

## Orthopedic Operating Table specifications for Electro-hydraulic operating theatre.

### Description of Function:

1. Operating tables provide an elevated surface that supports the patient's body during surgical procedures, stabilizing the patient's position and providing optimal exposure of the surgical field.
2. C-arm compatibility with hydraulic operation table.

### Essential technical specifications:

1. Table – top, should be X-Ray translucent for fluoroscopy with 'C'arm and with radiolucent mattress.
2. Side tilt/lateral left and right approx. 15 - 30°
3. Trendelenburg and Reverse Trendelenburg approx. 20-45°
4. Manual adjustments(hydraulic/gas spring supported).
5. Head Section up and down approx. +25°/-45°
6. Divided leg section.
7. All metal components of the table should be made of corrosion resistant and disinfectant- proof stainless steel.
8. Mobile table-base on antistatic heavy duty swivel castors with central brake ensuring a stable base.
9. Should also be suitable for obese patients. Minimum tolerable weight should be 150 kg.
10. Should have stainless steel accessory rails on both sides of the table-top to hold various accessories.
11. Should be supplied with the accessories for orthopaedic traumatology, spinal surgery.

### Orthopaedic accessories:

- i. Attachment for fracture table, for fixation of hip and nailing of tibia and femur.
- ii. Arm board 2 Nos.
- iii. Laminectomy support pad.
- iv. Hand surgery table/attachment.
- v. The equipment should be USFDA/BIS/CE certified.
- vi. Warranty for at least 5 years.
- vii. CAMC for at least 5 years.

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**Electrosurgical Diathermy with vessel sealing device and accessories:-**

1.	The system should have Monopolar Cut & Coagulation, Bipolar and Vessel Sealing technology all integrated in one system
2.	The equipment should have Microcontroller based device incorporating closed loop control for all output modes in the microcontroller firm wire
3.	The equipment should incorporate tissue sensing technology (3333 decisions per second) on real time basis and it should have the technology to convert electrical energy to radiofrequency energy thus providing radiofrequency seal. It should also identify the tissue type and adjust power accordingly to get the desired surgical effect on various tissue types
4.	The input operating range of the system should be 90 to 270 AC volts. Maximum current should be 5 to 9 amperes in Monopolar Cut, 3 to 6 amperes in Monopolar Coagulation and 3 to 7 in Vessel Sealing mode.
5.	The operating parameters should be as follows:-
A	Display-Digital or Preferably Touchscreen Display
B	The Output wave forms should be between 460 to 480 KHz sinusoid in all modes
C	The low Frequency Leakage should be less than 65 Hz
6.	The Equipment should have the following Alert Tones:-
A	Patient Pad monitoring Error Alert
B	Reactivate/ Regrasp Tissue Error Alert
C	Instrument Checking Alert
D	Complete or Incomplete Seal Alert
E	Malfunctioning or System Error Alert
8.	Monopolar outputs should have minimum two cutting modes:
9.	Pure cut for clean, precise cut in general surgery having maximum power of 300 W
10.	Blend mode for cutting with hemostasis having maximum of 200 W
11.	It should have two minimum Coag Modes with maximum of 120 W
12.	Fulgurate mode for efficient non-contact coagulation in most applications
13.	Spray mode should have effect of varying amplitude and frequency for coagulating large tissue area with minimum depth of necrosis
14.	The system should have twin monopolar socket with independent power setting but only one can be activated at a time. The system should also have one universal adaptor socket for footswitch operation and one bipolar socket
15.	The thermal spread or collateral thermal spread should be minimal
16.	It should have Patient plate monitoring facility and should give audiovisual alarm and deactivate output if contact between patient and patient plate is not proper to eliminate the risk of patient burns.
17.	The equipment should have On screen review of error codes and diagnostics.
18.	The Equipment should be US FDA or European CE approved
19.	Installation should be made by the Trained Engineers
20.	Accessories to have individual/combo footswitches for Monopolar, Bipolar and vessel sealing. i) Rubber/disposable Silicone patient plate (pediatric and adult) – 2 each ii) Monopolar forceps with hand control with accessories iii) Bipolar forceps (straight long, straight short, bayonet) with accessories with non-stick coating. iv) Double paddle foot switch with cable Bipolar foot switch v) Power cord to connect to diathermy machine (if not in build) able to fit in Indian type of electricity socket.
21.	Instruction manuals and proper training should be provided to all the concerned persons of the Department.

