No.GHD/E-TENDER/2012-13/1217

Administration of Daman and Diu,
O/O Medical Superintendent,
Government Hospital, Daman

Date: 27 /12/2012

E-TENDER (ON LINE) NOTICE

The Medical Superintendent, Government Hospital, Daman on behalf of president of India, invites tenders for following items through on –line on http: Daman.nprocure.com from the manufacturer/Authorized Dealers/suppliers having valid License. The tender notice also available on www.nic daman.in

Sr. No.	Description Items	Estimated cost	EMD (in the form of FDR	Tender fees (Non refundable
1	Purchase of MODULAR OPERATION THEARE & MEDICAL GAS PIPELINE SYSTEM	Rs. 4,50,00,000/-	Rs.13,50,000/-	Rs.5,000/-

Last date of downloading of on line tender documents: upto 17.01.2013 by 16.00 hours

Last date of submission of online tender document: upto 17.01.2013 by 16.00 hours.

Interested bidders should visit to see the project site & works to project site within any working day & hours.

Bid document downloading Start Date : 28.12.2012
Bid document downloading End Date : 17.01.2013
Last Date & Time for Physical Tender Documents Submission
(Along with technical specification) : 17.01.2013
Pre Bid Meeting : 11.01.2013 4.00 PM
Last Date of submission of Online Rates : 17.01.2013at 4.00 p.m.
Preliminary Stage Bid Opening Date : 17.01.2013 at 5.00 p.m.
Technical Stage Bid Opening Date : 17.01`.2013 at 5.00 p.m.
Commercial Stage Bid Opening Date (IF POSSIBLE) : 21.01.2013 at 4.30 p.m.

The bidder may download the tender online form, But the same properly filled Tender Form should be submitted after paying INR 5000/- only by DD to department at the time of site inspection and Tender Bibber Information Form.
The company representative should come along with carrying their valid authority letters for submission of the same at site, duly authorized by their respective company managements, and should notify the department by signing on Tender Bidder Form duly available thereof, Without signing on Tender Bidder Information Form or submitting their respective company authorization letter their bid will not be considered

Bidders have to submit price bid in Electronic format only on www.nprocure.com till the last date and time for submission. Price bid in physical format shall not be accepted in any case.

Submission of tender fees in the form of DD and , EMD in the form of FDR and other supporting documents i.e. copy of valid license from competent authority, copy of VAT/ST Registration and copy of PAN/TAN of income Tax etc, and terms and condition duly signed in hard copy to the undersigned by RPAD/Speed post/by hand on or before 17.01.2013 up to 15.30 hours, however, Tender Inviting authority shall not be responsible for any postal delay.

The tender inviting authority reserves the right to accept or reject any or all the tenders without assigning any reasons thereof.

Bidder shall have to post their queries on E-mail address: ddmssu.idsp@nic.in on or before dated 16.01.2013 upto 10.30 hours

In case bidder needs any clarification or if training required for participating in online tender, they can contact the following office.
(n) Code Solution-A Division, GNFC Ltd"
403,GNFC Info Tower, Bodakdev,
Ahmedabad- 380054, Gujarat (India)
E-Mail ID : nprocure @ncode.in Fax +917926857321

Website:www.nprocure.com

(Dr.B.R.Chand)
Medical Superintendent
Government Hospital, Daman

U.T. ADMINISTRATION OF DAMAN & DIU
O/O THE MEDICAL SUPERINDENDENT,
GOVERNMENT HOSPITAL, DAMAN
DAMAN

No. GHD/DMN/E-Tender/2012-13/ 1217 Dated:27/12/2012

Terms and Conditions for the "MODULAR OPERATION THETARE & MEDICAL GAS PIPELINE SYSTEM" for Medical Superintendent, Government Hospital, DAMAN

Instructions to Bidders :

1) **The rate(s) quoted should be strictly for free delivery at F.O.R DAMAN HOSPITAL and will be valid and operative for supply orders issued on or before 31.06.2013**

2) **All/Taxes/Duties/Royalties Charges payable on the sales/transport etc. within and/or outside the state shall be payable by the supplier. The rates should be quoted inclusive of all taxes, installation & commissioning charge etc.**

3) **The specification asked for should be writing on Principal Manufacturer Letter Head.**

4) **The tenderer should specify the name of the manufacturer for the items quoted by him along with catalogue of the item and complete specification for the items quoted to be submitted in the Technical Bid.**

5) **The tenderer should submit true copy of their last three years balance sheet with audit report duly certified by Chartered Accountant and that also should be not less than INR 5 crore.**

6) **The tenderer should match the quality mark certifications as given and specified in technical terms & conditions document.**

7) **The decision of the Tender Inviting Officer for acceptance/rejection of any articles supplied including the decision for quality mark certifications, standard and quality etc. as specified in technical bid document of articles shall be final.**

8) **The Tenderer should enclosed along with the Technical bid of Rs.13,50,000/- (Rupees Thirteen lakhs fifty thousand only) as EMD in form of Demand Draft/ FDR of any schedule bank at Moti Daman in favour of the officer inviting tender i.e Medical Superintendent, Government Hospital, Daman. The EMD submitted other than form mentioned above will not be accepted. Tender received without EMD will be summarily rejected.**

9) **(a) The successful tenderer will have to pay within 10 days from the date of demand, an amount equal to 10% of the total value of articles, which may be ordered, as the amount of security deposit.**

(b) Non receipt of Security Deposit within stipulated time will result in automatic cancellation of the order for supply without any intimation.

(c) However in case if any articles are received for which the Security Deposit may not have been deposited, the full Security Deposit as may be due from the supplier will be recovered from the bill(s) for such articles.

10) **The amount of Earnest Money paid by the successful Tenderer(s) will be adjusted against the amount of Security Deposit to be paid by the successful tenderer(s) as per condition No.07 above.**

11) **The tender should be neatly typed only on letter head carries the name of supplier and the signature of the tenderer. No overwriting, correction or erasures will be considered.**

12) **All bills should be in TRIPLICATE and should invariably mention the number and date of supply order.**

13) **All bills for amount above INR 5000/- should be pre-receipted on a Revenue Stamp of proper value. Bills for amount exceeding INR 5000/- not pre-receipted on Revenue Stamp of proper value will not be accepted for payment.**

14) **Each bill in which Sales Tax is charged must contain the following certificates on the body of the bill: "CERTIFIED" that the goods on which Sales Tax has been charged have not been exempted under the Central Sale Tax Act or the Rules made there under and the amount charged on account of Sales Tax on these goods is not more than what is payable under the provisions of relevant Act or Rules made there under".**

15) **The Tenders shall be submitted in two-bid system, wherein the Technical bid and Commercial Bid is to be filled in www.nprocure.com and the EMD and photocopy of the receipt of Tender Fee has to be submitted in Tender Box along with a covering letter. The envelope should be super scribing on the envelope as "Sealed Cover of Bid- for MODULAR OPERATION THEARE & MEDICAL GAS PIPELINE SYSTEM for Medical Superintendent, Government Hospital, DAMAN". The EMD and Tender Fees should be enclosed with Technical BID only. The last date of submission will be 17.01.2013 up to 16.00 hours**

14) **The right to accept or reject without assigning any reasons or all tenders in part or whole is reserved with the Tender Inviting Officer and his decision(s) on all matters relating to acceptance or rejection of the tenders as a whole or in part will be final and binding to all.**

15) **The Purchase committee will open the Tenders(if possible) in presence of tenderers or their representatives, if any present in the Office of the Tender Inviting Officer. The Purchase Committee will first open the technical bid and considering the technical specification of MODULAR OPERATION THEARE & MEDICAL GAS PIPELINE SYSTEM. The Committee will open the financial bid only of those firms who are qualified for technical bid as per specifications given by the department.**

16) **The tender should furnish separate declaration regarding the Blacklisting/Debarring to participate in the Government tender on stamp paper of INR 100.00. If the information provided found false the tender will be rejected and EMD shall be forfeited. The tenderer should submit an affidavit of following points about their legal status duly notarized on.**

a) Declaration of non involvement in any litigation with any Government in India
b) That the tenderer is not under a declaration of ineligibility for corrupt or fraudulent practices

c) Declaration of not been blacklisted by any Central / State / UT Government.
d) Declaration of non-political and non-denominational organization with no affiliation to any political parties.

17) In case, the supplier does not execute the supply order placed with him, the EMD of the supplier will be forfeited to the Government and the contract for the supply shall terminated with no further liabilities on either party to the contract.

18) No separate agreement will be required to be signed by the successful tender(s) for the purpose of this contract for supply. Rates tendered/offered in response to the concerned Tender Notice shall be considered as acceptance of all above terms and conditions for supply for all legal purpose.

19) The tender will be accepted during working hours up to 17.01.2013 at 16.00 hours and will open on the same day if possible in the office of the Medical Superintendent, Govt. Hospital, DAMAN.

Conditions of Contract :

1) Orders once placed should be delivered within the given time period and item should be door delivered.

2) No extra charge for packing, forwarding and insurance etc. will be paid on the rates quoted.

4) The rates should be quoted only for the items specified in the list of requirement and should be for the items of given special make/manufacture.

5) Rates quoted for items other than the required specification/make/manufacture will not be considered.

6) The amount of Earnest Money paid by the tenderer(s) whose tenders are not accepted will be refunded to them by cheque or Demand Draft (as may be convenient to the Tender Inviting Officer if the amount is above Rs.5000/- (Rupees Five thousand only) in DD. Where this mode of payment is not possible the amount will be refunded at the cost of the tenderer.

7) Only on satisfactory completion of the supply order for and on payment of all bills of the supplier, as to be admitted for payment, the amount of Security Deposit/Earnest Money will be refunded after expiry of guarantee/warranty period, if any, or any such date/period as may be mutually agreed upon.

8) The tender inviting officer will consider extension of time for remitting the Security Deposit as demanded. However, in case of denial to consider such extension the supplier is bound to abide by the limit given and liable to make good for the loss made to the Government on account of his failure to abide by the time limit.

9) Railway Receipt or other transport document should be drawn in the favour of Officer Inviting tender.

10) Railway Receipt or other transport document should not be send by VPP or through any Bank as this being a Government Office it is not possible to clear cash demands of Post Office/Bank for delivery of RR or other transport documents unless we have agreed to it as special arrangement.

11) **The supplies, materials etc. of inferior quality standard or of different specifications, brand, manufacturer etc other than that ordered specified and/or incomplete or broken articles will not be accepted. The supplier has to replace the same at his own cost and risk. Intimation of non-acceptance of any materials etc will be sent to the supplier within 10 days from the date of receipt of the stores and the same will be returned to the supplier at his own cost and risk, if he so desires and intimates accordingly within 15 days from the date of dispatch of intimation of the non-acceptance. However, if no communication is received within 15 days from the date of communication the tender Inviting Officer will not be responsible for any damages, loss etc. of such rejected articles.**

12) In case of failure to replace the accepted and rejected articles from the supplies made, as mentioned in the conditions the loss undergone by the Government will be recovered from the suppliers Security Deposit/Earnest Money or payment due of any bill(s) to the extend required.

13) In case of failure to supply the store, materials etc. ordered for, as per conditions and within the stipulated time, the name articles will be obtained from the tenderer who offered next higher rates or from any other sources, as may be decided by the tender inviting Officer and the loss to the Government on account of such purchases(s) shall be recovered from the former suppliers Security Deposit/Earnest Money or bills payable. The suppliers shall have no right to dispute with such procedure.

14) The successful bidder will have to supply MODULAR OPERATION THEARE & MEDICAL GAS PIPELINE SYSTEM, which are accepted by the tender inviting authority within 15 days of issuing the order. In case of failure to supply the equipment ordered for, as per conditions and within the stipulated time, the same articles will be obtained from the Tenderer who offered next higher rates or from any other sources, as may be decided by the tender inviting Officer and the loss to the Government on account of such purchases(s) shall be recovered from the former suppliers Security Deposit/Earnest Money or bills payable. The suppliers shall have no any right to dispute with such procedure.

15) Extension of time limit for supplies shall be considered by the Tender Inviting Officer. The extension so granted may be with levy of compensation for delay in execution of supply order up to 5% of the cost of supplies ordered for at the discretion of the authority competent to grant extension of time limit provided such request is made well in time, depending upon the circumstances and such decision in the matter will be final.

16) Demurrage charges paid by the Tender Inviting Officer on account of delayed receipt of dispatch documents intimation will be recovered from the bills payable to the supplier.

17) **If at any time after the order for supply of materials the Tender Inviting Officer shall for any reason whatsoever not require the whole or part of the quantity thereof as specified in the order the Tender Inviting Officer shall give notice in writing of the fact to the supplier(s) who shall have to claim to any payment of compensation what so ever on account of any profit or advantage which the supplier(s) might have derived from the supply of articles in full, but which did not derive in consequence of the full quantity of articles not having been purchased, nor shall have any claim for compensation by reasons of any alterations having been made in the original instructions which shall invoice any curtailment of the supply originally contemplated.**

18) **The Earnest Money(s)/Security Deposit(s) paid by the tender(s) earlier against any tender(s) or supply order(s) is/are not adjustable with Earnest Money or Security Deposit required by these conditions.**

19) **The tenders/offers received do not confirm with the terms and conditions of this office will be summarily rejected. If any firm desires to consider exemption from payment of Earnest Money Deposit, certified copies of its Registration with D.G.S. & D. should be attached to their tenders.**

20) **The items as mentioned in the list are the approximate estimates invited and actual purchase may more. Accordingly the successful tenderer has no right for any loss/damages with reference to approximate requirement shown in tender and actual requirement.**

21) **Supplier may ensure the goods at his own cost to safeguard the delivery of such goods dispatched by him to the consignee; the department will not be responsible for the damages or pilferage of goods during transit.**

22) **The tenderer should attached copies of certificate of experience in the field of MODULAR OPERATION THEARE, proof of fulfilling the norms of HTM 03-01, HTM 02-01, HTM 06-02, HBN 26, ISO 14644-1 & NFPA 99 certificates of the manufacturer, copy of dealership/authority letter (as per Annexure I) , license for import, PAN No., User list of Tender items, Catalog of the item quoted etc. with his/their tender. The tenderers shall submit along with the tender, documentary evidence of their previous experience in carry out similar supply and of their eligibility in support of their claim for consideration in the matter of award of contract**

23) **The bidder, for all equipments not manufactured by themselves directly, Authorization letter for supply for this project should be submitted by bidder for that particular equipment.**

24) **No vendor/supplier can submit two authorization letters for the same project & equipments.**

25) **The bidder should have done similar government contract worth INR.3 Crore (Rs.Three Crore only) over the past two years**

26) **Rates should be quoted online only on commercial Bid Format issued by the department and as per the requirement asked for. Rates quoted are for Medical Superintendent, Govt. Hospital, DAMAN**

27) **The tenderer may be called for a Sample / demonstration of the items quoted for which he/she/they will be informed one week in advance for arranging the necessary Sample / demonstration in the hospital on a suitable date & time failing which the tender will be rejected.**

28) **The tenderers should give the guaranty/warranty for the period of not less than one year (12 months) from the date of installation against any manufacturing defect.**

29) **AMC:- The rates of Annual Maintenance Contract (AMC) should be for the period of three years from the expiry of Guarantee /Warranty period of one year and should written separately in the financial bid year wise. The decision to accept the tender with or without AMC is reserved with the Purchase Committee.**

30) **As and when necessary, any employee of this institution shall be given training for the use of equipments by the supplier at their cost.**

31) **The successful tenderers should install and commissioning the hospital equipment at the site suggested by the office.**

32) **The tender document shall be duly signed by the supplier.**

33) **The Tenderer has to submit the authorization letter from the principal manufacturing company as per the format prescribed in Annexure I.**

34) **The successful tenderers shall be bound to provide training if any required without any extra charges during commissioning. The tenderers shall be bound to give assurance for undertaking the annual maintenance contract after the expiry of guarantee/warranty period.**

Signature & Designation of
Tender Inviting Officer…

Dr.B.R.Chand
Medical Superintendent,
Government Hospital,
DAMAN

The above terms and conditions are accepted and are binding to me/us.

Place: **Signature of tenderer**
Dated: **Name of tenderer with seal of the firm**

NOTE: **Please return One Copy of these terms and conditions duly signed with seal of firm along with the tender.**

Place: **Signature of tenderer**
Dated: **Name of tenderer with seal of the firm**

ANNEXURE - I

To,
Medical Superintendent,
Government Hospital,
Daman

Respected Sir,

We hereby declare that **M/s. …….** is our authorized distributor for our products in India from date and they are authorized to quote and follow up on our behalf and the said agreement is valid in force as on date;.

2. I/We undertake to supply the Modular OT/Equipment and Oxygen pipe line for which the quotations of following items are submitted by on our behalf in respect of Tender Enquiry No.

Sr. No.	**Item No.**	**Name of Item**
01.		
02.		
03.		

3. I / We have read all the terms and conditions of the tender enquiry and the same are irrevocably binding upon us till the expiry of the contract signed & executed on our behalf;

4. I/We shall notify the Medical Superintendent, Government Hospital, Daman immediately if there is any change in the agreement between ***M/s.*** and us regarding authorized distributorship of our products and further undertake to supply the items quoted by the distributor on our behalf at the quoted in the tender enquiry in case of such a change of agreement.

