>Internal</p>
Paddle controls	Charge, discharge, Others to be specified
Synchronizer	Yes
AED mode	Yes with disposable pads start up qty for at least 100 patient
CPR	measurement and feedback
ECG MONITOR	<ul style="list-style-type: none"> - Color LCD or better - Screen, (in): ≥ 6 - Sweep speed, mm/sec: ≤ 50 selectable. - Lead configuration: ≥ 3. - Through-the-paddles monitoring - HR display - HR alarms - Lead-fault indicator
Reusable Electrodes	Adult and pediatric , startup Qty (should be specified)

Disposable electrodes	startup Qty for at least 200 patient
Self-test	Yes
External pacemaker	<ul style="list-style-type: none"> - Pacing mode: demand and fixed. - Pacing rate (ppm): $\leq(40-210)$
ECG Recorder Annotation	<ul style="list-style-type: none"> - Thermal printer. <p>Time, date, lead, gain, heart rate, operating mode.</p>
Other Monitored Parameters	<ul style="list-style-type: none"> - SpO2 - NIBP
Cart	Yes
Power	220-240VAC, 50Hz,G type Plug.
Battery Power Operating time, hr Full Recharge time, hr.	<p>Rechargeable</p> <p>≥ 2 continuous ECG monitoring or ≥ 100 discharges.</p> <p>≤ 4</p>
protection	<p>Against harmful ingress of water: IP24, IP21</p> <p>Against electrical shock: Type Class I equipment</p>
Environmental requirements:	The equipment suitable for work in the climate conditions in Iraq in terms of temperature & humidity.

4- DEVICE NAME: Bed side monitor For Sever patient (with picco)

Application : basic & advanced physiologic parameters .

Acuity area :ICU, RCU, PICU ,Cardiac post-operative care unit, Renal Transplant post-operative

PATIENT TYPE	Adult, pediatric (with all accessories needed)
NIBP	YES Systolic, mean, and diastolic pressures
ECG	YES ≥ 5 leads
Display	LCD or LED, or TFT color Touchscreen ST Segment & arrhythmia monitoring facility.
Size	≥ 15 in. ≥ 2 Channels
Traces	≥ 6 CVP, Others to be specified.
connectable to central station monitor	YES with all accessories needed
Graphical and Numeric monitored data should be recordable	YES ≥ 24 hr.
Networking	YES Optional
Interface	YES
Auxiliary Output	Digital
Connection	YES Wired Or Wireless
Recorder	Optional
Equipment Alarms	Cuff leak, Cuff disconnect, Hose leak, low battery, Low systolic BP, High systolic BP, Low diastolic BP, High diastolic BP, Low mean BP, high heart rate, low heart rate, low pulse Oximetry, low respiratory rate, and high respiratory rate, other. Graphical Tabular
Orientation	Wall mount, or bed side or with trolley
Battery(operating time)	Yes ≥ 1 hr Audible and visual.
Lead Off Status	YES Alarms: User-selectable upper and lower limits
Power Requirement	Power input to be 220-240VAC, 50Hz, 3 pin Plug (G type). arrhythmia alarm
Environmental requirements:	The supplier should be confirmed that: The Equipment is suitable for work in

	climate conditions of Iraq in terms of temperature and humidity.
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5- DEVICE NAME: Radiographic/Fluoroscopic Systems, Angiography/Interventional; Cardiovascular

TYPE	SINGLE PLANE , digital flat-panel system
SPECIFIED USE	Cardiac catheterization , Angiography
Patient type	Adult
PA GANTRY	
Configuration	According to manufacturer
Depth, cm	≥ 90
Rotation range, deg	
RAO projection	≥ 100
LAO projection	≥ 100
Rotation rate, deg/sec	≥ 20
Cranial-to-caudal angulation, deg	≥ ±45
SID range, cm	≥ 80- ≤125
Support	According to manufacturer
Park capability	Yes
TABLETOP	
Motion	≥ 4-way with tilting motion
L x W, cm	≥ (220 × 45)
Movement	
Vertical	Yes
Lateral	Yes
Longitudinal	Yes
Maximum patient weight, kg	≥ 200
ROTATIONAL ANGIOGRAPHY	Yes
X-RAY GENERATOR	
Power rating, kW @ 100 kVp	≥ 100
Radiographic mA	≤10 - ≥1000
Radiographic kV	≤50 - ≥120
Fluoroscopic mA	≥ 30
Fluoroscopic kV	≤60 - ≥120
Full in-room control	Yes
X-RAY TUBE	

Heat storage capacity, MHU Heat dissipation rate, KHU/min Focal spot Cooling system	≥ 3 (FOR HOUSING TUBE) ≥ 450 (for anode) DUAL According to manufacturer (please specified)
DETECTOR Type Dimensions, (cm) Pixel size, μm Max frame rate, fps	According to manufacturer (please specified) ≥(20*20) ≤ (200 x 200) ≥ 30
SOFTWARE -Coronary quantification and Planning -Stent Visualization(live real- time) or other equivalent technique . -Other	Yes Yes Yes (all manufacturer advance software should be supplied & clarified in details)
NUMBER OF MONITORS	≥ 2 control room, ≥ 2 exam room
IMAGING FEATURES Acquisition, fps(No. of image that can be stored each second) 512 × 512 1024 x 1024	≥ 30 ≥ 30
EXPOSURE CONTROL Virtual collimation Adjustable copper filtration Dose monitoring Pulsed fluoroscopy	Yes Yes Yes Yes (should be specified)
IMAGE STORAGE	≥ 50,000 for (1024 x 1024, images) ≥ 50,000 for(512 ×512)
DIGITAL IMAGING SYSTEM	Yes
Other specifications	1- Hemodynamic lab 2- Contrast injector 3- All needed furniture, Radiation protection shield, Aprons ≥ 3 supplier responsibility 4- Site preparation with decoration is supplier responsibility
Environmental requirements	The equipment suitable for working in the climate conditions in Iraq in terms of temperature and humidity.
Training	- Local training for ≥ 2 physician, 2 operators to operate the equipment ,1 Eng. for application (as clinical Eng

	2 Eng. for maintenance following and simple maintenance for one week.
POWER REQUIREMENTS Line power UPS for whole system	380-480 VAC, 50/60 Hz, 3-phase Yes \geq 120 KVA

