

**ANNEX-B-e**  
**SPECIFICATION OF MEDICAL EQUIPMENT**

**DELIVERY LOCATION AT SANDEMAN PROVINCIAL HOSPITAL AT QUETTA.**

**SHEIKH KHALIFA BIN ZAYYED AL- NAHYGAN MEDICAL COMPLEX,**  
**QUETTA.**

**Gastroenterology Department**

S.No	Equipment	Specs	Qty
1.	Complete Endoscope System (Gastroscope, duodenoscope (Side viewing scope), Colonoscope, Video processor light source)		1

**A FULL HIGH DEFINITION VIDEO GASTROSCOPE**

Full High Definition Video Gastroscope with CCD / CMOS and advanced technological features

Field of view: 140° or better

Direction of view 0° (Forward Viewing)

Depth of field 2 - 100 mm or better

Distal end diameter 9 mm or less

Insertion tube diameter 9 mm or less

Channel inner diameter      2.8 mm or more

Working Length:              1030mm or more

Angulations:                  Up 210°, Down 90°, Right 100°, Left 100° or better

With advanced technological features:

Observation facility for greater contrast of blood vessels and mucosa Texture and Color Enhancement Imaging

Red Dichromatic Imaging

Full HD/ HDTV/ 1920 x 1080 resolution Water proof design

Water Jet Function Dual Focus

**B**

**HIGH DEFINITION VIDEO COLONOSCOPE**

High Definition Video Colonoscope (Slim) with CCD / CMOS and advanced technological features

Field of view                  Normal focus 170° Near focus    160°

Direction of view:            Forward viewing

Depth of field                      Normal focus 5 - 100 mm Near focus 2 – 6 mm

Distal end diameter                13.5 mm or less

Insertion tube diameter          13 mm or less

Channel inner diameter          3.5 mm or more

Working Length:                  1650mm or more

Angulations:    Up 180°, Down 160°, Right 160°, Left 160° or better With following advanced technological features

Observation facility for greater contrast of blood vessels and mucosa

Texture and Color Enhancement Imaging Red Dichromatic Imaging)

Ergonomically design grip which enhances scope manoeuvrability Scope ID function to facilitate endoscopy suite management

Full HD/ HDTV/ 1920 x 1080 resolution Water proof design

High-Force Transmission Adjustable flexibility Passive bending with RIT

Scope Guide probe compatible Close Focus

## C

### **WATER PUMP**

Flushing pump compatible with all scopes

can irrigate fluid via the instrument or auxiliary water channels of endoscopes, allowing gastric and colonic mucosa to be washed during procedures

A powerful flow allows organic material to be washed away efficiently while precise microprocessor controls prevent over pressurization of endoscopes

Able to rapidly fill organs with fluid, allowing endoscopic ultrasound procedures to be performed

can be controlled via a remote control or a foot switch, allowing the user to choose the method that suits the procedure best

Standby Mode:

Automatically selected when the pump head is opened, the standby mode allows safe exchange of water channel tubes without operating the main switch.

20-Second Cutoff Timer:

The timer automatically cuts off flow after 20 seconds, ensuring a patient is not accidentally overfilled with fluid or insufflated when the water container is empty.

Reverse Pumping:

Once the foot switch is released, the pump head runs in reverse a number of times, reducing pressure in the tubes and allowing more accurate flow control.

User-Friendly Features:

A bright LED display allow easy operation of the pump even a darkened room, and flat-panel touch buttons enable efficient cleaning

**D**

**HD/ Q-IMAGE DUODENO VIDEO SCOPE**

Video Duodenoscope with CCD / CMOS and advanced technological features Field of view: 100°

Direction of view 5°-10° or better(Backward Viewing) Depth of field: 5 - 60 mm or better

Distal end diameter: 13.7 or less Insertion tube diameter 11.6 mm or less Working length: 1200 mm or more Channel inner diameter: 4.2 mm

Angulation : Up 120° Down 90° Right 105° Left 90° or better Observation facility for greater contrast of blood vessels and mucosa Texture and Color Enhancement Imaging

Red Dichromatic Imaging)

Ergonomically design grip which enhances scope manoeuvrability Scope ID function to facilitate endoscopy suite management Water proof design

Dual wire locking mechanism Detachable cap

Single Use Distal end cover for Duodeno Videoscope

**E**

**ULTRA HIGH DEFINITION VIDEO SYSTEM CENTRE (4K) WITH LED LIGHT SOURCE**

Ultra High Definition/ 4K Video Processor System with latest Artificial Intelligence (AI) / Computer Aided Diagnosis (CAD) features

Digital Outputs: 12G-SDI, 3G-SDI, HD-SDI and SD-SDI or equivalent

Touch screen display

Analog Outputs: VBS/ Composite / Y/C or Equivalent Ultra HD Image Quality

Iris Mode: Avg, Peak, Auto

Color Adjustment, Structure emphasis, Tone enhancement Electronic Zoom 3-mode

Contrast: 2-Steps HIGH and LOW

Freeze screen display and pre-freeze function

Patient, doctors & clinical procedures list storage facility Programmable functions through endoscope switches  
Image storage facility in TIFF, JPEG formats

### **Keyboard for data handling**

Capable for visual enhancement and differentiation of vessels and Capillaries

(TXI, RDI, BAI-MAC/ NBI and AFI)

Backward compatibility with previous versions of video scopes from the same manufacturer

Complete with cables and connections

User settings The function settings for up to 20 users can be stored

### **Image size selection**

The size of the endoscopic image can be selected from 2 modes. (Except SDTV)

Electric zoom Switch between mode 1, mode 2, and mode 3.

PIP/POP Switch between PIP and POP.

Aspect ratio Switch between 16:9 and 4:3. (Except SDTV) Freeze Freeze the endoscopic image

Switch setting values of multiple functions at once Separate or built in advanced LED light Source For Video Scopes with the following main features: 5-LED lights or more

High intensity LED lights

Longer life with low-energy consumption

Special light observation modes (BLI, LCI, FICE / TXI, RDI, BAI-MAC/ NBI/ AFI)

Automatic & manual Brightness adjustment Memorization of set-values

Air pump – Hi, Low, Off

Water Tank must be supplied along-with the light source

Trolley Based Workstation.

Swivel arm for monitor.

Electrical wiring with sockets and isolation transformer Sliding Keyboard shelf / tray.

Placement provision of printer.

Imported (to be supplied by the same manufacturer)

**E**

**LED / LCD ULTRA HIGH DEFINITION COLOR MONITOR 32"**

32" or more Medical Grade same manufacturer for best quality ULTRA HD 4K Resolution 3840 x 2160 or more

Contrast Ratio 1000:1 Luminance: 450cd/m<sup>2</sup> Viewing angle 178/ 178 degree No of color 1.07billion

Image enhancement AIME Flip pattern Rotation

4K input 12G-SDI x 2 Display Port X1, HDMI x 1 4K Output 12G-SDI x 2

Trolley Mounted

Multi Display Mode PIP & POP Aspect ratio of 16:9 or more.