5. This authority is applicable only for Tender Enquiry of Medical Superintendent, Government Hospital, Daman Annual E Tender for Year 2012-13

Date:-

Signature of Authorized Signatory

U.T.ADMINISTRATION OF DAMAN AND DIU
OFFICE OF THE MEDICAL SUPERINTENDENT'
GOVERNMENT HOSPITAL, DAMAN

NO.GHD/E-TENDER/2012-2013/1217 ***DATED:- 27.12.2012***

TECHNICAL BID FOR O.T. NO. A

Sr. No.	Description	
1	**WALL SURFACES:-** The main requirements for any Operation theatre wall system are that they should be impact resistant, show resistance to solvents & chemicals, prevent colonising of micro-organisms or neutralise micro-organisms which come into contact with the wall surface. The surfaces should be stable – prevent cracking and movement, scrub able – amenable to cleaning & have a completely sealed finish, Biological attack resistance & have hygiene finish & lastly have Hydrothermal performance. • All wall mounted equipment should be flush-mounted and sealed into theatre wall by means of durable sterile jointing system. • The wall panel design and construction should allow for the installation and support of all equipment's with provision of openings required for repair and maintenance without affecting rigidity and strength. In case require, one should be able to easily remove the wall panel for service requirements. • The total distance between the inside and outside surfaces of the theatre should vary to suit the architect's layout; however the composite wall thicknesses should be 100mm or less. • The cavity between the inner and outer walls should be left with minimum obstructions for the possible addition of equipment at a later date and to enable services, pipes, conduits etc, to be run within the cavity. • The Sterile coating is water resistant, does not support bacteriological or fungicidal growth and is resistant to most chemicals commonly used in hospital departments. It should neutralise micro- organisms which come into contact and should prevent colonising or sporing of micro-organisms. • The sterile coating shows resistance to a wide range of mixed species, including stubborn pathogens such as MRSA, Acinetobacter sp, Aerobacter aerogenes, Bacillus subtitles, Escherichia coli, Listeria monocytogenes, Pseudomonas aeruginosa, Pseudomonas putida, Salmonella typimurium, Serratia marcescens, Staphylococcus Aureus. • The sterile coating should remain unaffected by radiation, its anti-microbial system should not leach out & its anti-microbial properties should last for a minimum of 10 years. • The sterile coating system should be easily maintained and should withstand repeated cleaning with alkaline detergents, antiseptics and fumigation agents without any degradation to the surface finish or performance. • Conform to standards HTM 08-01 / HTM 56	SQ. Mtr.

2	**WALL & CEILING PANELLING:** The Pre-fabricated operating room should be free standing structure, constructed from composite, free standing insulated steel wall panels. These panels should be produced in a double band laminator, in which two continuously moving belts of Stainless Steel 304 sheets of 0.80mm thickness are firmly bonded together by the sprayed in insulating foam, which hardens during this process. All panels should have a fifteen year de-lamination warranty. The core should consist of rigid polyurethane foam, which has been injected under high pressure, with a minimum density of 40 kg / m3. The walls should be modular in construction, consisting of 1180 mm, 875 mm, 570 mm and 265 mm wide panels, together with corner panels 200 x 200 mm to achieve the desired false ceiling height. The thickness of the complete panel, including the core should be a minimum of 60 mm. Conform with respective certificate copy duly attached herewith having clearly mentioning of above, The modular wall panels are installed upon floor using a “U” channel. Each Pre-Fabricated Operating Room may optionally include sloping ceiling panels at an angle of 45 degrees from the straight wall panel edge. This options reduces the overall volume of the room, decreasing the running costs for air- conditioning and ventilation, while at the same time maintaining the necessary height at the center of the room for the installation of ceiling mounted equipment’s. The inner surface of the operating theatre should be seamless, free from visible joints and sharp edges. All internal corners and panel joints should be filled with proper Epoxy filler, Sanded flush or radiused on site, ready to receive the sterile plastic finish. All panel joints should be invisible when the final plastic coating is applied. All wall-mounted equipment should be flush mounted and sealed into theatre wall by means of a sterile jointing system. The wall panel design and construction should allow for the installation and support of all equipment and the provision for openings required for the installations, without affecting the rigidity and strength. The internal surfaces of the theatre walls and ceiling should be sprayed with water based, non-reflective liquid plastic, to a color approved by the architect, to a minimum dry film thickness of 60 microns. The plastic coating should overlap the floor covering, ceiling system and door frames by 25 mm to provide a continuous sealed surface. The sterile coating applied to a thickness of 60 microns of the already applied primer coating on the panels inner surface, should be water resistant, does not support bacteriological or fungicidal growth and should be resistant to most chemicals commonly used in hospital departments. The sterile coating should remain unaffected by radiation and other ionizing radiation at levels in excess of 1,000 mrad and should be classified to class 1 when tested in accordance with the requirements as specified under BS:476:part 7 ;1971, surface spread of flame test for materials. The coating should be SILVER Ion based. The coating system should be easily maintainable and should be able to withstand repeated cleaning with alkaline detergents, antiseptics and fumigation agents without any degradation to the surface finish or performance.	SQ. MTRS

	The thickness of the wall panels should be a minimum of 10mm and mounted on the existing Wall structure using the necessary steel frame work. The Wall panels should be easily removable for catering to service related needs. **Electrical Components** Each modular panel should contain separate cable pathways for the routing of electrical services and a variety of openings and rear enclosures for the fixing of electrical components. Cable sizes for power sockets, earth and potential equalization wiring should be provided according to the specific requirements of the site. Separation of LV & ELV Supplies to BS7971, conforming to HTM 06-01 & HTM 06-02 standards. **Communication Components** Each modular panel should contain separate cable pathways for the routing of communication services and a variety of openings and rear enclosures for the fixing of components. Internal wiring is executed according to the existing valid standards, running in a separated cable pathway up to an integrated services connection point. **Mechanical Components** Medical gas outlets are connected to the wall panels from pipes running within. Piping for medical gases is segregated by means of a separate duct within the modular panel; the piping used will be medical grade copper tube according to EN737-3. The modular panel is delivered in a pre-piped configuration, including the CE-marked medical gas outlets of which all common brand types are available.	
3	**ESD VINYL FLOORING** The flooring should conform to standards DIN EN 1081, DIN EN 1815 , EN 12466, EN 425, EN 423 & EN 433. It should be fire resistant, scratch resistant, chemical resistant & resistance to fungi – bacterial growth. Vinyl is the oldest effective ESD flooring material. Solid vinyl tile (SVT) can give a facility that hospital look of cleanliness and shine. Facilities managers often favor vinyl floor because vinyl has a reputation for being inexpensive, simple to repair and easy to clean. The joints between individual tiles are to be welded by heat fusion process to get a seamless floor. The PVC welding bar should of the same matching color as that of the tile and a hot air gun is used for fusion of welding bar with flooring tile. Conductive flooring to be installed within the OT area to prevent damage to sensitive medical electronic equipment's, inadvertent movement of surgeons / technicians, accumulation of static dirt. Maintenance should be simple such as each individual tile can be replaced in very short down-time. The conductive flooring should ensure: • The protection of Electronic equipment and components • The protection of people against electro-static discharge risks • The protection of premises against explosive risks. The Conductive tiles should be static – conductive, flexible, homogenous vinyl floor covering with an electrical resistance of $5 \times 104 \leq Rt \leq 106$ (EN 1081). The Conductive flooring should have the following characteristics: • Low accumulation of electrostatic charges to people & Equipment. • Should provide an enduring resistance to static and dynamic loads • Should display excellent resistance to chemical products such as detergents, acids and alkaline products. • Low VOC emissions. • Should have Fungistatic and bactreostatic treatment throughout the total thickness of flooring. • It should be non-absorbent, impervious and non-porus.	SQ. Mtrs

4	**IMPORTED PLANAIR VENTILATION CEILING / PLENUM / AIR & LIGHT DIFFUSER / LAMINAR FLOW – CONFORMING TO STANDARD HTM 03-01 & HTM 60** The Planair ceiling ventilation system should dilute the bacteria generated by the operating team and patient in the theatre and to create an Air flow pattern that carries contaminated air away from the operating table & entering surgical wounds. It should be designed such that filtered, sterile air flows through the operating zone without an admixture of indoor air. The germs and aerosols released by occupants are displaced into adjacent room zone and removed with the exhaust air. The main components that the Laminar flow should be having is a rectangular air outlet housing with air outlet frame and air discharge element on the underside and two housings on the top side each with a built in HEPA filter. The air discharge element should be a fine - meshed fabric for laminar displacement flow. The air discharge element should be split with a feed through for the Surgical light. The element should be removable or can be folded downwards for easy accessibility to the housing interior for cleaning and disinfection. It should be also easily accessible to the HEPA filters which can be easily replaced when required to do so. The complete Laminar flow system should be Pre-manufactured and pre-assembled unit, modular in design, having connection box and filter frame. The construction should consist of four units' modular in design with filter frames and variable connection hoods for the supply air, The air discharge element should be made of fine-mesh laminar fabric (polyester) with a surrounding stainless steel frame. The air outlet housing should be made of stainless steel and the filter housing of powder coated steel sheet. The Laminar air distribution element should be modular in design, divided into four parts with a minimum number of bars, individually foldable, covered with monofilament polyamide from one side, fixed without screws. It should have a connection for differential pressure measurement. The Laminar flow should be of following characteristics: 1) Planair Pleanum Size : 2800mm x 2800mm with 4000CFM capacity Laminar Air Flow 2) Planair Pleanum Size : 1800mm x 1800mm with 2000CFM capacity Laminar Air Flow The system should be certified according to DIN 1946-4 (12-2008), tested to DIN 4799, having horizontally arranged terminal HEPA filters of H 14 type with grip protection on both sides; filter exchange from pure air side, filter tested and certified according to DIN EN 1822-1.	Set
5	**DOOR AND FRAME**	
	Hermetically Sealed Sliding Door – Automated • Automated operated hermetically sealing sliding main door on OT, of appropriate size, 2100mm (H) X 1000 (W) and 2100mm (H) X 1500 (W) • Having a track system wherein the door blade is guided under a 45° angle with approximately 6mm deep indentations at the closed position. • Having a special inside & outside Stainless Steel lever handle that lifts out the door blade from its hermetic closing position, thus allowing even very heavy doors to be opened effortlessly, manually. • Encased within an extruded anodized 2.5 mm thick aluminum profile frame all around the door blade with solid high pressure laminate on both sides. • Should have special nylon top rollers with double roller bearings, to enable the door to slide smoothly & silently. • The door blade to have a special 3-tier specially designed 3 side heavy duty replaceable EPDM gasket, for the hermetic sealing on the wall	Set

	frame. The bottom sealing should be with a 2-tier heavy duty EPDM gasket to flush with the finished floor. • The door core should be 60 mm thick, built up with 4 mm thick HPL (High pressure compact laminate) skin on both sides of the door to provide better strength and rigidity. Having between the two sides of laminates – CFC free, high density polyurethane puff (density 40 Kg / m3), thickness 52mm. • Vision panels - double glazed, laminated safety glass, flush finished on both sides with door blade should be provided in the doors. • The automation controller for the door should be microprocessor based with regulated electro-mechanical sliding door drive. • The automation should be able to operate a door with maximum door weight of 250Kg. • The wall frame should be high grade aluminum extrusion with natural anodized 15 micron finish wall frame profile. The wall frame profile should be 3 sided blind fixed with cladding on wall cut-out section from inside and outside of the room. • The automation should have variable / adjustable opening & closing speeds, with opening speed adjustable between 120mm / sec --- 800mm / sec and the closing speed adjustable between 120mm / sec ---- 500mm / sec. • The automation / door can be controlled/operated using either push-button switch, Kick switch or Sensor (touch less – infra-red) switches OR all in combination.	
6	**Double Leaf SS Door** Double Leaf Stainless Steel Door Single Side Open Flush Door with 49mm thickness of both door leafs, having size of 1800mm x 2100mm with view window of 300mm x 300mm duly complete with clean view glass, The Door should be having .8mm thick SS304 sheet on both faces while door core should be of PU, The Door should be hinge mounted and should complete with all necessary accessories i.e.Door closer, D type SS Door Handle etc.	SET
7	**7Single Leaf Stainless Steel Single Side Open Flush Door with 49mm thickness,** having size of 1000mm x 2100mm with view window of 300mm x 300mm duly complete with clean view glass, The Door should be having .8mm thick SS304 sheet on both faces while door core should be of PU, The Door should be hinge mounted and should complete with all necessary accessories i.e.Door closer, D type SS Door Handle etc.	SET
8	**WALL MOUNTED ITEMS:---** Imported Operation theatre control panel It should be a digital control panel consisting of a computer and a touch screen managed by a PLC. It should integrate all controls, signals and alarms of the operation theatre and offer several services addressed to the maintenance staff. The information management system should be managed by the programmable software – PLC and the visual and control parameters by the PC / Touch screen, IP64 protected, 15" (inches) in size. It should have a digital microphone and speakers, a 300K pixel camera, ambient light sensor and a wireless LAN 802.11 a Bluetooth V2.0. Following frequent used functions should be available **a) Controls:** ☐☐ General Light Switch control, 3 controls in number, having dimming facility ☐☐ Temperature and humidity display ☐☐ Operation theater status – occupied / free / cleaning ☐☐ Stopwatch control ☐☐ OT surgical light switch (depending upon the make ,model of the light)	Set

	b) Alarms: ☐☐ Electrical Alarm (visual & Acoustic) ☐☐ Gases Alarm repeater (Visual & Acoustic) ☐☐ UPS charging status **c) Communications:** ☐☐ Telephone / IP Telephone if line available ☐☐ Ethernet connection ☐☐ SMS Alarms ☐☐ Video – Conference facility d) Signals: ☐☐ Digital Inputs / Outputs: 14 Nos / 10 Nos. ☐☐ Analogue : (0-10V) Inputs / Outputs (2 Nos. / 1 Nos.	
9	**X-ray viewing screens (two plates)** • The theatre should be equipped with a twin plate X-Ray Viewing Screen, recessed in the wall and designed to provide a high level of control luminance, without flicker, from a unit that is easy to clean and maintain. • The X-Ray viewing screen illumination should be by LED lamps, controlled by dimming ballast. • The front panel diffuser is of a glare free type, sealed flush with the inside face of the operating theatre wall (or may as an option be integrated within the control panel fascia). • The LED lamps should provide a uniform level of illumination across the entire front panel. • Access for maintenance and lamp changing is from the front of the panel. • All internal wiring is terminated in connectors with screw and clamp spring connections. • Individual fuses or miniature circuit breakers protect all internal circuits. • All internal wiring is of high temperature resistance and secured by propriety cable clips It is flush mounted and sealed into theatre wall by means of a sterile jointing system.	EACH
10	**Equipment Storage Unit** • Equipment Storage Unit to be provided in operating theatre of dimensions approved by the user. • It should be flush mounted into the theatre wall with a sterile jointing system. • The cabinets should be made of Stainless Steel AISI 304 material. • Doors of cabinet should open right to left and made of clear safety glass. • It is suitably partitioned / shelved to allow storage of common endoscopic equipment's. • It has the facility of secure locking. • Conform to standard HTM 63	EACH
11	**Operating List - Writing Board** • It is flush mounted with a sterile jointing system, 1.50mm thick, white laminate board, bonded to a 2mm steel sheet for additional rigidity.	EACH
12	**Cascade Pressure Stabilizer** • Cascade pressure stabilizers should be a range of multi-bladed units specifically designed to control room air pressures in critical areas, such as operating theatre suites. • Each stabilizer should comprise of carbon steel housing with up to	EACH

	four Grade 304 Stainless steel blades, which pivot upon sealed for life bearing assemblies. • Balancing is carried out utilizing a proven balance weight assembly. • These stabilizers should be accurate to a range of 1 Pascal over their working range of 5-35Pa.	
13	**Hatch Box** A hatch should be provided to remove waste material from the operation theatre to dirty linen area just adjacent to the operation theatre. Each hatch should be equipped with two doors and the door should be operated electronically. The hatch should be designed in such a way that only one door should be opened at one time. The UV light should be so installed that it is kept on while both the doors are closed, this UV light should automatically turn "OFF" in case of opening of either of the doors. There shall be indicators on both sides of the OT such that door open / close status can be monitored from both ends.	EACH
14	**Clean-room illuminators** Lamp covered with translucent Plexiglas with high transmission level (higher than 80%), held in a frame of white shell sheet, with integrated screw angles for fastening the lights to the panel system. Including closed mounting frame for the built-in LED lamps; the connection between the illuminator and the ceiling hollow space should be completely airtight. Clean-installed light should non-hygroscopic and be of IP 54 grade. Dimensions should approximately be 600 x 300mm (length x width).	EACH
15	**Surgical Scrub Sink** The Surgical Scrub Sink should be made of Stainless Steel of grade AISI 304. It should be destined to be used for operating theatres, where high hygienic standards are to be maintained. It should be free standing sink with wall mounted possibility, having a depth of 300 mm. It should be two bay, having standard 2 x drain traps, water and soap dispensers activated by sensor, water and soap time adjustable, water thermostat – temperature adjustable and having chrome faucets. It should have open able front panel with two latches for maintenance purposes, having approximate dimensions of 1600 (L) x 635 (w) x 1271 (H) in mm.	EACH
16	**AHU - AIR HANDLING UNIT (DOUBLE SKIN TYPE)** **Type** The air-handling units are of double skin construction, draw-thru type comprising of various sections such as Pre-filter section, coil section, as shown on drawings and included in schedule of quantities. Unit must be able to work satisfactory in exposed atmosphere conditions. **Casing** Double skinned panels are fabricated with anodized extruded aluminum extrusion frame work bolted together with sandwich panel having powder coated 0.70 mm sheet for outer skin and plain GP 0.63 mm sheet for inner skin. 43 mm thick PUF insulation material is injected between the two panels (with U value no greater than 0. 85 W / m2/k) The entire frame duly painted is mounted on sheet steel channel based. The panels are sealed to the framework by heavy-duty 'O' ring gaskets held captive in the framed extrusion. All panels are detachable or hinged. Hinges are made of die cast aluminum with stainless steel pivots, handles are made of hard nylon and be operational from both inside and outside of the unit. All fixing and gaskets shall be concealed.	SET

Motor and Drive
Fan motors are highly efficient and work on 440 ± 10% volts, 50 cycles, three phase with explosion proof type with class F installation, with IP 55 protection. Motors are especially designed for quiet operation and motor speed does not exceed 1440 rpm. Drive to fan is provided through belt-drive arrangement. Belts are of the oil-resistant type.

Fan
Fan are of centrifugal type, conforming to AMCA 210 and are double width, double inlet with forward- inclined airfoil blades, specially designed and suitable for the required operating pressure. Fan casing are made from galvanized steel sheet. Fan shaft is grounded C 40 carbon steel and supported in self-aligning plumber block operating less than 75% of first critical speed, grease lubricated bearings.

Cooling Coils
DX coils have 12.5 to 15 mm dia tubes minimum 24G thick with sine wave aluminum fins firmly bonded to copper tubes assembled in zinc coated steel frame. Face and surfaces areas are such as to ensure rated capacity from each unit and such that the air velocity across the coil does not exceed
150 meters per minutes. Each coil is factory tested at 21-kg/m2 air pressures under water. Tube is

Hydraulically / mechanically expanded for minimum thermal contact resistance with fins. Fin spacing is 4 - 5 fins per cm.