**6- DEVICE NAME: Radiographic/Fluoroscopic Systems,
Angiography/Interventional; Cardiovascular**

TYPE	Biplane, digital flat-panel system
SPECIFIED USE	Cardiac catheterization , , Angiography
Patient type	Adult & pediatric
PA GANTRY Configuration Depth, cm Rotation range, deg RAO projection LAO projection Rotation rate, deg/sec Cranial-to-caudal angulation, deg SID range, cm Park capability	According to manufacturer ≥ 90 ≥ 90 ≥ 90 ≥ 20 $\geq \pm 45$ $\geq 85 - \leq 125$ Yes
LA GANTRY Configuration Rotation range, deg LAO projection Rotation rate, deg/sec Cranial-to-caudal angulation, deg SID range, cm (in) Park capability	According to manufacturer ≥ 0 to ≤ 120 ≥ 8 $\geq \pm 45$ $\geq 80 - \leq 140$ Yes
DETECTOR Type Dimensions, (cm) Pixel size, μm Max frame rate, fps	DUAL According to manufacturer (please specified) $\geq 20 \times 20$ $\leq 200 \times 200$ ≥ 30
TABLETOP	

Motion	≥ 4-way
L x W, cm	≥ (220 × 45)
Movement	
Vertical	Yes
Lateral	Yes
Longitudinal	Yes
Maximum patient weight, kg	≥ 200
ROTATIONAL ANGIOGRAPHY	Yes
X-RAY GENERATOR	
Power rating, kW @ 100 kVp	≥ 100
Radiographic mA	≤10 - ≥1000
Radiographic kV	≤50 - ≥120
Fluoroscopic mA	≥ 30
Fluoroscopic kV	≤60 - ≥120
Full in-room control	Yes
X-RAY TUBE	
Heat storage capacity, MHU	≥ 3 (FOR HOUSING TUBE)
Heat dissipation rate, KHU/min	≥ 450 (for anode)
Focal spot	DUAL
Cooling system	YES should be specified
SOFTWARE	
Coronary Quantification and Planning	Yes
Stent Visualization(live real- time) or equivalent technique	Yes
Other	Yes (all manufacturer advance software should be supplied & clarified in details)
NUMBER OF MONITORS	≥ 2 control room, ≥ 4 exam room
IMAGING FEATURES	
Acquisition, fps	
512 × 512	Fit for pediatric and neonate
1024 x 1024	Fit for pediatric and neonate
EXPOSURE CONTROL	
Virtual collimation	Yes
Adjustable copper filtration	Yes
Dose monitoring	Yes
Pulsed fluoroscopy	Yes (should be specified)
IMAGE STORAGE	
	≥ 50,000 for (1024 x 1024, images)
	≥ 50,000 for(512 ×512)

DIGITAL IMAGING SYSTEM	Yes
Other specifications	1- Hemodynamic lab 2- Contrast injector 3- All needed furniture, Radiation protection shield, Aprons ≥ 3 supplier responsibility 4- Site preparation with decoration is supplier responsibility
Environmental requirements	The equipment suitable for working in the climate conditions in Iraq in terms of temperature and humidity.

Training	- Local training for ≥2 physician, 2 operators to operate the equipment ,1 Eng. for application (as clinical Eng 2 Eng. for maintenance following and simple maintenance one week.
POWER REQUIREMENTS Line power UPS for whole system	380-480 VAC, 50/60 Hz, 3-phase Yes ≥ 160 KVA

7- DEVICE NAME: Scanning Systems, Echo, General Purpose

CLINICAL APPLICATIONS	Cardiology, Heart, Vascular, Small parts and Others
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<p>PROBE TYPES, MHz</p> <p>Linear array(multi frequency) Phased array Pediatric Phased array</p> <p>Others</p>	<p>Yes (specification should clarify) Yes (specification should clarify) Yes (specification should clarify)</p> <p>Manufacturer should mention any other available probes and its clinical application</p>
<p>SCAN MODES</p> <p>M-mode B –mode(2-D) Harmonic imaging</p>	<p>Yes Yes Yes</p>
<p>DOPPLER</p> <p>Color Doppler imaging (CDI) Power Doppler imaging (PDI) Frequency display Velocity display Duplex mode Triplex mode Continuous mode Tissue Doppler Imaging</p>	<p>Yes Yes Yes Yes Yes Yes Yes Yes</p>
<p>IMAGE DISPLAY and PROCESSING</p> <p>Automated image Focus Automated B- mode (2D) image Image CDI image optimization Automated PW Doppler Dynamic receive focus Grayscale levels Image magnification Real-time image Frozen image Split screen Maximum Depth , cm Preprocessing Postprocessing Selectable dynamic range Spectrum analyzer</p>	<p>Yes Yes Yes Yes Yes ≥ 256 Yes Yes Yes Yes ≥ 30 Yes Yes Yes Yes</p>

ANALYSIS PACKAGES Cardiac scanning Vascular scanning Others	Yes Yes other specified by the manufacturer)
IMAGE STORAGE Cine loop playback Digital storage hard drive, GB	HDD,DVD, USB, printer, other should specified Yes ≥ 500 GB HD
DICOM 3.0 COMPLIANT	Yes
MONITOR	≥ 19" high resolution LCD
Control panel	Touch screen and / or buttons
Environment requirement	The equipment suitable for working in the climate condition in Iraq in terms of condition and humidity
*Power supply Line voltage UPS	- Medical Approved power supply board - 220/240VAC,50/60Hz, Three pin G type plug - YES smart ≥ 10 minutes back up
Recommended Gel 5L	5 start kit

8- DEVICE NAME: operation table, general surgery

Application	provide an elevated surface that supports the patient's body during general surgery procedures
<u>TABLE POSITIONS(Degrees from horizontal)</u> Trendelenburg	≥25

Reverse Trendelenburg	≥25
Lateral tilt	≥18
Park Bench Position	Yes
Lateral position	Yes
Vertical range, cm	≥ (52– 90)
TABLE SECTIONS	≥4
<u>Degrees from horizontal</u>	
Back section	
UP	from 0 to ≥ 25
down	from 0 to ≥ -10
Foot/leg section	
UP	from 0 to ≥ +15
Down	from 0 to ≥ -40
Head section	Variable
ACCESSORY SIDERAIL	Yes
PERINEAL CUTOUT	Yes
MAXIMUM PATIENT CAPACITY, kg	≥ 250 Static
CONTROLS	Foot/hand
Remote control	Yes
Type	Electromechanical , other to be specified
Manual override OR electrical	Yes

Radiolucent tabletop	Yes
C-arm accessible	Yes
ACCESSORIES	Armboard, pair of legs shaped support, sacral support gel pad, heel & head protector, arm & heel support, leg shaped support ,Other Accessories should be specified
DIMENSIONS, W x L, cm Fully extended	≥ (50 x 195) or more
Column housing	Stainless steel
Caster lock	Yes
POWER REQUIREMENTS Battery	Power input 220-240VAC, 50Hz. YES
Environmental requirement	The supplier should be confirmed that: The Equipment is suitable for work in climate conditions of Iraq in terms of temperature and humidity.

