MD Sports Medicine, RIMS Imphal

(83)(92)

Technical Specification of EMG/Electro Physiology System

1. 6-8 channel equipment with software for NCV, EMG, VEP, BAER, SSEP, SSR,RNST, single fibre EMG, tremor analysis
2. System should have head montage junction box with user configurable channels
3. Should have NCS, F wave, H reflex, Collision, Blink reflex, SSR, RR interval, RNST, Inching studies with temperature probe
4. Should have qualitative EMG, quantitative EMG, motor unit number estimate, single fibre EMG software
5. Should have pattern, flash and goggle VEP, hemifield VEP, ERG, BAER, SSEP software
6. Should have tremor analysis software
7. Sensitivity: 1 microvolt per division to 10 millivolt per division
8. Input impedance: above 100 Mohms differential mode. Noise < 0.6 microvolt RMS
9. Display (Sweep speed): 0.2 ms - 12 sec/div
10. Common mode rejection ratio: above 112 dB isolation mode
11. Low filter settings: 0.01 Hz to 3 KHz and high filter settings: 10 Hz to 20 KHz with AC interference notch filter 50 Hz
12. Averager: Dual buffer alternate averaging preferred
13. Electrical Stimulator: monophasic / biphasic, constant current with artefact compensation
14. Should have compact stimulating electrode with convenient dials for stimulation intensity adjustment and delivery of electric stimulation with user configurable switches.
15. User should be able to open at least 8 test protocols simultaneously.
16. System should have at least 1 triggers input / output, upgradable to 6 Triggers.
17. Should have EMG (Free run needle EMG, MUAP analysis, Interference pattern, Auto MUP detection and classification, and real time turn amplitude analysis) with continuous storage of live EMG for minimum 10 minutes up to 99 sites
18. Must have Single Fiber EMG, Macro EMG, Stimulated SFEMG, and QEMG with the system
19. Should have EMG play back with waveform and sound for minimum 10 minutes
20. Should have Brain stem auditory evoked potentials with click, burst & tone pip stimulation (ABR, MLR, SVR & EcochG)
21. Should have Visual Evoked Potentials with Pattern, flash and LED goggles (ERG, EOG PRVEP & LEDVEP)
22. Should have Somatosensory Eyeiked potentials with signal triggering and back averaging (SEP, SSEP, ECG triggered SSEP and ESCP)
23. Mat have user friendly Data base management software and study schedule program for easy data management

(82)(91)

24. Should have on-screen examination guide / Neuro navigator
25. Should be able to perform skin electrode impedance check at both junction box and console 2 to 20 K ohm
26. Should have option of P-300, collision studies
27. Should have autonomic Nervous System testing with SSR, RR interval and Microneurography
28. RNST should have pre- and post exercise protocols inbuilt with action potential graphically represented alongside table in the final result
29. Should have tetanic stimulation (50 Hz) in RNST for 10 seconds duration
30. Should have facility of exporting data to or any other suitable format for analysis with MATLAB or any other third party software as well as for teaching videos
31. Must be supplied with-Branded PC with strict in-house quality checks by manufacturer to comply with medical equipment standard.
    a) Laboratory based PC on trolley
    b) Should be with latest i7 processor, 4 GB RAM, 2 TB Hard Disk or better, 8 USB ports or better
    c) Built in DVD Super Multi Drive
    d) With 22" color TFT LCD display
    e) Suitable latest Windows operating system
    f) Supplied with Coloured Laser Printer
    g) Supplied with online UPS with suitable rating with voltage regulation and spike protection for 60 minutes back up
    h) Should be Capable of playing movies
    i) Should Support for JPEG, GIF, PNG, and TIFF files
32. Should be supplied with following accessories:
    a) Shielded stimulator (2 metres) (Adult)- 2 Nos.
    b) Shielded stimulator (2 metres) (Paed)- 1 Nos.
    c) Shielded EP electrodes (1.5 metres or more)- 3 sets
    d) Gold plated Ear Clip electrodes (1.5 metres) - 3 pairs
    e) Self sticking Surface electrodes (100/unit)- 2 units
    f) Conductive paste (3 Jars of 300 gms) - 2 sets
    g) Skin preparation gel (Set of 2 tubes) - 2 sets
    h) EMG needle holder- 2 Nos.
    i) EMG disposables needles (Box of 25) - 2 boxes (25 mm)
    j) EMG disposables needles (Box of 25) - 2 boxes (37 mm)
    k) EMG disposables needles (Box of 25) - 1 boxes (50 mm)
    l) Single fibre EMG needle - 2 Nos.