Filters

Each unit is provided with a factory assembled filter section containing washable synthetic type air filters having anodized aluminum frame. The media is supported with HDP mesh. Filter banks are easily accessible and designed for easy withdrawal and renewal of filter cells. Filter banks face velocities do not exceed 100 m/minutes. Differential pressure switch is to be fixed across the filter as part of AHU's system.

Ducting

The duct supply system should be free of construction debris. Ducting shall be made of Aluminum with curves & bends where indicated for easy flow of air and ensured to be air tight by applying silicon sealant after fabrication. Hangers shall be provided to ducts & shall be suspended by means of G.I. coated rods & these shall not be more than 2.5mtrs apart. Thermal insulation with 9mm XPE for supply & return air ducts. Joints will be lapped with Nitrile rubber tape for better insulation.

Air Cooled Package Chiller / Condensing Units.

Compressor
The compressor shall be of screw, scroll / reciprocating type, hermitic, in accordance with ARI 520, direct driven with capacity control arrangement. The compressor casing shall be of cast iron and designed for 450 psig or higher. The compressor shall incorporate rolling element bearing to support rotating assembly. The rotor shall be higher steel alloy. We prefer the use of Copeland USA Compressors Hermetic Compressors.
Refrigerant circuit components shall include flexible pipe connectors, hot gas muffler, high side pressure switch, liquid line shut-off valves, suction and discharge shut-off valves, filter drier, moisture- indicating sight glass, electronic or thermostatic expansion valve (EXV), heavy duty pressure gauge with cocks to monitor suction, discharge and oil pressure and complete operating charge of refrigerant and compressor oil.

	Motor Compressor motor shall be of Hermetic / semi-hermetic direct drive, squirrel cage, two pole, induction type, refrigerant cooled motor suitable for 415V / 50 Hz. 3 phase supply. Hot gas motor cooling is not acceptable. We prefer the use of Copeland USA Compressors Hermetic Compressors. **Condenser** **Condenser shall be Air Cooled type.** Tubing shall be copper, Aluminum fins high efficiency type. Tubes shall be nominal 19mm. Outer diameter and thickness shall not be less than 22 g. and rolled into rube sheets and shall be individually replaceable and also tubes shall be coated with corrosion resistant coating. Condenser fans shall be direct coupled to motor and protected against overloading and with minimum **1.15 service factor.** Condenser shall design to allow isolating refrigerant charge when servicing the compressor. With maintain the above said technical specifications, The Air Handling Unit with Air Cooled Package Chiller / Condensing Units should have following capacity: 1) 17.5 tr with 5000CFM 2) 11 tr with 3500 CFM	
17	**Imported Ceiling Pendants** The idea of using ceiling mounts is such that they can be easily swiveled in place to have medical equipment or gases readily available for patient treatment or care. The benefits should translate to flexible positioning and optimal space utilization & in addition hygiene and safety advantages. In nutshell it should eliminate cable clutter and above all the unrestricted movement of all components in the space around the place of use. They should be CE marked / approved.	SET
18	**Surgical Pendant** The surgical arm shall be double arm, each arm length of 800mm length. The arm should be able to swivel around each joint by 330 degrees. It should be able to withhold a weight of not less than 150kg. The surgical pendant should have the following features: • Distributor heads / consoles should be modular of length 1100mm & capable of accepting a range of shelves (3 Nos.) and a drawer with a top shelf, each having weight carrying capacity of at least 30kg. • The distributor head should have 10 universal electrical sockets, 1 set of RJ45 / RJ11 connectors, have 2 * Infusion poles with 4 bottle holders. • Five medical gas outlet terminals: 1 * O_2 : 2 * Vac : 2 * Air (4 bar) OR 2 * CO_2: 1 * O_2 : 1* Vac : 1 * Air	SET
19	**Anesthesia pendant** The arm of pendant shall be single arm of length of 800 mm. The arm should be able to swivel around each joint by 330 degrees. It should be able to withhold a weight of not less than 150kg. The pendant should have the following features: • Distributor heads / consoles should be modular of length 800mm long approx. & capable of accepting a range of shelves (2 Nos.) and a drawer with a top shelf, each having weight carrying capacity of at	SET

	least 30kg. • The distributor head should have 8 universal electrical sockets, 1 set of RJ45 / RJ11 connectors, have 2 Infusion poles with 4 bottle holders. • Five medical gas outlet terminals: 2 * O_2 : 2 * N_2O : 1 * Air (4 bar) :1* Vac	
20	**<u>SPECIFICATIONS FOR ELECTRO HYDRAULIC TABLE</u>** ➢ Electro Hydraulic operated eight function remote control table up and down, trendelenbreg and reverse trendelenberg, right lateral, left lateral, backrest, up & down. ➢ Should be Remote control table with corded remote. ➢ Power supply should be 220 v, 5 amps and three pin plug point. ➢ Remote cord and main plug should come from head end of the table (i.e) from the bottom of the base, to facilitate the anesthetist ➢ Table should have 100mm central lock castors for longitudinal and lateral movements, the castors should be made of polyurethane and molded to prevent water and rust entering inside. ➢ Braking should be effective and should have a dead lock when broken; it should be on the head end side of the table, to facilitate the anesthetist, and one brake on the tail end for better stability. ➢ Leg bed should be two pieces right and left and should be detachable and abductable and also should move up & down. ➢ Table top should have five sections; it should be breakable into inverted v-shape from the head side. ➢ Trendelenberg and lateral mechanism should be concealed with bellows; column should be straight without any projection on right or left. ➢ Table column size should be 280mm x 280mm. ➢ Table should have provision to view spine ap and lateral c-arm. ➢ Polyurethane detachable cushion top should be provided on the table top. ➢ Base covers should be covered with impact, shock resistant, fire resistant and disinfectant free material. Base should be broader in the head end. ➢ The column casing, table top frame, traction bars and all accessories made of non-corrosive steel. The main column should be covered with non-corrosive stainless steel. ➢ Inbuilt battery back up should be provided. ➢ The table top should be reversible, the headrest attachments should fix to the tail side and the tail side attachment should fix to the head side. ➢ The table should have a provision to fix top leg traction attachment. ➢ The table should have manual pre sector for all positions. ➢ In case of electrical components failure, the table should be operated manually by mechanical pedaling for all positions. ➢ The table should be capable of taking off centered load from neck to toe should be screened in to C-Arm without any disturbance. ➢ Should be ISO 9001, ISO 13485 Approved. ➢ The entire vertebral column should be viewed without any hindrance. ➢ Patient sitting position, with Tendlenburg maximum should be possible. ➢ Minimum height 27” preferred. ➢ Should adapt Mayfield sugitha and Lyela retractor.	EACH
21	**Specifications of Ceiling mounted Dual dome LED OT Lights:** • Dual Dome Ceiling mount structure with use of multiple LEDs • Output Lux intensity of 1,20,000 Lux at 1 meter in one dome (size cm: 61x52x11) and 60,000 lux at 1 meter in another dome(size cm: 38x32x10) • Total Power consumption of less than or equal to 200 watts • Color temperature of the LED to be equal to daylight color temperature – 5500 k • Life of LED - 50,000 hours or more	EACH

	• Six motions in each arm to achieve all positions and angles • More than 1100 mm up-down movement for both Domes • All five rotary motions in each arm to have stopper less design for continuous rotation • Wide reach of more than 2 meters in all direction from center for both arms to cover majority of Operation room area • Wide operating voltage range from 90 v to 260 v to cover mains voltage fluctuations • User selectable intensity variation with digital display from 0 % to 100 %, individual for each dome • Digital Display of Life of LED used in hours for each dome • Quarter yoke sets in domes for easy handling • Availability of Direct battery operation option • Provision of Camera at the center of Main Dome • Sterilisable & detachable Plastic handle at the center of the each dome for focus adjustment • To have ISO 13485 & ISO 9001 certification • with German Spring Arm • Intensity variable from 0-100%	
22	**Specifications of Ceiling mounted Single dome LED OT Lights:** 1. Single Dome Ceiling mount structure with use of multiple LEDs 2. Output Lux intensity of 90,000 Lux at 1 meter in one dome (size cm: 61x52x11) 3. Total Power consumption of less than or equal to 90 watts 4. Color temperature of the LED to be equal to daylight color temperature – 5500 k 5. Life of LED - 50,000 hours or more 6. Six motions to achieve all positions and angles 7. More than 1100 mm up-down movement of dome 8. All five rotary motions to have stopper less design for continuous rotation 9. Wide reach of more than 2 meters in all direction from center to cover majority of Operation room area 10. Wide operating voltage range from 90 v to 260 v to cover mains voltage fluctuations 11. User selectable intensity variation with digital display from 0 % to 100 % 12. Digital Display of Life of LED used in hours 13. Quarter yoke sets in dome for easy handling 14. Availability of Direct battery operation option 15. Sterilisable & detachable Plastic handle at the center of the dome for focus adjustment 16. To have ISO 13485 & ISO 9001 certification 17. with German Spring Arm 18. Intensity variable from 0-100%	EACH
	<u>MEDICAL GAS PIPELINE</u>	
23	**OXYGEN MANIFOLD SYSTEM** 4 x4 gas manifold are extendable & non extendable type with choice of size of cylinders bank for bulk ‘d’ type jumbo cylinders, manifold is suitable to with stand a working pressure of 140kg/cm manifold have high pressure copper annealed tail pipes with one end having brass adapter suitable for cylinders. Manifold have brass non-return valves for individual cylinders (cylinders must be provides by the Govt. Hospital).	EACH
24	**OXYGEN MANIFOLD SYSTEM** 2 x2 cylinder emergency manifold with pressure reducing systems extendable & non extendable type with choice of size of cylinders bank for bulk ‘d’ type jumbo cylinders, manifold is suitable to with stand a working pressure of 140kg/cm manifold have high pressure copper annealed tail pipes with one	EACH

	end having brass adapter suitable for cylinders. Manifold have brass non-return valves for individual cylinders (cylinders must be provides by the Govt. Hospital).	
25	Automatic oxygen control panel (aluminum body) A) compact and fully automatic manifold control system for oxygen n2o and co2 B) designed with both safety and continuity of flow supply at a constant pressure via two banks f botted gas cylinders with following status monitoring C) a-bank in use (green indicator) D) B-bank ready for use (yellow indication) E) control panel has build in led display to indicate normal, low for line pressure F) the control panel includes pressure gauge (63mm) to indicate the gas pressure of each header ad pipe line distribution pressure G) capable to provide a distribution flow rate in excess of 1500 lpm H) the control panel incorporate safety puncture in case pressure excess 100 psi I) Oxygen Failure Alarm System with Indication	SET
26	**N2O MANIFOLD SYSTEM** 2 x 2 size manifold n2o complete with 4 pc tail pipes extendable & non extendable type with choice of size of cylinders bank for bulk 'd' type jumbo cylinders, manifold is suitable to with stand a working pressure of 140kg/cm manifold have high pressure copper annealed tail pipes with one end having brass adapter suitable for cylinders. Manifold have brass non-return valves for individual cylinders (cylinders must be provides by the Govt. Hospital).	EACH
27	**N2O MANIFOLD SYSTEM** 2 cylinder emergency point with pressure reducing systems extendable & non extendable type with choice of size of cylinders bank for bulk 'd' type jumbo cylinders, manifold is suitable to with stand a working pressure of 140kg/cm manifold have high pressure copper annealed tail pipes with one end having brass adapter suitable for cylinders. Manifold have brass non-return valves for individual cylinders (cylinders must be provides by the Govt. Hospital).	EACH
28	**Automatic n2o control panel (aluminum body)** A) compact and fully automatic manifold control system for oxygen n2o B) designed with both safety and continuity of flow supply at a constant pressure via two banks f botted gas cylinders with following status monitoring C) a-bank in use (green indicator) D) B-bank ready for use (yellow indication) E) control panel has build in led display to indicate normal, low for line pressure F)the control panel includes pressure gauge (63mm) to indicate the gas pressure of each header ad pipe line distribution pressure G) capable to provide a distribution flow rate in excess of 1500 lpm H) the control panel incorporate safety puncture in case pressure excess 100 psi I) N2O Failure Alarm System with Indication	SET

29

COMPRESSED AIR SYSTEM

Air compressed system Oil Free with (2 /24/28cfm) 7.5 hp head 7.5 hp motor mounted air receiver tank capacity , 1000liter complete and Lubricating Two stage air compressors

EACH

H.P.	No. of cyl.	Piston displacement		pressure		r.p.m.	Tank capacity in liter
		c.f.m	l.p.m.	Psi	Kg/cm2		
7.5	2	27	756	175	12	550	1000ltr

30

Medical air dryers with Absorber-Date, Process-Data, Filer Date, Electrical-Date Specification as under

SET

Guaranteed dew point performance
No cfc refrigerants
Desiccant immobilized to eliminate dusting
Design simplicity

30 A ***Purge saving control (optional)***

30 B ***Co & dewpoint monitor (optional)***

Flow cfm	End connection bsp	Dimensions (mm)			Weight Kgs
		H	W	D	
30	½”	810	1050	780	70

General Data

Product: Regenerative type Heatless Desiccant Dryer
Flow: 30 scfm
Operating pressure: 7 bar (g)
Design Pressure: 16 bar (g)
Max. Pressure drop: 0.3 bar
Inlet temperature: 45 deg C Max
End connection: ½” BSP F
Atmospheric dew point: - 40 deg C

3.2 Adsorber – Data

Adsorbant: Activated alumina
Size: 2 to 6 mm
Desiccant life: 1 year
No. of adsorber: 2 Nos.
Quantity of adsorbant: 3 Kg per Tower
Diameter of Adsorber: OD 101 mm
Straight head of adsorber: 515 mm
Thickness of Adsorber: 3 mm
Adsorber Shell: Aluminium IS 63400
Top & Bottom block : Aluminium IS 63400

Process –Data

Data/Component : Description
Cycle time : 4 min
Drying time per tower : 2 min
Regeneration time per tower : 1.5 min
Repressurising time per tower : 0.5 min

Filter Data

Pre filter:
Micron rating : 0.3 - 0.6 microns
Filtering media : Borosilicate fiber
Efficiency : 99.9 %
Utilities : Auto drain valve
After filter:

	Micron rating : 25 microns Filtering media : Sintered Bronze **Electrical – Data** Controller : Custom made Micro controller based system Input voltage : 85 – 265 V AC, 50 / 60 Hz., 20 Watts Max. Output : 2 Exhaust & 1 Drain valve 24 V / 8 Watts Solenoid coils Display : 3 LED indicating Drain, Tower 1 & Tower 2 Status Enclosure : IP 55 Protection, ABS plastic Connection : DIN 43650 Micro	
31	**VACUUM PUMP SYSTEM** **Technical specification:-** Bore & stroke 3" & 3" x 2 ¾" R.P.M. 960 P.D. 21.6 Max. working pressure (psig / kg / cm2) 29.6" barometer reading ar the sea level Vacuum tank (liters 500ltr) Motor HP required 2 Scope of supply - Suction air filter - Vacuum pump with v.sheave along with electrically mounted on the vacuum tank - Regulation : ASSC vacuum switch of standard co. make - Vacuum pump & motor pulley, v-belts belt guard, motor slide rail etc. - Vacuum pump with v. sheave along with electrical mounted on the vacuum tank - Motor of standard co. with ISI and ISo standard along with DOL starter of standard co. CE marked only	SET
32	**COPPER PIPING WITH REQUIRED** COPPER FITTINGS SIZE TO BE USED As per (BSEN) 13348 as per HTM-02..01 Copper and Copper alloys-Seamless round tube for a medical gases or vacuum, materials conforming to manufacturers as per BS:EN:13348:2001+A1:2005 Copper pipe of this European standard are suitable for distributing the following medical gases intended to be used at operating pressure up to 2000kpa and for system under vacuum * Oxygen, Nitrous Oxide, Nitrogen, Helium, Carbon Dioxide, Xenon * Air for Breathing * Specific mixture of these above mentioned gases * Air for Driving surgical tools * Anaesthetics gases and vaporous * Vacuum Mandatory Inspection Requirements: Chemical Composition Cehmical Composition of copper pipe shall conform to the following requirements. The analytical methods shall be carried out by Direct Emission Spectrometer. Copper + Silver: min. 99.90% Phosphorous : min. 0.015%, Max 0.040% 1) 35mm outer dia, 1.2mm thick 2) 28mm outer dia, 0.9mm thick. 3) 22mm outer dia 0.9mm thick. 4) 15mm outer dia 0.9mm thick. 5) 12mm outer dia 0.7mm thick.	Running Meter

33	**VALVE WITH VALVE BOX AND PRESSURE GAUGE** It will be wall mounted M.S. box with powder coated and lockable front glass panel having ball type valves with PTFE seat, brass body nickel plating valves having quarter turn handle opening size suitable for 12mm od copper pipe to 28 mm od copper pipe will have screwed ends will have brass adapters suitable for copper pipe, thevalve box door can not be closed during valve close position. These valves will be manufactured by an iso 9001 certified company. 1) 4 Services 2) 3 Services 3) 2 Services	SET
34	**FLOOR ISOLATION STANDARD VALVE (BALL VALVE WITH BRASS NUT & NIPPLE)** **35MM** **28MM** **22MM** **15MM**	Each
35	**AREA LINE PRESSURE ALARM** Area line pressure alarm upto 3 gases Area line pressure alarm upto 2 gases The medical gas alarms will have displays for various fault indications and capable of monitoring a maximum of 4 to 5 medical gas services by means pressure switches, Which detect deviations from the normal operating limits of either pressure or medical vacuum Each gas services will be displayed by colored normal low high pressure conditions. Medical vacuum systems will be displayed in the normal & low vacuum condition only Failure indicators will be displayed by flashing lights and normal indication will be study. An audible warning will sound simultaneously with any failure indication at a mute facility will be provided. A maintenance mute switch will be provided internally to the panel for use during maintenance, which results in prolonged pipeline or plant shutdown. This facility will automatically reset when the gas service returns to normal. The alarm panel will have a test facility to prove the integrity of the internal circuit, and microprocessor based electronic circuit led and audible warning The alarm is equipped with separate gauges for each gas for showing the pressure and it complies to htm 2022 standard.	Each
	OXYGEN GAS OUTLET	
36	**GAS OUTLET POINT** • Allows plugging of oxygen flowmwter & probes from front. • Bears weight of the metal BPC flowmeter & humidifier • Push to insert and press to release mechanism for flowmeter & probes • Locating terminal unit pin & probe notch gives maximum stability to the flowmeter unit • Non-interchangeability between Probes & terminal outlets for different services; possibility of error in making connection is avoided	Each
I	Front Loaded outlet point (Oxygen vaccum Air Nitrous)	Each
II	Front Loaded outlet point Probe Only (Oxygen Vacuum Air Nitrous)	Each
III	BPC Flow Meter	Each
IV	Humidifier Bottle	Each
V	Front Loaded Key use for Ventilator (Air , Oxygen)	Each