9- DEVICE NAME: Thoracoscope

FDA CLEARANCE and / Or CE MARK (MDD)	YES
Type	Rigid ,HD, autoclavable
Application	minimally invasive diagnostic treatment with one small incision in the thoracic area
Field of view	0°
Endoscope Diameter	≤ 5.5 mm
working length	≤ 215 mm,
Working Channel	≤3.5 mm
<ul style="list-style-type: none"> - Compatible Trocar - Flexible Trocar Sleeve. 	<p>Yes ≤ Ø 5.5 mm'</p> <p>WL≤ 75 mm, ,≤ 60 mm , others to be specified</p>
Double spoon forceps monopolar	<ul style="list-style-type: none"> - WL ≤ 310 mm - Insulated
Electrodes	<ul style="list-style-type: none"> - Handle pistol shaped mono - Hook Electrode - Coagulation Button Electrode, monopolar - Probe Rod
Accessories	<ul style="list-style-type: none"> - Suction Tube - Fiber light cable - Perforated basket for telescope

CO2 Insufflator

Application	Laparoscopy , Thoracoscope
FDA clearance Or CE MARK(MDD)	yes
GAS TYPE	CO2 preferable heating mode
INSUFFLATION PRESSURE RANGE, mm Hg	(25- 30) maximum , adjustable
FLOW SETTINGS	≤ 2 Min.- (30- 50)Max.
OVERPRESSURE PROTECTION	Yes
Alarm type	Audible and visual
Activation pressure, mm Hg	>30 or Set point + up to 5
Electronic venting	Yes
PERITONEAL PRESSURE GAUGE/DISPLAY	Display
INSUFFLATION VOLUME GAUGE/DISPLAY	Display
<u>EXTERNAL GAS CYLINDER</u>	
- Gauge/display	YES
- Low-pressure alarm	YES
HYDROPHOBIC BACTERIAL FILTER	YES
Input power:	220/240 VAC, 50/60 Hz single phase. Three Pin G type Plug, Voltage stabilizing and over current protection circuit.
Accessories	Tubing set , stat up Qty. , cylinder & cylinder connectors

Compatible Electro surgery Unit

GENERATOR TYPE	Solid-state , electronic , or high frequency
FREQUENCY, kHz	≥ 400
FDA clearance Or CE MARK(MDD)	YES
MOUNTING	Tabletop with cart
OUTPUT	Monopolar , Bipolar
<u>MODES</u>	
Monopolar	Cut, coagulate , (fulgurate/spray) , blend others to be specified
Hand switch	YES
Footswitch	YES
Cut	
Maximum watts	≥ 200
Maximum voltage, Vp-p	≥ 500
Coagulate	
Maximum watts	≤ 200
Maximum voltage, Vp-p	1,200~ 5000
Bipolar	Cut, coagulate
Cut	
Maximum watts	≥ 70
Maximum voltage, Vp	≥ 250
Coagulate	
Maximum watts	≥ 70
Maximum voltage, Vp	≥ 120
PROTECTIVE CIRCUITS	YES , RECQM or Cable-continuity monitor Others to be specified
Smoke evacuator	YES
SELF-TEST MODE	YES
ACTIVATION INDICATORS	
Visual	YES
Audible	YES
Volume control	YES

POWER SETTING DISPLAYED	YES
COOLING	Convection or Fan
Standard accessories (reusable) Endoscopy compatible	<ul style="list-style-type: none"> • Patient electrode . • Connecting cable for patient electrode. • Electrode holder with cable. • Connecting cable for bipolar forceps
Electrodes (reusable) Endoscopy compatible	<ul style="list-style-type: none"> • Electrode set (10 different kinds/set). • Bipolar forceps, straight. • Bipolar forceps, bent.

Compatible Video System

APPLICATIONS	Arthroscopy, gynecology, laparoscopy, neuroendoscopy, urology, vascular, ENT, bronchoscope, <u>Thoracoscope,</u> Others
FDA clearance Or CE MARK(MDD)	YES
COMPATIBLE ENDOSCOPE Flexible fiber optic Rigid	All with appropriate adapters All with appropriate adapters
<u>VIDEO PROCESSOR</u>	
Resolution Advanced imaging techniques Camera inputs	HD or better Yes, Multi- model image with digital chrome, ≥ 1
Controls/features	Yes

Hue adjustment	Yes
Illumination	Yes, Automatic, manual
White balance	Automatic or , manual
Video gain	Yes
Sharpness	Yes Zoom , freeze
Outputs	NTSC PAL Digital USB , VGA or Ethernet
Pixel resolution	3840 x 2160 or more
VIDEO CAMERA	
Type	HD 3 CCD camera or 3 CMOS sensor
Cable length, m (ft)	≥ 3 (9.8)
Camera head controls	YES
LIGHT SOURCE	
Lamp type	LED or Xenon (User preference)
Lamp life, hr	≥10,000 for LED , ≥ 500 for xenon
Power	≥300W
Standby mode	YES
Display	≥19" HD
Medical grade	LED or better
Video printer	YES
Video recorder	YES USB

Medical Cart	YES, for full system
USB keyboard	Yes
Power & Environmental Requirements	Power input to be 220-240VAC, 50Hz. The supplier should be confirmed that: The Equipment is suitable for work in climate conditions of Iraq in terms of temperature and humidity

10- DEVICE NAME: Endoscopic Video System for rigid bronchoscopes

APPLICATIONS	Bronchoscope, Eoesophoscope , other rigid scopes .
COMPATIBLE ENDOSCOPE	
Rigid	All with appropriate adapters if needed
<u>VIDEO PROCESSOR</u>	
Resolution	HD or better
Advanced imaging techniques	Yes, Multi- model image with digital chrome, others.
Camera inputs	≥1
Controls/features	Yes
Hue adjustment	Yes
Illumination	Yes, Automatic, manual
White balance	Automatic or , manual

Video gain	Yes
Sharpness	Yes Zoom , freeze
Outputs	NTSC PAL Digital USB or VGA or Ethernet
Pixel resolution	1920 x 1080 or more
VIDEO CAMERA	
Type	Full HD 3 CCD camera or 3 CMOS sensor
Cable length, m (ft)	≥ 3 (9.8)
Camera head controls	YES
LIGHT SOURCE	
Lamp type	LED or Xenon (User preference)
Lamp life, hr	≥30,000 for LED , ≥ 500 for xenon
Standby mode	YES
Display	≥26" LED or better
Video printer	YES
Video recorder	YES CD / DVD Recorder or better
Medical Cart	YES, for full system
Power & Environmental Requirements	Power input to be 220-240VAC, 50Hz.