(81)(90)

m) Wrap up ground (50 c3n)- 2 Nos.
n) Temperature prob - 1 No.
o) Acoustically shielded Head Phones - 1 set
p) Insert Ear Phones - 1 set
q) 17" VEP Monitor - 1 No.
r) LED Goggles - 1 No.
s) ERG electrodes- 2 sets
t) Skin marking pencils- 5 Nos.
u) Measuring tape- 2 Nos.

33. Safety Standards:
    a) Manufacturer should have ISO certification for quality standards.
    b) Should be USFDA & CE approved product.
    c) Should be IEC 60601 -1 approved for electrical safety of Medical Equipment.
    d) Shall meet IEC 60601-2-040 Safety requirements
34. Only latest model should be quoted and year of introduction should be mentioned
35. Warranty for five year from principal manufacturer
36. Free AMC for subsequent 5 years with cost of spare from principle manufacturer
37. Commitment to provide spares and accessories for the entire period (5 yrs. CMC+ 5 yrs. AMC).
38. List of consumable and spare parts along with price list with validity of 5 years to be provided
39. Compliance certificate along with variability, if any, should be provided
40. List of installation in India during last 5 years with contact details from all vendors for the similar brand and model of equipment as quoted should be provided to verify the past performance.

Approved by:

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2. Prof. Y Nandabir Singh
3. Prof. N Romi Singh 29/12/2018
4. Dr. L Nilachandra Singh
5. Dr. N Bimol

(80) (89)

MD Sports Medicine, RIMS Imphal

Technical specificationof ECG Machine

1. Description of Function

ECG Machine is a primary equipment to record ECG signal in various configurations. 12 channels with interpretation is required for recording and analyzing the waveforms with an inbuilt software.

2. Operational Requirements

The ECG Machine should be able to acquire all 12 Leads simultaneously and interpret them.

3. Technical Specifications

1. Should acquire simultaneous 12 lead ECG for both adult and paediatric patients.
2. Should have Real time Colour display of ECG waveforms with signal quality indication for each lead.
3. Should have Artefact, AC, and low and high pass frequency filters.
4. Should have a storage memory of at least 100 ECGs with easy transfer by modem and data card.
5. Should have full screen preview of ECG report for quality assessment checks prior to print.
6. Should have interpretation facility of the amplitudes, durations and morphologies of ECG waveforms and associated rhythm for adult and paediatric patients.
7. Should have alphanumeric Keyboard for patient data entry. (virtual or hard keys).
8. Should have High resolution (200 dpix500dpi on 25 mm/sec speed) digital array A4 size printer.
9. Should have report formats of 3 x4; 6 x2, Rhythm for up to 12 selected leads; 12 Lead Extended measurements, 1 minute of continuous waveform data for 1 selected lead.
10. Should have battery capacity of at least 30 ECGs or 30 minutes of continuous rhythm recording on single charge.
11. Should be able to be connected to HIS /LAN/Wireless LAN.
12. Should display ECG on LCD/TFT Display of 640x480 pixel resolution.
13. USB Support for Storage on external portable memories.
14. Multimode of ECG Storage capability, 150 ECG on Internal Flash Memory.

4. System Configuration Accessories, spares and consumables

1. ECG Machine 12 Leads with Interpretation - 01
2. Patient Cable -02
3. Chest Electrodes Adult-(set of six) -02 sets.

4. Chest Electrodes Paediatric-(set of six) -02 sets
5. Limb Electrodes(set of 4)- 02 sets of Adult and 02 sets of Paediatrics
6. Thermal Paper A4 Size for 500 patients

5. Environmental factors

1. The unit shall be capable of being stored continuously in ambient temperature of 0 - 50deg C and relative humidity of 15-90%
2. The unit shall be capable of operating continuously in ambient temperature of 10 -50deg C and relative humidity of 15-90%
3. Shall meet IEC-60601-1-2:2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility or should comply with 89/366/EEC; EMC-directive.

6. Power Supply

Power input to be 220-240VAC, 50Hz fitted with Indian plug

7.Standards, Safety and Training

1. Should be US FDA and European CE, approved product.
2. Electrical safety conforms to standards for electrical safety IEC-60601-1 General Requirements and IEC-60601-2-25 Safety of Electrocardiograms. (OR EQUIVALENT BIS Standard)

8. Documentation

1. User Manual in English
2. Service manual in English
3. List of important spare parts and accessories with their part number and costing
4. Certificate of calibration and inspection.
5. Log book with instruction for daily, weekly, monthly and quarterly maintenance checklist.
6. The job description of the hospital technician and company service engineer should be clearly spelt out
7. List of Equipment available for providing calibration and routine Preventive Maintenance Support As per manufacturer documentation in service/technical manual.