## **F**

### **CO2 REGULATION/CO2 INSUFFLATOR**

Single-button control

Simple start/stop button on the front panel, enabling you to control gas flow rates efficiently and without distractions, and saving gas wherever possible.

Connection to gas cylinder via dedicated cylinder hose

A dedicated cylinder hose ensures easy exchange of carbon dioxide cylinders. This procedure is simple, fast and does not require any technical assistance.

Connection to hospital medical gas supply

You can also connect to the hospital's medical gas supply, ensuring an unlimited supply of gas, and meaning you do not have to change gas bottles during complex endoscopic procedures.

Compact and lightweight

Compact in size and lightweight, allowing you to incorporate it easily into your existing endoscopy station without the need for an additional trolley. High flow rate allowing rapidly insufflate patients, especially during colonoscopy.

Including Cylinder hose Gas Tube From same manufacturer

**G**

### **ELECTO SURGICAL UNIT WITH APC**

Fast Spark Monitor Technology High-Power Cut Support

Contact Quality Monitoring function Leakage-Protection Sensor

Cut Modes

Pure Cut: Continuous cutting mode with low coagulation effect Pulse Cut Slow/Fast: Intermittent cutting mode which is commonly used for various

endoscopic procedures

Blend Cut: Continuous cutting mode with increased coagulation effect – ideal for dissection

### **Coagulation Modes**

Soft Coag: Slow and deep coagulation – optimal for coagulation of thick blood vessels

Spray Coag: Contact-free coagulation – optimal for POEM procedures

Forced Coag: Fast and effective coagulation

Power Coag: Fast and effective coagulation with increased dissection capability

Argon Plasma Modes

Forced Argon: Continuous argon plasma beam with steady power output for fast and effective large area haemostasis and ablation

Pulsed Argon Slow/Fast: Pulsed argon plasma beam with intermittent power output

for a more controlled effect on tissue Comprising following accessories:

Wireless foot switch Including receiver and charger Imported System cart

Active cord for ET instruments, 8 mm

Connecting cable for disposable neutral electrode Split neutral electrode, disposable, 10 pcs Pressure reducer

Argon Plasma Probes (10)

**E**

### **RECORDING SYSTEM 4K/3D**

Recording with high image quality can be achieved by optimally adjusting the parameters for video compression specific to the characteristics of the video for an individual endoscope.

Mode supporting over-range for video processors

Mode enabling obscuring of noises at far points for 3D image (2D recording) and gastrointestinal endoscopes such as NBI.

Mode enabling replay of BT.2020 color for 4K image in BT.709 environment, etc.

Easy-to-use touch screen compliant with IEC 60601-1-2 generation of guidelines GUI designs optimized to fit individual workflows and operation scenes Start menu including operation items classified according to workflow Design of main screen enabling major operations with one touch of a button  
Operation screen in which scenes are classified so that the required operations can be identified without hesitating during a procedure. Appropriate operation feedback using the voice guidance function Voice feedback informing the surgeon that the operation to start/stop recording was completed reliably

Voice notification that residual recording capacity is insufficient to prevent forgetting to exchange media

Operational tools optimal for operator/location

Operation using scope and foot switches from a sterile area

Infrared wireless remote controller enabling capture and start/stop of recording from a remote location

Capture and "video production" operations using the scope switch Patient information is imported from the processor and associated with recorded images.

Recorded still images are printed out using the video printer Even if the capacity of external media runs out, recording can be continued using the integrated hard disk.

Images can be exported in exFAT format and also recorded on large- capacity USB hard disk drives above 2TB.

Video exported on an USB hard disk can be loaded in both Windows and Mac environments.

Voice can be recorded in synchronization with video of patient procedures simply by connecting a microphone.

A volume adjust function is provided for voice recording, enabling replay/confirmation of the voice volume before initiating a procedure. Safety shutdown function

Preset function calling up settings defined by individual users

## **F**

### **SUCTION PUMP FOR ENDOSCOPE**

Dedicated for Endoscopy featuring high vacuum high flow Vacuum: 95 Kpa, Max Air flow rate: 60 l/min

Impact resistant autoclavable jar

## **G**

### **MAINTENANCE UNIT**

Maintenance unit with leakage tester for endoscopy

## **H**

### **ENDOSCOPIC WASHER & PRE-PROCESSOR (IMPORTED)**

Automatic High Pressure Washing & Cleaning capability Free standing type

Applicable scopes, Flexible endoscopes Number of reprocessed scopes 01/ 02 at a time Number of washing basin 01/02

Cleaning time setting, 1-10 minutes Disinfection time setting 5-60 minutes Display of Parameters

Compatible with quoted scopes

Complete with all accessories. Ready to use

### **CABINET FOR SCOPE HANGING**

state-of-the-art Endoscope Storage and Drying Cabinets with full traceability for the safe storage of endoscopes.

Storage of up to 5 or 10 endoscopes Up to 31 days storage

HEPA-filtered air supplied to each endoscope ensures channels are dried within 3 hours Secure mounting for endoscope control and light guide plug

### **Imported**

### **BATTERY BACKUP UPS 3KVA**

Pure Sine Wave

I

### **THERAPEUTIC ACCESSORIES FOR:**

### **UPPER GI**

FOR LOWER GI FOR ERCP

FOR EUS

J

**HD ENDOSCOPIC ULTRA SOUND SYSTEM EUS)**

High Resolution Digital Color Ultrasound Scanner for endoscopic Examination and elastography with miniature probes for small ducts.

Operating modes 2D and 3D

Flow mode and combination, Power Doppler, Pulse wave Doppler and B-mode,

**Image**

Full / Central screen

Full HD Display via HD-SDI and DVI ports Computing systems

Digital EUS system with alpha numeric keyboard and built in trackball

Compatible with EUS miniature probes Dual scanning Electronic and Mechanical LCD touch screen 6-inch or more

Freeze facility with key board or  
endoscope, foot switch

**Electronic Scanning:**

Mode B mode, FLOW mode, PW mode

Scanning Radial scanning, curved linear array scanning Electronic scanning B mode

Transmission frequencies 5, 6, 7.5, 10, 12 MHz

Display range 2, 3, 4, 5, 6, 7, 8, 9, 12 cm Display processing Rotation Rotatable

Display area Radial scanning: Full circle, bottom sector, top sector, scroll

Curved linear array scanning: Fixed Direction Normal/Inverse

Cine memory Over 600 frames storable depending on the conditions Signal processing setting

Gain 20 steps, adjustable. Contrast 8 steps, adjustable.

STC 21 steps for each of 7 distances, adjustable. Focus Auto Preset Near, far

Focus setting Focus location adjustable. Focus number adjustable.

Image adjustment Enhance ON/OFF Compound ON/OFF

Electronic scanning FLOW mode

Mode COLOR-FLOW mode, POWER-FLOW mode,

H-FLOW mode.