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## C. Mobile C-Arm Image Intensifier

## Equipment specification for Orthopaedic C-Arm (Image Intensifier)

## Description of Function:

- 1) This equipment is used in orthopedic fractures for imaging of bone pathology.  
Or  
Fractures on a display monitor during operation/reduction of fractures.
- 2) Uni-planar or bi-planar which is convenient, least bio/radiation-hazardous, efficient, for all type of orthopedic imaging of bones preoperatively/otherwise.
- 3) A versatile, compact and true counterbalanced C-arm unit should allow unobstructed positioning and enhanced ease of operation in OT for surgical interventions.

## Technical specifications:

1. Mechanical motion requirements for C-Arm:-
  - a) Motorized vertical travel: Minimum 400 mm or more
  - b) Horizontal travel: 220 mm or better
  - c) Rotation of C-arm: +/-270 deg. Or more
  - d) Pivotal rotation : 12.0 deg. Or more
2. The C-arm should have facility of locking the C-arm movements with easy to turn handle on control unit. Rear wheels must be freely movable for easy positioning of the complete C-arm around the OT table.
3. TV Camera:  
Ultra Compact CCD camera or camera with CMOS or advanced CMOS sensor with high no of pixels (>450000) and video band width (at least 20 MHz of better) along with 2 Nos. 17" 625 lines 100 Hz flicker free TV monitors with facility to rotate the image continuously.
4. X-ray generator:  
High frequency (20-40 KHz or more) at least 1.9 KW or even better X-ray generator with high capacity rotating anode X-ray tube of dual foci of 0.3 and 0.6 mm(200 KHU) or better.
5. Fluoroscopy output: 40-120 KV in 1KV steps.
6. MA output: Minimum upto 0.1mA or better.
7. Snapshot: Minimum 12.0 mA or better.
8. Image processing:  
The system should have automatic dose level selection. It should preferably have automatic image parameter selection with capability of switching on to manual selection. Image storage of 20,000 images on a 1024/1024 matrix it should have image annotation facility; measuring of distances and angles, entering of demographic data of patients, support of DICOM 3.0 functions. Image processing must be a fully digital continuous chain of at least 1k/1k matrix for image acquisition, processing, storage, archiving and documentation. The system should allow configuration and linking up with the HIS ( Hospital information system).

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9. Monitor - two numbers, 17" high resolution.

10. Field size- 9"

11. Essential Accessories:

The complete functional system must be quoted with dual channel Laser light source on X-ray tube unit for making a cross to reduce the X-ray dose, built in diode area product meter for display of X-ray dose, light weight lead aprons (20), thyroid shields(20), gonadal shields(20), lead goggles (20) and preferably a CVT and thermal imaging film printer with 12 film rolls and a CD/DVD writer.

12. Standards, safety and training:

- i. Should be US FDA and European CE approved.
- ii. The unit shall be capable of being stored continuously in ambient temperature of 0-50 deg. C and relative humidity of 15-90%.
- iii. The unit shall be capable of operating in ambient temperature of 20-30 deg C and relative humidity of less than 70%.
- iv. Comprehensive training for lab staff and support services till familiarity with the system.
- v. User/Technical/Maintenance manuals to be supplied in English.
- vi. Certificate of calibration and inspection.
- vii. List of equipments available for providing calibration and routine maintenance support as per manufacturer documentation in service/technical manual.
- viii. List of important spare parts and accessories with their part number and costing.
- ix. Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist.
- x. The job description of the hospital technician and company service engineer should be clearly spelt out. Compliance: Compliance Report is to be submitted in a tabulated and point wise manner clearly mentioning the page/paragraph number of original catalogue/datasheet and point, if not substantiated with authenticated catalogue/manual, will not be considered.
- xi. Warranty – at least 5 years.
- xii. AMC (Annual Maintenance Contract) for 5 years.