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(76) (85)

MD Sports Medicine, RIMS Imphal

Technical Specification of Treadmill Machine

1. The system must support 3-, 6-, 12- and 15-lead resting and stress ECG
2. All leads configurations can be displayed on-screen and printed in final reports
3. The system must provide pop-up medians in post-test review to view individual QRS complexes time synchronized to leads viewed in the trend graphs
4. The system must provide interpretative tools for resting ECG and stress ECG
5. The system must provide risk assessment tools like Stroke and Duke Treadmill Score
6. The system must provide risk assessment tools for SCD like T-Wave Alternans
7. The system must allow for ECG display speed and amplitude adjustment
8. The system must provide ECG freeze frame during real-time display
9. System should display running trend of ST, Heart rate and METs on the screen to evaluate patient condition during exercise phase.
10. The system must provide ramped and staged, pharmacological protocols
11. The system must allow for comparison to previous procedures data including ECGs with measurement ability (calipers) of all traces
12. The system must provide BP measurements in both mm/Hg and kPA
13. The system must be able to re-analyze ECG procedure data, reset measurement points and recalculate S-T segment values based on new points
14. The system must be able to score patient test results using Duke Treadmill score
15. The system must provide full disclosure ECG and allow detailed review and measurement of full disclosure ECG
16. The system must allow full disclosure strips to be appended to final report
17. Reports can be emailed with no additional hardware or software
18. System must store at least more than 100,000 procedures as raw data available for review, medication and re-analysis
19. 19. The system must be configurable for paperless documentation storage/archiving
20. The system must support viewing of final reports using non-proprietary, free software
21. The system must support saving final reports in non-proprietary format.
22. The system must have the ability to simulate a stress test for quality assurance and training
23. The system must have the ability to change protocol to any other programmed protocols or manually control the system during the procedure
24. The system must have the ability to view 3-, 6-, 12- or 15-ECG leads on screen during exam
25. The system must have the ability to edit final report while viewing ECG in recovery
26. The system must have the ability to permit user to customize protocols
27. The system must have the ability to customize user setups

(75) (84)

28. The system must have the ability to modify fiducial point, such as ST slope and level measurement point
29. The system must operate on a Windows platform
30. The system must support laser printer and thermal chart recorders in both A and A4 paper sizes
31. The system must be mobile
32. Should have full disclosure playback review and storage for minimum of 50 tests
33. The system should have minimum of 80 GB hard drive
34. The system must use PC compatible monitors, printers and external storage devices, including CD-RW, SD CARD and USB external hard drives
35. The system must provide a detachable patient ECG acquisition module with replaceable patient lead wires
36. The Acquisition module should be digital
37. The system must provide patient procedure data storage on a PC network
38. The system must export a structured XML data export
39. The system must have customizable final report
40. The system must allow configurable color schemes to display real-time data
41. The system must allow configurable color schemes for final report printing to color printers
42. Final reports must be exportable from the system in Word, PDF
43. Optional export from the system in XML, Excel
44. The system must support DICOM formatted report export
45. The ECG trace display speed must be adjustable in real-time
46. The system must provide a database backup and recovery tool
47. 47. The system database must be sortable by procedure type, patient name, date of procedure, patient ID
48. During procedures, user must be able to open a previous procedure for the same patient to assess baseline, peak and maximum ST depression points
49. During the procedure, the user must be able to review procedure and patient information from the active ECG screen
50. The system must provide multilevel and multi-person password protected security
51. Treadmill should have 60-inch walking surface with Two Stopping Modes
52. Treadmill should have emergency stop switch
53. Treadmill should start from 0 mph
54. Speed range of the Treadmill should be 0 to 13.5 mph
55. It should self-calibrating for Speed and grade
56. Maximum rated load should be 200Kg

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Terms and Conditions:

1. The system should be US FDA approved.
2. In the technical bid, the product should be quoted with a set of standard accessories. The price bid must clearly state the accessories included. The price of optional accessories should be quoted separately.
3. The parent company should give the undertaking to provide the spares during the warranty and CMC period if required.
4. If the equipment is software based, and the new software is introduced within five years the up gradation will be provided free of cost
5. Demonstration: The Department may ask for demonstration of actual quoted product or even for trial use.