Doppler signal processing setting

Velocity range Maximum 22 steps, adjustable (r 0.6 – r119.3 cm/s) depending on the conditions.

Flow gain 32 steps, adjustable. Display processing

Display mode Selection of B mode image, superimposed display or dual-screen display is possible.

Electronic scanning PW mode (Pulsed Wave Doppler) Analysis FFT method

Detectable depth 0 – 120 mm

Maximum detectable velocity ANGLE ADJUST 0q =72.9167 cm/s ANGLE ADJUST 60q =145.8333 cm/s (5.0 MHZ)

PW mode signal processing setting Gain 61 steps, adjustable.

Pulse repetition

frequency Max 20 steps, adjustable (1 – 10 kHz).

Sample length 0.5 – 5.0 mm: 0.5 mm step

5.0 – 15.0 mm: 1.0 mm step Angle adjust Applicable ( $\pm 60^\circ$ ). Wall filter 12 steps

Display processing Baseline shift Applicable Invert The PW waveform display upside down. Sweep speed 1, 1.5, 2, 3, 4, 5 s/screen

Display mode B + PW, COLOR + PW, POWER + PW, H-FLOW + PW

Audio output

Volume Adjusts the volume of the Pulse Wave Doppler waveform. Measurement Distance Possible to measure distance between two points.

Area/circumference Measures area/circumference enclosed by caliper tracing.

PW Measurement

Velocity, Acceleration, Flow volume, Time average velocity, Ratio-time, Ratio-velocity, Average velocity, Auto trace is available.

Estimation Volume

(only Mechanical scanning function) Calculates the volume. Electronic scanning B mode

Image adjustment THE: (Tissue Harmonic Echo) 3 Types, adjustable (OFF, THE-P, or THE-R).  
MODE CH-B MODE for viewing the harmonic component from the ultrasound contrast agent using dedicated B mode images. CH-COLOR Mode for viewing the harmonic component from the ultrasound contrast agent by superimposing

a color image on a Fundamental image.

Preset (CH agent type) 2 types, adjustable (Middle or low). Frequency selection 2 types, adjustable (CH-R or CH-P).

CH-EUS mode signal processing setting Gain 20 steps, adjustable.

Contrast 8 steps, adjustable (CH-B only).

STC 21 steps for each of 7 distances, adjustable. The settings is common for Fundamental image.

Fundamental image setting Gain 20 steps, adjustable. Contrast 8 steps, adjustable.

STC 21 steps for each of 7 distances, adjustable. The settings is common for contrast image.

Display mode Selection of the CH-B or CH-COLOR

single-screen image or dual-screen display of the fundamental and CH-B or CH-COLOR images.

Movie recording Image format AVI

saving type GENERAL (for normal movie data) or TIC (for TIC movie data)

Maximum recording time 3 minutes (per one file)

TIC Analysis Analysis target modes When the CH-B mode or THE mode is activated

in the B mode.

ROI setting Number & Shape Max. 5, Ellipse

Operation Copy, Rotate, Delete, Interpolation, Move, and modify the ROI size.

Review of motion image Review (Forward), Frame Review (Forward/Backward), Review Speed (5 steps for each direction), Move frame (Start Frame / End Frame)

Analysis result Form Display of ROI, Graphs, and Data Graph display Averaged Intensity, Fitting Curve Electronic scanning ELST mode (Elastography)

Signal processing setting

STRAIN ADJUST 5 steps, adjustable. Pressurization state guide

Pressurization bar Pressurization status indication in 7 steps. Strain graph Time variation of tissue strain is shown in the graph. Strain graph setting Graph position 2 kinds, adjustable (upper or lower).

Reference line 5 steps, adjustable (width of the reference). Sweep speed 8 kinds, adjustable (1, 1.5, 2, 3, 4, 6, 8, 10 s).

Sector 5 kinds, adjustable (OFF, 1, 2, 3, 4).

Gain 10 steps, adjustable for the Y-axis scale of strain graph.

Strain ratio measurement The amounts of the strain and their ratio in two areas.

Mechanical scanning function Mode B mode

Scanning Radial scanning

Usable frequencies C5, C7.5, C12, C20, 7.5, 12, 20 MHz

Display range 2, 3, 4, 6, 9, 12 cm Display processing Rotation Rotatable.

Display area Full circle, bottom sector, top sector, scroll Direction Normal/Inverse

Cine memory Maximum 160 frames cine review function Signal processing setting

Gain 20 steps, adjustable. Contrast 8 steps, adjustable.

STC 21 steps for each of 7 distances, adjustable.

3D display Provides 3D display by reconstructing multiple continuous 2D images acquired from 3D scanning.

MPR display Displays radial display images, helical display images, horizontal helical display images and oblique display images simultaneously during 3D examinations with the screen divided into four.

**K**

**ULTRASONIC LINEAR GASTRO VIDEO SCOPE**

Field of View: 100° or better

Direction of View: Forward oblique 55° or more Distal End Diameter: 14.6 mm or less

Insertion tube: 12.8 mm or less Instrument Channel: 3.7 mm or more Working Length: 1250 mm or more

Display mode: B-Mode, Color Doppler / Color Flow. Scanning method: Curved linear Array

Scanning Direction: Parallel/longitudinal to insertion direction Frequency: Multi frequency 5-12 MHz or better Scanning Range: 180° or more

Angulations: 130°, 90°, 90°, 90° or better Connecting Method: Balloon Method/direct contact Air water valve for air and water

Narrow band imaging or equivalent Superb imaging quality

Improved forceps elevator design Increased penetration depth

**L**

**MOTORIZED SMALL INTESTINAL VIDEOSCOPE**

Small-Bowel Entero Scope for covering the entire small intestine, with the advanced technological features as below:

Direction of view:	Forward viewing
Field of view	140° or equivalent or better
Depth of field	3 - 100 mm or equivalent or better
Distal end diameter	9.2 mm or equivalent or better
Insertion tube diameter	9.2 mm or equivalent or better
Channel inner diameter	3.2 mm or equivalent or better
Working Length	2000 or equivalent or better
Total Length	2280 mm or equivalent or better
Angulations:	Up 180°, Down 180°
	Right 160°, Left 160° or better

### **Motorized Spiral Enteroscopy**

Allows whole-length of small intestine to be visualized Efficient hand control & automatic pressure control Great stability of position and smooth insertion capability

Observation facility for greater contrast of blood vessels and mucosa

Should allow access to reach deep into the small intestine by pleating the small bowel onto the Enteroscope using a spiral segment

Should have integrated motor on the scope that can be controlled by the user with the help of a footswitch

Should have High Definition Image Quality with Narrow Band Imaging capability

All components of the Spiral Enteroscopy System should be latex free Should be equipped with water jet function

Balloon/rotation Control Unit:

Set Pressure of Balloon:  $\pm 5$ Kpa or more Overtube x 50

With Standard Set of Accessories

## **M**

### **NON INVASIVE LIVER SCANNING SYSTEM WITH PROBES**

Fibroscan Expert™.

