Specification for Equipments/Instruments

1. **–Laminar Air Flow System-**
   - Model- Vertical
   - Suitable for ICU OT
   - HEPA filtered
   - SS Body (304 Grade)
   - Vertical Type size- 4’ 2’ 2’.

2. **Solar System**
   - TIEC 61215 Approved Solar Modules
   - Module Efficiency till 16%-17%
   - UL/TUV approved junction box
   - Class electrical rating, IP 65
   - High Breakdown Voltage resistance

Specifications

- Module Rating- 12V/18V/24V, 2W to 300WP
- Module Type- Mono Crystalline/ Multi/Poly Crystalline
- Cell Efficiency- 12%-18%
- Encapsulation- Glass/EVA/Cell/Tedler
- Counter Sunk- Screws for frame or screw less joining through box frames.

3. **Electrically Powered, Computer Controlled Ventilator**

- **Ventilation Performance and Controlled Parameters**

Respiratory Rate	-	1 to 80 BPM
Tidal Volume	-	50 to 2,000 ml
Inspiratory Pressure limit	-	5 to 80cm H20
Inpiratory Time	-	Adaptive Time^{tm} or 0.2 to 3 seconds
Peak Flow	-	Adaptive Flow ^{tm} or 1 to 120L/min. Spontaneous up to 180L/min
Oxygen mix (FIO2)	-	21% to 100%
PEEP	-	0 to 40cm H20
Trigger Sensitivity	-	1 to 20 L/min flow Sensitivity +off- 0.5 to -20cm H20 pressure sensitivity +off.
PSV	-	0 to 60cm H20
Positive Pressure Relief Valve-		80cm H20
Synchronized Nebulizer	-	10-240 Minutes

- **Monitoring and Displayed Parameters**

Airway Pressure (analog bar graph & numerical)
Total Breath rate
I.E Ratio
Exhaled Tidal Volume
Exhaled minute volume
Peak Flow
Insipiratory Time
Electrical power Source external/internal)
Battery level
Pressure , Flow and volume waveforms software package:
Real time pressure and flow waveforms waveform history browse.
Trending of monitored data (72 hours)
Respiratory Mechanics (C,R, MAP, PR/Vt) pressure, Flow and volume Loops
SPO^2 (Optional)

- **User Adjustable Alarms**

Respiratory rate (high/low)	-	HR (High/ Low)
Minute Volume (high/low)	-	Apnea (0 to 120 Seconds)
Pressure (High/Low)	-	FIO^2 (High/Low)
Low vt (15%-85%)	-	Leak (0 to 100%)]
SPO^2 (High/Low)		

- **Additional Alarms and Indicators**

Alarms	**Indicator**
Inverse I.E. Ratio	Alarm Silence Icon & Timer
Low O2 Pressure	Breathe Type Icon
AC Disconnect	Internal Battery Use
Low Battery	Date & time
Over Temperature	Hour Meter
Service Notice	Battery Charge level
Patient Disconnect	Need Calibration
Check Sensor	LED: on, Charge, Alarm
High Peep	

- **Size and Weight**

Dimensions:
Height 13''/33cm
Width 9.5"/24cm
Depth 10.3"/26cm
Screen 8.4" diagonal
Weight 17.6 IB/8.0 kg (without battery)
Overall weight with standard battery 24.2 IB/11.0kg
Overall weight with extended internal battery 27.8 ib/12.6 kg

- **Power Supply**

External AC	100 to 240v, 50 to 60 HZ, Max 2.0 A
External DC	12 to 15 V, max 8.5 A
Internal Battery	Sealed lead-Acid 12 V (7.8 AH) (Rechargeable)
Operating time	Depending on ventilator settings and impedance- standard internal up to two hours, optional extended internal up to four hours and optional external up to nine hours.

- **Oxygen (Enrichment) Supply**

High Pressure Supply	40to 60 psi (2.8 to 4.2 bar)
Low Pressure	Max 15L/min or 0.5 psi

- **External Interface**

Remote Monitor (VGA)	DIN Keyboard Connector
RS-232 Serial port, 9 Pin	RJ11 Remote Alarm Connector

- **Environment Specifications**

Operating Temperature	0 to 50.C/32 to 120.F
Storage Temperature	15 to 70.C/-4 to 140.F
Relative Humidity	15 to 95% at 30.C/85.F
Water/Dust Resistance	IP54 (Splash Proof)
Atmospheric Pressure	430 to 825 mm Hg (15.000 feet)

	IEC 68-2-6 and IEC 69-2-34 MIL-STD-810E
shock	IEC 68-2-27 (100g)
total external sound level	40-45 dBa at one meter

4. Crash Cart

- Overall approx dimension: 960 mm Lx 500mm W x 1545 mm H Stainless steel tubular frame and stainless steel shelves. Six colored removable bins and two polystyrene lockable storage units with three drawers have containers of different sizes. Four 125 dia. Castor wheels with high grade synthetic body, two with brake and two without brake. Complete with corner buffers, powder coated oxygen cylinder holder, cardiac massage board, stainless steel I.V. rod. Supplied in KDC.

5. Patient trolley

- 1710- Traumacare- Emergency and recovery trolley Hi-Io, Raising Backrest, Two way longitudinal Tilt.
- Over all approx dimension: 1905 mm L x 710 W. Stretcher dimension approx: 1830 mm L x 555 mm W. Two section top. Height adjusted by foot operated imported hydraulic pump fro, 660 mm to 910 mm. X-ray permeable removable stretcher top in two sections made of pre-laminated board supported on tubular frame, backrest raised on ratchet. Gas spring assisted trendelenburg/ reverse trendelenburg positions. Four 125 mm dia. Castor wheels with high grade synthetic body, two with brake and two without brake. Complete with corner buffers, synthetic rubber covered handles, sliding X-Ray cassette holder, storage tray, oxygen cylinder holder, stainless steel telescopic I.V. pole with four locations and swing-away type stainless steel side rails. Pre-treated and powder coated finish. Supplied in SKD condition.

6. Instrument Trolley (with Stainless Steel Bowl & Tray)

Overall approx dimension: 680 mm L x 450 mm W x 900 mm H. Stainless steel tubular frame mounted on four 125 mm dia. Castor wheels with synthetic body, two with brake & two without brake. Two stainless steel shelves with protective railings on three sides. With stainless steel bowl and tray. Supplied in SKD condition.

7. Mayo's Table (Stainless Steel)

Adjustable height of tray from approx. 760 mm to 1270 mm. Approx Tray dimension: 560 mm L x 400mm W. Stainless steel tubular frame mounted on four swivel, synthetic body castors 50 mm wheel dia. Without brake. Supplied in SKD Condition.

8. Revolving Stool

Tubular tripod based with stainless steel revolving top. Height adjustable from approx. 480 mm to 670 mm by accurately machined screw mechanism. Legs fitted with rubber feet. Pre-treated and powder coated finish.

9. Revolving Stool Fully Stainless Steel. (with M.S. Screw and Nut)

Tubular tripod based with stainless steel revolving top. Height adjustable from approx. 480 mm to 670 mm by accurate machined screw mechanism. Legs fitted with rubber feet.

10. ANAESTHESIA VENTILATOR (for ICU)

It should be simple to operate electronic lung ventilator, should be able for providing anesthetic ventilation in operation theatres, using Bains Circuit and Circle Absorber System.

Features

Micro-controller based
No external driving gas pressure
CMV,ASSIST+CMV,SIMV modes
Variable I/E ratio
Apnea backup ventilation
Inspiratory Hold for better distribution of gas
Can be used in OTs with Circle absorber/Bains Circuit
Port for Oxygen enrichment
Adjustable airway pressure safety valve
Comprehensive alarms
Bright display of parameters
Low power consumption
Low maintenance

Classification	Flow Generator Type
Modes	CMV, CMV+Assist & SIMV
Tidal Volume	50 to 1200ml
Frequency	6 to 40bpm (1 to 40bpm in SIMV)
Inspiratrory	0.4 to 3 seconds
I/E ratio	1:1 to 1:5
Inspiratory hold	0 to 2 Seconds
Apnea Backup	Every 4 secs in case of Apnea.
Alarms	Patient Disconnection, High/Low Pressure
Safety Valve	Adjustable: 10 to 60cm H^2O
Driving Source	220V AC
Power Consumption	60W
Weight	12kgs
Dimensions	4710x230x280mm

11. ANAESHESIA WORKSTATION

ANAECTHESIA WORKSTATION IS A High end Anesthesia workstation that has an in built Electrically Operated Micro-Controller Based Ventilator & One Temperature Compensated Vaporizer.