37	**Central ward suction ward Vacuum Unit (600ml, 1000ml, 2000ml) with Regulator** The system should be wall mounted type operated by central vacuum. It includes vacuum regulator range form 0-760mm hg. Use can vary negative pressure as per patient requirement. Vacuum gauge sizes 2" and 600ml capacity autoclavable plastic jars with overflow safety trap will be provided. Ward suction units should be provided with required high and low pressure tubing 600ml unit with	Set
38	Theatre suction trolly unit with regulator Theatre vacuum unit: - it will be trolley mounted. The unit will include one regulator having meter mounted in the trolley stand, having two re-usable each 2000ml plastic collections bottles mounted on base of trolley unit and connected with regulator and low pressure tube inter connections. The base of the trolley is fitted on castor wheel arrangement to move the system one place to another place easily.	Unit
39	High Pressure Tubing – 6mm I.D. Grey for Air Yellow for Vacuum Blue for Nitrous Oxide White for Oxygen	Per Mtr.
40	Low Pressure Tubing – 6mm I.D. Grey for Air Yellow for Vacuum Blue for Nitrous Oxide White for Oxygen	Per Mtr.
41	**ELECTRICAL CONTROL PANEL AIR** Electrical Control Panel Equipped for Duplex & Cascade system. For Compressor	Each
42	**ELECTRICAL CONTROL PANEL VACCUM** Electrical Control Panel Equipped for Duplex & Cascade system. For Vacuum Pump	Each
43	**Master Alarm for Plant** The medical gas alarms will have displays for various fault indications and capable of monitoring a maximum of 4 to 5 medical gas services by means pressure switches, Which detect deviations from the normal operating limits of either pressure or medical vacuum Each gas services will be displayed by colored normal low high pressure conditions. Medical vacuum systems will be displayed in the normal & low vacuum condition only Failure indicators will be displayed by flashing lights and normal indication will be study. An audible warning will sound simultaneously with any failure indication at a mute facility will be provided. A maintenance mute switch will be provided internally to the panel for use during maintenance, which results in prolonged pipeline or plant shutdown. This facility will automatically reset when the gas service returns to normal. The alarm panel will have a test facility to prove the integrity of the internal circuit, and microprocessor based electronic circuit led and audible warning The alarm is equipped with separate gauges for each gas for showing the pressure and it complies to htm 2022 standard.	Each

44	**ICU BED HEAD PANEL-5FEET** 1. The construction of the wall section is made of extruded aluminum 2. The extruded aluminum structural lower channel will include a vertical integrate equipment mounting track to support optical track mounted equipment. 3. Optional equipments like I,v, hook infusion pole utility basket, monitor tray etc. can be install into the track at any location along the extruded aluminum channel. 4. Gas outlets/ switch –socket/monitor socket/ nurse call system can be fitted on middle portion of the bed console unit after cutting the aluminum sheet as per hospital requirements. 5. Bed Head Panel for ICU 5 Feet Long made of High strength extruded Aluminum profile with powder coated with colour. Each Bed Head Panel have provision for O2-2., Vac-2, Air-4-1 and 5/15amp Switch socket 4nos with Optional Railing and IV Stand, Ward Vacuum and Infusion pump stand	SET
44-A	**Optional Equipments At Extra Cost**	
I	I.V. Hook	
II	Syringe Pump Pole	
III	Utility Basket	
IV	Monitor Tray	
V	Aluminum Channel (Railing)	
VI	Ward Vacuum Stand	
VII	Infusion Pump Stand	

U.T.ADMINISTRATION OF DAMAN AND DIU
OFFICE OF THE MEDICAL SUPERINTENDENT'
GOVERNMENT HOSPITAL, DAMAN

NO.GHD/E-TENDER/2012-2013/ ***DATED:- 27.12.2012***

FINANCIAL BID FOR O.T. NO. A

Sr. No.	Description		Qty.	Rate Each	Total Cost
1	WALL SURFACES:-	SQ. Mtr.			
2	WALL & CEILING PANELLING:	SQ. MTRS			
3	ESD VINYL FLOORING	SQ. Mtrs			
4	IMPORTED PLANAIR VENTILATION CEILING / PLENUM / AIR & LIGHT DIFFUSER / LAMINAR FLOW – CONFORMING TO STANDARD HTM 03-01 & HTM 6	Set			
5	DOOR AND FRAME				
	Hermetically Sealed Sliding Door – Automated	Set			
6	Double Leaf SS Door	SET			
7	Single Leaf Stainless Steel Single Side Open Flush Door with 49mm thickness,	SET			
8	WALL MOUNTED ITEMS:---	Set			
9	X-ray viewing screens (two plates)	Nos			
10	Equipment Storage Unit	Nos.			
11	Operating List - Writing Board	Nos.			
12	Cascade Pressure Stabilizer	Nos.			
13	Hatch Box	Nos.			
14	Clean-room illuminators	Nos.			
15	Surgical Scrub Sink	Nos.			
16	AHU - AIR HANDLING UNIT (DOUBLE SKIN TYPE)	LOT			
17	Imported Ceiling Pendants	SET			
18	Surgical Pendant	SET			
19	Anesthesia pendant	SET			
20	SPECIFICATIONS FOR ELECTRO HYDRAULIC TABLE	NOS.			
21	Specifications of Ceiling mounted Dual dome LED OT Lights:	NOS.			
22	Specifications of Ceiling mounted Single dome LED OT Lights:	NOS			
	MEDICAL GAS PIPELINE				
23	OXYGEN MANIFOLD SYSTEM 4 x4 gas manifold				
24	OXYGEN MANIFOLD SYSTEM 2 x2 cylinder emergency manifold				

25	Automatic oxygen control panel (aluminum body)	SET			
26	**N2O MANIFOLD SYSTEM** 2 x 2 size manifold N2O complete with 4 pc tail pipes				
27	**N2O MANIFOLD SYSTEM** 2 cylinder emergency point with pressure reducing systems				
28	**Automatic n2o control panel (aluminum body**	SET			
29	**COMPRESSED AIR SYSTEM**	Each			
30	**Medical air dryers with Absorber-Date, Process-Data, Filer Date, Electrical-Date Specification as under**	Each			
30.A	*Purge saving control (optional)*	Each			
30.B	*Co & dewpoint monitor (optional)*	Each			
31	**VACUUM PUMP SYSTEM**	SET			
32	**COPPER PIPING WITH REQUIRED**				
I	35mm outer dia, 1.2mm thick	R. Meter			
II	28mm outer dia, 0.9mm thick.	R. Meter			
III	22mm outer dia 0.9mm thick.	R. Meter			
IV	15mm outer dia 0.9mm thick.	R. Meter			
V	12mm outer dia 0.7mm thick.	R. Meter			
33	**VALVE WITH VALVE BOX AND PRESSURE GAUGE**				
I	4 services	Each			
II	3 services	Each			
III	2 services	Each			
34	**FLOOR ISOLATION STANDARD VALVE (BALL VALVE WITH BRASS NUT & NIPPLE)**				
I	35MM	Each			
II	28MM	Each			
III	**22MM**	Each			
IV	**15MM**	Each			
35	**AREA LINE PRESSURE ALARM**				
I	Area line pressure alarm upto 3 gases	Each			
II	Area line pressure alarm upto 2 gases	Each			
	OXYGEN GAS OUTLET				
36	**GAS OUTLET POINT**	Each			
I	Front Loaded outlet point (Oxygen vaccum Air Nitrous)	Each			
II	Front Loaded outlet point Probe Only (Oxygen Vacuum Air Nitrous)	Each			
III	BPC Flow Meter	Each			
IV	Humidifier Bottle	Each			
V	Front Loaded Key use for Ventilator (Air , Oxygen)	Each			
37	**Central ward suction ward Vaccum Unit with Regulator**				
I	600ml unit with regulator	Set			
II	1000ml unit with regulator	Set			
III	2000ml unit with regulator	Set			

38	Theatre suction trolly unit with regulator	Unit			
39	High Pressure Tubing – 6mm I.D.	Per Mtr.			
40	Low Pressure Tubing – 6mm I.D.	Per Mtr.			
41	ELECTRICAL CONTROL PANEL AIR	Each			
42	ELECTRICAL CONTROL PANEL VACCUM	Each			
43	Master Alarm for Plant	Each			
44	ICU BED HEAD PANEL-5FEET	SET			
44-A	Optional Equipments At Extra Cost				
I	I.V. Hook	Each			
II	Syringe Pump Pole	Each			
III	Utility Basket	Each			
IV	Monitor Tray	Each			
V	Aluminum Channel (Railing)	Each			
VI	Ward Vacuum Stand	Each			
VII	Infusion Pump Stand	Each			

The annual maintenance Contract (AMC) of for the period of three years from the expiry of Guarantee /Warranty period of one year

1	O.T. No. A	First year		
		Second Year		
		Third Year		
		Total		

U..T.ADMINISTRATION OF DAMAN AND DIU
OFFICE OF THE MEDICAL SUPERINTENDENT'
GOVERNMENT HOSPITAL, DAMAN

NO.GHD/E-TENDER/2012-2013/ ***DATED:- 27.12.2012***

TECHNICAL BID FOR O.T. NO. B

Sr. No.	Description	
1	**WALL SURFACES:-** The main requirements for any Operation theatre wall system are that they should be impact resistant, show resistance to solvents & chemicals, prevent colonising of micro-organisms or neutralise micro-organisms which come into contact with the wall surface. The surfaces should be stable – prevent cracking and movement, scrub able – amenable to cleaning & have a completely sealed finish, Biological attack resistance & have hygiene finish & lastly have Hydrothermal performance. • All wall mounted equipment should be flush-mounted and sealed into theatre wall by means of durable sterile jointing system. • The wall panel design and construction should allow for the installation and support of all equipment's with provision of openings required for repair and maintenance without affecting rigidity and strength. In case require, one should be able to easily remove the wall panel for service requirements. • The total distance between the inside and outside surfaces of the theatre should vary to suit the architect's layout; however the composite wall thicknesses should be 100mm or less. • The cavity between the inner and outer walls should be left with minimum obstructions for the possible addition of equipment at a later date and to enable services, pipes, conduits etc, to be run within the cavity. • The Sterile coating is water resistant, does not support bacteriological or fungicidal growth and is resistant to most chemicals commonly used in hospital departments. It should neutralise micro- organisms which come into contact and should prevent colonising or sporing of micro-organisms. • The sterile coating shows resistance to a wide range of mixed species, including stubborn pathogens such as MRSA, Acinetobacter sp, Aerobacter aerogenes, Bacillus subtitles, Escherichia coli, Listeria monocytogenes, Pseudomonas aeruginosa, Pseudomonas putida, Salmonella typimurium, Serratia marcescens, Staphylococcus Aureus. • The sterile coating should remain unaffected by radiation, its anti-microbial system should not leach out & its anti-microbial properties should last for a minimum of 10 years. • The sterile coating system should be easily maintained and should withstand repeated cleaning with alkaline detergents, antiseptics and fumigation agents without any degradation to the surface finish or performance. • Conform to standards HTM 08-01 / HTM 56	SQ. Mtr.

2	**WALL & CEILING PANELLING:** The Pre-fabricated operating room should be free standing structure, constructed from composite, free standing insulated steel wall panels. These panels should be produced in a double band laminator, in which two continuously moving belts of Stainless Steel 304 sheets of 0.80mm thickness are firmly bonded together by the sprayed in insulating foam, which hardens during this process. All panels should have a fifteen year de-lamination warranty. The core should consist of rigid polyurethane foam, which has been injected under high pressure, with a minimum density of 40 kg / m3. The walls should be modular in construction, consisting of 1180 mm, 875 mm, 570 mm and 265 mm wide panels, together with corner panels 200 x 200 mm to achieve the desired false ceiling height. The thickness of the complete panel, including the core should be a minimum of 60 mm. Conform with respective certificate copy duly attached herewith having clearly mentioning of above, The modular wall panels are installed upon floor using a “U” channel. Each Pre-Fabricated Operating Room may optionally include sloping ceiling panels at an angle of 45 degrees from the straight wall panel edge. This options reduces the overall volume of the room, decreasing the running costs for air- conditioning and ventilation, while at the same time maintaining the necessary height at the center of the room for the installation of ceiling mounted equipment’s. The inner surface of the operating theatre should be seamless, free from visible joints and sharp edges. All internal corners and panel joints should be filled with proper Epoxy filler, Sanded flush or radiused on site, ready to receive the sterile plastic finish. All panel joints should be invisible when the final plastic coating is applied. All wall-mounted equipment should be flush mounted and sealed into theatre wall by means of a sterile jointing system. The wall panel design and construction should allow for the installation and support of all equipment and the provision for openings required for the installations, without affecting the rigidity and strength. The internal surfaces of the theatre walls and ceiling should be sprayed with water based, non-reflective liquid plastic, to a color approved by the architect, to a minimum dry film thickness of 60 microns. The plastic coating should overlap the floor covering, ceiling system and door frames by 25 mm to provide a continuous sealed surface. The sterile coating applied to a thickness of 60 microns of the already applied primer coating on the panels inner surface, should be water resistant, does not support bacteriological or fungicidal growth and should be resistant to most chemicals commonly used in hospital departments. The sterile coating should remain unaffected by radiation and other ionizing radiation at levels in excess of 1,000 mrad and should be classified to class 1 when tested in accordance with the requirements as specified under BS:476:part 7 ;1971, surface spread of flame test for materials. The coating should be SILVER Ion based. The coating system should be easily maintainable and should be able to withstand repeated cleaning with alkaline detergents, antiseptics and fumigation agents without any degradation to the surface finish or performance.	SQ. MTRS

	The thickness of the wall panels should be a minimum of 10mm and mounted on the existing Wall structure using the necessary steel frame work. The Wall panels should be easily removable for catering to service related needs. **Electrical Components** Each modular panel should contain separate cable pathways for the routing of electrical services and a variety of openings and rear enclosures for the fixing of electrical components. Cable sizes for power sockets, earth and potential equalization wiring should be provided according to the specific requirements of the site. Separation of LV & ELV Supplies to BS7971, conforming to HTM 06-01 & HTM 06-02 standards. **Communication Components** Each modular panel should contain separate cable pathways for the routing of communication services and a variety of openings and rear enclosures for the fixing of components. Internal wiring is executed according to the existing valid standards, running in a separated cable pathway up to an integrated services connection point. **Mechanical Components** Medical gas outlets are connected to the wall panels from pipes running within. Piping for medical gases is segregated by means of a separate duct within the modular panel; the piping used will be medical grade copper tube according to EN737-3. The modular panel is delivered in a pre-piped configuration, including the CE-marked medical gas outlets of which all common brand types are available.	
3	**ESD VINYL FLOORING** The flooring should conform to standards DIN EN 1081, DIN EN 1815 , EN 12466, EN 425, EN 423 & EN 433. It should be fire resistant, scratch resistant, chemical resistant & resistance to fungi – bacterial growth. Vinyl is the oldest effective ESD flooring material. Solid vinyl tile (SVT) can give a facility that hospital look of cleanliness and shine. Facilities managers often favor vinyl floor because vinyl has a reputation for being inexpensive, simple to repair and easy to clean. The joints between individual tiles are to be welded by heat fusion process to get a seamless floor. The PVC welding bar should of the same matching color as that of the tile and a hot air gun is used for fusion of welding bar with flooring tile. Conductive flooring to be installed within the OT area to prevent damage to sensitive medical electronic equipment's, inadvertent movement of surgeons / technicians, accumulation of static dirt. Maintenance should be simple such as each individual tile can be replaced in very short down-time. The conductive flooring should ensure: • The protection of Electronic equipment and components • The protection of people against electro-static discharge risks • The protection of premises against explosive risks. The Conductive tiles should be static – conductive, flexible, homogenous vinyl floor covering with an electrical resistance of $5 \times 104 \leq Rt \leq 106$ (EN 1081). The Conductive flooring should have the following characteristics: • Low accumulation of electrostatic charges to people & Equipment. • Should provide an enduring resistance to static and dynamic loads • Should display excellent resistance to chemical products such as detergents, acids and alkaline products. • Low VOC emissions. • Should have Fungistatic and bactreostatic treatment throughout the total thickness of flooring. • It should be non-absorbent, impervious and non-porus.	SQ. Mtrs