Non-Invasive quantitative liver stiffness, Spleen stiffness fibrosis measurement and

Quantification of fatty liver disease. Diagnostic and Management device. Vibration Controlled Transient Elastography (VCTE) System.

## LSM\*by VCTE™ Liver Fibrosis

LSM by VCTE™ is unique, patented and validated for liver fibrosis assessment.

- It is the standard for non-invasive evaluation of liver stiffness.
- 2000 peer-reviewed publications support the use of LSM by VCTE™. CCAP™\*\*Liver Steatosis

CCAP™ is unique, patented and validated for liver steatosis assessment.

- 330 international and peer-reviewed articles support the use of CAP™.2,3 SSM \*by VCTE™

## Portal hypertension

SSM by VCTE™ is unique, patented and validated for portal hypertension assessment and can be used for risk stratification of patients with advanced CLD.

- It is a new marker for non-invasive evaluation of spleen stiffness.
- 50 peer-review ed publications support the use of SSM by VCTE™ System Quality Assurance Components  
LED-indicator for delivery of proper Probe Pressure on Skin. Controlled, Reproducible 50-Hz/100-Hz(spleen) Shear Wave Actuator. 3 cubic-centimetre Cylindrical Explored Volume.

Automatic Skin-to-Liver-Capsule Distance Advice.

TM-mode Ultrasound display to localize Liver parenchyma. A-mode Ultrasound display to confirm strength of signal.

Liver Targeting Tool to affirm proper location of probe tip. Automatic “Invalid Measurement” analysis feature.

#### System Hardware Components

Integrated Application-Specific Console and Touch Screen 19” touch screen. Pre-installed Data Acquisition Software.

Pre-configured Data storage/database to optimize data management. Ergonomic design allows operation from a seated position.

Liver Stiffness (LS) in kPa displayed for each measurement. Interquartile Range (IQR) calculated and displayed for LS. IQR/Median Ratio updated after each measurement.

#### **System Output**

Individual patient report outputted to PDF format. Individual patient report outputted to XLS format.

Raw data stored in proprietary FIBX format. Connectivity

Ethernet Connector RJ 45. 3 USB 3.0 Ports.

HDMI Port

Guidance Probe Connector HDMI out put

1 auxiliary output (footswitch compatible) Ground Connector

M- PROBE (Standard Probe) INCLUDED IN ABOVE PRICE

Model: M+

The M probe is designed for the general population Ultrasound frequency is

3.5 MHz

Penetration through tissues over 25 to 65 mm depth. GUIDANCE PROBE

Designed on B mode localization for spleen stiffness measurement Spleen shear wave frequency 100 Hz

Frequencies standard and Deep 1 presets: 3.0 MHz Deep 2 presets: 2.0 MHz

SM ART EXAM CAP™ (Controlled Attenuation Parameters.) INCLUDED IN ABOVE PRICE

For Quantification of Steatosis in Fatty liver diseases

New computation method for ultrasonic acquired stiffness measurement. Continuous CAP™ decreases variability by 42%

SIMPLE CAP FCD IS 55 MM VS SIMART EXAM CAP FCD 45 MM (PROBE TO CAPSULE DISTANCE) SIMART EXAM ENHANCING  
the spectrum of non-invasive methods for the examination and follow up of patients with liver disease CAP™ is a measure of the ultrasound attenuation which corresponds to the decrease in amplitude of ultrasound waves as

## Metrological Data

Liver stiffness range with VCTE™ 1.5 kPa (Min) – 75.0 kPa (Max) Liver shear wave frequency 50 Hz

CAP™ RANGE 100 dB/m (Min) – 400 dB/m (Max)

Spleen stiffness range with VCTE™ 6 kPa (Min) – 100 kPa (Max) Spleen shear wave frequency 100 Hz

XL- PROBE (for Obese Patients) INCLUDED IN ABOVE PRICE Model: XL+

A more sensitive ultrasound sensor has been designed to enhance deeper signal Ultrasound frequency 2.5 MHz for deeper signal.

Penetration through tissues over a 35 to 75mm depth. Clinically validated:2,000 plus peer-reviewed publications  
Guideline's recommendation (EASL, AASLD, APASL, WHO)

Country of Origin France Manufacturer Echosens WARRANTY: one year.

## N

### **ESOPHEGEAL, ANORECTAL MANOMETRY & PH STUDIES APPARATUS**

A single hardware platform that has the capability for multiple diagnostic testing modules,

including:

High Resolution Impedance Manometry (HRiM) High Resolution Anorectal Manometry (HRAM)

A single hardware platform capable of supporting multiple technology configurations, including:

Catheter specific guided protocols with data acquisition software to guide the user through the study leading to reduced study complexity and optimized data consistency

Application specific system cart, including:

Hydraulic movement allowing the user to stand when performing a study or in a seated

position to analyze the study; Integrated power isolation transformer; Large lockable storage drawer;

Printer shelf;

24" medical grade touch screen monitor Solid-State Catheter Configurations:

High Resolution Impedance Manometry (HRiM):

- 12 FR, with at least 32 true circumferential pressure sensors spaced at 1cm

intervals and 16 impedance channels spaced at 2 cm intervals; High Resolution Anorectal Manometry (HRAM)

- 12 FR with at least 23 Directional Pressure sensors, including 5 rings with 4 sensors positioned posterior, left, anterior, and right;

All solid state catheters should be protected against submersion in approved cleaning and disinfection.

The system should be upgradable of other GI functional tests, including Biofeedback, Pudendal Nerve Latency Testing, antro- duodenal manometry.

System must have a computer using Windows OS and Analysis Software

1. For HRIM Analysis, bolus transit should be able to be displayed either as a separate image or as an overlay with the manometric findings

2. The Analysis software should include the capability to automatically analyze manometric data

using the Chicago Classifications or Conventional Manometric Analysis functions

3. Software must support real-time SyncVIEW using Wire Frame

### **Multi-Dimensional Display**

Technology capable of showing “virtual oesophagus” playback using advanced wire frame multidimensional display technology included as an integral element of both the acquisition and

analysis software.

4. The report should contain a data table including all Chicago Classification analysis metrics,

including IRP, DCI, CFV, Distal Latency and Peristaltic Breaks.

5. The report should contain a data table including Conventional Manometry findings.

6. The report should provide LES Profile Data as well as Bolus Transit metrics (Impedance catheter only)
7. The Acquisition Software should provide the capability of viewing using either HREPT (High Resolution Esophageal Pressure Topography), standard waveforms, SyncVIEW using Wire Frame Multi-Dimensional Display Technology
8. Acquisition software should have catheter specific guided protocols to guide the user through the study leading to reduced study complexity and optimized data consistency
9. Analysis Software should be loadable on an unlimited number of PCs at no additional charge. No user license should be required.
10. Should provide free software updates for the life of the product
11. During data acquisition, there should be a facility for pausing & restarting the recording, which should be automatically saved on the computer
12. There should be facility for marking events like the type of swallow, the position of the catheter, respiration, cough/squeeze, catheter pull-through, etc.