ANAESTHESIA VENTILATOR (Electrical Driven)

Micro-Controller based
No need of driving gas
Compatible with Circle Absorber Bain's Circuit
Adjustable safety valve{10 to 60 cm H^2O}
Automatic spill device
Bright display of parameters
Inspiratory hold for better distribution of gas
Variable I:E ratio
Display pressure in bar graph
Comprehensive alarms {Patient disconnection & High pressure}

Modes

Tidal Volume	: CMV
Frequency	: 50 to 1200ml
Inspiratory time]I/E ratio	: 6 to 40bpm
I/E ratio	: 1:1 to 1:5
Inspiratory hold	: 0 to 2 secs

Structure

Made of Aluminum Extruded tubes with Polyurethane coated finish. Equipped with non-ferrous accessory and SS fasteners.
Drawers fitted with sliding channels for smooth movement.
Sliding writing tray at middle table for use.
Four nos. big diameter Castro Wheel with Antistatic tire material. Front Castors are equipped with individual brakes or double locking type (both rotational lock & movement lock).
Mounted with one No. Dip stand with four hooks.
Handle suitable fitted in both the legs for maneuverability.
Equipped with Electrical Distribution box at the back with 4 nos. 5/15Amps 5 pin socket, one no 2 pin socket & one no. On/Off switch with Extension cord.
Space for mounting up to two nos. vaporizers.

Gas Inlet

Cylinder inlet: Four nos. Forged brass pin indexed Yoke, 2 nos. each fro O^2 & N_2O. Yokes are identified for their gas application by clear marketing on the top & are fitted with filter at inlet and stainless steel fittings.
Pipe line inlet: Non-interchangeable pipeline connection for O^2, N_2O & Air.

Pressure Regulators: 2 stage regulation

Each gas service is fitted with high performance Metal diaphragm regulators for first stage reduction.
Second stage reduction is carried out by Low pressure regulators for each gas service.

Pressure Indicators (Pressure Gauges): High & Low Pressure

The Pressure gauge panel is mounted with big 63mm diameter pressure gauges for individual cylinder pressure indication of O^2 & N_2O. The gauges are identified by the gas service marked on them as well as by Color coding.

The gauge pane is also equipped with Line pressure gauges for monitoring of line pressure for O^2, N_2O & Air. Vacuum system also equipped with vacuum gauges fro monitoring vacuum level.

Sl.no	Application	Gas Service	Qty	Range
1	Cylinder pressure	Oxygen	2	0-250 kpa x 100
2	-Do-	N_2O	2	0-100kpa x 100
3	Pipe Line	Oxygen	1	0-10 kg/cm^2
4	-Do-	N_2O	1	0-10 kg/cm^2
5	-Do-	Air	1	0-10 kg/cm^2
6	Vacuum System	Vacuum	1	0-760 mm/Hg

Flowmeter with Oxygen Ratio Controller:

a) **ANAECTHESIA WORKSTATION** is equipped with a Five Tube Flowmeter for flow control of $O^{2,}$ N_2O & Air. It is fitted with high low range tubes for each O^2 & N_2O for precise control of gas flow in the low flow range.

Gas	Flowmeter	Range
Oxygen	Double	0.1-1 ltr/min 1-12 ltr/min
N_2O	Double	ltr/min 1-12 ltr/min
Air	Single	100-15000 cc/min

b) Unique Flowmeter design ensures easy service and maintenance. Each as control valve is fitted with colour and shape specific knobs as per standard practice.

c) **ANAECTHESIA WORKSTATION** Flowmeter is fitted with Oxygen Ratio controller block to ensure a minimum 25% level of Oxygen in the O^2 & N_2O mixture

Pneumatics:

High pressure tubing carry cylinder pressure and are made of nickel –chromium plated copper. It has gas connection and non-interchangeable.

Low pressure tubing are colour coded PU tube of different diameters. Differents pneumatic valves and connectors used in the system for required application.

Oxygen low pressure alarm:

This safety device generates an audio & visual alarm when oxygen pressure in the rotameter falls below 1 lts.

Air/ N_2O Interlock:

This interlock system eliminates the possibility of selecting Air with N_2O even by mistake by the user. The selection of Air- $O^{2,}$ or, N_2O- O^2 system has to be selected by this selection switch.

Vaporizer manifold:

ANAECTHESIA WORKSTATION provides mounting facility upto 2 nos. vaporizers. It can accommodate conventional vaporizers as well as temperature compensated vaporizers with different types of mountings. It is always recommended to use temperature compensated vaporizers.

Non Return Valve Block:

This valve is mounted after vaporizer block in the pneumatic circuit and has dual function. First it restricts reverse flow for gases patient circuit towards vaporizers and seconds, it acts as a safely blow off valve to limit the pressure of the mixed gas in circuit.

Oxygen Flush:

This flush unit is designed to supply emergency oxygen to the patient at the rate of 35-75 1 pm. The push switch of the unit is mono stable and to be pressed for use.

Vacuum System:

ANAECTHESIA WORKSTATION has in built vacuum generating device equipped with vacuum ON/OFF switch, control valve fro vacuum pressure, vacuum pressure gauge and vacuum outlet. The vacuum system is operated by Air supply.

Gas Outlet:

The machine is equipped with 2 nos O2, 1 Air, 1 no. vacuum outlet.

Basal Flow with O2 cut off swithch:

Ensure apporx. 150ml/min. of O2 flow to the patient circuit when the machine is connected to the Gas supply. The O2 cut off switch stops the flow when the machine is not in use.

Feature of Flow Circle system:

Ideally suitable for Low Flow anesthesia system.
O-ring fitted taper joints ensure 100% leak proof system and easy to changeover.
Jars can be connected and disconnected very easily.
Supplied with two nos. Jars. APL Valve & Patient circuit.
Visual Unidirectional flow indicator at Inspiratory & Expiratory valve.
Supplied with Bag-vent switch for easy changeover between manual & Automatic mode.
Can be used with all types of Anesthesia Machine.

12. Implant

a) DHS Plates

Material- Stainless steel (instruments)

The implant should be indicated for the treatment of the following fractures:

1. Pertrochanteric and intertrochanteric fractures of type 31-A in the AO/SIF classification.
2. For highly unstable types of fracture, additional implants such as the DHS trochanter stabilizing plate or DHS locking device may be required.
3. Femoral neck fractures 31-B2/B3, in conjuction with the use of an anti-rotation screw.

b) DHS Plates 130°-150°

Material- Stainless Steel
Fixation with cortex screws_ 4.5mm
Lengths: 46-270 mm (2-16 holes)
Thickness: 5.8mm
Width: 19mm
Hole spacing: 16mm
Barrel lengths: 25 and 38mm

c) DHS Lag Screw

DHS/DCS Screws

- Material- Stainless Steel
- Lengths: 65-110mm
- Thread diameter: 12.5mm
- Thread length: 22mm
- Shaft Diameter: 8.0mm

It should have a gliding mechanism to prevent the implant from perforating the acetabulum if the fracture zone slips under stress.

d) DHS Compression Screw

The compression screw is used together with the DHS and DCS plates.
It is used in pertrochanteric fractures to compress the femoral fragments on the proximal and distal sides of the fracture.
The DHS/DCS compression screw must be used if a DCS plate is applied to the distal femur.