	The supplier should be confirmed that: The Equipment is suitable for work in climate conditions of Iraq in terms of temperature and humidity
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Adult Set

Application	bronchoscopes are used to view the interior of the respiratory tract, particularly the trachea and the bronchi of the lungs. and foreign body removing (soft , hard , flat)
FDA CLEARANCE and / or CE MARK (MDD)	Preferred / yes
TYPE	Video Rigid with integrated lens irrigation
Patient range	Adult
Telescope	0 ° , Dim. (5-6)mm Length (50-55)mm
Bronchoscope length (30 – 45)	Size 8 Size ≥ 7
Accessories	<ul style="list-style-type: none"> - Adaptors for respirators (ventilation elemnts) - forceps for large foreign bodies - forceps for fine foreign bodies - Biopsy forceps - Suction tubes (different sizes) - Trays for sterilizations and storage
Video	Yes compatible with video system
Recommended reprocessing	Autoclave

Pediatric Set

Application	bronchoscopes are used to view the interior of the respiratory tract, and foreign body removing (soft , hard , flat)
FDA CLEARANCE and / or CE MARK (MDD)	Preferred / yes
TYPE	Video Rigid with integrated lens irrigation
Patient types	Infant , pediatric
<u>Infant set</u> Telescope 1 (0 °) Telescope 2 (0 °) Optical forceps Suction tube	Diameter (2.7 – 3)mm , length (15-20)mm Diameter (1.3 – 2)mm , length (30-35)mm With alligator jaws Diameter (1-3) mm
<u>Pediatric set</u> Telescope 1 (0 °) Telescope 2 (0 °) Telescope 3 (0 °) Optical forceps Suction tube	Diameter (2.9 – 3)mm , length (30-35)mm Diameter (4 – 5)mm , length (20-30)mm Diameter (5 – 7)mm , length (40-45)mm With (3 different sizes and shapes) Diameter (2-4) mm (3 different sizes)
Accessories	<ul style="list-style-type: none"> - Bridges (3 different sizes) - Sterilization tray for each set with their accessories . - Others to be specified
Recommended reprocessing	Autoclave
ENVIRONMENTAL REQUIREMENTS	The Equipment is suitable for work in climate conditions of Iraq in terms of temperature and humidity.

11- DEVICE NAME: Video Bronchoscope , complete system

Application	Flexible bronchoscopes are used to view the interior of the respiratory tract, particularly the trachea and the bronchi of the lungs.
TYPE	Video adult
INSERTION TUBE Length, mm Outer diameter, mm	≥ 600 $\geq 3 \sim < 6.5$
Graduation marks(cm)	$\geq (5-50)$
WORKING CHANNELS Diameter, mm	1 channel $> 1 \sim \leq 3$
OPTICS: Field of view, deg Depth of field,mm	≥ 90 $\geq 3 \sim \leq 100$
TIP DEFLECTION RANGE, deg	≥ 90 in all directions
Distal tip Diameter,mm	≥ 2.8
Accessories	Biopsy forceps Cytology brush Grasping forceps
Immersible Recommended reprocessing	Yes Compatible with most reprocessing methods; more than one method recommended

TYPE	Video pediatric Flexible
INSERTION TUBE Length, mm Outer diameter, mm	≤ 600 ≤ 5.1
WORKING CHANNELS Diameter, mm	≥ 1 ≤ 3.2
OPTICS Field of view, degrees Depth of field, mm	>90 $3 - \geq 50$
TIP DEFLECTION RANGE, degrees	\geq Up 180, down 130
DISTAL TIP Diameter, mm	≤ 5.5
Immersible Recommended reprocessing	Yes Compatible with most reprocessing methods; more than one method recommended
Instruments	Mini Biopsy Forceps Mini Cytology Brushes Grasping Forceps

APPLICATIONS	PULMONARY
COMPATIBLE ENDOSCOPE	Flexible Video scopes
<u>VIDEO PROCESSOR</u>	
Resolution Advanced imaging techniques	HD or better Yes, Multi- model image with virtual chrome, others.

Controls/features	Yes
Hue adjustment	Yes
Illumination	Yes, Automatic, manual
White balance	Automatic or , manual
Video gain	Yes
Sharpness	Yes
	Zoom , freeze
Outputs	PAL
	Y/C
	Digital(HD-SDI , DVI)
External interface	USB or VGA or Ethernet
Documentation	YES, patient data & others
LIGHT SOURCE	
Lamp type	LED or Xenon 300 W (User preference)
Lamp life, hr	≥10,000 for LED , ≥ 500 for xenon
Standby mode	YES
Display	≥26"
Additional display	colored full HD ,LED or better
Video printer	YES
Video recorder	YES
	CD / DVD Recorder or better
Medical Cart	YES, for full system , with monitor holder

Suction Unit	YES
Canister capacity	≥ 2 Liter -
Power & Environmental Requirements	<p>Power input to be 220-240VAC, 50Hz.</p> <p>The supplier should be confirmed that: The Equipment is suitable for work in climate conditions of Iraq in terms of temperature and humidity</p>