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Technical specifications of **External fixation set**:

Sl.No.	Description	Qty.
i.	External Fixation instrument set with sterilizing tray/box	1
ii.	Universal Clamp	20
iii.	Rods D 11 mm, Length 30 cm	10
iv.	Rod to Rod Clamp	10
v.	Schanz Pin 45 mm cortical	20
vi.	Schanz Pin 6.0 mm cancellous	20
vii.	Spanner 10/11 10	4

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Technical specification for DHS set:

Sl.No.	Name of items	Qty.
1.	Aluminum Case	1
2.	DHS/DCS threaded Guide Wire,/2.5 mm dia./L 230/5 mm	20
3.	DHS Angled Guide 135°	1
4.	DHS Angled Guide 130°	1
5.	DHS /DCS Direct Measuring Device	1
6.	DHS/DCS Wrench for one-step insertion /230 mm	1
7.	DHS/DCS T- Handle with quick coupling /80 mm	1
8.	DHS Triple Reamer	1
9.	DHS/DCS Impactor for one-step insertion/260 mm	1
10.	DHS/DCS Tap/220 mm	1
11.	DHS/DCS Centering Sleeve, Approx Locking	1
12.	Coupling Screw, cannulated	1
13.	Drill Bit 3.2 mm dia. For quick coupling/145 120 mm	4

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### Technical Specification for Small Fragment Set

Sl. no	Name of items	QTY
1	Aluminium Case, perforated	1
2	Drill Bit, 2.5mm dia., for quick coupling / 110/85mm	4
3	Drill Bit, 3.5mm dia., for quick coupling / 110/85mm	4
4	Countersink Shaft 3.5 / 72mm	1
5	Tap for Cortex Screws / 3.5mm	2
6	Tap for Cancellous Bone Screws / 4.0mm	2
7	T-Handle with quick coupling / 80mm	2
8	Double Drill Sleeve 3.5/2.5 1	1
9	Insert Drill Sleeve 3.5/2.5 / 42mm Drill Bit 2.5mm dia.	1
10	Screwdriver, hexagonal, small, with Holding Sleeve	1
11	Screwdriver Shaft, hexagonal, small, for quick coupling / 100mm	1
12	Screwdriver, hexagonal, small, with groove / 200mm	1
13	Holding Sleeve / 80mm	1
14	Depth Gauge for Screws / 2.7mm to 4.0mm	1
15	Sharp Hook / 155mm	1
16	Screw Forceps, self-retaining / 85mm	1
17	DCP Drill Sleeve 3.5 for neutral and load position	1
18	Bending Iron, slit widths 4.5/2.5mm / 150mm, for Plates 2.7 and 3.5	1
19	Bending Iron, slit widths 2.5/4.5mm / 150mm, for Plates 2.7 and 3.5	1
20	Bending Pliers for Plates 2.4 to 4.0mm	1
21	Bending Template for DCP 3.5 and LC-DCP 3.5 / 80mm	1
22	Bending Template for DCP 3.5 and LC-DCP 3.5 / 110mm	1
23	Wire Bending Pliers / 150mm	1
24	Bending Iron, for Kirschner Wires 1.25 to 2.5mm dia. / 120mm	1
25	Bending Pliers for Reconstruction Plates 2.7 and 3.5mm	1

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Technical specification:-

	Battery drill set for trauma and joint replacements	Qty.
i.	Battery Handpiece, preferably modular	2
ii.	Power Module	2
iii.	Sterile Cover	2
iv.	Lid for Battery Hand piece	2
v.	Battery Charger	2
vi.	Quick Coupling	2
vii.	Drill Chuck (drilling speed), with key	2
viii.	Quick Coupling for Kirschner Wires 1.0 to 4.0 mm	2
ix.	Attachment for Acetabular and Medullary Reaming	2
x.	Sagittal Saw Attachment, Long	2
xi.	Quick Coupling for DHS/DCS Triple Reamers	2

**Technical Specifications for Battery Drill – for Trauma and Joint Replacement Surgeries:**

1. Company should have relevant experience in successful execution of similar work at least in five Institutes of national importance and central government Institutes.
2. Bidder must enclose original literatures & technical data sheet in the support of the technical bid.
3. Instruments quality should meet the international standard.
4. Company should have European CE certificates or USFDA certificates of international standard.
5. Company should provide material certificates.