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(80) (81)

Specifications for Pulmonary Function Test (PFT) Machine
(Spirometry System)

1. It must meet latest ATS/ERS standards.

2. It should be able to measure/do the following:
   - Spirometry & Flow Volume Parameter
   - Maximum Ventilation Volume
   - Pre & Post Bronchodilator comparison
   - Lung Volumes & Sub – divisions
   - Broncho Provcation Test.

3. Flow meter –Bi-directional digital turbine (flow: up to 14L/s or more, accuracy: within\ 3%) or Pneumotach (flow: up to 14L/s or more; accuracy: within 3%)

4. Resistance : less than 1.5 cm H2O/L/Sec

5. Parameters should be measured with highest accuracy & reproducibility and accuracy should be least, if at all affected with High surrounding Temperature and humidity levels.

6. Should incorporate Electronic Barometer & temperature Sensors, for Automatic BTPS Correction.

7. Overlaying of previous test curves for comparison.

8. Real Time Flow Volume and Volume – time Traces on Computer Screen.

9. Capability to select and modify predicted equations.

10. Facility to interface for desktop / Laptop Computer.

11. System software should be based on Windows 7/XP OS.

12. Should be supplied with Computer Interfacing package, Cables, Software, 3-Litre Precision Calibration Syringe, Standard accessories & Manual.

13. Additional Accessories: Pneumotach Screens (05 Nos.), Pulmonary Filters (100 Nos), Disposable Mouthpieces (500 Nos.)

14. Laptop / Desktop Computer: 4 GB RAM, Intel corei3/i5 processor(3rd generation), 15"TFT Screen, USB Ports, DVD R/W, Hard Disc Drive 500GB, Laser Printer, UPS (1KVA).
15. Trolley for the computer and printer
16. Safety and quality standards- USFDA or European CE certification to MDD.

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Multi-frequency segmental Body Composition Analyser

Key specification

1. Bioelectrical Impedance Analysis (BIA)
2. Impedance(Z) = 15 Impedance, measurements by using 3 different frequencies (5kHz, 50kHz, 250kHz) at each 5 segments of the body (Right Arm, Left Arm, Trunk, Right Leg, Left Leg)
3. Electrode Method: Tetrapolar 8-Point Tactile Electrode System
4. Measurement Method: Direct Segmental Multi-frequency Bioelectrical Impedance Analysis Method, DSM-BIA method
5. Body Composition Calculation: Method should not use of Empirical Estimation
6. Outputs For Adult Total Body Water, Protein, Mineral, Body Fat Mass, Soft Lean Mass, Fat Free Mass, Weight, Skeletal Muscle Mass(SMM), BMI, Percent Body Fat, Waist-Hip Ratio(WHR), Nutritional Evaluation(Protein, Mineral, Fat), Weight Management (Weight, SMM, Fat), Obesity Diagnosis(BMI, PBF, WHR), Weight Control(Weight Control, Fat Control, Muscle Control), Segmental Lean, Segmental Fat, Exercise Planner, Fitness Score, Basal Metabolic Rate(BMR), Impedance at Each Segment & Frequency
7. For Child Height, Body Water, Protein, Mineral, Body Fat, Weight, Skeletal Muscle Mass, Body Shape Graph, Growth Chart(Height, Weight), Target Weight, Weight Control, Muscle Control, Fat Control, BMI, Percent Body Fat, Child Obesity Degree, Basal Metabolic Rate(BMR), Growth Score, Impedance at Each Segment & Frequency

Feature Specification

1. Logo Display Possible to input name of the user's place, address and contact number
2. Type of Results Sheet Basic: Body composition results sheet for adult(Printed Paper/Blank Paper)
3. Body composition results sheet for child(Printed Paper/Blank Paper)
4. Option: Thermal results sheet(when using thermal printer)
5. Measurement Screen Results of measurement and the process of measurement will be displayed on Color LCD
6. Data Storage Possible to save the results when ID is entered (Up to 100,000 measurements)
7. User's Interface Easy to control using Touch LCD
8. Use of USB Storage Device Possible to backup and transfer data to USB storage device(compatible with Excel and other software)
9. Should use the USB storage device provided by BIOSPACE
10. Data Back-Up Possible to backup data through USB storage device and to restore the data to the In Body
11. Printer Connection USB port.