12- DEVICE NAME: Point –Of-Care Analyzer, Blood Gas/PH

Application	Analyzers used to measure blood gas, pH, electrolytes, and some metabolites in whole blood specimens. The turnaround time (TAT) for tests will be performed on POC analyzers should be short in areas where immediate test results are necessary such as ICU, PICU, ED and OR.
FDA clearance or CE mark	Yes ,FDA (preferred)
Configuration	Bench top or portable (with cart or carrying case according to manufacturer)
TEST MENU <ul style="list-style-type: none"> • Blood gases/electrolytes • Chemistries • Co-oximetry 	pH, pCO ₂ , pO ₂ , Na ⁺ , K ⁺ , Cl ⁻ , Ca ⁺⁺ and other glucose ,lactate and others ctHb , sO ₂ , FO ₂ Hb , FCOHb , FMetHb , FHHb , FHbF , ctBil
Sample types	Whole blood or others
Sample size, μL	≤ 200 (specific short probe position for low volume sample)
Analysis Time, Min	≤ 3
Reagents type	Cassette or Cartridge or Liquid or other type
Reagent preparation	No
Calibration	Automatic preferred
QC materials	According to manufacturer
Alert indicators	Yes
Display, type	Color LCD or other
Data displayed	Test results & patient ID or other
Data management Programmable Data stored Printer	Preferred Patient and QC data(preferred) , ≥ 250 test Yes
Bar-code reader Reagent Sample	Yes Yes
Computer interface <ul style="list-style-type: none"> • HIS • LIS 	Yes Yes

Power Requirements Line power, VAC Backup	220-240, 50/60 HZ Preferred (Battery or UPS)
Environmental conditions	The equipment suitable for working in the climate conditions of Iraq in terms of temperature & humidity

13- DEVICE NAME: *Hemodialysis Units, Continuous Replacement Therapy, Renal*

APPLICATION	-Treat patients suffering from acute kidney injury (AKI), a critical condition characterized by sudden temporary loss of normal kidney function.
INTENDED AREA OF USE	ICU / Acute care
AVAILABLE TREATMENTS CRRT mode Blood purification mode	CVVHDF ,SCUF, CVVH, CVVHD Yes
FLUID BALANCE MEASUREMENT Gravimetric	YES
FLOW RATES, mL/min Blood Dialysate Replacement (substitution) fluid Effluent (ultra-filtration)	Range any value \geq (5-450) Range any value \geq (0-400) Range any value \geq (0-100) Range any value \geq (0-150)
ANTICOAGULATION Heparin,	Should be specified by the manufacturer
PRESSURE, mm Hg Arterial pressure Venous pressure Pre-filter pressure Trans-membrane pressure Effluent pressure	Range(\geq -250 to \leq 450) Range(\geq -50 to \leq 350) Range(\geq -50 to \leq 450) \geq 100 Should be specified by the manufacturer

TEMPERATURE CONTROL Method Temperature range, °C	Warming Range (≥15 to ≤43)
SETS/FILTERS Number of sets/filters Manual or auto load	≥ 1 Auto load or manual load
DISPLAY TYPE	LCD or color touch screen
DISPLAYED PARAMETERS Flow rate Pressure Treatment time	Yes Yes Yes
ALARMS Blood-leak detector Air/foam detector Arterial/venous pressure Filter pressure Temperature	Yes Yes Yes Yes Yes
System: Data storage Interfaces	≤5000 events and treatments Rs232,other
Power Supply	- 220VAC ,50/60 Hz - Three pin plug (G type)
Environmental Requirements	The supplier confirm that: The equipment suitable for work in the climate conditions in Iraq in terms of temperature & humidity.

14- DEVICE NAME: **ULTRASONIC SURGICAL UNIT**

Application	Ultrasonic surgical units use high-frequency mechanic ultrasonic vibration to cut and coagulate tissue.
SURGICAL INDICATIONS	Soft tissue incisions, gynecologic, urologic, Open, laparoscopic, cutting, coagulating, ligating vessels, general surgery.
CONFIGURATION	Portable or tabletop
TRANSDUCER ASSEMBLY	Yes, according to manufacturer
ULTRASONIC SYSTEM Frequency, kHz	≥30

Maximum amplitude, μm Oscillation system	≥ 80 Piezoelectric
BLADE CONFIGURATION Material Style Reusable /Disposable Laparoscopic/open	Titanium, Titanium alloy Straight blade or curved blade. Yes Both
STERILIZATION	Yes
DISPLAYS	Yes, should be specified .
AUDIBLE INDICATORS	Audible or visual.
CONTROLS Interface Handswitch	Yes, should be specified. Touchscreen, other to be specified Yes
POWER SUPPLY	- 220VAC ,50/60 Hz - Three pin plug (G type)
ENVIRONMENTAL REQUIREMENTS	The Equipment is suitable for work in climate conditions of Iraq in terms of temperature and humidity.

15- DEVICE NAME: **UITRASONIC SURGICAL UNIT**

Application	Ultrasonic surgical units use high-frequency mechanical ultrasonic vibration to cut and coagulate tissue.
SURGICAL INDICATIONS	Soft tissue incisions, gynecologic, urologic, Open, laparoscopic, cutting, coagulating, ligating vessels, general surgery.
CONFIGURATION	Portable or tabletop
TRANSDUCER ASSEMBLY	Yes, according to manufacturer

ULTRASONIC SYSTEM Frequency, kHz Maximum amplitude, μm Oscillation system	≥ 30 ≥ 80 Piezoelectric
BLADE CONFIGURATION Material Style Reusable /Disposable Laparoscopic/open	Titanium, Titanium alloy Straight blade or curved blade. Yes Both
STERILIZATION	Yes
DISPLAYS	Yes, should be specified .
AUDIBLE INDICATORS	Audible or visual.
CONTROLS Interface Handswitch	Yes, should be specified. Touchscreen, other to be specified Yes
POWER SUPPLY	- 220VAC ,50/60 Hz - Three pin plug (G type)
ENVIRONMENTAL REQUIREMENTS	The Equipment is suitable for work in climate conditions of Iraq in terms of temperature and humidity.