- Steel
- Inner hexagon for Hexagonal Screwdriver
- Length: 36 mm

e) DCS Plate 95

Steel
Fixation with cortex screws_4.5mm
Lengths: 114-370mm (6-22 holes)
Thickness: 5.4mm
Width: 16mm
Barrel length: 25mm

f) Indication for DCS plates

- Proximal femur: very proximally located, purely subtochanteric fractures or types 32-A 1.1, A 2.1, A 3.1, 32-B, 1.1, B 2.1, B 3.1.
- Fracture of type 33-A (extra-articular, supracondylar fractures of the distal femur)
- Fractures of type 33 C-1/C2/C3 (fully articular fracture of the distal femur).

g) LCP DHS

- The implant should be indicated for the treatment of fractures such as pertrochanteric fractures. Intertrochanteric fractures, lateral fractures of the neck & Trochanteric fractures with subtrochanteric extension.
- The cortical screws should be made of titanium and be self-tapping.
- The instrument must allow for use of locking screws giving angular stability.
- The instruments should have tapered ends to allow for sub muscular insertion of the plate.
- The instrument should be compatible with Trochanter Stabilizing Plates.
- The instrument should be available with ling barrel (38mm) and short barrel length of (25mm)
- The DHS barrel plate should be available in the following CCD angles: 130., 135.,140., 145 and 150.
- The DHS barrel plate should be available in 2-6 holes.
- 4.5mm cortical screws/ 5mm locking screws should be of length from 28mm to 54mm.
- Synthes LCP product is protected by numerous patents throughout the world including Indian Patent no 195986.

h) DHS Blade

- The shape of the blade should help in improving rotational stability.
- The blade should have an increased support surface resulting in a lower risk of cut-out in osteoporosis bone.
- The DHS Blade should be compatible with the conventional DHS & LCP DHS plate.
- The specially designed tip to the blade should allow for compaction of the bone when the blade is inserted.
- Available in sizes of 65mm-120mm increments for 5mm in Stainless Steel & titanium both.

i) S.U.N- Tibial interlocking Nail

- Indicated for Tibial shaft (42-A, B, C) fractures
- Anatomical femoral and tibial nail designs provide optimal fit in the medullary canal
- Anatomical femoral and tibial nail designs reduce stress concentration during nail insertion.
- Guided proximal and distal locking possible.
- Cannulated nails allowing nail insertion cover a guide wire.
- Tibial nail's unique proximal end uses one conical bolt and insertion handle for all nail diameters.
- Tibial nail's beveled proximal end prevents irritation of the soft tissue after implantation .
- Tibial nail's special tapered tip prevents penetration of the posterior cortex in the proximal fragment while minimizing further communution.
- The AO/ASIF curvature of 11. in the upper third of the S.U.N. tibia (tibial interlocking nail) allows for easy insertion and good anatomical fit.
- **Availabel in a wide range of diameters and lengths:**

Universal tibial nail: 9mm dia and 270-360mm lengths (15mm increments), 10-12mm dia and 285-360mm lengths.

j) S.U.N- Femur interlocking Nail

- Indicated for Femoral (AO 32A,B,C) fractures.
- Anatomical femoral nail designs provide optimal fit in the medullary canal
- Anatomical femoral nial designs reduce stress concentration during nail insertion
- Guided proximal and distal locking possible
- Cannulated nails allowing nail insertion over a guide wire
- The 1.5m radius of the S.U.N. femur (Femur interlocking nail) corresponds closely with the average anatomical curvature of the femur.
- **Available in a wide range of diameters and lengths:**

Universal Femoral Nail: 9-123mm dia, and 340-460mm lengths (20mm increments)

k) 7.3mm Cannulated Screws

1. The screws should enable accurate & safe screw positioning: a decisive advantage when treating fractures near joints
2. The screws should be cannualate d for enabling passage of Kirschner wires.
3. The 7.3mm self-frilling, self- tapping cannulated screws should have deep cancellous threads with reverse cutting flutes. They should be available in 16mm & 32mm two thread lengths with rigid 2.8mm guide wire, made of high strength L-605 alloy.
4. 7.3mm cannulated screws should be indicated for fixation of fractures involving large fragments, such as:

- Femoral neck fracture sin adults
- Femoral neck fractures in adolescents
- Slipped capital femoral epiphyses
- Intracondylar fractures of the femur
- Tibial plateau fractures
- Dislocation of the acromioclavicular joint
- Ankle authrodesis
- Sacro-Iloac joint disruptions.

l) Distal Femoral Nails (DFN)

- All implants must be made of Titanium.
- The nail should be indicated for the stabilization of fractures of the distal femur.
- It nail should be used for diaphyseal fractures in which a retrograde approach is indicated (e.g. insilateral tibia and /or patella fractures, proximal or distal endoprosthesis, adipositas permagna, supracondylar femoral fractures).
- One nail design for angular stable locking of spiral blade in osteoporotic bone and standard locking.
- The nail dia. Must be 10.0mm with a length of L 340 to 380 mm of 5 pcs each- 15 pcs in total.
- The nail dia. Must be 12.0mm with a length of L 360mm of 5 Pcs in total.
- The quantity of locking screws 6.0 ,, doa must be 20 pcs. Each size of 65 & 75mm- 40 in total.
- The implants must be compatible with existing synthes instruments.

m) DHS-TSP (Trochanter Stablising Plate)

- The DHS-TSP Plates should offer anchoring options for the fixation of fragments of the greater trochanter.
- The plate should have an aperture ofr an antiroation screw & an oval aperture for the DHS/DCS screw.
- The scooped section of the plate should be able to adapt to the anatomical contours of the greater trochmeter. The area of bone loss (Porosis) as observed beneath a limited contact plate should be less than below a full contact plate
- The uniform stiffness of the LC-DCP should enable continuous curvature, allows a good fit of the screw head in the plate hole, and preserves the fundamental mechanical qualities of the plate. When loaded. The uniform stiffness of the LC-DCP should allow an even distribution o stresses over a long distance along the plate, protecting the plate holes from localized high stresses.
- The LC-DCP hole should allow for bidrectional compression.
- It should allow for 80 degrees of longitudinal screw angulation nad 14 degrees of transverse screw angulation.
- The LC-DCP plates should be made of pure Titanium, which display excellent biocompatibility. Pure titanium and its wear products behave passively and provoke neither toxic nor allergic reactions.

n) T-Buttress Plate 4.5mm

4.5 mm LCP® T- Buttress Plates, 2 holes head

- Available in 4, 5 shaft holes (83mm, 99mm respectively)
- Precontoured
- Plate contains Combi holes in the shaft, locking holes in the head
- Synthes LCP product is product is protected by numerous patents throughout the world including Indian Patent no 195986.

o) L-Buttress Plate 4.5mm

4.5 mm LCP® L- Buttress Plates, 2 holes head, Right leg

- Available in 3,4,5,6 shaft holes (69mm, 85mm, 101mm, 117mm respectively)
- Precontoured
- Plate contains Combi holes in the shaft, locking holes in the head
- Synthes LCP product is product is protected by numerous patents throughout the world including Indian Patent no 195986.

4.5 mm LCP® L- Buttress Plates, 2 holes head, left leg

- Available in 3,4,5,6 shaft holes (69mm, 85mm, 101mm, 117mm respectively)
- Precontoured
- Plate contains Combi holes in the shaft, locking holes in the head
- Synthes LCP product is product is protected by numerous patents throughout the world including Indian Patent no 195986.

p) Tibial Head -Buttress Plate 4.5mm

4.5 mm LCP® T- Buttress Plates, 2 holes head

- Available in 4, 5 shaft holes (83mm, 99mm respectively)
- Precontoured
- Plate contains Combi holes in the shaft, locking holes in the head

- Synthes LCP product is product is protected by numerous patents throughout the world including Indian Patent no 195986.

4.5 mm LCP® L- Buttress Plates, 2 holes head, Right leg

- Available in 3,4,5,6 shaft holes (69mm, 85mm, 101mm, 117mm respectively)
- Precontoured
- Plate contains Combi holes in the shaft, locking holes in the head
- Synthes LCP product is product is protected by numerous patents throughout the world including Indian Patent no 195986.

4.5 mm LCP® L- Buttress Plates, 2 holes head, left leg

- Available in 3,4,5,6 shaft holes (69mm, 85mm, 101mm, 117mm respectively)
- Precontoured
- Plate contains Combi holes in the shaft, locking holes in the head
- Synthes LCP product is product is protected by numerous patents throughout the world including Indian Patent no 195986.

q) T-Plate 4.mm

4.5 mm LCP® T- Plates, 4 holes head, Right angle.