**6. The Cannulated Battery Handpiece:**

- i) **Cannulation** with 3.8- 4.2 mm diameter
- ii) Weight of handpiece 1000-1400 gm with Battery
- iii) **Power of 150-200 W**
- iv) Continously **variable speed** without attachment 0-1500 rpm
- v) **Separate forward and reverse triggers**
- vi) **Handpiece is compatible with radiolucent drive**
- vii) Instant change between clockwise and counterclockwise rotation
- viii) **Fully Autoclavable**
- ix) different locking options for attachments
- x) should preferably have Reliable protection of soft tissue with integrated oscillation mode
- xi)

**7. Lid for battery Hand Piece:**

- i) Mode Selector Switch to select Drilling/Reaming, Saw, Oscillating Drill mode
- ii) Made of Plastic/Stainless steel
- iii) Should be autoclavable

**8. Power Module:**

- i) Display indicating the battery capacity status
- ii) Consists of Motor, Control unit and Battery cells
- iii) Should have a button to diagnose errors in the system

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**9. Battery Charger :**

- i) Should preferably have 4 charging bays
- ii) Should be capable of charging NiCd, NiMh and Lithium Ion batteries
- iii) Should display the charging status of the batteries
- iv) Keeps inserted batteries constantly fully loaded

**10. Sterile Cover:**

- i) Made of Stainless steel
- ii) Fully autoclavable
- iii) For sterile transfer of Power Module to Battery Hand piece

**11. Quick Coupling attachment:**

- i) Cannulation of 1.8-2.2 mm diameter
- ii) Maximum Speed: approx. 1500 rpm
- iii) Maximum Torque: 3 Nm

**12. Chuck attachment:**

- i) Cannulation of 3.8-4.2 mm diameter
- ii) Chuck range from 0.5 to 10 mm
- iii) Maximum Speed of 1500 rpm

**13. Quick Coupling for Medullary reaming:**

- i) Cannulation of 3.8-4.2 mm diameter
- ii) Maximum Speed preferably upto 350 rpm
- iii) Maximum torque preferably upto 15 Nm

**14. Sagittal Saw attachment:**

- i) It can operate on an oscillating frequency of 0 to 20,000 osc/min.
- ii) The amplitude of oscillation should preferably be 4.5°
- iii) 5 locking options for the saw blades in the attachment
- iv) Saw Blade for TJR Surgery Length 81 to 116 mm,  
Usable L 60 to 95 mm, Width 12.5 to 25 mm, Thickness 0.89 to 1.47 mm
- v) Saw Blade for General Traumatology Length 46 to 90 mm, Usable  
Length 25 to 69 mm, Width 10 to 50 mm, Thickness 0.4 to 1.2 mm

**15. Quick Coupling for DHS/DCS Triple Reamer:**

- i) Cannulation of 3.8-4.2 mm diameter
- ii) Speed up to 700 rpm

**16. Quick Coupling for K-wire:**

- i) Continuous adjustment facility for wire diameter from 1 to 4 mm
- ii) Speed up to 1500 rpm

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**17. Batteries**

- i) Lithium Ion/Nickel-cadmium battery with a minimum life of 1000 cycles
- ii) No self discharging of batteries and no memory effect
- iii) Maximum charging time : preferably 30-45 min
- iv) Battery: 20-30 V
- v) Safe and easy handling in the operation theatre

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ANNEXURE-I

**TECHNICAL SPECIFICATIONS FOR PNEUMATIC AUTOMATIC TOURNIQUET (Qty-01)**

1. Should be European CE and USFDA Certified.
2. Company should be ISO certified.
3. Should have personalized pressure technology.
4. Should have automatic IVRA cuff lockout & leak detection.
5. Should have limb occlusion pressure & limb occlusion detection.
6. Should have dual port & dual cuff.
7. Should have table or pole mount.
8. Should have battery backup of 5-7 hrs.
9. Should have Touch screen display for user interface.
10. Compliant with international alarms.
11. Display: should be 8-9" colour display.
12. Should be provided reusable contour, small adult cuff & A.T.S cylindrical cuffs with 90 degree port and limb protection sleeves of all size.
13. Equipment power input should be 220-240V AC, 50Hz fitted with Indian plug.
14. Reusable cuff should have following:
  - A. Durable, high-quality material for longer wear.
  - B. Single and dual bladder option with limb, thigh and leg cuff.
  - C. Single and dual port option with limb, thigh and leg cuff.
  - D. Single port single bladder cuff with limb, thigh and leg cuff.
  - E. Positive locking connectors.
  - F. Low profile design.
  - G. Protection sleeves.
15. Accessories required with machine are following
  - A. Tourniquet Accessory Basket
  - B. Tourniquet Stand, Telescoping, W/28 Base
  - C. Dual Hose, Blue
  - D. Dual Hose, Red
  - E. LOP Sensor
  - F. Hose, Red
  - G. Hose, Blue Hose Extensions, Sterile
  - H. Sterile Dual Hose Extension PLC – 36in.
  - I. Sterile Dual Hose Extension Luer – 36in.
  - J. Sterile Single Hose Extension PLC – 36in.
  - K. Sterile Single Hose Extension Luer – 36in.