### **Operation requirement**

1. Ambient Temperature: 10 to 40 degrees C; Altitude: -400 to 2200 meters MSL
2. Power Specs: 100-230V; 50-60Hz Training
  - i. Cyber-coaching from a Registered Nurse experienced in motility

ii. Online training program with downloadable teaching modules Comprehensive Warranty

1. One years comprehensive hardware warranty.
2. Spare parts and required consumables should be available for a period of at least 5-years from the date of purchase
3. The High Resolution Manometry Catheter should have a two-year / 200 use Warranty including repair of original catheter when warranted claim is validated
4. The equipment should follow international standards and safety requirement. Should be US FDA approved

Technical Support

1. The manufacturer should provide 24/7/365 Technical Support
  2. The manufacturer should have on-line diagnostic capabilities for the system and software, free of charge to the end user

**Note: The Biomedical Equipments shall met the Certification (FDA/CE/MHLW) where applicable  
Country of Manufacture: Preferably - USA/Europe/Japan**

**BLOOD BANK**

<b>2</b>	Haemoglobin Analyzer	Fully automated	<b>1</b>
		High performance liquid chromatography	
		IFCC & NGSP certified	
<b>3</b>	Blood Collection Monitor	Mixing: 12-14 Cycle / minute	<b>2</b>

	Battery back up: Up to 10 Hrs	
	Maximum Volume: Up to 999 (net collection) ml	
	Taring range: Up to 999 gm	
	Dimensions W x D x H: 280 x 270 x 255 mm	
	Net Weight: 5 Kg	
	Compliance: IEC 60601-1, IEC 60601-1-2	
	Electrical: 220 – 240 volts 50Hz, SINGLE PHASE	

<b>4</b>	<b>Platelet Agitator</b>		<b>1</b>
		Agitator control: Microprocessor	
		Stokes (adjustable): 60 to 70 /min	
		Amplitude: 38 ± 2 mm	
		Dimension	
		Trays: 8+	
		Capacity: Platelet Bags 50+	

<b>5</b>	<b>Cryofuge</b>		<b>1</b>
		Type: Blood Banking Centrifuge	
		Controller Type: Centri-Touch Touchscreen	
		Frequency: 50/60 Hz	
		Green Features; Energy efficient, less waste	
		Standards: EN 61010-1 3rd Edition, IEC 61010-2-020 3rd Edition, IEC 61010-2-101 3rd Edition, EN 61326-1 Class B, EN 61326-2-6, EN 62304, EN 62366, EN ISO 14971, EN ISO 13485	
		Temperature Range: -20°C to +40°C, adjustable to 1°C	
		Voltage: 220/230/240 V	
		Capacity: 6 x 550 mL and 8 x 550 mL Blood Bags	
		Refrigerated: Yes	
		Max. Speed: 5,000 rpm	
		Max. RCF: 7,295 x g	
		Run Time: 99 hours 59 min 59 sec (1 sec increments)	

		Certifications/Compliance: UL, FDA listed, CE Marked for Medical Devices Directive 93/42/EEC	
		Description: Cryofuge 8 Centrifuge	
		Electrical Requirements: 200-240 V $\pm$ 10% 50/60 Hz, Single Phase	
		Drive System: DuraFlex high torque brushless drive technology	
		Green Technology: Refrigeration off when door opens, Eco-Spin windshieldded rotors	
		Warranty: 2 years unit, 5 years power-train (motor shaft and drive), 5 years refrigeration	
		Other Functions: Multilingual selection, on-board training videos, user logging, user lock-out, automatic door opening, automatic rotor ID, on-screen display for imbalance, over temperature, stainless steel chamber, guidance display for error messages	
		Profile (Acceleration/Braking): 11 accel, 12 decel, multiple emulation profiles	

6	MutiFuge		1
		Certifications/Compliance: EN/UL/IEC 61010-1, EN/UL/IEC 61010-2-020 and 61010-2-101, EN/UL/IEC 61326-1, EN/UL/IEC 61326-2-6, FCC part 15	
		Controller Type: Microprocessor	
		Capacity: 4 x 1000 mL with TX-1000 rotor	
		Max. RCF: 25,830 x g with Microliter 30 x 2 rotor	
		Max. Speed: 15,200 rpm (Microliter 30 x 2 rotor)	
		Display: High Contrast LCD, Push Button	
		Drive System: Direct, Brushless Induction Low Profile	
		Green Features: Energy efficient, less waste	
		Includes: Rotor needs to be purchased separately	
		Memory: Stores up to 100 programs	
		Model	
		Profile (Acceleration/Braking): 9 Accel/10 Braking	

		Program Storage: Up to 100 programs via full color touch screen interface	
		Rotor Included: Yes	
		Safety Features: SMARTSpin Imbalance detection, finger-pinch prevention, crash-proof construction	
		Type: General Purpose Centrifuge	
		Voltage: 208/230 V	

## RADIOLOGY DEPARTMENT

<b>7</b>	<b>Microwave ablation Generator Machine with 100 needle set</b>		<b>1</b>
		Generator Specifications: Frequency: 2450Mhz at least	
		Energy output: 5-100W	
		Time setting: 1-30 minutes	
		Working power: 100V-240V. 50-60 Hz	
		Needle Specification: 15G, 25mm, active tip, 150 mm shaft length	

## PULMONOGY DEPARTMENT

<b>8</b>	<b>Bronchoscope (Video)</b>		<b>1</b>
	Scope:	Distal end OD: 4.9 mm	
		Channel ID: 2.2 mm	
		Bending up/down: 210°/130°	
		Rotation Left/Right: 120°/120°	
		Working Length: 600	
		Field of View: 120°	
		Depth of Field (normal/wide): 3-100mm	
		NBI, RDI, TXI, HF Compatible: Yes	
	Monitor:	Size: 26 Inch	

		Panel Type: TFT Active Matrix	
		Resolution: 1920 x 1080 (Full HD)	
		Aspect Ratio: 16:09	
		Contrast: 1400:01:00	
		Viewing Angle: 178° / 178°	
		Image Enhancement Technology: A.I.M.E.	
		Multiple Image Display: PIP / POP	
	Video Processor	Light Source: LED	
		Number of Lamps: 5	
		NBI (Narrow Band Imaging): Yes	
		TXI (Texture and color enhancement Imaging): Yes	
		RDI (Red Dichromatic Imaging): Yes	
		EDOF (Extended Depth of Field): Yes	
		Imaging record: USB	
		Processor: 19.4 kg	
		Light source dimensions: Included in processor	
		Light source weight: Included in processor	
		Scanning method: Simultaneous and sequential scanning	
		Internal memory: Yes	
		Operation / Setting: Touch panel	
		Electrical zoom: 1-2X	
	Suction Pump	Endoscopic Suction Pump - System Compatible	
	Endoscopic Ultra Sound Centre	System Compatible	
		Tissue harmonic imaging.	
		CH-EUS (contrast-harmonic endoscopic ultrasound).	
		Elastography.	
		All relevant flow functions (COLOR, POWER, H-Flow) and PW Doppler.	
		Compact, space-saving design.	
		Compatible with miniature probes.	
		Fully integrated.	