- Available in,4,6,8 shaft holes
- Plate contains Combi holes in the shaft, locking holes in the head
- Synthes LCP product is product is protected by numerous patents throughout the world including Indian Patent no 195986.

r) LC-DCP 3.5mm

- The limited contact plates should achieve uniform stiffness all along the plate length despite limited bone contact. There should be reduction of the surface contact between the plate and the bone resulting in a reduced disturbance of the blood supply.
- LC-DCP 3.5 system should be available from 25mm- 155mm.
- The plates should consolidate with reduced porosis. The area of bone loss (porosis) as observed beneath a limited contact plate should be less than below a full contact plate.
- The uniform stiffness of the LC-DCP should enable continuous curvature, allows a good fit of the screws head in the plate hole, and preserves the fundamental mechanical qualities of the plate. When loaded. The uniform stiffness of the LC-DCP should allow an even distribution of stresses over a long distance along the plate, protecting the plate holes from localized high stresses.
- The LC-DCP hole should allow for bidirectional compression.
- It should allow for 80 degree of longitudinal screw angulation and 14 degree of transverse screw angulation.
- The LC-DCP plates should be made of Stainless Steel.

s) Semi tubular Plate 4.5mm

4.5 mm Semi tubular Plates, St. Steel

- Available with 2-12 holes (39mm-199mm lengths)
- Hole spacing 16m, width 11mm and thickness is 1.5mm.
- Available in Stainless Steel
- Synthes LCP product is product is protected by numerous patents throughout the world including Indian Patent no 195986.

t) 1/3rd tubular Plate 4.5mm

- Available with 3-10 holes (33mm-117mm lengths) and 12 holes (141mm)
- Plate contains only locking holes that accept 3.5mm locking screws, 3.5 mm cortex screws, and 2.7mm cortex screws.
- Synthes LCP product is product is protected by numerous patents throughout the world including Indian Patent no 195986.

u) (CFN) – Cannulated Femoral Nails

- The nails should be made from Titanium and is cannulated.
- Solid nail design- 9mm, 10mm & 11mm with length from 340mm to 420mm
- One nail for both right and left femour
- Threaded proximal end-provides direct connection
- 1.5m radius of curvature to provide anatomic fit in femur
- One proximal Dynamic hole that should permit 8mm of controlled axial movement for dynamisation. One transverse proximal hole medial-lateral locking to place locking bolts in strong cortical bone should provide rotational control in proximal fractures.
- There should be two distal locking holes for placement of transverse locking bolts, which provide rotational control, maintain femoral length and alignment and stability in low distal fracture. Distal M-L locking hole about 20mm from nail tip should permit locking of most distal fractures.
- Countersunk locking holes should minimize stress concentrations in nail, improve load distribution on locking bolts, and ease distal locking procedure.
- The tip should be tapered which reduces possibility of penetration of posterior cortex in proximal fragment and minimized further comminution of fracture site.
- The length should be available in 20mm increments starting from 34cm to 42cm.
- Each nail should be provided with an end cap which should be capable to extend the nail from 0 to 20mm.
- Bevelled tip for easy insetion
- Optional hole in nail for very distal fracture
- Cannulation for reamed or undreamed technique
- Titanium alloy material for improved mechanical and fatigue properties.
- Choice for static and synamic locking in distal end of the nail
- MRI compatibility
- Self tapping locking bolts
- Nail sizes left and right dia 9, 10 and 11mm of lengths 340 to 440mm (2mm increments)
- 605mm hip screws of length 75mm to 110mm (5mm increments)
- 4.9mm locking bolts of length 26 to 68mm (2mm increments)
- End caps of 0 to 10mm
- TUV certified.

v) Proximal Femoral Nail (PFN)

It should have

- Anatomical design with 6·ML angle
- Proximal dia between 16 to 18mm
- CCD angle of 130·
- Entry point form tip of the greater trochanter
- Two locking option for neck
- Neck screw with safety stop to prevent slippage thorough the nail into the femoral neck
- A derotainal hip pin option

- End cap to protect form tissue in growth in the nail
- Choice for static and dynamic locking in distal end
- Titanium alloy material for improved mechanical and fatigue properties.
- MRI compatibility
- Nail sizes left and right dia 10 and 11mm of lengths 200 to 400
- Neck screw of 11mm of length 80 to 110mm (5mm increments)
- Hip pin of 6.5mm of length 75 to 100mm (5mm increments)
- End caps with no extension
- TUV certified

x) Proximal Femoral Nail Antirotation (Asian Version) (PFNa-II)

The nail is suitable for the Asian anatomy, it should have

- Anatomical design with 6·ML angle
- Proximal dia between 16 .5mm
- CCD angle of 130·
- Entry point form tip of the greater trochanter
- One locking option for neck with the PFNa Blade which is cannulated, with cutting edges to enable easy insertion and is ideal for oseoporotic bone.
- End cap to protect form tissue in growth in the nail
- Choice for static and dynamic locking in distal end
- Titanium alloy material for improved mechanical and fatigue properties.
- Radiolucent jig for proximal locking of blade and for dynamic distal locking.
- MRI compatibility
- Nail sizes left and right dia 10 and 11mm of lengths 200 to 420
- TUV certified

y) Distal Femur locking compression Plate (DF-LCP)

- All implements should be made of titanium only.
- Plate Length should be- 156mm, 236mm & 316mm with no of holes as 5, 9 & 13.
- Guiding block which get fixed on to the distal head of the plate and enable right insertion of locking head screws.
- Locking head screws should be self-drilling, self-tapping
- The plate holes should have thread to lock the screws to avoid pull out in case of lossening.
- The locking head screw should ensure angular stability for an optimal anchorage in the bone and improved biomechanics.
- Optimized screw angulation and screw position of a safe fixation even in case or very distal fractured.
- Anatomical pre-shaped plates and self-drilling, selt-tapping screws to reduce surgery time.
- Radiolucent insertion guide to slice the plate under the muscle and to insert the screws percutaneously.
- Synthes LCP product is protected by numerous patents throughout the worlds inclosing Indian Patent no 195986.

z) Metaphyseal Plate 3.5mm 4.5mm

It should have

- Two different profile in the plates for optimal application in metaphy seal area
- Combination hole for standard and locking screws
- Two distal hole with the direction towards centre of the plate
- Titanium material for improved mechanical and fatigue properties.
- Tapered, rounded plate tip for easier application
- Self tapping screws
- Sizes 3.5mm 6 to 18 holes, 3.5/4.5mm 8 to 20 holes
- Standards screws 3.5mm length 14 to 60mm (2mm increments)
- Standards screws 4.5mm length 14 to 60mm (2mm increments)
- Locking head screws 5.0 mm length 14 to 60mm (2mm increments)
- Locking head screws 3.5mm length 14 to 60mm (2mm increments)
- Cancellous screw 4.0mm with half and full thread of lengths 20 to 50mm (2.5mm increments)
- Cancellous screw 4.0mm with half and full thread of lengths 30 to 95 mm (5mm increments)
- MRI compatibility
- TUV certified
- Synthes LCP product is protected by numerous patents throughout the worlds inclosing Indian Patent no 195986.

a.a) Tibial Nail for metaphyseal and Diaphyseal fractures- ETN (Expert Tibial Nail)

- It should have
- Multiple locking option in both distal and proximal part of the nail
- Proximal part of the nail should have multi directional locking option and should accept both cancelleous bone locking screws and standard locking screws
- The end cap should have the possibility to block one locking screw with the end cap for absolute angular stability
- The locking screws hould have recess for effortless pick-up and secure locking. Further they should have double thread for more contact points leading to enhanced stability.
- The nail material should be titanium alloy for improved mechanical and fatigue properties
- All nail should be cannualated for reamed or undreamed technique.
- Sizes dia 8, 9, 10mm-lenghs 285 to 405 (15mm increments)
- Locking head screws 4.0 mm length 18 to 60mm (2mm increments)
- Locking head screws 5.0mm length 26 to 60mm (2mm increments)
- Cancellous screw 5.0mm with half and full thread of lengths 30 to 80 mm (5mm increments)
- End caps of 0 to 15mm
- TUV certified
- MRI compatibility

a.b) Solid tibial (Unreamed Tibial Nail-UTN)

If should have

- Flattened proximal end to prevent irritations of the patellar tedons
- Dynamic, static and oblique locking hole in proximal part
- Titanium alloy material for improve mechanical and fatigue properties
- Self tapping locking bolts

- Sizes dia 8, 9 and 10mm of lengths- 285 to380mm (15mm increments)
- Locking bolts 3.9mm and 4.9mm of lengths (2mm increments)
- Threaded proximal end which prevents irritation of patellar tedon & other soft tissue.
- 9˙ proximal bend for 3 point contact with bone.
- Oblique locking hole about 30mm form proximal nail end.
- The nail should be solid.
- Anteromedial to posteromedial or antero lateral to posteromedial procurement of most proximal locking bolts hold in metaphyseal bone for fixation of high tibial fractures.
- Dynamics hole which should permit 10mm of controlled coaxial movement for dynamisation transverse proximal holes to place locking bolt in strong cortical bone, provides rotational control in proximal fractures.
- Distal A-P locking hole should be 25mm to 28mm from nail tip and should permit locking of more distal fractures.
- Two distal locking holes for placement of transverse locking bolts to provide rotational control maintain tibial length and alignment and stability in low distal fracture.
- The tip should be tapered to reduce possibility of penetration of posterior cortex in proximal fragment and minimzed further comminution of fracture site.
- Each nail should be provided with an end cap of 6mm to prevent bone growth
- Locking screws should also be made of Titanum (Medical Grade).