4	**IMPORTED PLANAIR VENTILATION CEILING / PLENUM / AIR & LIGHT DIFFUSER / LAMINAR FLOW – CONFORMING TO STANDARD HTM 03-01 & HTM 60** The Planair ceiling ventilation system should dilute the bacteria generated by the operating team and patient in the theatre and to create an Air flow pattern that carries contaminated air away from the operating table & entering surgical wounds. It should be designed such that filtered, sterile air flows through the operating zone without an admixture of indoor air. The germs and aerosols released by occupants are displaced into adjacent room zone and removed with the exhaust air. The main components that the Laminar flow should be having is a rectangular air outlet housing with air outlet frame and air discharge element on the underside and two housings on the top side each with a built in HEPA filter. The air discharge element should be a fine - meshed fabric for laminar displacement flow. The air discharge element should be split with a feed through for the Surgical light. The element should be removable or can be folded downwards for easy accessibility to the housing interior for cleaning and disinfection. It should be also easily accessible to the HEPA filters which can be easily replaced when required to do so. The complete Laminar flow system should be Pre-manufactured and pre-assembled unit, modular in design, having connection box and filter frame. The construction should consist of four units' modular in design with filter frames and variable connection hoods for the supply air, The air discharge element should be made of fine-mesh laminar fabric (polyester) with a surrounding stainless steel frame. The air outlet housing should be made of stainless steel and the filter housing of powder coated steel sheet. The Laminar air distribution element should be modular in design, divided into four parts with a minimum number of bars, individually foldable, covered with monofilament polyamide from one side, fixed without screws. It should have a connection for differential pressure measurement. The Laminar flow should be of following characteristics: 1) Planair Pleanum Size : 2800mm x 2800mm with 4000CFM capacity Laminar Air Flow 2) Planair Pleanum Size : 1800mm x 1800mm with 2000CFM capacity Laminar Air Flow The system should be certified according to DIN 1946-4 (12-2008), tested to DIN 4799, having horizontally arranged terminal HEPA filters of H 14 type with grip protection on both sides; filter exchange from pure air side, filter tested and certified according to DIN EN 1822-1.	Set
5	**DOOR AND FRAME**	
	Hermetically Sealed Sliding Door – Automated • Automated operated hermetically sealing sliding main door on OT, of appropriate size, 2100mm (H) X 1000 (W) and 2100mm (H) X 1500 (W) • Having a track system wherein the door blade is guided under a 45° angle with approximately 6mm deep indentations at the closed position. • Having a special inside & outside Stainless Steel lever handle that lifts out the door blade from its hermetic closing position, thus allowing even very heavy doors to be opened effortlessly, manually. • Encased within an extruded anodized 2.5 mm thick aluminum profile frame all around the door blade with solid high pressure laminate on both sides. • Should have special nylon top rollers with double roller bearings, to enable the door to slide smoothly & silently. • The door blade to have a special 3-tier specially designed 3 side heavy duty replaceable EPDM gasket, for the hermetic sealing on the wall	Set

	frame. The bottom sealing should be with a 2-tier heavy duty EPDM gasket to flush with the finished floor. • The door core should be 60 mm thick, built up with 4 mm thick HPL (High pressure compact laminate) skin on both sides of the door to provide better strength and rigidity. Having between the two sides of laminates – CFC free, high density polyurethane puff (density 40 Kg / m3), thickness 52mm. • Vision panels - double glazed, laminated safety glass, flush finished on both sides with door blade should be provided in the doors. • The automation controller for the door should be microprocessor based with regulated electro-mechanical sliding door drive. • The automation should be able to operate a door with maximum door weight of 250Kg. • The wall frame should be high grade aluminum extrusion with natural anodized 15 micron finish wall frame profile. The wall frame profile should be 3 sided blind fixed with cladding on wall cut-out section from inside and outside of the room. • The automation should have variable / adjustable opening & closing speeds, with opening speed adjustable between 120mm / sec --- 800mm / sec and the closing speed adjustable between 120mm / sec ---- 500mm / sec. • The automation / door can be controlled/operated using either push-button switch, Kick switch or Sensor (touch less – infra-red) switches OR all in combination.	
6	**Double Leaf SS Door** Double Leaf Stainless Steel Door Single Side Open Flush Door with 49mm thickness of both door leafs, having size of 1800mm x 2100mm with view window of 300mm x 300mm duly complete with clean view glass, The Door should be having .8mm thick SS304 sheet on both faces while door core should be of PU, The Door should be hinge mounted and should complete with all necessary accessories i.e.Door closer, D type SS Door Handle etc.	SET
7	**Single Leaf Stainless Steel Single Side Open Flush Door with 49mm thickness,** having size of 1000mm x 2100mm with view window of 300mm x 300mm duly complete with clean view glass, The Door should be having .8mm thick SS304 sheet on both faces while door core should be of PU, The Door should be hinge mounted and should complete with all necessary accessories i.e.Door closer, D type SS Door Handle etc.	SET
8	**WALL MOUNTED ITEMS:---** Imported Operation theatre control panel It should be a digital control panel consisting of a computer and a touch screen managed by a PLC. It should integrate all controls, signals and alarms of the operation theatre and offer several services addressed to the maintenance staff. The information management system should be managed by the programmable software – PLC and the visual and control parameters by the PC / Touch screen, IP64 protected, 15" (inches) in size. It should have a digital microphone and speakers, a 300K pixel camera, ambient light sensor and a wireless LAN 802.11 a Bluetooth V2.0. Following frequent used functions should be available **a) Controls:** □□ General Light Switch control, 3 controls in number, having dimming facility □□ Temperature and humidity display □□ Operation theater status – occupied / free / cleaning □□ Stopwatch control □□ OT surgical light switch (depending upon the make ,model of the light)	Set

	b) Alarms: ☐☐ Electrical Alarm (visual & Acoustic) ☐☐ Gases Alarm repeater (Visual & Acoustic) ☐☐ UPS charging status **c) Communications:** ☐☐ Telephone / IP Telephone if line available ☐☐ Ethernet connection ☐☐ SMS Alarms ☐☐ Video- Conference facility d) Signals: ☐☐ Digital Inputs / Outputs: 14 Nos / 10 Nos. ☐☐ Analogue : (0-10V) Inputs / Outputs (2 Nos. / 1 Nos.	
9	**X-ray viewing screens (two plates)** • The theatre should be equipped with a twin plate X-Ray Viewing Screen, recessed in the wall and designed to provide a high level of control luminance, without flicker, from a unit that is easy to clean and maintain. • The X-Ray viewing screen illumination should be by LED lamps, controlled by dimming ballast. • The front panel diffuser is of a glare free type, sealed flush with the inside face of the operating theatre wall (or may as an option be integrated within the control panel fascia). • The LED lamps should provide a uniform level of illumination across the entire front panel. • Access for maintenance and lamp changing is from the front of the panel. • All internal wiring is terminated in connectors with screw and clamp spring connections. • Individual fuses or miniature circuit breakers protect all internal circuits. • All internal wiring is of high temperature resistance and secured by propriety cable clips It is flush mounted and sealed into theatre wall by means of a sterile jointing system.	EACH
10	**Equipment Storage Unit** • Equipment Storage Unit to be provided in operating theatre of dimensions approved by the user. • It should be flush mounted into the theatre wall with a sterile jointing system. • The cabinets should be made of Stainless Steel AISI 304 material. • Doors of cabinet should open right to left and made of clear safety glass. • It is suitably partitioned / shelved to allow storage of common endoscopic equipment's. • It has the facility of secure locking. • Conform to standard HTM 63	EACH
11	**Operating List - Writing Board** • It is flush mounted with a sterile jointing system, 1.50mm thick, white laminate board, bonded to a 2mm steel sheet for additional rigidity.	EACH

12	**Cascade Pressure Stabilizer** • Cascade pressure stabilizers should be a range of multi-bladed units specifically designed to control room air pressures in critical areas, such as operating theatre suites. • Each stabilizer should comprise of carbon steel housing with up to four Grade 304 Stainless steel blades, which pivot upon sealed for life bearing assemblies. • Balancing is carried out utilizing a proven balance weight assembly. • These stabilizers should be accurate to a range of 1 Pascal over their working range of 5-35Pa.	EACH
13	**Hatch Box** A hatch should be provided to remove waste material from the operation theatre to dirty linen area just adjacent to the operation theatre. Each hatch should be equipped with two doors and the door should be operated electronically. The hatch should be designed in such a way that only one door should be opened at one time. The UV light should be so installed that it is kept on while both the doors are closed, this UV light should automatically turn "OFF" in case of opening of either of the doors. There shall be indicators on both sides of the OT such that door open / close status can be monitored from both ends.	EACH
14	**Clean-room illuminators** Lamp covered with translucent Plexiglas with high transmission level (higher than 80%), held in a frame of white shell sheet, with integrated screw angles for fastening the lights to the panel system. Including closed mounting frame for the built-in LED lamps; the connection between the illuminator and the ceiling hollow space should be completely airtight. Clean-installed light should non-hygroscopic and be of IP 54 grade. Dimensions should approximately be 600 x 300mm (length x width).	EACH
15	**Surgical Scrub Sink** The Surgical Scrub Sink should be made of Stainless Steel of grade AISI 304. It should be destined to be used for operating theatres, where high hygienic standards are to be maintained. It should be free standing sink with wall mounted possibility, having a depth of 300 mm. It should be two bay, having standard 2 x drain traps, water and soap dispensers activated by sensor, water and soap time adjustable, water thermostat – temperature adjustable and having chrome faucets. It should have open able front panel with two latches for maintenance purposes, having approximate dimensions of 1600 (L) x 635 (w) x 1271 (H) in mm.	EACH
16	**AHU - AIR HANDLING UNIT (DOUBLE SKIN TYPE)** **Type** The air-handling units are of double skin construction, draw-thru type comprising of various sections such as Pre-filter section, coil section, as shown on drawings and included in schedule of quantities. Unit must be able to work satisfactory in exposed atmosphere conditions. **Casing** Double skinned panels are fabricated with anodized extruded aluminum extrusion frame work bolted together with sandwich panel having powder coated 0.70 mm sheet for outer skin and plain GP 0.63 mm sheet for inner skin. 43 mm thick PUF insulation material is injected between the two panels (with U value no greater than 0. 85 W / m2/k)	SET

The entire frame duly painted is mounted on sheet steel channel based. The panels are sealed to the framework by heavy-duty 'O' ring gaskets held captive in the framed extrusion. All panels are detachable or hinged. Hinges are made of die cast aluminum with stainless steel pivots, handles are made of hard nylon and be operational from both inside and outside of the unit. All fixing and gaskets shall be concealed.

Motor and Drive

Fan motors are highly efficient and work on 440 ± 10% volts, 50 cycles, three phase with explosion proof type with class F installation, with IP 55 protection. Motors are especially designed for quiet operation and motor speed does not exceed 1440 rpm. Drive to fan is provided through belt-drive arrangement. Belts are of the oil-resistant type.

Fan

Fan are of centrifugal type, conforming to AMCA 210 and are double width, double inlet with forward- inclined airfoil blades, specially designed and suitable for the required operating pressure. Fan casing are made from galvanized steel sheet. Fan shaft is grounded C 40 carbon steel and supported in self-aligning plumber block operating less than 75% of first critical speed, grease lubricated bearings.

Cooling Coils

DX coils have 12.5 to 15 mm dia tubes minimum 24G thick with sine wave aluminum fins firmly bonded to copper tubes assembled in zinc coated steel frame. Face and surfaces areas are such as to ensure rated capacity from each unit and such that the air velocity across the coil does not exceed
150 meters per minutes. Each coil is factory tested at 21-kg/m2 air pressures under water. Tube is

Hydraulically / mechanically expanded for minimum thermal contact resistance with fins. Fin spacing is 4 - 5 fins per cm.

Filters

Each unit is provided with a factory assembled filter section containing washable synthetic type air filters having anodized aluminum frame. The media is supported with HDP mesh. Filter banks are easily accessible and designed for easy withdrawal and renewal of filter cells. Filter banks face velocities do not exceed 100 m/minutes. Differential pressure switch is to be fixed across the filter as part of AHU's system.

Ducting

The duct supply system should be free of construction debris. Ducting shall be made of Aluminum with curves & bends where indicated for easy flow of air and ensured to be air tight by applying silicon sealant after fabrication. Hangers shall be provided to ducts & shall be suspended by means of G.I. coated rods & these shall not be more than 2.5mtrs apart. Thermal insulation with 9mm XPE for supply & return air ducts. Joints will be lapped with Nitrile rubber tape for better insulation.

Air Cooled Package Chiller / Condensing Units.

Compressor

The compressor shall be of screw, scroll / reciprocating type, hermitic, in accordance with ARI 520, direct driven with capacity control arrangement. The compressor casing shall be of cast iron and designed for 450 psig or higher. The compressor shall incorporate rolling element bearing to support rotating assembly. The rotor shall be higher steel alloy. We prefer the use of Copeland USA Compressors Hermetic Compressors.

	Refrigerant circuit components shall include flexible pipe connectors, hot gas muffler, high side pressure switch, liquid line shut-off valves, suction and discharge shut-off valves, filter drier, moisture- indicating sight glass, electronic or thermostatic expansion valve (EXV), heavy duty pressure gauge with cocks to monitor suction, discharge and oil pressure and complete operating charge of refrigerant and compressor oil. **Motor** Compressor motor shall be of Hermetic / semi-hermetic direct drive, squirrel cage, two pole, induction type, refrigerant cooled motor suitable for 415V / 50 Hz. 3 phase supply. Hot gas motor cooling is not acceptable. We prefer the use of Copeland USA Compressors Hermetic Compressors. **Condenser** **Condenser shall be Air Cooled type.** Tubing shall be copper, Aluminum fins high efficiency type. Tubes shall be nominal 19mm. Outer diameter and thickness shall not be less than 22 g. and rolled into rube sheets and shall be individually replaceable and also tubes shall be coated with corrosion resistant coating. Condenser fans shall be direct coupled to motor and protected against overloading and with minimum **1.15 service factor.** Condenser shall design to allow isolating refrigerant charge when servicing the compressor. With maintain the above said technical specifications, The Air Handling Unit with Air Cooled Package Chiller / Condensing Units should have following capacity: 1) 17.5 tr with 5000CFM 2) 11 tr with 3500 CFM	
17	**Imported Ceiling Pendants** The idea of using ceiling mounts is such that they can be easily swiveled in place to have medical equipment or gases readily available for patient treatment or care. The benefits should translate to flexible positioning and optimal space utilization & in addition hygiene and safety advantages. In nutshell it should eliminate cable clutter and above all the unrestricted movement of all components in the space around the place of use. They should be CE marked / approved.	SET
18	**Surgical Pendant** The surgical arm shall be double arm, each arm length of 800mm length. The arm should be able to swivel around each joint by 330 degrees. It should be able to withhold a weight of not less than 150kg. The surgical pendant should have the following features: • Distributor heads / consoles should be modular of length 1100mm & capable of accepting a range of shelves (3 Nos.) and a drawer with a top shelf, each having weight carrying capacity of at least 30kg. • The distributor head should have 10 universal electrical sockets, 1 set of RJ45 / RJ11 connectors, have 2 * Infusion poles with 4 bottle holders. • Five medical gas outlet terminals: 1 * O_2 : 2 * Vac : 2 * Air (4 bar) OR 2 * CO_2: 1 * O_2 : 1* Vac : 1 * Air	SET

19	**Anesthesia pendant** The arm of pendant shall be single arm of length of 800 mm. The arm should be able to swivel around each joint by 330 degrees. It should be able to withhold a weight of not less than 150kg. The pendant should have the following features: • Distributor heads / consoles should be modular of length 800mm long approx. & capable of accepting a range of shelves (2 Nos.) and a drawer with a top shelf, each having weight carrying capacity of at least 30kg. • The distributor head should have 8 universal electrical sockets, 1 set of RJ45 / RJ11 connectors, have 2 Infusion poles with 4 bottle holders. • Five medical gas outlet terminals: 2 * O_2 : 2 * N_2O : 1 * Air (4 bar) :1* Vac	SET
20	**<u>SPECIFICATIONS FOR ELECTRO HYDRAULIC TABLE</u>** ➢ Electro Hydraulic operated eight function remote control table up and down, trendelenbreg and reverse trendelenberg, right lateral, left lateral, backrest, up & down. ➢ Should be Remote control table with corded remote. ➢ Power supply should be 220 v, 5 amps and three pin plug point. ➢ Remote cord and main plug should come from head end of the table (i.e) from the bottom of the base, to facilitate the anesthetist ➢ Table should have 100mm central lock castors for longitudinal and lateral movements, the castors should be made of polyurethane and molded to prevent water and rust entering inside. ➢ Braking should be effective and should have a dead lock when broken; it should be on the head end side of the table, to facilitate the anesthetist, and one brake on the tail end for better stability. ➢ Leg bed should be two pieces right and left and should be detachable and abductable and also should move up & down. ➢ Table top should have five sections; it should be breakable into inverted v-shape from the head side. ➢ Trendelenberg and lateral mechanism should be concealed with bellows; column should be straight without any projection on right or left. ➢ Table column size should be 280mm x 280mm. ➢ Table should have provision to view spine ap and lateral c-arm. ➢ Polyurethane detachable cushion top should be provided on the table top. ➢ Base covers should be covered with impact, shock resistant, fire resistant and disinfectant free material. Base should be broader in the head end. ➢ The column casing, table top frame, traction bars and all accessories made of non-corrosive steel. The main column should be covered with non-corrosive stainless steel. ➢ Inbuilt battery back up should be provided. ➢ The table top should be reversible, the headrest attachments should fix to the tail side and the tail side attachment should fix to the head side. ➢ The table should have a provision to fix top leg traction attachment. ➢ The table should have manual pre sector for all positions. ➢ In case of electrical components failure, the table should be operated manually by mechanical pedaling for all positions. ➢ The table should be capable of taking off centered load from neck to toe should be screened in to C-Arm without any disturbance. ➢ Should be ISO 9001, ISO 13485 Approved. ➢ The entire vertebral column should be viewed without any hindrance. ➢ Patient sitting position, with Tendlenburg maximum should be possible. ➢ Minimum height 27” preferred. ➢ Should adapt Mayfield sugitha and Lyela retractor.	EACH