16- DEVICE NAME: *Radiographic Systems ,Digital (DR)*

Applications	Perform routine diagnostic x-ray examinations
RADIOGRAPHY MODES Number Detectors Detector type	Digital :Integrated digital (one console for control x-ray and previewing image) 2 (first for table and the second for chest stand) Flat panel detector
TABLE	

Type	4-way float-top, elevating motorize
Travel	
Longitudinal, cm	Yes (specified by the manufacturer)
Lateral, cm	Yes (specified by the manufacturer)
Vertical, cm	Yes (specified by the manufacturer)
Tabletop	
Length, cm	≥ 200
Width, cm	≥ 75
X- ray density, mm Al	≤ 1.7
Minimum Height, cm	≤ 60
Table weight capacity, kg	≥ 200
Tabletop material	Heavy duty
Locking system	Yes
TABLE BUCKY SYSTEM	
Type	Motorized
Size, cm (in)	$\geq (35 \times 43)(14 \times 17)$
AEC (Automatic exposure control)	Yes
Grid ratios	$\geq (8:1)$
Lines/mm (lines/in)	$\geq 3 (90)$
Cassette sizes, cm (in)	Filmless
Longitudinal travel	Yes
UPRIGHT BUCKY	
Type	motorize
Size, cm (in)	$\geq (43 \times 43)(17 \times 17)$
AEC (Automatic exposure control)	Yes
Grid ratios	$\geq (8:1)$
Lines/mm (lines/in)	$\geq 3 (90)$
Cassette sizes, cm (in)	Filmless
Longitudinal travel	Yes
DIGITAL DETECTOR	
Detector material	CSI or GOS
Matrix size	Higher preferred
Pixel size	$\geq 100 \mu\text{m}$
Control panel	
Automatic parameter selection	Yes
Anatomic-specific post processing	Yes

X-RAY GENERATORS	High frequency; $\geq 65\text{kW}$
X-RAY TUBES Maximum mA at 100 kVp Focal spot sizes, mm Heat capacity, kHU Cooling rate HU/min Control panel on x-ray tube	≥ 600 \geq Two focal spots (sizes specified by manufacturer) ≥ 300 $\geq 50,000$ Yes
TUBE SUSPENSION Tube-mounted x-ray control Model, suspension Model, collimator	Yes Yes Automatic & / or manual
ACCESSORIES Compression bands Handgrips	Yes Yes
INTEGRATION DICOM 3.0	Yes
OTHER SPECIFICATIONS	- Dry film printer specified by the manufacturer
Environment requirement	The equipment suitable for working in the climate condition in Iraq in terms of condition and humidity
*Power supply Line voltage UPS	- Medical Approved power supply board - 220/240 VAC , 50/60 Hz single Three pin (G type) plug or three phase - Yes for ≥ 10 minute power back up

17- DEVICE NAME: *Scanning Systems, Ultrasonic, General Purpose*

CLINICAL APPLICATIONS	Abdomen, abdominal vascular, OB/GYN, small parts (breast, thyroid, scrotal, prostate, MSK) and others
PORT PROBES	≥ 3 ports

<p>PROBE TYPES, MHz</p> <p>Linear array Convex array Endovaginal Dedicated 3-D/4-D</p> <p>Others</p>	<p>≥ 2 Probes chosen by customer according to specialty</p> <p>Yes (specification should clarify) Yes (specification should clarify) Yes (specification should clarify) Yes (specification should clarify)</p> <p>Manufacturer should mention any other available probes and its clinical application</p>
<p>SCAN MODES</p> <p>M-mode B –mode(2-D) 3-D (automatic) 4-D (Live 3-D) Harmonic imaging</p>	<p>Yes Yes Yes Yes Yes</p>
<p>DOPPLER</p> <p>Color Doppler 3-D/4-D Power Doppler 3-D/4-D Frequency display Velocity display Pulse wave Duplex mode Triplex mode</p>	<p>Yes Yes Yes Yes Yes Yes Yes Yes</p>
<p>IMAGE DISPLAY and PROCESSING</p> <p>Automated image optimization Gray scale level Image magnification Maximum display ,mm Preprocessing Postprocesing Real-time image Frozen image Split screen</p>	<p>Yes ≥ 256 Yes ≥ 240 Yes Yes Yes Yes Yes</p>

Software Features Analysis package	Yes (1st trimester OB, 2nd, 3rd trimester OB, GYN, fertility)
Digital calipers	Yes
Selectable dynamic range	Yes
Adjustable transmit focus	Yes
Dynamic receive focus	Yes
Measurements on video replay	Yes
Application Features Auto Trace Measurement	Yes
Auto OB Measurement	Yes
Panoramic Image	Yes
Automatic Image Optimization	Yes
Other Features	Specify by manufacturer
IMAGE STORAGE Printer	HDD,DVD, USB, other should specified
Capacity, number of stored images	(B&W) or better, ≥ 500 GB
Cine	Yes
DICOM 3.0 COMPLIANT	Yes
Control panel	Yes (buttons and / or touch screen)
MONITOR	≥ 19" Flat panel high resolution monitor LCD
Environment requirement	The equipment suitable for working in the climate condition in Iraq in terms of condition and humidity
*Power supply Line voltage UPS	- Medical Approved power supply board - 220/240VAC,50/60Hz, Three pin G type plug - YES smart (Online ≥ 2 kv)
Recommended Gel 5L	5 start kit

18- DEVICE NAME: ***Radiographic Units, Mobile (DR)***

APPLICATION	Radiographic imaging of patients who cannot be transported to radiology department
TYPE OF POWER SOURCE Battery Can be directly powered by AC line Charging full time	Yes Yes ≤ 10
X-RAY TUBE ANODE Heat capacity, HU Cooling, HU/min Maximum output, kVp Range mAs range	Rotating $\geq 100,000$ $\geq 10,000$ ≥ 120 $\geq 40- \geq 120$ ≥ 300
X-RAY GENERATOR Power rating, kW	High-frequency generator ≥ 20
INDICATOR METERS Type kVp mAs	Digital Digital Digital
ALUMINUM FILTER, mm	Yes
SID RANGE, cm	$\leq 75 - \geq 200$
TUBE MOVEMENT Horizontal, cm Vertical, cm Rotation : Z-axis, ° X-axis, °	Applicable for the need of different radiological examination ≥ 35 ≥ 70 Yes (specified by the manufacturer) Yes (specified by the manufacturer)
HANDHELD CONTROL Cord length, m	Yes Wire or wireless
DIGITAL DETECTOR Type Wireless Size, cm Size of built-in display monitor Type of network connection Processing (analyses) tools	CSI or batter Yes $\geq (35 \times 43)$ $\geq 15"$ color screen LCD medical monitor DICOM 3.0 Specified by the manufacturer

Film storage NO. of cassette stored	≥ 2
PATIENT-CENTERING/ COLLIMATOR LIGHT	Yes
Environment requirement	The equipment suitable for working in the climate condition in Iraq in terms of condition and humidity
*Power supply Line voltage	<ul style="list-style-type: none"> - Medical Approved power supply board - 220/240 VAC , 50/60 Hz single phase, - Three pin G type plug