Other Specification

1. Applied Rating Current 250μA
2. Power Consumption 50VA

3. Adapter Power Input AC100~240V, 50/60Hz, 1.2A
4. Power Output DC 12V, 3.4A
5. Display Type 800 × 480 Touch Color LCD
6. External Interface RS-232C 1EA, USB Slave 1EA, USB Host 1EA
7. Compatible Printer with trolley

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(735) 82)

Technical Specification of Wingate Ergometer

1. **Wingate ergometer for lower body**

- Cycle Ergometer for Wingate Testing
- RPM controlled mechanism for release of weight
- Windows-based software with clear presentation graphics
- Maximum user Weight of 180 kg or more
- Workload range of 4 – 1400 Watts or more in range of 50-200 RPM
- Weight Basket/ Brake belt/ Eddy Current Braking System
- Heart Rate Sensors. Accessories for the same including chest piece and wrist piece etc to be included
- Adjustable saddle; vertically and forward/backwards
- Adjustable handlebar with quick release lever
- Stable frame
- LCD/similar meter with following displays:
    - Pedal-turns per minute (RPM)
    - Heart rate in beats per minute (HR)
    - Cycling-time in minutes and seconds (TIME)
    - Intended cycling speed in km/miles per hour (SPEED) Distance covered in km/miles (DISTANCE)
    - Power in Watts (WATT)
    - Energy Consumption (CAL/KJ)
- Must include the following protocols:
    - Wingate
    - Maximal work test
    - Fitness Test
    - User controlled protocols
    - HR controlled training protocols

Others:

- Should be supplied with 03 heart rate Monitors(both chest piece and wrist piece)
- Should be supplied with compatible branded computer - Intel Core i5, 3.1 GHz, 8 Gb RAM , *21"* TFT Colour Monitor, CDR/W-DVD Drive, Keyboard, Mouse, Hard Disc Drive (1Tb SATA) USB Ports, Windows 10 and office 2013 and above, and 2KVA UPS
- Should be supplied with colour laser print
- Power requirement compatible with power supply in India
- CE/FDA/ISO certified
- Should have PC port for data transfer/printing
- PC and printer Trolley

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(78) 87)

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Technical specification of compact Colour Doppler Ultrasound Unit for Musculoskeletal Ultrasonography

A state of art fully digital, compact color Doppler ultrasound machine (weight <6 kg) with pin-less connector technology is required with following technical specifications

1. The equipment must be capable of operating in B-Mode, M-Mode, Color and power Doppler modes.
2. It must support transducer with linear, micro convex, phased array and curved array formats. It should have the standard provision of dual transducer connector to switch b/w two transducers simultaneously.
3. The system shall have broadband architecture with an operating frequency of at least 1-15 MHz (±1 MHz).
4. Unit should be able to give very high image quality with advance technologies like compound imaging for better contrast resolution, tissue differentiation and edge detection, equivalent to high end cart based system, please specify the technology.
5. The system shall have the ability to enhance tissue margins and improve contrast resolution by reducing artifacts and improving visualization of texture patterns and needle tip within the image on both linear and curvilinear probes for procedural guidance. Please specify the technology.
6. System must have autoadjusting function for imaging parameters depending on exam type and based on imaging depth for ease of use.
7. Systems should have adaptive touch screen display with optimized menus for commonly used controls (like Scan/ Freeze, Modes, Print, Save, Clip/Image) and touch screen manipulation for calipers, zoom and Color Box.
8. The system shall process a dynamic range that is atleast 165db. The system must display at amaximum depth of 35cm.
9. The system must have a dedicated abdominal, cardiac, MSK and vascular calculations package.
10. The system shall provide a backlit keypad with no Track ball preferably for ease of use. Also, facility to disinfect the system console and transducers must be possible to avoid any cross contamination and nosocomial infections.
11. The system shall go from the off status to active scanning in fewer than 30 seconds for handling critical and emergency situation in ICU and OT. System not operating on windows operating systems will be preferred to avoid hanging and hard disc crash in critical situation.
12. The system must be mountable on original trolley and shall weigh not more than6 kg including battery, in case it needs to be moved to other department for handling emergency conditions.
13. System and transducers must be sturdy and drop safe during accidental fall/ hit against hard surface in busy and challenging hospital conditions.