21	**Specifications of Ceiling mounted Dual dome LED OT Lights:** • Dual Dome Ceiling mount structure with use of multiple LEDs • Output Lux intensity of 1,20,000 Lux at 1 meter in one dome (size cm: 61x52x11) and 60,000 lux at 1 meter in another dome(size cm: 38x32x10) • Total Power consumption of less than or equal to 200 watts • Color temperature of the LED to be equal to daylight color temperature – 5500 k • Life of LED - 50,000 hours or more • Six motions in each arm to achieve all positions and angles • More than 1100 mm up-down movement for both Domes • All five rotary motions in each arm to have stopper less design for continuous rotation • Wide reach of more than 2 meters in all direction from center for both arms to cover majority of Operation room area • Wide operating voltage range from 90 v to 260 v to cover mains voltage fluctuations • User selectable intensity variation with digital display from 0 % to 100 %, individual for each dome • Digital Display of Life of LED used in hours for each dome • Quarter yoke sets in domes for easy handling • Availability of Direct battery operation option • Provision of Camera at the center of Main Dome • Sterilisable & detachable Plastic handle at the center of the each dome for focus adjustment • To have ISO 13485 & ISO 9001 certification • with German Spring Arm • Intensity variable from 0-100%	EACH
22	**Specifications of Ceiling mounted Single dome LED OT Lights:** 1. Single Dome Ceiling mount structure with use of multiple LEDs 2. Output Lux intensity of 90,000 Lux at 1 meter in one dome (size cm: 61x52x11) 3. Total Power consumption of less than or equal to 90 watts 4. Color temperature of the LED to be equal to daylight color temperature – 5500 k 5. Life of LED - 50,000 hours or more 6. Six motions to achieve all positions and angles 7. More than 1100 mm up-down movement of dome 8. All five rotary motions to have stopper less design for continuous rotation 9. Wide reach of more than 2 meters in all direction from center to cover majority of Operation room area 10. Wide operating voltage range from 90 v to 260 v to cover mains voltage fluctuations 11. User selectable intensity variation with digital display from 0 % to 100 % 12. Digital Display of Life of LED used in hours 13. Quarter yoke sets in dome for easy handling 14. Availability of Direct battery operation option 15. Sterilisable & detachable Plastic handle at the center of the dome for focus adjustment 16. To have ISO 13485 & ISO 9001 certification 17. with German Spring Arm 18. Intensity variable from 0-100%	EACH

23	**MEDICAL GAS PIPELINE**	
	OXYGEN MANIFOLD SYSTEM 4 x4 gas manifold are extendable & non extendable type with choice of size of cylinders bank for bulk 'd' type jumbo cylinders, manifold is suitable to with stand a working pressure of 140kg/cm manifold have high pressure copper annealed tail pipes with one end having brass adapter suitable for cylinders. Manifold have brass non-return valves for individual cylinders (cylinders must be provides by the Govt. Hospital).	EACH
24	**OXYGEN MANIFOLD SYSTEM** 2 x2 cylinder emergency manifold with pressure reducing systems extendable & non extendable type with choice of size of cylinders bank for bulk 'd' type jumbo cylinders, manifold is suitable to with stand a working pressure of 140kg/cm manifold have high pressure copper annealed tail pipes with one end having brass adapter suitable for cylinders. Manifold have brass non-return valves for individual cylinders (cylinders must be provides by the Govt. Hospital).	EACH
25	Automatic oxygen control panel (aluminum body) A) compact and fully automatic manifold control system for oxygen n2o and co2 B) designed with both safety and continuity of flow supply at a constant pressure via two banks f botted gas cylinders with following status monitoring C) a-bank in use (green indicator) D) B-bank ready for use (yellow indication) E) control panel has build in led display to indicate normal, low for line pressure F) the control panel includes pressure gauge (63mm) to indicate the gas pressure of each header ad pipe line distribution pressure G) capable to provide a distribution flow rate in excess of 1500 lpm H) the control panel incorporate safety puncture in case pressure excess 100 psi I) Oxygen Failure Alarm System with Indication	SET
26	**N2O MANIFOLD SYSTEM** 2 x 2 size manifold n2o complete with 4 pc tail pipes extendable & non extendable type with choice of size of cylinders bank for bulk 'd' type jumbo cylinders, manifold is suitable to with stand a working pressure of 140kg/cm manifold have high pressure copper annealed tail pipes with one end having brass adapter suitable for cylinders. Manifold have brass non-return valves for individual cylinders (cylinders must be provides by the Govt. Hospital).	EACH
27	**N2O MANIFOLD SYSTEM** 2 cylinder emergency point with pressure reducing systems extendable & non extendable type with choice of size of cylinders bank for bulk 'd' type jumbo cylinders, manifold is suitable to with stand a working pressure of 140kg/cm manifold have high pressure copper annealed tail pipes with one end having brass adapter suitable for cylinders. Manifold have brass non-return valves for individual cylinders (cylinders must be provides by the Govt. Hospital).	EACH
28	**Automatic n2o control panel (aluminum body)** A) compact and fully automatic manifold control system for oxygen n2o B) designed with both safety and continuity of flow supply at a constant pressure via two banks f botted gas cylinders with following status monitoring C) a-bank in use (green indicator) D) B-bank ready for use (yellow indication) E) control panel has build in led display to indicate normal, low for line pressure F)the control panel includes pressure gauge (63mm) to indicate the gas	SET

	pressure of each header ad pipe line distribution pressure G) capable to provide a distribution flow rate in excess of 1500 lpm H) the control panel incorporate safety puncture in case pressure excess 100 psi I) N2O Failure Alarm System with Indication	
29	**COMPRESSED AIR SYSTEM** Air compressed system Oil Free with (2 /24/28cfm) 7.5 hp head 7.5 hp motor mounted air receiver tank capacity , 1000liter complete and Lubricating Two stage air compressors	EACH

H.P.	No. of cyl.	Piston displacement		pressure		r.p.m.	Tank capacity in liter
		c.f.m	l.p.m.	Psi	Kg/cm2		
7.5	2	27	756	175	12	550	1000ltr

30	**<u>Medical air dryers with Absorber-Date, Process-Data, Filer Date, Electrical-Date Specification as under</u>** Guaranteed dew point performance No cfc refrigerants Desiccant immobilized to eliminate dusting Design simplicity	SET
30 A	***Purge saving control (optional)***	
30 B	***Co & dewpoint monitor (optional)***	

Flow cfm	End connection bsp	Dimensions (mm)			Weight Kgs
		H	W	D	
30	½”	810	1050	780	70

General Data

Product: Regenerative type Heatless Desiccant Dryer
Flow: 30 scfm
Operating pressure: 7 bar (g)
Design Pressure: 16 bar (g)
Max. Pressure drop: 0.3 bar
Inlet temperature: 45 deg C Max
End connection: ½” BSP F
Atmospheric dew point: - 40 deg C

3.2 Adsorber – Data

Adsorbant: Activated alumina
Size: 2 to 6 mm
Desiccant life: 1 year
No. of adsorber: 2 Nos.
Quantity of adsorbant: 3 Kg per Tower
Diameter of Adsorber: OD 101 mm
Straight head of adsorber: 515 mm
Thickness of Adsorber: 3 mm
Adsorber Shell: Aluminium IS 63400
Top & Bottom block : Aluminium IS 63400

Process –Data

Data/Component : Description
Cycle time : 4 min
Drying time per tower : 2 min
Regeneration time per tower : 1.5 min
Repressurising time per tower : 0.5 min

	Filter Data Pre filter: Micron rating : 0.3 - 0.6 microns Filtering media : Borosilicate fiber Efficiency : 99.9 % Utilities : Auto drain valve After filter: Micron rating : 25 microns Filtering media : Sintered Bronze **Electrical – Data** Controller : Custom made Micro controller based system Input voltage : 85 – 265 V AC, 50 / 60 Hz., 20 Watts Max. Output : 2 Exhaust & 1 Drain valve 24 V / 8 Watts Solenoid coils Display : 3 LED indicating Drain, Tower 1 & Tower 2 Status Enclosure : IP 55 Protection, ABS plastic Connection : DIN 43650 Micro	
31	**VACUUM PUMP SYSTEM** **Technical specification:-** Bore & stroke 3" & 3" x 2 ¾" R.P.M. 960 P.D. 21.6 Max. working pressure (psig / kg / cm2) 29.6" barometer reading ar the sea level Vacuum tank (liters 500ltr) Motor HP required 2 Scope of supply - Suction air filter - Vacuum pump with v.sheave along with electrically mounted on the vacuum tank - Regulation : ASSC vacuum switch of standard co. make - Vacuum pump & motor pulley, v-belts belt guard, motor slide rail etc. - Vacuum pump with v. sheave along with electrical mounted on the vacuum tank - Motor of standard co. with ISI and ISo standard along with DOL starter of standard co. CE marked only	SET
32	**COPPER PIPING WITH REQUIRED** COPPER FITTINGS SIZE TO BE USED As per (BSEN) 13348 as per HTM-02..01 Copper and Copper alloys-Seamless round tube for a medical gases or vacuum, materials conforming to manufacturers as per BS:EN:13348:2001+A1:2005 Copper pipe of this European standard are suitable for distributing the following medical gases intended to be used at operating pressure up to 2000kpa and for system under vacuum * Oxygen, Nitrous Oxide, Nitrogen, Helium, Carbon Dioxide, Xenon * Air for Breathing * Specific mixture of these above mentioned gases * Air for Driving surgical tools * Anaesthetics gases and vaporous * Vacuum Mandatory Inspection Requirements: Chemical Composition Cehmical Composition of copper pipe shall conform to the following requirements. The analytical methods shall be carried out by Direct Emission Spectrometer. Copper + Silver: min. 99.90% Phosphorous : min. 0.015%, Max 0.040%	Running Meter

	6) 35mm outer dia, 1.2mm thick 7) 28mm outer dia, 0.9mm thick. 8) 22mm outer dia 0.9mm thick. 9) 15mm outer dia 0.9mm thick. 10) 12mm outer dia 0.7mm thick.	
33	**VALVE WITH VALVE BOX AND PRESSURE GAUGE** It will be wall mounted M.S. box with powder coated and lockable front glass panel having ball type valves with PTFE seat, brass body nickel plating valves having quarter turn handle opening size suitable for 12mm od copper pipe to 28 mm od copper pipe will have screwed ends will have brass adapters suitable for copper pipe, thevalve box door can not be closed during valve close position. These valves will be manufactured by an iso 9001 certified company. 4) 4 Services 5) 3 Services 6) 2 Services	SET
34	**FLOOR ISOLATION STANDARD VALVE (BALL VALVE WITH BRASS NUT & NIPPLE)** **35MM** **28MM** **22MM** **15MM**	Each
35	**AREA LINE PRESSURE ALARM** Area line pressure alarm upto 3 gases Area line pressure alarm upto 2 gases The medical gas alarms will have displays for various fault indications and capable of monitoring a maximum of 4 to 5 medical gas services by means pressure switches, Which detect deviations from the normal operating limits of either pressure or medical vacuum Each gas services will be displayed by colored normal low high pressure conditions. Medical vacuum systems will be displayed in the normal & low vacuum condition only Failure indicators will be displayed by flashing lights and normal indication will be study. An audible warning will sound simultaneously with any failure indication at a mute facility will be provided. A maintenance mute switch will be provided internally to the panel for use during maintenance, which results in prolonged pipeline or plant shutdown. This facility will automatically reset when the gas service returns to normal. The alarm panel will have a test facility to prove the integrity of the internal circuit, and microprocessor based electronic circuit led and audible warning The alarm is equipped with separate gauges for each gas for showing the pressure and it complies to htm 2022 standard.	Each
36	**OXYGEN GAS OUTLET**	
	GAS OUTLET POINT • Allows plugging of oxygen flowmwter & probes from front. • Bears weight of the metal BPC flowmeter & humidifier • Push to insert and press to release mechanism for flowmeter & probes • Locating terminal unit pin & probe notch gives maximum stability to the flowmeter unit • Non-interchangeability between Probes & terminal outlets for different services; possibility of error in making connection is avoided	Each

I	Front Loaded outlet point (Oxygen vaccum Air Nitrous)	Each
II	Front Loaded outlet point Probe Only (Oxygen Vacuum Air Nitrous)	Each
III	BPC Flow Meter	Each
IV	Humidifier Bottle	Each
V	Front Loaded Key use for Ventilator (Air , Oxygen)	Each
37	**Central ward suction ward Vacuum Unit (600ml, 1000ml, 2000ml) with Regulator** The system should be wall mounted type operated by central vacuum. It includes vacuum regulator range form 0-760mm hg. Use can vary negative pressure as per patient requirement. Vacuum gauge sizes 2" and 600ml capacity autoclavable plastic jars with overflow safety trap will be provided. Ward suction units should be provided with required high and low pressure tubing 600ml unit with	Set
38	Theatre suction trolly unit with regulator Theatre vacuum unit: - it will be trolley mounted. The unit will include one regulator having meter mounted in the trolley stand, having two re-usable each 2000ml plastic collections bottles mounted on base of trolley unit and connected with regulator and low pressure tube inter connections. The base of the trolley is fitted on castor wheel arrangement to move the system one place to another place easily.	Unit
39	High Pressure Tubing – 6mm I.D. Grey for Air Yellow for Vacuum Blue for Nitrous Oxide White for Oxygen	Per Mtr.
40	Low Pressure Tubing – 6mm I.D. Grey for Air Yellow for Vacuum Blue for Nitrous Oxide White for Oxygen	Per Mtr.
41	**ELECTRICAL CONTROL PANEL AIR** Electrical Control Panel Equipped for Duplex & Cascade system. For Compressor	Each
42	**ELECTRICAL CONTROL PANEL VACCUM** Electrical Control Panel Equipped for Duplex & Cascade system. For Vacuum Pump	Each
43	**Master Alarm for Plant** The medical gas alarms will have displays for various fault indications and capable of monitoring a maximum of 4 to 5 medical gas services by means pressure switches, Which detect deviations from the normal operating limits of either pressure or medical vacuum Each gas services will be displayed by colored normal low high pressure conditions. Medical vacuum systems will be displayed in the normal & low vacuum condition only Failure indicators will be displayed by flashing lights and normal indication will be study. An audible warning will sound simultaneously with any failure indication at a mute facility will be provided. A maintenance mute switch will be provided internally to the panel for use during maintenance, which results in prolonged pipeline or plant shutdown. This facility will automatically reset when the gas service returns to normal. The alarm panel will have a test facility to prove the integrity of the internal circuit, and microprocessor based electronic circuit led and audible warning	Each

	The alarm is equipped with separate gauges for each gas for showing the pressure and it complies to htm 2022 standard.	
44	**ICU BED HEAD PANEL-5FEET** 1. The construction of the wall section is made of extruded aluminum 2. The extruded aluminum structural lower channel will include a vertical integrate equipment mounting track to support optical track mounted equipment. 3. Optional equipments like I,v, hook infusion pole utility basket, monitor tray etc. can be install into the track at any location along the extruded aluminum channel. 4. Gas outlets/ switch –socket/monitor socket/ nurse call system can be fitted on middle portion of the bed console unit after cutting the aluminum sheet as per hospital requirements. 5. Bed Head Panel for ICU 5 Feet Long made of High strength extruded Aluminum profile with powder coated with colour. Each Bed Head Panel have provision for O2-2., Vac-2, Air-4-1 and 5/15amp Switch socket 4nos. with optional Railing and IV Stand, Ward Vacuum and Infusion pump stand	SET
44A	**Optional Equipments At Extra Cost**	
I	I.V. Hook	
II	Syringe Pump Pole	
III	Utility Basket	
IV	Monitor Tray	
V	Aluminum Channel (Railing)	
VI	Ward Vacuum Stand	
VII	Infusion Pump Stand	

U..T.ADMINISTRATION OF DAMAN AND DIU
OFFICE OF THE MEDICAL SUPERINTENDENT'
GOVERNMENT HOSPITAL, DAMAN

NO.GHD/E-TENDER/2012-2013/ ***DATED:- 27.12.2012***

FINANCIAL BID FOR O.T. NO. B

Sr. No.	Description		Qty.	Rate Each	Total Cost
1	**WALL SURFACES:-**	SQ. Mtr.			
2	**WALL & CEILING PANELLING:**	SQ. MTRS			
3	**ESD VINYL FLOORING**	SQ. Mtrs			
4	**IMPORTED PLANAIR VENTILATION CEILING / PLENUM / AIR & LIGHT DIFFUSER / LAMINAR FLOW – CONFORMING TO STANDARD HTM 03-01 & HTM 6**	Set			
5	**DOOR AND FRAME**				
	Hermetically Sealed Sliding Door – Automated	Set			
6	**Double Leaf SS Door**	SET			
7	**Single Leaf Stainless Steel Single Side Open Flush Door with 49mm thickness,**	SET			
8	**WALL MOUNTED ITEMS:---**	Set			
9	**X-ray viewing screens (two plates)**	Nos			
10	**Equipment Storage Unit**	Nos.			
11	**Operating List - Writing Board**	Nos.			
12	**Cascade Pressure Stabilizer**	Nos.			
13	**Hatch Box**	Nos.			
14	**Clean-room illuminators**	Nos.			
15	**Surgical Scrub Sink**	Nos.			
16	**AHU - AIR HANDLING UNIT (DOUBLE SKIN TYPE)**	LOT			
17	**Imported Ceiling Pendants**	SET			
18	**Surgical Pendant**	SET			
19	**Anesthesia pendant**	SET			
20	**SPECIFICATIONS FOR ELECTRO HYDRAULIC TABLE**	NOS.			
21	**Specifications of Ceiling mounted Dual dome LED OT Lights:**	NOS.			
22	**Specifications of Ceiling mounted Single dome LED OT Lights:**	NOS			
23	**MEDICAL GAS PIPELINE**				
	OXYGEN MANIFOLD SYSTEM 4 x4 gas manifold				
24	**OXYGEN MANIFOLD SYSTEM** 2 x2 cylinder emergency manifold				
25	Automatic oxygen control panel (aluminum body)	SET			
26	**N2O MANIFOLD SYSTEM** 2 x 2 size manifold N2O complete with 4 pc tail pipes				
27	**N2O MANIFOLD SYSTEM** 2 cylinder emergency point with pressure reducing systems				