a.c) Cannulated tibial nail-CTN

It should have

- Flattened proximal end to prevent irritations of the patellar tedons
- Dynamic, static and oblique locking hole in proximal part
- Titanium alloy material for improve mechanical and fatigue properties
- Self tapping locking bolts
- Sizes dia 10mm-11mm of lengths- 285 to380mm (15mm increments)
- Locking bolts 3.9mm and 4.9mm of lengths (2mm increments)
- Threaded proximal end which prevents irritation of patellar tedon & other soft tissue.
- 9˙ proximal bend for 3 point contact with bone.
- Oblique locking hole about 30mm form proximal nail end.
- The nail should be solid.
- Anteromedial to posteromedial or antero lateral to posteromedial procurement of most proximal locking bolts hold in metaphyseal bone for fixation of high tibial fractures.
- Dynamics hole which should permit 10mm of controlled coaxial movement for dynamisation transverse proximal holes to place locking bolt in strong cortical bone, provides rotational control in proximal fractures.
- Distal A-P locking hole should be 25mm to 28mm from nail tip and should permit locking of more distal fractures.
- Two distal locking holes for placement of transverse locking bolts to provide rotational control maintain tibial length and alignment and stability in low distal fracture.
- The tip should be tapered to reduce possibility of penetration of posterior cortex in proximal fragment and minimzed further comminution of fracture site.
- Each nail should be provided with an end cap of 6mm to prevent bone growth
- Locking screws should also be made of Titanum (Medical Grade).

a.d) LCP Calcaneal Plate 3.5mm

- Available in four sizes: 64, 69, 76 and 81mm for left & right.
- In Titanium only.

- The plate is low profile 3.5mm and is flexible and adaptable . It can be easily cut and contoured. The diagonal arm stabilizes the sustentaculum and support talo-calcaneal joint/
- Angular stable fixation can be provided. By using 2.7mm and 3.5mm standard cortex screw & Cacellous 4.0mm intrafragmentary cipression can be achieved.
- Synthes LEP product is protected by numerous patents throughout the world including Indian Patent no. 195986.

a.e) LCP Broad Curved Plate 4.5/5.0mm

- Indicated for periprosthetic fractures of femur when nail is not indicated.
- The plate can be used together with the periprothetic locking head screw or in combination with cerclage fix and cerclage wiring.
- Available in Titanium only.
- The plate is anatomically pre-shaped with the radius of 15m and fits ideally on to the femur.
- The small hole in the bullet ends of the plate allows primary fixation with K-wires.
- Available from 12 to 22 holes from length of 229mm to 408mm increments of 18mm.
- Additional implants include a spacer and cerclage fix.
- 5.0mm locking head screws are used with plates
- Synthes LEP product is protected by numerous patents throughout the world including Indian Patent no. 195986.

a.f) LCP Anterolateral Distal Tibia Plate 3.5mm

- Anatomically pre-shaped low profile plate
- Two different plate designs to fit right or left tibia indicated with R or L on plate
- Shaft holes accept locking screws 3.5mm, cortex screws 2.7mm and B 3.5 mm and cancellous bone screws 4.0mm.
- Head holes accept locking screws 3.5mm, cortex screws 2.7mm and B 3.5mm and cancellous bone screws 4.0mm.
- Tapered tip for submuscular insertion
- Screw heads are recessed in the plate to minimize screw prominence
- Available in titanium.
- Size range from 5 to 21 holes increments of 26mm.
- Length of 80mm to 288mm increments of 26mm.
- Synthes LEP product is protected by numerous patents throughout the world including Indian Patent no. 195986.

a.g) LCP Proximal Medial Tibia Plate 3.5mm

- Anatomically pre-shaped low profile plate
- Two different plate designs to fit right or left tibia indicated with R or L on plate
- Three convergent threaded screw holes accept locking screws 3.5mm or cortical screws 3.5mm.
- Two 2.0mm holes for preliminary fixation with Kirschner wires, or meniscal repair with sutures.
- The two angles locking holes distal to the plate head accept locking screws 3.5mm or cortical screws 3.5mm to secure the plate position.
- Available in titanium.
- Size range from 4 to 20 holes increments of 2 holes.
- Length of 94mm to 301mm increments of 26mm.

- Synthes LEP product is protected by numerous patents throughout the world including Indian Patent no. 195986

a.h) LCP Distal Medial Tibia Plate 2.7/ 3.5mm

- Anatomically pre-shaped low profile plate
- Two different plate designs to fit right or left tibia indicated with R or L on plate
- Less invasive insertion.
- The round threaded holes in the distal section of the plate allow the insertion of locking screw 3.5mm & 2.7mm.
- Articulated tension Device (ATD) hole for compression or distraction.
- Rounded edges to minimize soft tissue irritation.
- Three distal locking screws diverge across subchondral bone and are parallel to joint.
- Available in titanium.
- Size range from 4 to 14 holes increments of 2 holes.
- Length of 116mm to 246mm increments of 26mm.
- Synthes LEP product is protected by numerous patents throughout the world including Indian Patent no. 195986

a.i) LCP Proximal Tibia Plate 3.5mm

- Anatomically pre-shaped low profile plate
- Two different plate designs to fit right or left tibia indicated with R or L on plate
- Three 2.0 mm holes for preliminary fixation with K-wires, or meniscal repair with sutures.
- Four convergent threaded screw holes accept 3.5mm stardrive or hexagonal locking screws.
- The three locking holes distal to the plate head accept 3.5mm Stardrive or Hexagonal locking screws to secure plate positions. The hole angles allow the locking screws to converge with three of the four locking screws in the plate head to support medial fragments.
- Combi holes, distal to the three angled locking holes, combine a DCU hole with a threaded locking hole. The combi holes accept 3.5mm Stardrive or Hexagonal locking screws in the threaded portion of the hole and 3.5mm cortex screws or 3.5mm shaft screws in the DCU portion of the hole.
- Available in titanium.
- Size range from 4 to 16 holes increments of 2 holes.
- Length of 81mm to 237mm increments of 26mm.
- Synthes LEP product is protected by numerous patents throughout the world including Indian Patent no. 195986

13. Other

a) Large External fixator

- Rod of dia 11mm in
  - Carbon fibre
  - Lengths 100-400mm
- Clamp. Clip-on self-holding MR-safe
- Aperture for rods 11mm
- All instruments must be enclosed in a syncase with lid

b) Medium External fixator

- Rod of dia 8mm in
  - Carbon fibre
  - Lengths 120-320mm
- Clamp. Clip-on self-holding MR-safe
- Aperture for rods 8mm
- Schanz screw 4mm 7 5mm
- All instruments must be enclosed in a syncase with lid

c) Cortex screw 3.5mm

3.5mm Cortex Screws, St, Steel

- Available in different size from 10mm to 40mm (increments of 2mm)

3.5mm Cortex Screws, St, Steel

- Available in different size from 10mm to 40mm (increments of 2mm)
- Also available in size range from 45 mm to 90mm (increments of 5mm)

d) 6.5mm Cancellous Screw

6.5/16mm Cancellous Bone Screw (Stainless steel/Titanium both)

- Available in Titanium and stainless steel both
- Available in size range 30mmto 120mm (increments of 5mm)
- Partially threaded (Threaded length is 10mm)

6.5/32mm Cancellous Bone Screw (Stainless steel/Titanium both)

Available in Titanium and stainless steel both
Length is 130mm with thread length of 115mm
Used with Jacobs chuck

e) Drill bit 4.5mm

- Diameter is 4.5mm
- Length is 195 mm with thread length of 170mm
- Used with quick coupling

f) Drill bit 4.5mm

- Diameter is 4.5mm
- Length is 180 mm with thread length of 165mm
- Used with Jacobs chuck

g) Drill bit 2.7/1.35mm dia, L160/130mm, cannulated

- Diameter is 2.7/1.35mm
- Length is 160/130 mm
- Cannulated
- Used with quick coupling

h) Drill bit 3.5/1.35mm dia, L160/130mm, cannulated

- Diameter is 3.5/1.35mm
- Length is 160/130 mm
- Cannulated
- Used with quick coupling

14. Power Drills:-

For Trauma Management

The Cannulated Battery hand piece

- Cannulation with 4.1mm diameter
- Weight of hand piece 1300gm with Battery
- Power of 180W
- Continuously variable speed without attachment 0-1450 rpm
- Separate forward and reverse triggers
- Handipiece is compatable with radiolucent drive
- Instant change between clockwise and counterclockwise rotation
- Fully Autoclavable
- All attachments can be fitted on single hand piece
- 8 different locking options for attachments
- Reliable protection of soft tissue with integrated oscillation mode