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14. The system shall have and LCD screen size no smaller than 12'' and up/down/left/right viewing area should be more than 80 degree for a wider view angle display in operating rooms.
15. Thesystem shall have Digital video interface(DVI), S-video, VGA,USB and audio output.
16. The operating temperature range of the system, transducers, and battery shall be 10-40° C.
17. The system shall have the ability to function by AC/DC or battery power with the same degree of functionality, the battery life (run-time) shall be at least 2 (two) hours, this need to demonstrate.
18. The system must have in built memory of 16 GB for storing patient data and studies.
19. The system shall support the all DICOM functionality, storage, print, and work list, also compatible to connect to PACS.
20. The system and transducers should be US FDA and European CE certified.

Transducers to **supply**

1. 3-8 MHz (± 1MHz) curved array multi- frequency, broadband transducer for nerve, abdominal, musculoskeletal, obstetrics and spine exam applications with less than 40mm footprint.
2. 6-15 (± 1MHz) high frequency Linear transducer with 50 mm footprint for nerve blocks, small parts and musculoskeletal imaging.
3. An original trolley from manufacturer must be available to store and/or transport the system.
4. High frequency 'Hockey Shape' Linear transducer 6-13 MHz (± 1MHz) for nerve blocks, vascular access, MSK and vascular imaging.

ESSENTIAL REQUIREMENT:

- Onsite Product training and access to education material website must be provided to end users during post installation of the system.

WARRANTY: The unit and transducers should be covered with comprehensive onsite warranty for 5 years commencing from the date of issue of installation certificate.

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SPECIFICATION FOR ARTHROSCOPY SYSTEM :

High Definition Camera System for Arthroscopic Surgeries

Full High Definition Digital Camera Head **Qty-1**

Specification

- Digital ,Triple chip, full high definition, microlens CCD Camera (Charged Couple device).
- Pixels Quantity: 1920 x 1080i
- Scanning Pattern: 1920x1080 Interlaced (1080i) x3 CCD = 6220800 Pixels |
- Aspect Ratio: Capable of displaying wide screen 16:9 format. Standard definition television (SDTV) has a 4:3 aspect ratio.
- Compatible with Video Arthroscopes as well as direct view scopes.
- 3 buttons for remote control of the CCU and accessories. Able to control 6 functions on the menu using these 3 buttons
- inbuilt zoom facility, regardless of telescope used.
- Automatic optimization of all settings.
- Digital signals processing, modes of operation automatic and manual, PAL compatible.
- White balancing possible from the CCU as well as from the sterile field.
- Minimum Signal to Noise ratio of 60 decibels (dB).
- SDI Output, BNC, S-VHS and RGB outputs.
- Leakage current not more than 25 microamps in control unit and not more than 10 microamps in camera head
- Weight not exceeding 165 grams, Camera head cable minimum 12ft.
- C-Mount Zoom coupler 19.5 mm.

Full High Definition Camera Control Unit **Qty-1**

- ACG Microprocessor controlled
- Video Inputs : S-Video, (Y/C), Composite, HD-SDI, IEEE-1394
- Video Outputs : S-Video, (Y/C), Composite, HD-SDI, DVI
- Video Formats : NTSC and PAL
- USB 2.0 Ports : Type A receptacle, software compatible with NS16C550
- Video recording: on pendrive through USB port
- Parallel Port : Bidirectional Input / output with female DB-25 Receptacle
- Serial Port : UART Port with male DB- 9 receptacle
- VGA Port : 15-Pin female
- Ethernet Ports : Auto select 10Base-T/100 Base-TX
- Storage : Supports read/ write of USB flash media of different sizes; CD-R/RW; 650 MB or700 MB.
- Still Image File Formats : 24-bit RGB bitmap, 24-bit JPEG
- Still Image Resolution : NTSC / PAL

- 1920 x 1080i@ 24 bit color depth 16.77 million True Colour
- Motion Video File Format : MPED1, MPEG2, MPEG4
- Power Requirements : Input Voltage: 100-240 VAC, 50/60 Hz @ 90VA
- Processor : Intel® Pentium® M 1.6 GHz
- Operating System : Microsoft® embedded Windows® XP or advanced

High Definition Medical Grade Monitor **Qty-1**

The system should have:

- Medical grade LCD monitor, flat screen
- Ability to display High Definition Resolution of 1920 X 1080i
- Wide Screen and aspect ratio of 16:9
- Compact control buttons on the sides of the panel
- Screen diagonal 24"
- Monitor stand compatible with monitor