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16. Cuff size should be as following:

**Tourniquet Cuff – Cylindrical Reusable:**

**Dual Port, Single Bladder, Box of 1 with Sleeve Approx size**

- A. Reusable Cuff – 8in. (20cm) x 2.75in. (7cm)
- B. Reusable Cuff – 12in. (30cm) x 3.5in. (9cm)
- C. Reusable Cuff – 18in. (46cm) x 4in. (10cm)
- D. Reusable Cuff – 24in. (61cm) x 4in. (10cm)
- E. Reusable Cuff – 30in. (76cm) x 4in. (10cm)
- F. Reusable Cuff – 34in. (86cm) x 4in. (10cm)
- G. Reusable Cuff – 42in. (107cm) x 4in. (10cm)
- H. Adult Reusable Cuff – 15in. (38cm) x 3in. (8cm)
- I. Small Adult Reusable Cuff – 17.5in. (44cm) x 3.5in. (9cm)

**Dual Port, Dual Bladder, Box of 1 with Sleeve Approx size**

- A. Reusable Cuff – 12in. (30cm) x 3.5in. (9cm)
- B. Reusable Cuff – 18in. (46cm) x 4in. (10cm)
- C. Reusable Cuff – 24in. (61cm) x 4in. (10cm)

**Single Port, Single Bladder, Box of 1 with Sleeve Approx size**

- A. Reusable Cuff – 8in. (20cm) x 2.75in. (7cm)
- B. Reusable Cuff – 12in. (30cm) x 3.5in. (9cm)

**Tourniquet Cuff – Reusable Contour:**

**Dual Port, Single Bladder, Box of 1 with Sleeve Approx size**

- C. 9in. – 21in. Reusable Contour Cuff – Upper Limb
- D. 12in. – 30in. Reusable Contour Cuff – Thigh
- E. 9in. – 17in. Reusable Contour Cuff – Lower Leg
- F. 30in. – 39in. Reusable Contour Cuff – LRG Leg

**Dual Port, Dual Bladder, Box of 1 with Sleeve Approx size**

- G. 9in. – 21in. Reusable Contour Cuff – IVRA

**Single Port, Single Bladder, Box of 1 with Sleeve Approx size**

- H. 9in. – 21in. Reusable Contour Cuff – Upper Limb
- I. 12in. – 30in. Reusable Contour Cuff – Thigh
- J. 9in. – 17in. Reusable Contour Cuff – Lower Leg
- K. 30in. – 39in. Reusable Contour Cuff – LRG Leg

**Single Port, Dual Bladder, Box of 1 with Sleeve Approx size**

- L. 9in. – 21in. Reusable Contour Cuff – IVRA

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**Tourniquet Cuff – Limb Protection Sleeve:**

**Disposable and Reusable Cylindrical, Sterile compatible**

- M. 8 Inch cuff Sleeve – (20cm)
- N. 12 Inch cuff Sleeve – (30cm)
- O. 18 Inch cuff Sleeve – (46cm)
- P. 24 Inch cuff Sleeve – (61cm)
- Q. 30 Inch cuff Sleeve – (76cm)
- R. 34 Inch cuff Sleeve – (86cm)
- S. 42 Inch cuff Sleeve – (107cm)

**Reusable Contour, Non-Sterile**

- A. X-SM Adult – (8cm)
- B. SM Adult – (9cm)
- C. Contour Arm Cuff
- D. Contour Thigh Cuff
- E. Contour Leg Cuff

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Technical Specifications of Large Frame Set