19- DEVICE NAME: Nerve Detecting Sonograph

FORM FACTOR	Portable
CLINICAL APPLICATIONS	Anesthesia , Nerve block , abdominal , small parts , vascular , MSK, and Peripheral vascular
PROBE TYPES, MHz Flat linear array Convex array Hockey stick	5 - \geq 12 Yes multi frequency Yes
SCAN MODES	B-mode (2-D) M-mode Harmonic imaging
Doppler	- Color Doppler imaging (CDI) And/ OR Power Doppler imaging (PDI). Duplex mode
Needle enhancement	YES
IMAGE DISPLAY AND PROCESSING	- Automated B-mode image optimization - Grayscale levels \geq 128 - Image magnification (zoom)
Monitor, (in)	\geq (15) HD LCD or LED or better
Maximum display depth, mm	\geq 100

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Split screen	YES
Preprocessing	YES
Post processing	YES
DIGITAL IMAGE STORAGE	YES, still images
Digital storage hard drive size	≥ 25,000 images
SOFTWARE FEATURES	Anesthesia, nerve block ,peripheral Vascular
CONNECTIVITY	
Data export methods	DICOM3, or USB, or Wireless, or Bluetooth
Battery	Rechargeable, ≥ 1.5-hr battery life
Printer	Yes
Cart	Yes with casters and breaks
Power & Environmental Requirements	Power input to be 220-240VAC, 50Hz. The supplier should be confirmed that: The Equipment is suitable for work in climate conditions of Iraq in terms of temperature and humidity.

20- Device Name: Incubator Infant

Clinical Application	An infant incubator provides a closed, controlled environment that warms an infant by circulating heated air over the skin.
FDA CLEARANCE and /or CE MARK (MDD)	Yes , Preferred (FDA)
MOBILE OR TRANSPORT	Mobile
TEMPERATURE CONTROL RANGE, °C	
Air	$\geq 20 \sim \leq 39$, 0.1 degree increments
Skin	$\geq 33 \sim \leq 39$
TEMPERATURE DISPLAY	
Air	Yes
Skin	Yes
ALARMS	
High air temp	Yes
Low air temp	Yes
High skin temp	Yes
Low skin temp	Yes
Fan failure	Yes
Sensor failure	Yes

Power failure	Yes
BACKUP THERMOSTAT	Yes
HEATER POWER INDICATOR	Yes
HAND PORTS	≥ 4
TUBING PORTS	≥ 6
O2 SOURCE	
Inlet Ports	≥ 1
Controllers	Yes (Servo Controller)
SUPPLEMENTAL HUMIDITY	
Adjustable	Yes
Trending capabilities	Air temperature, skin temperature, humidity, oxygen.
INTERNAL NOISE, dB	≤ 60
SAFETY FEATURES FOR SECURING PORTS AND DOORS	Yes & should be specified details.
BATTERY backup or UPS	Yes, (for operating ≥ 30 min)
APPROVED CLEANING AGENTS	Should be specified the type of Agents.
DOUBLE WALL	Yes
VERTICAL HOOD-TO-MATTRESS DISTANCE, cm	≥ 34
Mattress, Type	Water Proof
Mattress, W x D, cm	≥ (60 * 35)
Casters, (cm) with locks	≥ 12.5
Power & Environmental Requirements	<ul style="list-style-type: none"> •Power input to be 220-240VAC, 50Hz. •The supplier should be confirmed that: The Equipment is suitable for work in climate conditions of Iraq in terms of temperature and humidity.

21- DEVICE NAME:*ECG, Portable*

MEDICAL APPLICATION	Detect the electrical signals associated with cardiac activity and produce an ECG, a graphic record of the voltage versus time to diagnose and assist in treating some types of heart disease and arrhythmias.
PATIENT TYPE	Adult, pediatric
CONFIGURATION CART	Portable Yes
LEADS Switching Sensitivity, mm/mV Calibration signal Frequency range, Hz Diagnostic Filtered CMRR @ 60 Hz, dB Leads-off indicator	Automatic, optional manual ≥ 3 values ex. (5, 10, 20) Automatic, optional manual Range ≥ (0.05-150)Hz Yes ≥ 100 Yes
RECORDER No. of channels Recording method Printer Paper size Lead marker Timing marker Event marker Chart speed, mm/sec Channels acquired simultaneously Channels printed simultaneously	12 leads Thermal array Integrated According to manufacturer Yes Yes According to manufacturer Minimum ≤ 25, Maximum ≥ 50(steps should specified by the manufacturer) ≥ 12 ≥ 12
NO. WAVEFORMS DISPLAYED	≥ 12
NO. WAVEFORMS STORED	Specified by the manufacturer
ECG TRANSMISSION TO ECG DATA MANAGEMENT SYSTEM	Yes

PROGRAMS	Adult resting ECG, other specified by the manufacturer
USER INTERFACE	Keyboard or Touchscreen
STORAGE Normal, no. ECGs	≥ 50
PATIENT DATA	Name, sex, age, others (specified by the manufacturer)
MEASUREMENTS Arrhythmia ID Other printouts	Yes HR, PR,QT and others Yes Optional (Specified by the manufacturer)
INTERPRETATION Analyzed waveform Analysis window (sec)	Yes Specified by the manufacturer ≥10
PREVIEW SCREEN	Yes
DISPLAY TYPE SIZE(IN)	LCD or TFT or better ≥7
VISUAL INDICATORS	Specified by the manufacturer
DEFIBRILLATOR OVERLOAD PROTECTION	Yes
BATTERY OPERATION Battery type (No.)	According to manufacturer (device should be able to work on direct AC line) Specified by the manufacturer
*Power supply Line voltage	- Medical Approved power supply board - 220/240 VAC , 50/60 Hz single phase, Three pin G type plug

22- DEVICE NAME: CT Scanners 128 slice

CLINICAL APPLICATION	Produce thin cross-sectional images of the human body for a wide variety of diagnostic procedures.
TYPE - Number of slices - Number of channel (Analog to digital converter)	Multislice ≥ 128 ≥ 64