LED Light Source Specs **Qty 1**

- **Light Source Type** LED (Light Emitting Diode)
- **Color Temperature** 7000° K
- **LED Life** 30,000 hours (typical)
- **Light GuideAdaptor**Turret type to fit your choice of light cable
- **Brightness Control** 0-100% Dimming
- **Input Voltage** 100-240V AC, 50/60 Hz
- **Rated Power** 90 watt
- **Dimensions** 11.22" W x 4.49" H x 13.23" D
- **Weight** 8.05 lbs / 3.42 kg

Fiber Optic Light Cable **Qty-2**

- Universal fibre optic cable with adapters. Not less than 5mm thick and 10 ft long

Arthroscopy Set(Arthroscopic, Sheath and Obturator)

- Wide Angle, Direct View High Definition Arthroscopic
- Light Guide insertion on opposite side of the direction of view with a J-lock fixation for cannula.
- Working Length of Not more than **160mm**
- Optimal centre-to-edge resolution for enhanced picture quality
- Angle of view: **70 degree**
- Diameter **4mm**
- Fiber optic light transmission incorporated
- Standard ocular window for coupling the camera head
- Scratch resistance sapphire quoted tip lens
- Advanced Rod lens system for optimum brightness, contrast and definition
- Arthroscopies should be supplied with compatible cannulas high flow, double valve, fully rotatable with fenestrated tip & conical and blunt tip obturator.
- Sheath- 5.95 to 6.0mm, high flow diagnostic cannula, double valve, fully rotatable cannula with fenestrated tip.
- Trocar-4.5mm conical obturator to fit with cannula.

Arthroscopy Set(Arthroscopic, Sheath and Obturator)

- Wide Angle, Direct View High Definition Arthroscopic
- Light Guide insertion on opposite side of the direction of view with a J-lock fixation for cannula.
- Working Length of Not more than **120mm**

- Optimal centre-to-edge resolution for enhanced picture quality
- Angle of view: **30 degree**
- Diameter **2.7**
- Fiber optic light transmission incorporated
- Standard ocular window for coupling the camera head
- Scratch resistance sapphire quoted tip lens
- Advanced Rod lens system for optimum brightness, contrast and definition
- Arthroscopies should be supplied with compatible cannulas high flow, double valve, fully rotatable with fenestrated tip & conical and blunt tip obturator.
- Sheath- 3mm to 4mm, high flow diagnostic cannula, double valve, fully rotatable cannula with fenestrated tip.
- Trocar-3mm to 4mm conical obturator to fit with cannula.

Arthroscopy Set(Arthroscopic, Sheath and Obturator) Qty- 2 Each

- Wide Angle, Direct View High Definition Arthroscopic
- Light Guide insertion on opposite side of the direction of view with a J-lock fixation for cannula.
- Working Length of Not more than **160mm**
- Optimal centre-to-edge resolution for enhanced picture quality
- Angle of view: **30 degree**
- Diameter **4mm**
- Fiber optic light transmission incorporated
- Standard ocular window for coupling the camera head
- Scratch resistance sapphire quoted tip lens
- Advanced Rod lens system for optimum brightness, contrast and definition
- Arthroscopies should be supplied with compatible cannulas high flow, double valve, fully rotatable with fenestrated tip & conical and blunt tip obturator.
- Sheath- 5.95 to 6.0mm, high flow diagnostic cannula, double valve, fully rotatable cannula with fenestrated tip.
- Trocar-4.5mm conical obturator to fit with cannula.

Arthroscopic Resection Shaver System Qty-1Each

The Shaver system should comprise of Controller Console, Shaver Hand-piece, and Foot pedal.

Controller Unit

- The Controller console should have receptacles for both Shaver hand-piece, Foot Pedal and also other powered instrumentation
- The console screen should capture all information pertaining to minimum, maximum and set speeds forinstalled blade type; horizontal bar graph of bladespeed relative to range; blade direction; diagnosticinformation.
- Should provide control for momentary push switches for increasing and decreasing speed setting.
- The Unit should have 2 Modes for Normal and Aggressive Resection so as to balance efficacy with safety.
- The Console should provide variable rpm ranging between 100rpm to 10,000 rpm as per the blade or burs used.
- The Motor should offer Forward, Reverse and Oscillation Mode for Resection.

Shaver Hand Piece

- The autoclavable shaver hand piece, which is compact, lightweight and ergonomically designed, with hand control.
- The connecting cable should be autoclavable and replaceable with length of approx. 10Ft.
- The hand piece should be not more than 8 Inches length and 460gms.
- The hand piece should have suction control lever.
- The Shaver Hand piece should have safety mechanism of Blade Window Lock to avoid any unintentional tissue damages on pull out.