Lid for Hand piece

- Fully autoclavable
- For holding and prevention fall of power module form the hand piece
- Mode selector switch to select Drilling/Reaming, Saw, Oscillation
- Drill mode

Power Module

There should be a display indication the battery capacity status
Should have a button to diagnose errors in the systems
Not to be autoclaved

Universal Battery Charger II

- Should have 4 charging bays
- Should be capable of charging NiCd, NiMh and Lithium lon
- Batteries
- Should display the charging status of the batteries
- Keeps inserted batteries constantly fully loaded

Sterile Cover

- Made of Stainless steel
- Fully autoclavable
- For sterile transfer of power module to Battery hand piece

Jacob's Chuck attachment

Cannulationof 4.1 mm diameter
Chuck range from 0.5 to 6.5mm
Maximum speed of 1450 rpm

Drill Chuck Attachment

Cannulationof 4.1 mm diameter
Chuck range from 0.5 to 6.5mm
Maximum speed of 1450 rpm

Quick Coupling for reaming

- Cannulation of 4.1 mm diameter
- Maximum speed: 330 rpm
- Maximum Torque: 13Nm

Sagittal Saw attachment

- It can operate on an oscillation frequency of 0 to 11,000 osc/min.
- The amplitude of oscillation should be 4.5
- Attachment can be locked in 8 different positions in steps of 450
- 5 locking options for the saw blades in the attachments
- Saw blade for TJR Surgery length 81 to 116mm, Usable L 60to 95mm, width 12.5 to 25mm, thickness 0.89 to 1.47mm
- Saw blade for general traumatology length 46 to 90mm
- Usable length 25 to 69mm, width 10 to 50mm, thickness o.4 to 1.2mm

Reciprocating Saw attachments

- It can operate on an oscillation frequency of 0 to 11,000 osc/min.
- The maximum stroke length for reciprocation saw should be 4mm
- Attachment can be locked in 8 different positions in steps of 450
- Saw blade for Reciprocating saw length 55 to 80mm, cutting thickness 0.85 to 1.1mm, width 10 to 12mm.
- Should accommodates sternum top

Quick coupling for DHS/DCS Tripple Reamer

- Cannulation of 4.1 mm diameter
- Speed upto 670 rpm

Quick coupling for K-Write

- Sontinours adjustment facility for wire diameter from 1 to 4mm
- Speed up to 1450 rpm

CAD Specifications

The Cannulated Pneumatic Drill hand piece

- Cannulation with 3.2mm diameter
- Air Consumption of 250I/min
- Operating pressure: 6-7 bars (maximum 10 bars)
- Weight of handpiece 0.8kg without any attachment
- Power 120w
- Variable speed from 0-900 rpm
- Noise level of max 72db
- Separate forward and reverse triggers
- Safety Device to cut off air supply to drill on hand piece
- Handipiece is compatable with radiolucent drive
- Instant chance between clockwise and counterclockwise rotation
- Offers reliable protection of soft tissues with oscillating drill attachment

- Fully authoclavable
- Fully machine washable
- All Attachments can be fitted on single handpiece
- The reverse trigger automatically locks when the oscillating saw and the reduction drive attachments are attached to handpiece.

Jacob's Chuck attachment

Cannulation of 3.2 mm diameter
Chuck capacity up to 0 to 6.5mm
Maximum speed of 900 rpm
Torque of 4.7 Nm

Quick Coupling attachment

- Cannulated
- Maximum speed: 900 rpm
- Maximum Torque: 4.7 Nm

Reduction Drive for Intramedullary/ Acetabular Reaming (AO/ASIF Coupling)

- Reaming speed of 340 rpm
- Reaming Torque of 13 NM
- Option of Attachment with reverse rotation

Right Angles Drive for medullary Reaming

- Reaming speed of 340 rpm
- Reaming Torque of 13 NM

Quick coupling for K-Write

- Continuous adjustment facility for wire diameter from 0.6 to 3.2mm
- Speed up to 900 rpm

Chuck with Mini Quick Coupling

- Cannulated
- Maximum speed: 900 rpm

Keyless chuck

- Cannulated of 3.2mm
- Maximum speed: 900 rpm
- Chuck capacity up to 0 to 6.5mm

Torque Limiter

- Insertion of screws with limited torque up to 4 Nm

Quick coupling for DHS/DCS Tripple Reamer

- Cannulation of 3.2 mm diameter
- Speed upto 900 rpm

Oscillating Drill attachments

- Oscillations of 270.
- Continous frequency regulation: 0-1300/ min
- Soft tissue protection during drilling

Radiolucent Drive

- Precise aiming and drilling under image intensifier control for locking intramedullary nails
- Drill bit diameter 2.0 to 4.5mm, length 106 to 148mm, Usable length 80 to 122mm
- Reduce exposure to x-rays

15. QR Trauma

Instrument set

PELRIC C-CLAMP

- Quick and efficient compression and stabilization of fractures, and thus control of the hemorrhage in the unstable posterior pelvic ring.
- Should allow for gain in time for subsequent diagnostic or therapeutic means;
- The patient can be passed though a CT-Gantry.
- Should allow for unrestricted access to the abdomen, pelvis or proximal femur.
- The pelvic reconstruction plates should be able to three dimensionally contoured allowing them to be closely adapted to the pelvic surfaces.
- The instruments should include pelvic reduction forceps with pointed ball tips.
- The pelvic reduction forceps should allow for clipping with spiked discs.

LC-DCP & DCP Basic Instrument Set (Large)]

Material- Stainless steel
Grade-ISO 5832-1
The surgeon should be able to use these instruments in open reduction and for internal fixation by plating in fracture of large bones, like femur, tibia and humerus.
The instrumentation should allow for drilling, tapping, compression, neutralization, buttressing and fixation of 4.5mm cortical screws and 6.5mm Cancellous screws.
It should contain drill bits in 3.2 and 4.5mm dia, taps fro 4.5mm cortical screws and 6.5 mm cancellous screws, screw drivers, depth gauges, drill guides, bending press for 4.5 mm plates and contain templates for 4.5mm compression plates and low contact compression plates.

- The Instruments should have a Universal drill sleeve 5.4/5mm
- A self retaining hexagonal screwdriver with torque limiting attachment having a 4Nm torque.
- The instrument should have LCP Bending iron 4.5/5 for bending the implants
- The instrument should have conical extraction screws of length 59mm & 196mm & drill
- Bit 3.5mm dia for metal for extraction of damaged screws.
- The torque limiting screwdriver should have screw-holding sleeve along with all other essential instruments to use the implants.
- All instruments must be enclosed in a aluminum case.

Reduction forceps set

Material- Stainless steel
Grade-ISO 5832-1
This set should contain forceps for reduction, bone holding and distraction for large bones, small long bones, patella, fibula and malleoli.
The bone holding forceps should be self-centering and should be available in all sizes.

General Instruments set

Material- Stainless steel
Grade-ISO 5832-1
The Instruments should contain the following for general purpose orthopaedic use. Retractors 8, 18 and 24mm wide, bone hooks, periosteal elevators, Hammer, chisel handle with detachable chisel blades 10, 16 and 25mm wide, gouges for Concellous bone grafts 5, 10 and 15mm wide, curved and straight and retractors in various sizes.

DHS/DCS Instrument Set.

Material- Stainless steel
Material- Titanium (implants)
Grade-ISO 5832-1

- The instrument should have DHS/DCS® Threaded Guide Wire, 2.5mm dia, L 230/5mm
- The instrument should have Angles Guide 135°, 150°
- The instrument should have DHS/DCS® Direct Measuring Device
- The instrument should have Wrench for one-step insertion L 230mm
- The instrument should have T-Handle with quick coupling, L 80mm
- The instrument should have DHS ® Triple Reamer
- The instrument should have Impactor for one-step insertion, L 260mm
- The instrument should have DHS/DCS® Tap, L 220mm
- The instrument should have locking Centering sleeve
- The instrument should have coupling screw, cannulated
- The instrument should have Triple Reamer
- The instrument should have tapered ends to allow for submuscular insertion of the plate.
- The instrument should be compatible with trochanter stabilizing plates.

Wire Instruments Set

Material- Stainless steel
Grade-ISO 5832-1
The Instruments should contain the following for proper insertion, handling, cutting, bending, holding, and tightening of Circlage, Kirschner wires.
Triple guide wire, wire passers, wire tighteners, holding forceps, wire bending pliers, wire cutter, wire mounts for compression plates, Circlage wires with eye in 1.00 and 1.25mm dia, length 280mm.