28	**Automatic n2o control panel (aluminum body**	SET			
29	**COMPRESSED AIR SYSTEM**	Each			
30	**Medical air dryers with Absorber-Date, Process-Data, Filer Date, Electrical-Date Specification as under**	Each			
30.A	***Purge saving control (optional)***	Each			
30.B	***Co & dewpoint monitor (optional)***	Each			
31	**VACUUM PUMP SYSTEM**	SET			
32	**COPPER PIPING WITH REQUIRED**				
I	35mm outer dia, 1.2mm thick	R. Meter			
II	28mm outer dia, 0.9mm thick.	R. Meter			
III	22mm outer dia 0.9mm thick.	R. Meter			
IV	15mm outer dia 0.9mm thick.	R. Meter			
V	12mm outer dia 0.7mm thick.	R. Meter			
33	**VALVE WITH VALVE BOX AND PRESSURE GAUGE**				
I	4 services	Each			
II	3 services	Each			
III	2 services	Each			
34	**FLOOR ISOLATION STANDARD VALVE (BALL VALVE WITH BRASS NUT & NIPPLE)**				
I	35MM	Each			
II	28MM	Each			
III	**22MM**	Each			
IV	**15MM**	Each			
35	**AREA LINE PRESSURE ALARM**				
I	Area line pressure alarm upto 3 gases	Each			
II	Area line pressure alarm upto 2 gases	Each			
36	**OXYGEN GAS OUTLET**				
	GAS OUTLET POINT	Each			
I	Front Loaded outlet point (Oxygen vaccum Air Nitrous)	Each			
II	Front Loaded outlet point Probe Only (Oxygen Vacuum Air Nitrous)	Each			
III	BPC Flow Meter	Each			
IV	Humidifier Bottle	Each			
V	Front Loaded Key use for Ventilator (Air , Oxygen)	Each			
37	**Central ward suction ward Vaccum Unit with Regulator**				
I	600ml unit with regulator	Set			
II	1000ml unit with regulator	Set			
III	2000ml unit with regulator	Set			
38	Theatre suction trolly unit with regulator	Unit			
39	High Pressure Tubing – 6mm I.D.	Per Mtr.			
40	Low Pressure Tubing – 6mm I.D.	Per Mtr.			
41	**ELECTRICAL CONTROL PANEL AIR**	Each			
42	**ELECTRICAL CONTROL PANEL VACCUM**	Each			
43	**Master Alarm for Plant**	Each			
44	**ICU BED HEAD PANEL-5FEET**	SET			
44 A	**Optional Equipments At Extra Cost**				
I	I.V. Hook	Each			
II	Syringe Pump Pole	Each			
III	Utility Basket	Each			
IV	Monitor Tray	Each			
V	Aluminum Channel (Railing)	Each			
VI	Ward Vacuum Stand	Each			
VII	Infusion Pump Stand	Each			

The annual maintenance Contract (AMC) of for the period of three years from the expiry of Guarantee /Warranty period of one year				
1	O.T. No. B	First year		
		Second Year		
		Third Year		
		Total		

U..T.ADMINISTRATION OF DAMAN AND DIU
OFFICE OF THE MEDICAL SUPERINTENDENT'
GOVERNMENT HOSPITAL, DAMAN

NO.GHD/E-TENDER/2012-2013/ ***DATED:- 27.12.2012***

TECHNICAL BID FOR O.T. NO. C

Sr. No.	Description	
1	**WALL SURFACES:-** The main requirements for any Operation theatre wall system are that they should be impact resistant, show resistance to solvents & chemicals, prevent colonising of micro-organisms or neutralise micro-organisms which come into contact with the wall surface. The surfaces should be stable – prevent cracking and movement, scrub able – amenable to cleaning & have a completely sealed finish, Biological attack resistance & have hygiene finish & lastly have Hydrothermal performance. • All wall mounted equipment should be flush-mounted and sealed into theatre wall by means of durable sterile jointing system. • The wall panel design and construction should allow for the installation and support of all equipment's with provision of openings required for repair and maintenance without affecting rigidity and strength. In case require, one should be able to easily remove the wall panel for service requirements. • The total distance between the inside and outside surfaces of the theatre should vary to suit the architect's layout; however the composite wall thicknesses should be 100mm or less. • The cavity between the inner and outer walls should be left with minimum obstructions for the possible addition of equipment at a later date and to enable services, pipes, conduits etc, to be run within the cavity. • The Sterile coating is water resistant, does not support bacteriological or fungicidal growth and is resistant to most chemicals commonly used in hospital departments. It should neutralise micro- organisms which come into contact and should prevent colonising or sporing of micro-organisms. • The sterile coating shows resistance to a wide range of mixed species, including stubborn pathogens such as MRSA, Acinetobacter sp, Aerobacter aerogenes, Bacillus subtitles, Escherichia coli, Listeria monocytogenes, Pseudomonas aeruginosa, Pseudomonas putida, Salmonella typimurium, Serratia marcescens, Staphylococcus Aureus. • The sterile coating should remain unaffected by radiation, its anti-microbial system should not leach out & its anti-microbial properties should last for a minimum of 10 years. • The sterile coating system should be easily maintained and should withstand repeated cleaning with alkaline detergents, antiseptics and fumigation agents without any degradation to the surface finish or performance. • Conform to standards HTM 08-01 / HTM 56	SQ. Mtr.

2	**WALL & CEILING PANELLING:** The Pre-fabricated operating room should be free standing structure, constructed from composite, free standing insulated steel wall panels. These panels should be produced in a double band laminator, in which two continuously moving belts of Stainless Steel 304 sheets of 0.80mm thickness are firmly bonded together by the sprayed in insulating foam, which hardens during this process. All panels should have a fifteen year de-lamination warranty. The core should consist of rigid polyurethane foam, which has been injected under high pressure, with a minimum density of 40 kg / m3. The walls should be modular in construction, consisting of 1180 mm, 875 mm, 570 mm and 265 mm wide panels, together with corner panels 200 x 200 mm to achieve the desired false ceiling height. The thickness of the complete panel, including the core should be a minimum of 60 mm. Conform with respective certificate copy duly attached herewith having clearly mentioning of above, The modular wall panels are installed upon floor using a “U” channel. Each Pre-Fabricated Operating Room may optionally include sloping ceiling panels at an angle of 45 degrees from the straight wall panel edge. This options reduces the overall volume of the room, decreasing the running costs for air- conditioning and ventilation, while at the same time maintaining the necessary height at the center of the room for the installation of ceiling mounted equipment’s. The inner surface of the operating theatre should be seamless, free from visible joints and sharp edges. All internal corners and panel joints should be filled with proper Epoxy filler, Sanded flush or radiused on site, ready to receive the sterile plastic finish. All panel joints should be invisible when the final plastic coating is applied. All wall-mounted equipment should be flush mounted and sealed into theatre wall by means of a sterile jointing system. The wall panel design and construction should allow for the installation and support of all equipment and the provision for openings required for the installations, without affecting the rigidity and strength. The internal surfaces of the theatre walls and ceiling should be sprayed with water based, non-reflective liquid plastic, to a color approved by the architect, to a minimum dry film thickness of 60 microns. The plastic coating should overlap the floor covering, ceiling system and door frames by 25 mm to provide a continuous sealed surface. The sterile coating applied to a thickness of 60 microns of the already applied primer coating on the panels inner surface, should be water resistant, does not support bacteriological or fungicidal growth and should be resistant to most chemicals commonly used in hospital departments. The sterile coating should remain unaffected by radiation and other ionizing radiation at levels in excess of 1,000 mrad and should be classified to class 1 when tested in accordance with the requirements as specified under BS:476:part 7 ;1971, surface spread of flame test for materials. The coating should be SILVER Ion based. The coating system should be easily maintainable and should be able to withstand repeated cleaning with alkaline detergents, antiseptics and fumigation agents without any degradation to the surface finish or performance. The thickness of the wall panels should be a minimum of 10mm and mounted	SQ. MTRS

	on the existing Wall structure using the necessary steel frame work. The Wall panels should be easily removable for catering to service related needs. **Electrical Components** Each modular panel should contain separate cable pathways for the routing of electrical services and a variety of openings and rear enclosures for the fixing of electrical components. Cable sizes for power sockets, earth and potential equalization wiring should be provided according to the specific requirements of the site. Separation of LV & ELV Supplies to BS7971, conforming to HTM 06-01 & HTM 06-02 standards. **Communication Components** Each modular panel should contain separate cable pathways for the routing of communication services and a variety of openings and rear enclosures for the fixing of components. Internal wiring is executed according to the existing valid standards, running in a separated cable pathway up to an integrated services connection point. **Mechanical Components** Medical gas outlets are connected to the wall panels from pipes running within. Piping for medical gases is segregated by means of a separate duct within the modular panel; the piping used will be medical grade copper tube according to EN737-3. The modular panel is delivered in a pre-piped configuration, including the CE-marked medical gas outlets of which all common brand types are available.	
3	**ESD VINYL FLOORING** The flooring should conform to standards DIN EN 1081, DIN EN 1815 , EN 12466, EN 425, EN 423 & EN 433. It should be fire resistant, scratch resistant, chemical resistant & resistance to fungi – bacterial growth. Vinyl is the oldest effective ESD flooring material. Solid vinyl tile (SVT) can give a facility that hospital look of cleanliness and shine. Facilities managers often favor vinyl floor because vinyl has a reputation for being inexpensive, simple to repair and easy to clean. The joints between individual tiles are to be welded by heat fusion process to get a seamless floor. The PVC welding bar should of the same matching color as that of the tile and a hot air gun is used for fusion of welding bar with flooring tile. Conductive flooring to be installed within the OT area to prevent damage to sensitive medical electronic equipment's, inadvertent movement of surgeons / technicians, accumulation of static dirt. Maintenance should be simple such as each individual tile can be replaced in very short down-time. The conductive flooring should ensure: • The protection of Electronic equipment and components • The protection of people against electro-static discharge risks • The protection of premises against explosive risks. The Conductive tiles should be static – conductive, flexible, homogenous vinyl floor covering with an electrical resistance of 5 x 104≤ Rt ≤ 106 (EN 1081). The Conductive flooring should have the following characteristics: • Low accumulation of electrostatic charges to people & Equipment. • Should provide an enduring resistance to static and dynamic loads • Should display excellent resistance to chemical products such as detergents, acids and alkaline products. • Low VOC emissions. • Should have Fungistatic and bactreostatic treatment throughout the total thickness of flooring. • It should be non-absorbent, impervious and non-porus.	SQ. Mtrs

4	**IMPORTED PLANAIR VENTILATION CEILING / PLENUM / AIR & LIGHT DIFFUSER / LAMINAR FLOW – CONFORMING TO STANDARD HTM 03-01 & HTM 60** The Planair ceiling ventilation system should dilute the bacteria generated by the operating team and patient in the theatre and to create an Air flow pattern that carries contaminated air away from the operating table & entering surgical wounds. It should be designed such that filtered, sterile air flows through the operating zone without an admixture of indoor air. The germs and aerosols released by occupants are displaced into adjacent room zone and removed with the exhaust air. The main components that the Laminar flow should be having is a rectangular air outlet housing with air outlet frame and air discharge element on the underside and two housings on the top side each with a built in HEPA filter. The air discharge element should be a fine - meshed fabric for laminar displacement flow. The air discharge element should be split with a feed through for the Surgical light. The element should be removable or can be folded downwards for easy accessibility to the housing interior for cleaning and disinfection. It should be also easily accessible to the HEPA filters which can be easily replaced when required to do so. The complete Laminar flow system should be Pre-manufactured and pre-assembled unit, modular in design, having connection box and filter frame. The construction should consist of four units' modular in design with filter frames and variable connection hoods for the supply air, The air discharge element should be made of fine-mesh laminar fabric (polyester) with a surrounding stainless steel frame. The air outlet housing should be made of stainless steel and the filter housing of powder coated steel sheet. The Laminar air distribution element should be modular in design, divided into four parts with a minimum number of bars, individually foldable, covered with monofilament polyamide from one side, fixed without screws. It should have a connection for differential pressure measurement. The Laminar flow should be of following characteristics: 1) Planair Pleanum Size : 2800mm x 2800mm with 4000CFM capacity Laminar Air Flow 2) Planair Pleanum Size : 1800mm x 1800mm with 2000CFM capacity Laminar Air Flow The system should be certified according to DIN 1946-4 (12-2008), tested to DIN 4799, having horizontally arranged terminal HEPA filters of H 14 type with grip protection on both sides; filter exchange from pure air side, filter tested and certified according to DIN EN 1822-1.	Set
5	**DOOR AND FRAME**	
	Hermetically Sealed Sliding Door – Automated • Automated operated hermetically sealing sliding main door on OT, of appropriate size, 2100mm (H) X 1000 (W) and 2100mm (H) X 1500 (W) • Having a track system wherein the door blade is guided under a 45° angle with approximately 6mm deep indentations at the closed position. • Having a special inside & outside Stainless Steel lever handle that lifts out the door blade from its hermetic closing position, thus allowing even very heavy doors to be opened effortlessly, manually. • Encased within an extruded anodized 2.5 mm thick aluminum profile frame all around the door blade with solid high pressure laminate on both sides. • Should have special nylon top rollers with double roller bearings, to enable the door to slide smoothly & silently. • The door blade to have a special 3-tier specially designed 3 side heavy duty replaceable EPDM gasket, for the hermetic sealing on the wall	Set

	frame. The bottom sealing should be with a 2-tier heavy duty EPDM gasket to flush with the finished floor. • The door core should be 60 mm thick, built up with 4 mm thick HPL (High pressure compact laminate) skin on both sides of the door to provide better strength and rigidity. Having between the two sides of laminates – CFC free, high density polyurethane puff (density 40 Kg / m3), thickness 52mm. • Vision panels - double glazed, laminated safety glass, flush finished on both sides with door blade should be provided in the doors. • The automation controller for the door should be microprocessor based with regulated electro-mechanical sliding door drive. • The automation should be able to operate a door with maximum door weight of 250Kg. • The wall frame should be high grade aluminum extrusion with natural anodized 15 micron finish wall frame profile. The wall frame profile should be 3 sided blind fixed with cladding on wall cut-out section from inside and outside of the room. • The automation should have variable / adjustable opening & closing speeds, with opening speed adjustable between 120mm / sec --- 800mm / sec and the closing speed adjustable between 120mm / sec ---- 500mm / sec. • The automation / door can be controlled/operated using either push-button switch, Kick switch or Sensor (touch less – infra-red) switches OR all in combination.	
6	**Double Leaf SS Door** Double Leaf Stainless Steel Door Single Side Open Flush Door with 49mm thickness of both door leafs, having size of 1800mm x 2100mm with view window of 300mm x 300mm duly complete with clean view glass, The Door should be having .8mm thick SS304 sheet on both faces while door core should be of PU, The Door should be hinge mounted and should complete with all necessary accessories i.e.Door closer, D type SS Door Handle etc.	SET
7	**Single Leaf Stainless Steel Single Side Open Flush Door with 49mm thickness,** having size of 1000mm x 2100mm with view window of 300mm x 300mm duly complete with clean view glass, The Door should be having .8mm thick SS304 sheet on both faces while door core should be of PU, The Door should be hinge mounted and should complete with all necessary accessories i.e.Door closer, D type SS Door Handle etc.	SET
8	**WALL MOUNTED ITEMS:---** Imported Operation theatre control panel It should be a digital control panel consisting of a computer and a touch screen managed by a PLC. It should integrate all controls, signals and alarms of the operation theatre and offer several services addressed to the maintenance staff. The information management system should be managed by the programmable software – PLC and the visual and control parameters by the PC / Touch screen, IP64 protected, 15" (inches) in size. It should have a digital microphone and speakers, a 300K pixel camera, ambient light sensor and a wireless LAN 802.11 a Bluetooth V2.0. Following frequent used functions should be available **a) Controls:** ☐☐ General Light Switch control, 3 controls in number, having dimming facility ☐☐ Temperature and humidity display ☐☐ Operation theater status – occupied / free / cleaning ☐☐ Stopwatch control	Set

	☐☐ OT surgical light switch (depending upon the make ,model of the light) **b) Alarms:** ☐☐ Electrical Alarm (visual & Acoustic) ☐☐ Gases Alarm repeater (Visual & Acoustic) ☐☐ UPS charging status **c) Communications:** ☐☐ Telephone / IP Telephone if line available ☐☐ Ethernet connection ☐☐ SMS Alarms ☐☐ Video- Conference facility d) Signals: ☐☐ Digital Inputs / Outputs: 14 Nos / 10 Nos. ☐☐ Analogue : (0-10V) Inputs / Outputs (2 Nos. / 1 Nos.	
9	**X-ray viewing screens (two plates)** • The theatre should be equipped with a twin plate X-Ray Viewing Screen, recessed in the wall and designed to provide a high level of control luminance, without flicker, from a unit that is easy to clean and maintain. • The X-Ray viewing screen illumination should be by LED lamps, controlled by dimming ballast. • The front panel diffuser is of a glare free type, sealed flush with the inside face of the operating theatre wall (or may as an option be integrated within the control panel fascia). • The LED lamps should provide a uniform level of illumination across the entire front panel. • Access for maintenance and lamp changing is from the front of the panel. • All internal wiring is terminated in connectors with screw and clamp spring connections. • Individual fuses or miniature circuit breakers protect all internal circuits. • All internal wiring is of high temperature resistance and secured by propriety cable clips It is flush mounted and sealed into theatre wall by means of a sterile jointing system.	Nos
10	**Equipment Storage Unit** • Equipment Storage Unit to be provided in operating theatre of dimensions approved by the user. • It should be flush mounted into the theatre wall with a sterile jointing system. • The cabinets should be made of Stainless Steel AISI 304 material. • Doors of cabinet should open right to left and made of clear safety glass. • It is suitably partitioned / shelved to allow storage of common endoscopic equipment's. • It has the facility of secure locking. • Conform to standard HTM 63	Nos.