SL No.	Description	Qty
1	Aluminium Case, perforated	1
2	Drill Bit, 3.2mm dia., approx. L 145/120mm for quick coupling	2
3	Drill Bit, 4.5mm dia., approx.L 147/120mm for quick coupling	2
4	Countersink, large, approx.L 180mm	1
5	T-Handle with quick coupling, approx.L 80mm	2
6	Tap for 4.5mm Cortex Screws	2
7	Tap for 6.5mm Cancellous Bone Screws	1
8	Double Drill Sleeve 4.5/3.2	1
9	Double Drill Sleeve 6.5/3.2	1
10	Screwdriver Shaft, hexagonal, large, approx. L 100mm	1
11	Screwdriver, hexagonal, large, with groove, approx.L 240mm	1
12	Holding Sleeve, large, approx.L 120mm	1
13	Depth Guage for 4.5 to 6.5mm Screws	1
14	Sharp Hook, approx.L 155mm	1
15	DCP Drill Sleeve 4.5	1
16	Universal Drill Sleeve 4.5	1
17	LC-DCP Drill Sleeve 4.5	1
18	Bending Template for DCP 4.5 and LC-DCP 4.5 approx.L 210mm	1
19	Bending Template for DCP 4.5 and LC-DCP 4.5 approx.L 120mm	1
20	Bending Template for DCP 4.5 and LC-DCP 4.5 approx.L 155mm	1

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Interlocking nailing set for long bones		
Sl No.	Description	Qty
1	Drill Bit, 3.2mm dia., L 225/200mm for quick coupling	2
2	Holding Sleeve, Large, L 120mm	1
3	Screwdriver, hexagonal, large, L 280mm	1
4	Pin Wrench, 4.5mm, L 120mm	1
5	Combination Wrench, 11/14mm, L 150mm	1
6	Awl, small, L 210mm	1
7	Tissue protector, L 140mm	1
8	T-Handle with quick coupling, L 85mm	1
9	Removing Tool for SynReam	1
10	Hand Reamer, 8.0mm dia., for predrilling in pseudarthroses	1
11	Reaming Rod, 2.5mm dia., L 950mm, 3.5mm olive	1
12	Flexible Shaft, 7.0mm dia., reaming depth to 470mm	1
13	Cleaning Brush for 3.6mm Flexible Shaft, L 600mm	1
14	Reduction Head, straight	1
15	Reduction Head, displacement 2.5mm	1
16	Reamer Head, 8.5mm dia.	1
17	Reamer Head, 9.0mm dia.	1
18	Reamer Head, 9.5mm dia.	1
19	Reamer Head, 10.0mm dia.	1
20	Reamer Head, 10.5mm dia.	1
21	Reamer Head, 11.0mm dia.	1
22	Reamer Head, 11.5mm dia.	1
23	Reamer Head, 12.0mm dia.	1
24	Reamer Head, 12.5mm dia.	1
25	Reamer Head, 13.0mm dia., Reamer Head, 13.5mm dia.	1 each
26	Guide Rod, 3.0mm dia., with flat tip	1
27	Socket Wrench 11mm, cannulated, L 180mm	1
28	Driving Piece, curved, L 120mm	1
29	Driving Head	1
30	Guide Rod, cannulated, L 455mm	1
31	Ram	1
32	Grip, flexible, L 170mm	1
33	Insertion Handle, for Tibial Nails 9.0 to 14.0mm dia.	1
34	Threaded Bolt, conical, for Tibial Nails 9.0 to 14.0mm dia.	1
35	Knurled Nut for Tibial Nails 9.0 to 14.0mm dia.	1
36	Insertion Handle, for Femoral Nails 9.0 to 12.0mm dia.	1
37	Threaded Bolt, conical, for Femoral Nails 9.0 to 12.0mm dia.	1
38	Knurled Nut for Femoral Nails 9.0 to 12.0mm dia.	1
39	Protection Sleeve 11.0/8.0, L 96mm	1
40	Drill Sleeve 8.0/4.5	1
41	Insert Drill Sleeve 3.2	1
42	Trocar 8.0mm dia., L 110mm	1
43	Depth Gauge for Locking Bolts	1
44	Drill Bit, 4.0/4.5mm dia., L 225/200mm, for quick coupling	1
45	Holding Forceps for Reaming Rod 2.5mm	2

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General Orthopaedic Instruments:-