Reamed Interlocking Instrument Set for Femur & Tibia

Material- Stainless steel
Grade-ISO 5832-1
The Instruments should contain the instruments for femoral & tibial interlocking with all reamers from 9.0mm to 14.5mm with an increments of 0.5mm. the flexible shaft should be made of NITOL material & must rotate clockwise & counter-clockwise. The instruments must be compatible to existing branded drill/reamer system to facilitate the quick reaming, etc. the reaming, insertion & locking device should be complete in all respects.

Broken Screw Removal Set

- The plates and screw are the basic requirements of different orthopedic surgeries, especially in the forearm, the DCP (Dynamic Compression Plates) with 3.5mm screws are used.

- Once the fracture is healed there is an absolute necessity to remove the implants, since the DCP sinks inside the bone causing severe deformity to the healthy bone.
- The DCP with 4.5mm & 6.5mm cancellous screws are also for Humeral, Tibila & Femoral shaft fractures.
- During the removal of the implants most of the time, the screws are broken causing serious technical problems to the surgeons.
- It the instruments are in possession, it is quite easy for the removal of the broken implants.
- The set should have screwdrivers & screwdriver shafts, forceps for screw removal, conical extraction screws with T handle, hollow reamers & extraction bolts with T handle.

Locked Compression Plating System- LCP (Small)

- The instruments should have a universal drill sleeve 3.5mm
- The instrumentation should have a drill bit of dia 2.8mm & a threaded LCP drill guide for the drill bit 2.8mm
- The instrument should have screwdriver shaft 2.5mm, length 80mm.
- The instrument should have LCP bending iron for bending the implants.
- A self retaining hexagonal screw driver with torque limiting attachment having a 1.5Nm torque.
- The torque limiting screwdriver should have screw-holding sleeve alongwith all other essential instruments to use the implants.
- The instrument should have conical extraction screws of length 61mm & 136mm & drill bit 2.5mm dia for metal extraction of damaged screws.
- All instruments must be enclosed in a syncase with lid.

Locked Compression Plating System- LCP (Small)

- The instruments should have a universal drill sleeve 4.5/5mm
- The instrumentation should have a drill bit of dia 4.3mm & a threaded LCP drill guide for the drill bit 4.3mm.
- The instrument should have a self retaining screw driver shaft fro 5mm locking head screws.
- The instrument should have LCP bending iron4.5/5 for bending the implants.
- A self retaining hexagonal screw driver with torque limiting attachment having a 4Nm torque.
- The torque limiting screwdriver should have screw-holding sleeve alongwith all other essential instruments to use the implants.
- The instrument should have conical extraction screws of length 59mm & 196mm & drill bit 3.5mm dia for metal extraction of damaged screws.
- All instruments must be enclosed in a syncase with lid.

Modad (Modular Aiming Device)

- The instruments should have image intensifier free distal locking of Tibia, femur & Humerus.
- The instruments should have ML & AP Targeted locking.
- The instruments should be compatible with UTN/CTN, UFN/CFN, UHN & SUN Nails.
- The instruments should correct nail deformation in the saggital & frontal planes.
- The instruments should have L-Spacer for connection between hole &Aiming device.
- The instruments should have T Spacer for connection between the nail &Aiming device.

- The instruments should have L Curette for taking out bon debris.
- The instruments should have twin calibration Pin for checking the calibration.
- The assembly should have sterilizing case with an inbuilt stand to hold the proximal jigs of all nails for calibration.
- The assembly should have a pre calibrated scale for fixing the L-Spacers.

Power Reaming System (Sybream)

The power reaming system should:

- Have flexible reamer shaft with provision of quick coupling connection.
- It should be fitted with T-Handle to hold the reaming shaft.
- It should be fitted with straight reduction head & with possibility of quick coupling attachments to the flexible shaft.
- If should have cannulated reamers 8.5mm to 13mm at 0.5mm increments, 8.5mm being end cutting while all other should be side cutting, with quick coupling.
- It should have stainless steel, flexible, ball tip reaming cum guide rod, which should not pass through the reaming or reduction heads.
- It should be supplied with cleaning brush for flexible shaft.
- It should be supplied with ratchet lock, grooved forceps for holding of reaming rod.
- It should have the provision of stainless steel box to keep, (perforated fro autoclaving) to facilities tool removing for reaming system.
- It should have the provision of perforated stainless steel box to keep instruments.
- The material of the tubular shaft should be nitinol to allow for easy removal of blood and debris.
- It should be supplied with universal chuck with T handle to provide quick lock 7 unlock facility for holding.
- The tubular nitinol shaft makes it easier to remove blood and debris residues compared to coiled shafts.

Chisel and Impact Set

- The set contains bone impactor of dia 6 in round and flattened shape of length 140mm
- It also contains bone impactor of dia 8mm in round shape of length 140mm
- Curved gouge of 10mm & 15mm of length 140mm
- Flat chisel, straight, 16mm wide of length 140mm
- The set is available in aluminum case.

16. Arthroscopy Instruments

Technical Data

1/3" High Sensitivity CCD
Resolution: 752 CCD lines (Horizontal)
SN Ratio- 50db
Automatic white balance Electronic shutter (1/50 to 1/000000)/3 windo sizes
Anti Moire effect
Gain control: 4 level
Size of the Control unit: W-360; H-74mm
Cable length: 3m
Weight. Control unit 4.5kg; Sensor 80g.

Power Supply: 115-230V
Power consumption; 25VA max
2YC S- video output (1VCC 75oh) PAL OR NTSC
CE According to MDD 93/42/ECC, Class 1
EN60601-1
Standard Set Includes
CCU
Camera Head
Coupler
Y/C Cable
Composite Cable
Mains Cord
User Manual CD
Carry Case

Technical Data

Lifespan	: Approx 50000 hrs.
Color Temperature	: 6000 k’
Intensity Control	: Touch Buttons
Intensity indication	: Bar Graph
Rel. Humidity	: <90% non condensing
Voltage/current	: 100-240 v ac
Frequency	: 50/60 Hz
Operating temperature	: $+10^{o}$ to 35^{o} C
Storage temperature	: $+10^{o}$ to 40^{o} C
Production degree	: IP X 1
Medical Product class	: 1, BF Type
Weight	: approx 4.5kg.
Regulation approvals	: IEC 60601-1, Class 1,
CE	: According to MDD 93/42/ECC

Features

- Autoclavable
- High quality of fiber bundle
- Extra Transmission of light
- Can withstand higher temperatures
- Fast action fitting of the Telescope.

17. Shaver System

Technical Specification

Power input Consumption	: 200240 CAC/50Hz
Shaver Speed Range	:1000-8000 RPM
Drill Speed Range	: 150-1100 RPM

Saw speed: 20000 RPM

Dimension of Control unit W x H x D	: 323 x 118 x 267mm
Weight of shaver hand piece	:475gm
Weight of Drill hand piece	:840gm
Weight of saw hand piece	:450gm
Cable length	:3m
CE	: According to MDD 93/42/ECC

Saw Attachment Drill Attachment

Features

- Comprehensive unit comprising of shaver drill & saw from Maxer Germany
- Effective suction control on shaver handpiece
- Sturdy,vibration free handpiece ensures long life of blades & system
- Quick change of shaver blades
- Waterproof, ergonomic full function foot control as per 1P x 8.
- Premium quality blades in various sizes
- Forward, Reverse & Oscillating modes
- Autoclavable handpiece

Product Reference

Control unit	50.20.0703
Foot switch	50.20.7011
Shaver Handpiece	50.20.7003
Drill Handpiece	50.20.7001
Saw Handpiece	50.20.7002

18. Pump System

Technical specification

Pressure	: 0-280mmHg
Flow Rate	: 0-1500ml/min
Pressure Control	: Micro Processor based
Protection class	: 1 Type BF
Dimension (W x H x D)	: 323 x 267 x 165mm
Weight	: 12kg
Input Voltage	: 230 VAC/50Hz
CE	: According to MDD 93/42 ECC

Features

- Sturdy design
- High flow rate with Precise Pressure control
- Fully Electronic
- Supplied with tubing set & designed Pressure Sensor.

19. Monitor- High Definition

Technical specification

Panel Size/type	: 24TFT active matrix LCD, Anti- glare and hard coated
Pixel dimension	: 0.270mm x 0.270mm
Maximum resolution	: 1920 x 1200

View angle	: 150^o (H), 130^o (V)
Signal input	: DVI-/DVI-D/D-Sub Composite/S Video/RGBS VGA/ SDI-HD
User Control and indicator	: Scroll Keys, Power
Dimension ($W^oh^od^o$)	: 603 x 403 x 99mm
Weight	: Net 7.3 kg without stand
Power input	: 24 VDC
Mounting	: VESA
Power consumption	: 85 W DC

Features

- 24^o wide screen.
- Accept High Definition signal of.
- 1920 x 1200 through DVI-D & HD-SDI.
- Fan less cooling, sealed front enclosure.