	Accessories:	System accommodating Console/Trolley	
		All standard Accessories	

**GENERAL SURGERY DEPARTMENT**

9	Laparotomy Set	4
	Mayo Scissors 6.75" Straight T.C	
	Mayo Scissors 6.75" Curved T.C	
	Metzenbaum Scissors 7.00" Curved T.C	
	Mayo Hegar Needle Holder 6.00" T.C	
	Yankauer Suction Tube	
	Scalpel (Knife) Handle # 3 With 100 Surgical Blade # 10	
	Scalpel (Knife) Handle # 4 With 100 Surgical Blade # 20	
	Operating Scissors 5.50" Straight Sharp/Blunt	
	Thumb Dressing Forceps 5.50"	
	Tissue Forceps 5.50" 1x2 Teeth	
	Adson Dressing Forceps 4.75" Serrated	
	Adson Tissue Forceps 4.75" 1x2 Teeth	
	Russian Tissue Forceps 6"	
	Dressing Forceps 7"	
	Tissue Forceps 7.00" 1x2 Teeth	
	Halsted Mosquito Forceps 5.00" Straight	
	Halsted Mosquito Forceps 5.00" Curved	
	Kelly Forceps 5.50" Straight	
	Kelly Forceps 5.50" Curved	
	Rochester-Pean Forceps 6.25" Curved	
	Rochester Pean Forceps 8.00" Curved	
	Rochester Ochsner Forceps 6.25" Str 1x2 Teeth	
	Mixer Forceps 9.00"	
	Backhaus Towel Clamp 5.25"	
	Foerster Sponge Forceps 9.50" Str Serrated	
	Pool Suction Tube	
	U.S Army Retractor Set Of 2 Pcs.	
	Deaver Retractor 1" X 12"	
	Deaver Retractor 2" X 12"	

	Richardson Retractor	
	Kelly Retractor	
	Allis Tissue Forceps 6.00" 4x5 Teeth	
	Allis Tissue Forceps 10.00"	
	Babcock Tissue Forceps 6.25"	
	Babcock Tissue Forceps 9.25"	
	Debakey Tissue Forceps 8"	

10	Thoracotomy Set	2
	Tuttle Thoracic Thumb Forceps 23cm	
	Nelson Thoracic Thumb Forceps 6x7 teeth 23cm	
	Mixture Thoracic Forceps 25cm	
	Mixture Thoracic Forceps 28cm	
	Robert Artery Forceps	
	Hopkins Blalock	
	Duval Tissue Forceps	
	B.P Handle No.4L	
	Thomson Walker Needle Holder	
	Metzenbaum Scissors 9"	
	Nelson Scissors 11"	
	Semb Pneumonectomy Clamp	
	Price Thomas Rib Raspatory	
	Morrison Davis Rib Raspatory	
	Tudor Edwards Spacula	
	Semb Periosteal Elevator	
	Sellar Rib Approximator	
	Semb Rib Shear	
	Bethune Rib Shear	
	Finchitto Rib Spreader	
	Instruments Box S.S	

<b>11</b>	<b>Vascular Surgical Set</b>	<b>Operating Scissors: Straight Sharp/Blunt 5-1/2"</b>	<b>2</b>
		Mayo Dissecting Scissors: Straight 6-3/4"	
		Sklar Edge™ Tungsten Carbide Mayo Dissecting Scissors: Straight 6-3/4"	
		Mayo Dissecting Scissors: Curved 6-3/4"	
		Sklar Edge™ Tungsten Carbide Mayo Dissecting Scissors: Curved 6-3/4"	
		Metzenbaum Scissors: Delicate Curved 7"	
		Sklar Edge™ Tungsten Carbide Metzenbaum Dissecting Scissors: Delicate Curved 7"	
		Metzenbaum-Nelson Dissecting Scissors: Curved 8"	
		Metzenbaum Dissecting Scissors: Curved Delicate 9"	
		Sklar Edge™ Tungsten Carbide Metzenbaum Dissecting Scissors: Curved 9"	
		Suture Wire Cutting Scissors: Angled Serrated 4-3/4"	
		Sklar Edge™ Tungsten Carbide Wire Cutting Scissors: Serrated Angled 4-3/4"	
		Halsted Mosquito Forceps: Curved 5"	
		Crile Forceps: Curved 5-1/2"	
		Coller Haemostatic Forceps: Curved 6-1/4"	
		Rochester-Pean Forceps: Curved 6-1/4"	
		Rochester-Ochsner Forceps: Straight 1x2 Teeth 6-1/4"	
		Rochester-Ochsner Forceps: Straight 1x2 Teeth 7-1/4"	
		Backhaus Towel Clamp: 5-1/4"	
		Scalpel Handle #3	
		Scalpel Handle #7	
		Scalpel Handle #3l	
		Foerster Sponge Forceps: Serrated 9-1/2"	
<b>12</b>	<b>Linear Intestinal Stappler (Complete Range)</b>		<b>6</b>

	Type: Linear	
	Applications: Gastro Intestinal Surgery	
	Options: Cutting	
	Stapler length: 55 mm, 75 mm (2.2 in)	

13	Fine Surgical Set	4
	PHOTOMACROGRAPHIC SCALE, 105 mm, L-shaped, plastic	
	SCALPEL, HANDLE, No 3 (for blades 10/11/15)	
	SCISSORS, MAYO, 17 cm, curved	
	SCISSORS, METZENBAUM, 14 cm, curved	
	FORCEPS, ADSON, 12 cm, serrated jaws	
	FORCEPS, ADSON, 12 cm, 1x2 teeth	
	FORCEPS, McINDOE, 15 cm, serrated	
	FORCEPS, GILLIES, 15 cm, 1x2 teeth	
	PROBE, 16 cm/diam. 1.5 mm, round double-ended	
	SUCTION TUBE, FRAZIER, CH 12, 12.5 cm, angular	
	NEEDLE HOLDER, BABY-CRILE-WOOD, 15 cm	
	FORCEPS, HEMOSTATIC, H-MOSQUITO, 12.5 cm, curved	
	FORCEPS, HEMOSTATIC, CRILE, 14 cm, curved	
	FORCEPS, HEMOSTATIC, KOCHER, 14 cm/1x2 teeth, straight	
	FORCEPS, TOWEL CLAMP, BACKAUS, 13 cm	
	FORCEPS, SPONGE, FOERSTER, 24cm, serrated jaws, straight	
	RETRACTOR, SENN-MILLER, 16 cm, double-ended, blunt prong	
	RETRACTOR, VOLKMANN, 22 cm, 3 sharp prongs, 10 mm curve	
	RETRACTOR, SELF-RET., WEITLANER, 13 cm, 3 x 4 blunt prongs	
	BOWL, ROUND, 100 ml, 80 x 35 mm, stainless steel	
	FORCEPS, TISSUE, ALLIS-BABY, 14 cm / 3x4 teeth	
	FORCEPS, TISSUE, BABCOCK, 16 cm, 9 mm jaws, standard	
	BASKET, STERILIZING, 240 x 255x 100mm, + lid	