- The Safety feature for window locking should be accessible and controllable from shaver hand piece.
- The Shaver hand piece should have push-button motor controls: Forward, Reverse Oscillate, and Blade and Window Lock.
- The Shaver should offer Maximum torque not be less than 32oz.in
- The shaver should be supplied with compatible shaver sterilization case.
- The Shaver should be able to use any electro Blades, if desired.
- Input voltage of 100 to 240V, 50/60 Hz power consumption not more than 350VA.

Foot Pedal

- The variable speed foot pedal should be sturdy with a long connecting cable.
- The foot pedal controls should include three standard operating modes, i.e. Forward, Reverse and Oscillation.
- The foot pedal should offer a blade window locking mode for enhanced safety during withdrawal of hand piece from joint space with blade mounted.

Optional Items: Powered Instrumentation

- Power drill with cable and drill hand piece, Jacobs chuck with key
- Sagittal Saw hand piece and wire driver

Consumables-Blades & Burs

- Shaver System Should be supplied with 2 pieces of single use shaver blades of each of the diameter for knee and shoulder

Arthroscopy Fluid Management System Qty-1

- The Fluid management System offers to maintain& control intra-articular pressure regardless of varying outflow rates. The system can also be used with any arthroscopic inflow cannula and should include main control unit, disposable tubing sets, a wireless remote control, two Fluid Level Sensors
- The control unit should not require the user to increase distension pressure to achieve high flow rates. Outflow may be adjusted while maintaining the lowest distension pressure needed
- Flow rate should be change as per operating cannula connection
- The Unit should have a LCD Display and should clearly depict High flow, Medium floe and Low Flows.
- Maximum flow rate of not less than 2.5 ltr/min for procedural speed and efficiency
- Automatic Joint pressure maintenance up-to 150 mmHg
- The unit should have receptacles for Remote and Irrigation Set Insertions.
- Should be supplied with remote foot pedal for easy operation of wash function.
- Must be supplied with Disposable tube sets for inflow only (30pcs).
- Must be supplied with Disposable Tube sets for inflow and outflow (30pcs.).
- Wireless remote control for full system control from the sterile field. Should be stop, start, lavage start/Stop, increase & decrease flow limit, increase & decrease pressure.
- Operating System: Microsoft® embedded Windows® XP

Hand Instruments

All Hand Instruments should have single piece construction outer shaft and pin-less hinge design for distal tip, ensuring unsurpassed strength and cutting efficiency.

Punches: - All purpose, low profile with a large square bite

- Basket Punch Duckbill straight Tip Profile – 2.52mm, Bite Width-3.17mm, Tip Width-5.05mm
- Basket punch Duckbill upbiter Tip Profile – 2.52mm, Bite Width-3.17mm, Tip Width-5.05mm
- Basket punch Duckbill upbiter curved right – 2.52mm, Bite Width-3.17mm, Tip Width- 5.05mm
- Basket punch Duckbill upbiter curved left – 2.52mm, Bite Width-3.17mm, Tip Width-5.05mm

- Basket Punch Narrowline Straight 1.9mm, Bite width- 1.67mm, Tip width-2.89mm
- Posterior Punch Upbiter Tip Profile -2.46mm, Bite width-2.18mm, Tip width-4.0mm
- Posterior Punch Straight 2.46mm, Bite width-2.18mm, Tip width-4.0mm
- Basket Punch - scoop 1.5mm Upbiter Tip profile-2.28mm,Bite width-1.59mm, Tip Width-3.88mm
- Basket Punches,90 deg. Rotary,cigar handle with a 3.4mm bite in left and Right.
- Basket Punch – Stingrey backbiter Left – Tip profile – 3.93mm, Bite width-2.38mm, Tip width-5.58mm
- Basket Punch – Stingray backbiter Right – Tip profile – 3.93mm, Bite width-2.38mm, Tip width-5.58mm
- Suction Punch – 2.5mm, straight with long handle

Grasper

All grasper should have an infinite position sliding lock mechanism that hold tissue firmly without tearing and slipping – even in the tightest area.

- Pitbull Loose body Grasper with sliding lock mechani

Scissors

- Scissor Punches should be straight ,loop handle
- Scissor Punches Should be 20deg. Hooked Left
- Scissor Punches should be 20deg. Hooked Right

Others

- Probe Straight
- 3.0mm Heavy hook with handle
- Linear Instruments Fifteen-Unit Sterilization Trey

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