20.Specification for Central Sterilisation Unit at L.N.J.P. Hospital C.S.S.D (Central Sterile Supply Dept)

A lay out plan (Map in enclosed)
Disinfection/Sterilisation equipments includes Chamber for Sterilizer, working table with two sinks, stainless washer disinfector, drying cabinet and control & packing table trolley with at least two selves- stainless & steel. There should be storage rack with five shelves & fully closed distribution trolley made of stainless steel. The Chambers and Door should be made of high quality stainless steel.

The unit should bear the ISI Certification and should be fitted with accessories like safety valve, vacuum breaker, vacuum anger, dial thermometer, check valve etc.

The supplier has to train at least three operators free of cost.
Service should be prompt and customer will provide space, electrical connection water line, steam exhaust line, drain line.
Installation/ Commissioning – Free of cost. Annual maintenance contract of at least 5 years.

Laundry equipment of the lines, for different works.

- Heavy duty washing machines electrically heated or through external stea steam boiler- 35kg
- Wash extractor with automatic control and digital display- 25kg.
- Three point suspension type hydro extractor.
- End loading drying tumblers.
- Pneumatic operated presses, flat working ironers with single roller. All types of presses, general utility presses, cuff and coller presses fully automatic dry-cleaning machines and dry cleaning presses.
- Stainless trolley- Dry linen trolleys, wet linen trolleys, sorting trolleys & distribution trolleys.

21. STAINLESS STEEL HORIZONTAL CYLINDRICAL STERILIZER

- Electrically operated, Stainless steel Horizontal Cylindrical Sterilizer.
- **Cycle Operation mode:** Manually operated through Multi-port operated valve, to set and select different cycles of operation.

Chamber

- Made of stainless steel 316 quality
- **Size:** 500mm diameter x 1100mm length (20" x 44").
- **Volume:** 227 Litres approx.
- **Outer cover:** Made of good quality stainless steel 304
- **Working temperature: 121 deg c:** Working pressure: 1.2kg/cm2
- Made of Stainless steel 316 quality.
- Gasket: Heat resistant good quality silicon gasket
- Hinge type, manual operated single door with radial locking arm using shooting bolts, shooting bolts will be made of good quality Stainless steel 304.
- Safety feature.
- Pressure locking safety facility
- The unlocking is possible only when the chamber is exhausted

In-Built Boiler/ Steam Generator

- Made of good quality Stainless Steel 304 quality
- It will be fitted with electrical immersion **heater load of 9KW** and all electrical controls type.
- **Power supply requirement:** 3 phase 4 wires, 400-440 Volts 50Hz A.C. supply
- Jacket: Made of boiler quality steel plate
- Supporting Stand: Made of Mild steel
- All connection pipe: made of good quality stainless steel
- The sterilizer will be fitted with pressure gauge, compound gauge, vacuum breaker, water cut off, pressure switch, temperature gauge, steam trap, NRV, etc.,
- The Sterilizer will be mounted on tubular stand in a ready to use condition.
- The sterilizer will be fitted with all necessary safety features.

22. S.S WORKS TABLE WITH TWO SINKS

- Stainless Steel work table with double sink unit with hot water, cold water and air spray connections- for washing of instruments.
- Complete stainless steel SS 304 body construction, with four leg supports made of stainless steel
- Will generally have hot water, cold water and air spray for rinse provisions
- Will have a drain outlet connection
- Sinks are designed in a way to minimize splash
- All smooth ground corners
- All the joints will be welded with TIG Argon arc, fine finished and mirror polished.
- Will have an under shelf made of stainless steel SS304
- Bench top dimension: 2400mm Lx 650mm W x 900mm Ht.

23. STAINLESS STEEL WASHER DISINFECTOR

- Stainless steel Washer Disinfector is a straight through model designed to wash and rinse all kinds of surgicals instruments, anesthetic and respiratory tubing. Suction devices, bottles and other glassware. The process is automatically controlled in a time regulated sequence. It can handle upto 1280 instruments per hour.
- Microprocessor control for all services, programming and statistic functions- three preset programs
- Will have powerful water circulation pump
- Equipped with four spray arms for good penetration
- Dosage of detergent can be preset with dosing pump
- Sensor to detect level in soap tank and easy refilling system
- Sensor for water on chamber to avoid dry run
- Double wall with insulation to run with minimum sound and heat emission
- Chamber size: 600mm x 7000mm x 700mm; Volume: 250 – 275 Ltrs
- Overall dimension (Door Closed): 730mm W X 815mm L x 1810mm h
- Electric supply requirement: 415V, AC, three phase & N, 50HZ
- Electrical load- 13KW on 400-440V AC 50Hz supply

24. DRYING CABINET

- Drying cabinet casing, doors and shelves are made of stainless steel AISI 304 quality. Double wall construction with insulation between panels. This construction reduces heat losses and noise into the working area.
- Drying cabinet is designed to dry surgical instruments, utensils, glassware and anesthetic therapy equipments.
- The unit has an adjustable temperature range of 70-90 deg C and Drying time range of 0-99 minutes made of stainless steel.
- Size: 595mm X 50mm x 180mm height.
- Electrical Heater: 3.6KW
- Overall size: 670mm x 545mm x 1810mm
- It can be operated on an electrical connection 230 V AC single phase 50Hz. Supply from a standard 15 Amps 3 pin plug point.
- Capacity: 8 shelves can be kept for drying at a time

. 25. S.S CONTROL & PACKING TABLE

- The control and packing table with two shelves is used for separation, control and packing of various sets of sterilized goods for wards, clinics, operation theatre etc.
- It will have drawer and with nylon adjustable leveling bullets for legs.
- The complete table will be made of SS 304, 16SWG.
- Overall size- 2000mm length x 1400mm width x 1400 mm H
- The corner will be smooth rounded to avoid any sharp edges.
- All the joints will be welded with TIG Argon arc, fine finished and mirror polished.

26. S.S TABLE WITH TWO SHELVES- Stainless steel

The trolley is for use in the sterile Goods store when batching sterile goods for delivery and also for short internal transport
Fame, undershelves and table top made of stainless steel
The frame is fixed on 4 Nos. heavy duty castors with 2 Nos. in front of fixed type and 2 Nos. at the back swiveling type.
External size: 1080mm Lx 530mm W x 800mm H

27. S.S STORAGE RACK WITH FIVE SHELVES

Floor mountes, storage rack with five Nos, shelves are user to store the medical instruments/ linen
Frame is fabricated of 40mm square SS pipes. The legs are provided with adjustable nylon bullet feet.
The shelves are fabricated of 16seg SS sheets ground poloshed to smooth surface.
Edges are welded together & polished at corners.

28. FULLY CLOSED DISTRIBUTION TROLLEY- Stainless steel

Base frame and body made of stainless steel, the base frame is fixed on 4 Nos, heavy duty castors with 2 Nos. in front of fixed type and 2 Nos. at the back swiveling type.
It will have door, the doors are designed to fold back against each end. A central locking handle operators rod at the top and bottom of the door.

29. ANAESTHESIA VENTILATOR (for OT)

- Micro-controller based electrically driven
- Bright Display of parameters
- Display of Airway pressure in Bar Graph
- Compatible with Circle Absorber of Bain's Circuit
- Automatic spill device
- Adjustable Safety valve
- Inspiratory Hold for better distribution of gas
- Variable 1:E Ratio

Specification

Classification	:	Flow Generator Type
Driving Source	:	220v AC
Mode	:	CMV
Tidal Volume	:	50to 1200ml
Frequency	:	6 to 40bpm
Insp. Hold	:	0.4 to 3 Seconds
Insp. Time	:	0 to 2 Seconds
I/E Ratio	:	1:1 to 1:5
Alarms	:	Patient Disconnection, High Insp. Pressure, Low Insp. Pressure.
Safety Valve	:	Adjustable: 10 to 60 Cm H_2O
Power	:	60W

Structure

- Made of Aluminium Extruded tubes and channels with powder coated finish
- 2 Drawers with Smooth Sliding Channels
- Sliding Writing Table
- Antistatic Large Castor Wheels, Front Wheels with Breakers
- Dip Stand with Double Hook
- Handle on each side for Easy Maneuverability
- Equipped with Electrical Distribution box
- Space for mounting 2 vaporizers