**EAR NOSE THROAT DEPARTMENT**

<b>14</b>	<b>Tonsillectomy Device (Vessel Sealing)</b>		<b>1</b>
		Advanced bipolar tissue sealer and divider for tonsillectomy	
		12 cm shaft for access	
		Curved jaw to follows the shape of tonsil bed	
		Intuitive controls to seal and divide tissue and vessels up to 3 mm in diameter	
		Ergonomic handle for control	
		Measure impedance of clamped tissue	
		Automated energy adjust output to create a permanent seal and stop	

<b>15</b>	<b>SMR Set</b>		<b>4</b>
		Container 11" X 13"	
		Killian Nasal Speculum 50mm	
		Killian Nasal Speculum 75mm	
		Killian Nasal Speculum 90mm	
		HARTMANN NASAL SPECULUM	
		Thudichun Nasal Speculum Set Of 5pcs	
		Luc's Nasal Turb Forceps Hrt Shaped Med.	
		Luc's Nasal Turb Forceps Hrt Shaped 6mm	
		Luc's Nasal Turb Forceps Hrt Shaped 7.5mm	
		Luc's Nasal Turb Forceps Hrt Shaped 9mm	
		Bard Parker Knife No 3	
		Freer Periosteum Elevator	
		Turbinectomy Scissors	
		Tilly's Hankle Forceps	
		Luc's Non Cutting Forceps	
		Luc's Cutting Forceps	
		Needle Holder 7"	
		Joseph Rasp	

	Maltz Rasp	
	Killian Septum Gouge	
	Hammer 220 Gm	
	Nursing Scissors 5 1/2"	
	Janson Medelton Septum Forceps	
	Watson William Ethmoidal Forceps	
	Duratip Curved Dissecting Scissors 7" Tc Metzenbaum	
	Nasal Suction Tips	
	Aufricht Retractor	
	Fomen Osteotome Right	
	Fomen Osteotome Left	
	Cottle Chisel 9mm	
	Ash Forceps	
	Walsham Forceps	
	Septum Morselizer Forceps	
	Trocar And Cannula	
	Myle's Antrum Perforator	
	Ballenger Swivel Knife	
	Tilly's Nasal Dressing Forceps	

<b>16</b>	<b>Tonsillectomy Set</b>		<b>4</b>
	Box 11" X 13"		
	Metzenbaum Scissors Curved 180mm		
	Mayo Towel Clips 140mm		
	Ramplsey Sponge Holding Forceps 10"		
	Jenning Mouth Gag		
	Yankeur Suction Tip		
	Danis Brown Tonsil Holding Forceps		
	Gwyne Evan's Tonsil Dissector 6 X 200		
	Birkett Tonsil Forceps Straight 180mm		
	Birkett Tonsil Forceps Curved 180mm		
	Hurd Tonsil Dissector With Pillar Retractor		

	Eve Tonsillar Snare Slide Action 280mm	
	Wilson Tonsil Scissors 64mm, 200mm	
	Negus Tonsillar Artery Forceps Curved 180mm	
	Negus Artery Forceps	
	Tonsillar Needle Holder 18cm	
	Tonsillar Needle	
	Negus Push For Knot Tying Doughty Tongue Plate	
	Beckmann Adenoid Curette 14 X 215mm	
	Saint Clare Thomson Adenoid Curette 12mm	
	Saint Clare Thomson Adenoid Curette 14mm	
	Saint Clare Thomson Adenoid Curette 16mm	
	Davis Boyle Mouth Gag Frame Child	
	Davis Boyle Mouth Gag Frame Adult	
	Doughty Tongue Plate 64mm	
	Doughty Tongue Plate 76mm	
	Doughty Tongue Plate 89mm	
	Doughty Tongue Plate 102mm	
	Doughty Luer Tracheostomy Tube Nickle Tongue 114mm	
	Draffin Bipod (Suspensory Rod) 48cm (Pair)	
	Maguaran Plate For Draffin Bipod 400mm	

17	Mastoidectomy Set with Surgical Drill	2
	Container 11" X 13"	
	Hartmann Ear Speculum 2mm	
	Hartmann Ear Speculum 3mm	
	Hartmann Ear Speculum 4mm	
	Hartmann Ear Speculum 5mm	
	Hartmann Ear Speculum 6mm	
	Hartmann Ear Speculum 8mm	
	Hartmann Ear Speculum 9mm	
	Scalpel Handle No 4	
	Mollison Retractor 4 X 4 Sharp Prongs 165mm	
	Mollison Retractor 2 X 2 Sharp Prongs 135mm	
	Wullstein Retractor 3 X 3 Blunt Prongs 130mm	
	Halstead Mosquito Artery Forceps 125mm Cvd	
	Adson Delicate Tissue Forceps 1 X 2 Teeth 120mm	
	Adson Delicate Tissue Forceps Plain 120mm	
	Surgical Scissors Sh/Bl Straight 5 X 130mm	
	Metzenbaum Scissors Curved 5 X 145mm	
	Yankeur Suction Tube	
	Lempart Suction Tube 9fr 3 X 200	
	Belluci Suction Set Of 3	
	Robin Anchoring Forceps 13mm, 140mm	
	Backhaus Towel Clip 130mm	
	Ramply Sponge Holding Forceps 240mm	
	Cartridge Dental Syringe	
	Kilner Skin Retractor Sharp 150mm	
	Gillies Dissecting Forceps 1 X 2 Tooth 152mm	
	Adson Dressing Forceps 127mm	
	Mcindoe Dissecting Forceps 150mm	
	Jobson Horn Probe	

	Freer Double Ended Elevator	
	Lepart Rougine Narrow 155mm	
	Lepart Rougine Broad 170mm	
	Tilley Aural Forceps 140mm	
	Partsch Chisel 3mm, 170mm	
	Partsch Chisel 4mm, 170mm	
	Fickling Oral Angled Forceps 178mm	
	Clamp Fickling Angular Side 178mm	
	Ruskin Bone Rongeur Curved 190mm	
	Adson Suction Cannula 3mm	
	Adson Freer Suction Tube 180mm	
	Mallet Fickling 192gms	
	High speed Surgical Drill	