<p style="text-align: center;">DETECTOR</p> <ul style="list-style-type: none"> -Field of view (standard), cm - Minimum Reconstructed slice width , mm - Standard rotation times, sec, 360° 	<p>≥ 50 ≤ 0.625 ≤ 0.5</p>
<p style="text-align: center;">GANTRY</p> <ul style="list-style-type: none"> -Gantry aperture, cm -Scan localizer 	<p>≥ 70 Laser</p>
<p style="text-align: center;">X-RAY TUBE</p> <ul style="list-style-type: none"> -Heat storage, MHU /Heat dissipation rate, kHU/min -Tube cooling -Tube focal spots, mm -Max mA 	<p>≥ (7/ 700) or ≥ (0.6 / 7000) Oil/ Air , Air/ Water or other Dual or More ≥ 600</p>
<p style="text-align: center;">X-RAY GENERATOR</p> <p>kW output</p>	<p>High frequency generator ≥ 70</p>
<p style="text-align: center;">PATIENT TABLE</p> <ul style="list-style-type: none"> -Max load capacity without restrictions, kg -Scannable range ,cm 	<p>≥ 200 ≥160</p>
<p style="text-align: center;">CLINICAL APPLICATIONS AND FUNCTIONALITY</p> <ul style="list-style-type: none"> - Lung nodule AI - Lung nodule assisted reading - Lung function analysis - Coronary artery calcification scoring - Auto vessel mapping - Ventricular output - Myocardial evaluation - Auto bone removal - Metal artifact reduction - Vessel analysis (non cardiac) - Bone mineral analysis - CT angio D.S.A - Dose management - Artificial` intelligence - Virtual colonoscopy & bronchoscopy - Other 	<p>Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Should be specified</p>

<p>IMAGE RECONSTRUCTION</p> <ul style="list-style-type: none"> -Computer CPU -Scan FOVs, cm -Reconstruction matrices - Real-time partial image reconstruction 	<p>Last version ≥ 50 $\geq 512 \times 512$ Yes</p>
<p>SYSTEM INTEGRATION</p> <ul style="list-style-type: none"> -DICOM 3 	<p>Yes</p>
<p>IMAGE PROCESSING</p> <ul style="list-style-type: none"> - Recommended post processing workstation - DICOM 3-D image export - Workstation -Monitor workstation 	<p>According to manufacturer Yes Yes Should contain all the clinical application that mentioned above. Dual ≥ 19 " or Single ≥ 24"</p>
<ul style="list-style-type: none"> -High contrast spatial 	<p>≥ 15 lp/cm</p>
<p>Training</p>	<p>Local training : (1 week) 2 physician(radiologists) 1 eng (from hospital) 2 Operator (from hospital)</p>
<p>Printer</p>	<p>- Dry film printer with CD Writer, DVD,(specifications should be specified), starting kit 1000 film</p>
<p>Injector</p>	<p>- Dual head (specification should be mentioned) with starting kits, 100 Syringe and preferable having local agent to supply the consumables of the injector.</p>
<p>Site preparation</p>	<p>Supplier responsibility</p>
<p>Environmental requirements</p>	<p>The equipment suitable for working in the climate conditions in Iraq in terms of temperature and humidity.</p>
<p>*Power supply UPS with voltage stabilizer</p>	<p>380/480 VAC, 3PHASE, 50/60HZ ≥ 10 minutes at full load continues power supplying technique</p>

23- DEVICE NAME: plasma sterilizer

Application	Used to sanitize and deactivate all microorganisms present in the medical instrument
INTENDED use, devices	Non-hollow loads , such as electrocautery instruments, dopplers , laser probes, defibrillator paddles, thermometers, Ophthalmic lenses, and harmonic cables , also , such as Laryngoscopes and their blades, shaver hand pieces, fiber optic light cables, and surgical power drills , Endoscopes , such as rigid and flexible endoscopes other
FDA clearance or CE MARK (MDD)	Yes
Chamber size Volume(L) Form shape Shelves (trays) material	130 L to 150L Rectangle Two shelves or more (According to design manufacture) Stainless steel 316L
Doors Operation	Single automatic vertical sliding doors
Loading No. of Baskets	basket, carriage 2 or more according to the chamber size
Sterilization technology	Radiofrequency
H ₂ O ₂ concentrator Sterilization agent	Increases concentration to > 82% wt for improved efficacy >58% hydrogen peroxide
Minimum value of vacuum	<80 pa
PREPROGRAMMED CYCLES Test cycles available	It have 3 program(short, stander ,fast) Biological Indicators ,Chemical Indicators ,Plasma Indicator ,vacuum test

Sterilization temperature	Average 55 °C
Heating board	homogeneous temperature distribution , Circular heater
H2O2 agent	Bottles Solution , cassette(a preferred one of them use more of cycles)
CONTROLLER	Microprocessor
Display	PLC ,Automatic, touch screen.> 5.7 .
Data displayed	
Indicator type	Required ,Audible, visual
Temperature above or below set point	Required ,audio , visual
Chamber pressure or temperature failure	Required ,audio , visual
Cycle disruption or failure	Required
DATA MANAGEMENT	
Recorder	Yes
Printer	Yes
USP port	Yes
Memory card	Yes
Input power	480 VAC, 50/60 Hz three phase. Three Pin G type Plug, Voltage stabilizing and over current protection circuit.
Environmental requirements	The equipment suitable for work in the climate conditions in Iraq in terms of temperature & humidity.

24- DEVICE NAME: Steam Sterilizer Autoclave

***certified : standers and requirement for quality EN285:2016 other standers**

Application	Sterilization of solid instruments, hollow instruments, packed instruments & porous loads.
FDA clearance or CE MARK (MDD)	Yes
Chamber size Volume (L) material	200 L ≥ Stainless steel 316L AISI
Doors Operation	Single automatic vertical sliding doors
Loading	basket, loading cart , carriage
STEAM SOURCE Steam generator included Compares	Internal, steam generator Yes Yes
PREPROGRAMMED CYCLES Test cycles available	5 to 30 Bowie-Dick, warm-up, leak test, vacuum test
TEMPERATURE RANGE, °C Gravity cycle Vacuum cycle Steam flush-pressure pulse	 ≥121 (250) ≥121 (250) ≥121 (250)

CONTROLLER	Microprocessor
Display	PLC ,Automatic, touch screen
ALARM CONDITIONS	
Indicator type	Audible, visual ,printer
Temperature above or below set point	Required ,audio , visual
Chamber pressure or temperature failure	Required ,audio , visual
Cycle disruption or failure	Required
Vacuum pump	two stage (pre& post vacuum)
DATA MANAGEMENT	
Recorder	Yes
Printer	Yes
REVERSE OSMOSIS SYSTEM	Water softener or water purifier
Input power	480 VAC, 50/60 Hz three phase. Three Pin G type Plug, Voltage stabilizing and over current protection circuit.
Environmental requirements	The equipment suitable for work in the climate conditions in Iraq in terms of temperature & humidity.