SL. No.	Item Name	Length Approx	Qty
1	Bone lever Short Narrow tip	width 8mm, Length 220mm	4
2	Bone lever Short Narrow tip	width 18mm, Length 235mm	4
3	Bone lever Long Narrow tip	width 18mm, Length 235mm	4
4	Bone lever with wide tip	width 22mm, Length 250mm	4
5	Bone lever with Long wide tip	width 24mm, Length 270mm	4
6	Cancellous bone Impactors with quick couplling handle	6.0mm, round	2
7	Cancellous bone Impactors with quick couplling handle	6.0mm, round, Flattened	2
8	Cancellous bone Impactors with quick couplling handle	8.0mm, round	2
9	Cancellous bone Impactors with quick couplling handle	Rectangular 6x 16mm	2
10	Cancellous bone Impactors with quick couplling handle	Rectangular 10x 20mm	2
11	Cancellous bone Impactors with quick couplling handle	Rectangular 10x 30mm	2
12	Rasps Flat Rectangular		1
13	Kocher-Langenbeck retractors	21.5 cm/8 and 4/8", tip size-40X18mm	4
14	Kocher-Langenbeck retractors	21.5 cm/8 and 4/8", tip size-60X18mm	4
15	Kocher-Langenbeck retractors	21.5 cm/8 and 4/8", tip size-85X18mm	4
16	Cjerny's retractors		4
17	Hammer Large with wooden handle 500gm		4
18	Hammer Large with wooden handle 700gm		2
19	Alexander Chisel (Straight and curved 17.5cm / 6 and 7/8", tip size 4mm-8mm		2 each
20	Stille Chisel (Straight and curved 20.5cm / 8 and 1/8", tip size 10mm, 15mm,20mm,25mm		2 each
21	Gouge for Cancellous bone graft straight	L 265 / 125mm, width 5,10,15 mm	2 each
22	bone graft curved	L 265 / 125mm, width 5,10,15 mm	2 each
23	Stille Osteotome - straight and curved - 20.5cm / 8 and 1/8"	tip size 5mm, 10mm, 15mm, 25mm	2 each
24	Model USA Bone Curette with right angled tip 16.5 cm / 6 and 4/8" oval with hollow handle with hollow handle		2 each
25	Halle Bone Curette with right angled tip 21 cm / 8 and 2/8" oval malleable shaft with hollow handle		2 each
26	Volkmann's Curette 17cm / 6 and 6/8" oval , 27cm / 10 and 5/8"		2 each

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27	Universal Chuck small with T-handle		2
28	Bone Cutter ( straight and curved)		1 each
29	Friedman Bone Rongeurs, 12.5cm / 4 and 7/8", 13.5cm / 5 and 3/8"-		2 each
30	Cleveland Bone Rongeurs 13.5cm / 5 and 3/8"		2 each
31	Bone Rongeurs S form , S shape 30 degree angle tip, 14.5cm / 5 and 6/8",		2 each
32	Bone Rongeur 15.5cm /6 and 1/8" straight and 30 degree angle tip		2 each
33	Blumenthal Bone Rongeur 16cm / 6 and 2/8"		2
34	Marquard Bone Rongeur 20.5cm / 8 and 1/8"		2
35	Echlin Bone Rongeur 23cm / 9", curved tip		2
36	Ieksell-Stillle Bone Rongeur 24.5cm / 9 and 5/8"		2
37	Stillle- Luer Bone Rongeur 23cmc /9" straight and curved tip		2
38	Bone hook Blunt with wide ANGLE	230mm	1
39	Bone hook Sharp with wide ANGLE	230mm	2
40	K-Wire bender		2
41	Locking pliers,SS,20.5cm / 8 and 1/8 "		2
42	Flat Nose plier, parallel grip,TC gold- 18cm / 7 and 1/8"		2
43	Wire Bending plier for wires upto 2.5 mm	150mm	2
44	Parallel plier Flat nose	160mm	2
45	Plier for Scew removal	205mm	2
46	Universal bending plier	165mm	2
47	Vice Grip	180mm	2
48	Extraction Pliers for Scews	Small and Large	2 each
49	wire cutter front action 38cm/15" for soft wires upto 4mm and hard wires upto 3.2mm		2
50	Plaster saw electric		2
51	Plaster spreader		2
52	Periosteal elevator with wooden handle with Straight Shaft and Straight Edge	width 13mm, length 195/80mm	4
53	Periosteal elevator with wooden handle with Curved Shaft and Straight Edge	width 13mm, length 195/80mm	4
54	Periosteal elevator with wooden handle 18cm / 7 and 1/8", 06mm tip, straight and curved		4
55	Self retaining wound spreader 4 pronged Medium		2
56	Mc Donald's dissector ended 18.5 cm/7 and 2/8"		2

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