18	Rhinoplasty Surgical set	2
	Micro Osteotome with Rounded guard, 2.2mm 18cm	
	Micro Osteotome with Rounded guard, 3mm 18cm	
	Micro Osteotome with Rounded guard, 4mm 18cm	
	Micro Osteotome Double Edged Grinding 2mm 18cm	
	Micro Osteotome Double Edged Grinding 2.5mm 18cm	
	Micro Osteotome Double Edged Grinding 3mm 18cm	
	Micro Osteotome Double Edged Grinding 4mm 18cm	
	Osteotome Double Edged Grinding Rounded Corners, Recessed grip, Cut of Width 10mm 18cm	
	Osteotome Double Edged Grinding Rounded Corners, Recessed grip, Cut of Width 12mm 18cm	
	Osteotome Double Edged Grinding Rounded Corners, Recessed grip, Cut of Width 14mm 18cm	
	Osteotome Double Edged Grinding Rounded Corners, Recessed grip, Cut of Width 16mm 18cm	
	Osteotome Double Edged Grinding Rounded Corners, Recessed grip, Cut of Width 18mm 18cm	
	One prong Sharp Hook 15cm Length	
	Two prong Sharp Hook 15cm Length	
	Two Prong Hook, Sharp, 10mm Width 12cm	
	Aufricht Nasal Retractor, Width of blade 8.5mm Length of retractor blade 45mm, 15cm Length	
	Glabella Rasp, Curved Push-Pull Cut Length 20cm	
	Joseph Raspatory 20cm Length	
	Bone Rasp, Tungsten Carbide Double Ended Rasp Blades 5 and 6 Medium Length 21cm	
	Bone Rasp, Tungsten Carbide Double Ended Rasp Blades 7 and 8 Medium and fine Length 21cm	
	Adson Brown Forceps 12cm Fine Side Grasping teeth	
	Adson Dressing Forceps 12cm, Serrated	

	Adson Tissue Forceps 1x2 Teeth 12cm	
	Rhinoplastic Scissors, Tungsten Carbide Extra delicate straight Length 10cm	
	Rhinoplastic Scissors, Tungsten Carbide Extra delicate Curved Length 10cm	
	Walter Angular Tungsten Carbide Scissors Blunt / Blunt 10cm Length ( Smooth End Scissors )	
	Kilner Scissors Curved Flat End, Tungsten Carbide 14cm Length	
	Tungsten Carbide Needle Holder, 13cm Length	
	Blakesly Nasal Forceps, Straight Size 1, Working Length = 11cm	
	Fomon Dorsal Nasal Scissors, Supercut Angled, Serrated	
	Giunta tungsten carbide +Supercut Nasal scissors curved 13.5cm	
	Asch septum straightening forceps angled, 9" 23cm	
	Sheen Cartilage Grid measuring, and photographing cartilage grafts. Measured in millimeters. Can be used as a cutting surface.	
	Desmarres Lid Retractor Size 0, 5-1/2" (140mm) length	
	Asch septum straightening forceps angled, 9" 23cm	
	Cinelli guarded osteotome, 18.5CM 10MM, straight Stainless Steel. Double-guarded osteotome for hump removal.	
	Silver Guarded Lateral Osteotome 18cm 1 Pcs Curved Left	
	Silver Guarded Lateral Osteotome 18cm 1 Pcs Curved Right	
	Ballenger Swivel Knife 7-1/2" 19 cm, 4 mm Blade	
	Nasal Speculum 35mm 14cm	
	Nasal speculum 55mm 14cm	
	Cottle Cartilage Crusher (Bone Crusher)	
	Boies Nasal Fracture Elevator 8mm	
	Converse Graefe Nasal Scissors Blunt/Blunt Curved Upward 11cm	
	Cottle Columella Forceps	
	Cottle Lower Lateral Forceps	
	Frazier Suction Tube 6Fr	
	Frazier Suction Tube 8Fr	

	Frazier Suction Tube 10Fr	
	Cottle Mallet	
	Nievert Nasal Surgery Retractor	
	Stainless Steel Sterilizing Box ( packing For the set )	

19 FESS Instruments Set with Microdebrider		2
	Frazier Suction Tube 8Fr	
	Frazier Suction Tube 10Fr	
	Frazier Suction Tube 12Fr	
	Antrum Suction Tube Curved 3mm	
	Antrum Suction Tube Curved 4mm	
	Crile Forceps Straight 16cm	
	ENT Sickle Knife	
	Antrum Ball Probe, Double Ended Maxillary Ostium Seeke	
	Antrum Rotatable Back Biting Sinus Forceps 3mm Bite	
	Double Ended Freer Elevator	
	Cottle Double Ended Elevator Sharp / Blunt	
	Antrum Curette	
	Vienna Nasal Speculum (Medium)	
	Scalpel Handle #7	
	Hartman forceps light Pattern Small Size	
	Hartman forceps light Pattern Medium Size	
	Delicate Metzenbaum Scissors Curved 15cm Supercut + TC Serrated	
	Mayo Scissors Curved Supercut + TC	
	Weil Blakesley Nasal Forceps Straight 4mm Jaw	
	Weil Blakesley Nasal Forceps Curved Upward 45°4mm Jaw	
	Paediatric / Delicate Weil Blakesley Nasal Forceps Straight Fine pattern	
	Paediatric / Delicate Weil Blakesley Nasal Forceps Upward 45° Fine	
	Takahashi Straight Cutting Forceps	
	Kerrison Rongeur / Punch Upward	
	Kerrison Rongeur / Punch Downward	
	Nasal Concha Scissors, Straight Fine Delicate Blades for Sinus 13cm	

	Mushroom Forceps Straight Circular Cutting Punch	
	Giraffe Forceps Upward 70°	
	Giraffe Forceps Upward 90°	
	Stainless Steel Sterilizing Box	
<b>20</b>	<b>Fiber Naso Pharyngo Laryngoscope</b>	<b>1</b>
	Reusable	
	Display: 19 Inches	
	Working Length: +/- 300mm	
	Total length: +/- 535mm	
	Insertion tube [ø mm]: 3.5 mm	
	Distal end [ø mm]: 3.2 mm	
	Instrument channel [ø mm]: -/-	
	Working length [mm]: 300	
	Field of view [°]: 85	
	Tip deflection up/down [°]: 130/130	
	Remarks: Portable with Instrument Securing Suitcase	
	Standard Accessories Included	

<b>21</b>	<b>TELE PACK + Compact Endoscopy for ENT</b>	<b>1</b>
	Display: Touch Screen: 18"with Onscreen keyboard	
	Full HD	
	Hygienic Glass surface	
	Light Source: LED Light Source	
	Automatic and Manual Light Intensity modes	
	Camera Compatible with rigid, flexible and single use scopes	
	Integrated recording and playback	
	50 GB internal Storage and Encrypted data	
	Accessories: Rolling Stand, HX Camera Heads/HD, Video endoscope adopter	

**Note:**

**The Biomedical Equipments shall met the Certification (FDA/CE/MHLW) where applicable  
Country of Manufacture: Preferably - USA/Europe/Japan**