11	**Operating List - Writing Board** • It is flush mounted with a sterile jointing system, 1.50mm thick, white laminate board, bonded to a 2mm steel sheet for additional rigidity.	Nos.
12	**Cascade Pressure Stabilizer** • Cascade pressure stabilizers should be a range of multi-bladed units specifically designed to control room air pressures in critical areas, such as operating theatre suites. • Each stabilizer should comprise of carbon steel housing with up to four Grade 304 Stainless steel blades, which pivot upon sealed for life bearing assemblies. • Balancing is carried out utilizing a proven balance weight assembly. • These stabilizers should be accurate to a range of 1 Pascal over their working range of 5-35Pa.	Nos.
13	**Hatch Box** A hatch should be provided to remove waste material from the operation theatre to dirty linen area just adjacent to the operation theatre. Each hatch should be equipped with two doors and the door should be operated electronically. The hatch should be designed in such a way that only one door should be opened at one time. The UV light should be so installed that it is kept on while both the doors are closed, this UV light should automatically turn "OFF" in case of opening of either of the doors. There shall be indicators on both sides of the OT such that door open / close status can be monitored from both ends.	Nos.
14	**Clean-room illuminators** Lamp covered with translucent Plexiglas with high transmission level (higher than 80%), held in a frame of white shell sheet, with integrated screw angles for fastening the lights to the panel system. Including closed mounting frame for the built-in LED lamps; the connection between the illuminator and the ceiling hollow space should be completely airtight. Clean-installed light should non-hygroscopic and be of IP 54 grade. Dimensions should approximately be 600 x 300mm (length x width).	Nos.
15	**Surgical Scrub Sink** The Surgical Scrub Sink should be made of Stainless Steel of grade AISI 304. It should be destined to be used for operating theatres, where high hygienic standards are to be maintained. It should be free standing sink with wall mounted possibility, having a depth of 300 mm. It should be two bay, having standard 2 x drain traps, water and soap dispensers activated by sensor, water and soap time adjustable, water thermostat – temperature adjustable and having chrome faucets. It should have open able front panel with two latches for maintenance purposes, having approximate dimensions of 1600 (L) x 635 (w) x 1271 (H) in mm.	Nos.
16	**AHU - AIR HANDLING UNIT (DOUBLE SKIN TYPE)** **Type** The air-handling units are of double skin construction, draw-thru type comprising of various sections such as Pre-filter section, coil section, as shown on drawings and included in schedule of quantities. Unit must be able to work satisfactory in exposed atmosphere conditions. **Casing**	LOT

Double skinned panels are fabricated with anodized extruded aluminum extrusion frame work bolted together with sandwich panel having powder coated 0.70 mm sheet for outer skin and plain GP 0.63 mm sheet for inner skin. 43 mm thick PUF insulation material is injected between the two panels (with U value no greater than 0. 85 W / m2/k)

The entire frame duly painted is mounted on sheet steel channel based. The panels are sealed to the framework by heavy-duty 'O' ring gaskets held captive in the framed extrusion. All panels are detachable or hinged. Hinges are made of die cast aluminum with stainless steel pivots, handles are made of hard nylon and be operational from both inside and outside of the unit. All fixing and gaskets shall be concealed.

Motor and Drive

Fan motors are highly efficient and work on 440 ± 10% volts, 50 cycles, three phase with explosion proof type with class F installation, with IP 55 protection. Motors are especially designed for quiet operation and motor speed does not exceed 1440 rpm. Drive to fan is provided through belt-drive arrangement. Belts are of the oil-resistant type.

Fan

Fan are of centrifugal type, conforming to AMCA 210 and are double width, double inlet with forward- inclined airfoil blades, specially designed and suitable for the required operating pressure. Fan casing are made from galvanized steel sheet. Fan shaft is grounded C 40 carbon steel and supported in self-aligning plumber block operating less than 75% of first critical speed, grease lubricated bearings.

Cooling Coils

DX coils have 12.5 to 15 mm dia tubes minimum 24G thick with sine wave aluminum fins firmly bonded to copper tubes assembled in zinc coated steel frame. Face and surfaces areas are such as to ensure rated capacity from each unit and such that the air velocity across the coil does not exceed
150 meters per minutes. Each coil is factory tested at 21-kg/m2 air pressures under water. Tube is

Hydraulically / mechanically expanded for minimum thermal contact resistance with fins. Fin spacing is 4 - 5 fins per cm.

Filters

Each unit is provided with a factory assembled filter section containing washable synthetic type air filters having anodized aluminum frame. The media is supported with HDP mesh. Filter banks are easily accessible and designed for easy withdrawal and renewal of filter cells. Filter banks face velocities do not exceed 100 m/minutes. Differential pressure switch is to be fixed across the filter as part of AHU's system.

Ducting

The duct supply system should be free of construction debris. Ducting shall be made of Aluminum with curves & bends where indicated for easy flow of air and ensured to be air tight by applying silicon sealant after fabrication. Hangers shall be provided to ducts & shall be suspended by means of G.I. coated rods & these shall not be more than 2.5mtrs apart. Thermal insulation with 9mm XPE for supply & return air ducts. Joints will be lapped with Nitrile rubber tape for better insulation.

Air Cooled Package Chiller / Condensing Units.

Compressor

The compressor shall be of screw, scroll / reciprocating type, hermitic, in

	accordance with ARI 520, direct driven with capacity control arrangement. The compressor casing shall be of cast iron and designed for 450 psig or higher. The compressor shall incorporate rolling element bearing to support rotating assembly. The rotor shall be higher steel alloy. We prefer the use of Copeland USA Compressors Hermetic Compressors. Refrigerant circuit components shall include flexible pipe connectors, hot gas muffler, high side pressure switch, liquid line shut-off valves, suction and discharge shut-off valves, filter drier, moisture- indicating sight glass, electronic or thermostatic expansion valve (EXV), heavy duty pressure gauge with cocks to monitor suction, discharge and oil pressure and complete operating charge of refrigerant and compressor oil. **Motor** Compressor motor shall be of Hermetic / semi-hermetic direct drive, squirrel cage, two pole, induction type, refrigerant cooled motor suitable for 415V / 50 Hz. 3 phase supply. Hot gas motor cooling is not acceptable. We prefer the use of Copeland USA Compressors Hermetic Compressors. **Condenser** **Condenser shall be Air Cooled type.** Tubing shall be copper, Aluminum fins high efficiency type. Tubes shall be nominal 19mm. Outer diameter and thickness shall not be less than 22 g. and rolled into rube sheets and shall be individually replaceable and also tubes shall be coated with corrosion resistant coating. Condenser fans shall be direct coupled to motor and protected against overloading and with minimum **1.15 service factor.** Condenser shall design to allow isolating refrigerant charge when servicing the compressor. With maintain the above said technical specifications, The Air Handling Unit with Air Cooled Package Chiller / Condensing Units should have following capacity: 1) 17.5 tr with 5000CFM 2) 11 tr with 3500 CFM	
17	**Imported Ceiling Pendants** The idea of using ceiling mounts is such that they can be easily swiveled in place to have medical equipment or gases readily available for patient treatment or care. The benefits should translate to flexible positioning and optimal space utilization & in addition hygiene and safety advantages. In nutshell it should eliminate cable clutter and above all the unrestricted movement of all components in the space around the place of use. They should be CE marked / approved.	SET
18	**Surgical Pendant** The surgical arm shall be double arm, each arm length of 800mm length. The arm should be able to swivel around each joint by 330 degrees. It should be able to withhold a weight of not less than 150kg. The surgical pendant should have the following features: • Distributor heads / consoles should be modular of length 1100mm & capable of accepting a range of shelves (3 Nos.) and a drawer with a top shelf, each having weight carrying capacity of at least 30kg. • The distributor head should have 10 universal electrical sockets, 1 set of RJ45 / RJ11 connectors, have 2 * Infusion poles with 4 bottle holders.	SET

	• Five medical gas outlet terminals: 1 * O_2 : 2 * Vac : 2 * Air (4 bar) OR 2 * CO_2: 1 * O_2 : 1* Vac : 1 * Air	
19	**Anesthesia pendant** The arm of pendant shall be single arm of length of 800 mm. The arm should be able to swivel around each joint by 330 degrees. It should be able to withhold a weight of not less than 150kg. The pendant should have the following features: • Distributor heads / consoles should be modular of length 800mm long approx. & capable of accepting a range of shelves (2 Nos.) and a drawer with a top shelf, each having weight carrying capacity of at least 30kg. • The distributor head should have 8 universal electrical sockets, 1 set of RJ45 / RJ11 connectors, have 2 Infusion poles with 4 bottle holders. • Five medical gas outlet terminals: 2 * O_2 : 2 * N_2O : 1 * Air (4 bar) :1* Vac	SET
20	**<u>SPECIFICATIONS FOR ELECTRO HYDRAULIC TABLE</u>** ➢ Electro Hydraulic operated eight function remote control table up and down, trendelenbreg and reverse trendelenberg, right lateral, left lateral, backrest, up & down. ➢ Should be Remote control table with corded remote. ➢ Power supply should be 220 v, 5 amps and three pin plug point. ➢ Remote cord and main plug should come from head end of the table (i.e) from the bottom of the base, to facilitate the anesthetist ➢ Table should have 100mm central lock castors for longitudinal and lateral movements, the castors should be made of polyurethane and molded to prevent water and rust entering inside. ➢ Braking should be effective and should have a dead lock when broken; it should be on the head end side of the table, to facilitate the anesthetist, and one brake on the tail end for better stability. ➢ Leg bed should be two pieces right and left and should be detachable and abductable and also should move up & down. ➢ Table top should have five sections; it should be breakable into inverted v-shape from the head side. ➢ Trendelenberg and lateral mechanism should be concealed with bellows; column should be straight without any projection on right or left. ➢ Table column size should be 280mm x 280mm. ➢ Table should have provision to view spine ap and lateral c-arm. ➢ Polyurethane detachable cushion top should be provided on the table top. ➢ Base covers should be covered with impact, shock resistant, fire resistant and disinfectant free material. Base should be broader in the head end. ➢ The column casing, table top frame, traction bars and all accessories made of non-corrosive steel. The main column should be covered with non-corrosive stainless steel. ➢ Inbuilt battery back up should be provided. ➢ The table top should be reversible, the headrest attachments should fix to the tail side and the tail side attachment should fix to the head side. ➢ The table should have a provision to fix top leg traction attachment. ➢ The table should have manual pre sector for all positions. ➢ In case of electrical components failure, the table should be operated manually by mechanical pedaling for all positions. ➢ The table should be capable of taking off centered load from neck to toe should be screened in to C-Arm without any disturbance. ➢ Should be ISO 9001, ISO 13485 Approved. ➢ The entire vertebral column should be viewed without any hindrance. ➢ Patient sitting position, with Tendlenburg maximum should be possible.	NOS.

	➢ Minimum height 27” preferred. ➢ Should adapt Mayfield sugitha and Lyela retractor.	
21	**Specifications of Ceiling mounted Dual dome LED OT Lights:** • Dual Dome Ceiling mount structure with use of multiple LEDs • Output Lux intensity of 1,20,000 Lux at 1 meter in one dome (size cm: 61x52x11) and 60,000 lux at 1 meter in another dome(size cm: 38x32x10) • Total Power consumption of less than or equal to 200 watts • Color temperature of the LED to be equal to daylight color temperature – 5500 k • Life of LED - 50,000 hours or more • Six motions in each arm to achieve all positions and angles • More than 1100 mm up-down movement for both Domes • All five rotary motions in each arm to have stopper less design for continuous rotation • Wide reach of more than 2 meters in all direction from center for both arms to cover majority of Operation room area • Wide operating voltage range from 90 v to 260 v to cover mains voltage fluctuations • User selectable intensity variation with digital display from 0 % to 100 %, individual for each dome • Digital Display of Life of LED used in hours for each dome • Quarter yoke sets in domes for easy handling • Availability of Direct battery operation option • Provision of Camera at the center of Main Dome • Sterilisable & detachable Plastic handle at the center of the each dome for focus adjustment • To have ISO 13485 & ISO 9001 certification • with German Spring Arm • Intensity variable from 0-100%	NOS.
22	**Specifications of Ceiling mounted Single dome LED OT Lights:** 1. Single Dome Ceiling mount structure with use of multiple LEDs 2. Output Lux intensity of 90,000 Lux at 1 meter in one dome (size cm: 61x52x11) 3. Total Power consumption of less than or equal to 90 watts 4. Color temperature of the LED to be equal to daylight color temperature – 5500 k 5. Life of LED - 50,000 hours or more 6. Six motions to achieve all positions and angles 7. More than 1100 mm up-down movement of dome 8. All five rotary motions to have stopper less design for continuous rotation 9. Wide reach of more than 2 meters in all direction from center to cover majority of Operation room area 10. Wide operating voltage range from 90 v to 260 v to cover mains voltage fluctuations 11. User selectable intensity variation with digital display from 0 % to 100 % 12. Digital Display of Life of LED used in hours 13. Quarter yoke sets in dome for easy handling 14. Availability of Direct battery operation option 15. Sterilisable & detachable Plastic handle at the center of the dome for focus adjustment 16. To have ISO 13485 & ISO 9001 certification 17. with German Spring Arm 18. Intensity variable from 0-100%	NOS

23	**MEDICAL GAS PIPELINE**	
	OXYGEN MANIFOLD SYSTEM 4 x4 gas manifold are extendable & non extendable type with choice of size of cylinders bank for bulk ‘d’ type jumbo cylinders, manifold is suitable to with stand a working pressure of 140kg/cm manifold have high pressure copper annealed tail pipes with one end having brass adapter suitable for cylinders. Manifold have brass non-return valves for individual cylinders (cylinders must be provides by the Govt. Hospital).	
24	**OXYGEN MANIFOLD SYSTEM** 2 x2 cylinder emergency manifold with pressure reducing systems extendable & non extendable type with choice of size of cylinders bank for bulk ‘d’ type jumbo cylinders, manifold is suitable to with stand a working pressure of 140kg/cm manifold have high pressure copper annealed tail pipes with one end having brass adapter suitable for cylinders. Manifold have brass non-return valves for individual cylinders (cylinders must be provides by the Govt. Hospital).	
25	Automatic oxygen control panel (aluminum body) A) compact and fully automatic manifold control system for oxygen n2o and co2 B) designed with both safety and continuity of flow supply at a constant pressure via two banks f botted gas cylinders with following status monitoring C) a-bank in use (green indicator) D) B-bank ready for use (yellow indication) E) control panel has build in led display to indicate normal, low for line pressure F) the control panel includes pressure gauge (63mm) to indicate the gas pressure of each header ad pipe line distribution pressure G) capable to provide a distribution flow rate in excess of 1500 lpm H) the control panel incorporate safety puncture in case pressure excess 100 psi I) Oxygen Failure Alarm System with Indication	SET
26	**N2O MANIFOLD SYSTEM** 2 x 2 size manifold n2o complete with 4 pc tail pipes extendable & non extendable type with choice of size of cylinders bank for bulk ‘d’ type jumbo cylinders, manifold is suitable to with stand a working pressure of 140kg/cm manifold have high pressure copper annealed tail pipes with one end having brass adapter suitable for cylinders. Manifold have brass non-return valves for individual cylinders (cylinders must be provides by the Govt. Hospital).	
27	**N2O MANIFOLD SYSTEM** 2 cylinder emergency point with pressure reducing systems extendable & non extendable type with choice of size of cylinders bank for bulk ‘d’ type jumbo cylinders, manifold is suitable to with stand a working pressure of 140kg/cm manifold have high pressure copper annealed tail pipes with one end having brass adapter suitable for cylinders. Manifold have brass non-return valves for individual cylinders (cylinders must be provides by the Govt. Hospital).	
28	**Automatic n2o control panel (aluminum body)** A) compact and fully automatic manifold control system for oxygen n2o B) designed with both safety and continuity of flow supply at a constant pressure via two banks f botted gas cylinders with following status monitoring C) a-bank in use (green indicator) D) B-bank ready for use (yellow indication) E) control panel has build in led display to indicate normal, low for line pressure F)the control panel includes pressure gauge (63mm) to indicate the gas	SET

pressure of each header ad pipe line distribution pressure
G) capable to provide a distribution flow rate in excess of 1500 lpm
H) the control panel incorporate safety puncture in case pressure excess 100 psi
I) N2O Failure Alarm System with Indication

29

COMPRESSED AIR SYSTEM

Air compressed system Oil Free with (2 /24/28cfm) 7.5 hp head 7.5 hp motor mounted air receiver tank capacity , 1000liter complete and Lubricating Two stage air compressors

H.P.	No. of cyl.	Piston displacement		pressure		r.p.m.	Tank capacity in liter
		c.f.m	l.p.m.	Psi	Kg/cm2		
7.5	2	27	756	175	12	550	1000ltr

30

Medical air dryers with Absorber-Date, Process-Data, Filer Date, Electrical-Date Specification as under

SET

Guaranteed dew point performance
No cfc refrigerants
Desiccant immobilized to eliminate dusting
Design simplicity

30 A ***Purge saving control (optional)***

30 B ***Co & dewpoint monitor (optional)***

Flow cfm	End connection bsp	Dimensions (mm)			Weight Kgs
		H	W	D	
30	½”	810	1050	780	70

General Data

Product: Regenerative type Heatless Desiccant Dryer
Flow: 30 scfm
Operating pressure: 7 bar (g)
Design Pressure: 16 bar (g)
Max. Pressure drop: 0.3 bar
Inlet temperature: 45 deg C Max
End connection: ½” BSP F
Atmospheric dew point: - 40 deg C

3.2 Adsorber – Data

Adsorbant: Activated alumina
Size: 2 to 6 mm
Desiccant life: 1 year
No. of adsorber: 2 Nos.
Quantity of adsorbant: 3 Kg per Tower
Diameter of Adsorber: OD 101 mm
Straight head of adsorber: 515 mm
Thickness of Adsorber: 3 mm
Adsorber Shell: Aluminium IS 63400
Top & Bottom block : Aluminium IS 63400

Process –Data

Data/Component : Description
Cycle time : 4 min
Drying time per tower : 2 min
Regeneration time per tower : 1.5 min
Repressurising time per tower : 0.5 min

	Filter Data Pre filter: Micron rating : 0.3 - 0.6 microns Filtering media : Borosilicate fiber Efficiency : 99.9 % Utilities : Auto drain valve After filter: Micron rating : 25 microns Filtering media : Sintered Bronze **Electrical – Data** Controller : Custom made Micro controller based system Input voltage : 85 – 265 V AC, 50 / 60 Hz., 20 Watts Max. Output : 2 Exhaust & 1 Drain valve 24 V / 8 Watts Solenoid coils Display : 3 LED indicating Drain, Tower 1 & Tower 2 Status Enclosure : IP 55 Protection, ABS plastic Connection : DIN 43650 Micro	
31	**VACUUM PUMP SYSTEM** **Technical specification:-** Bore & stroke 3" & 3" x 2 ¾" R.P.M. 960 P.D. 21.6 Max. working pressure (psig / kg / cm2) 29.6" barometer reading ar the sea level Vacuum tank (liters 500ltr) Motor HP required 2 Scope of supply - Suction air filter - Vacuum pump with v.sheave along with electrically mounted on the vacuum tank - Regulation : ASSC vacuum switch of standard co. make - Vacuum pump & motor pulley, v-belts belt guard, motor slide rail etc. - Vacuum pump with v. sheave along with electrical mounted on the vacuum tank - Motor of standard co. with ISI and ISo standard along with DOL starter of standard co. CE marked only	SET
32	**COPPER PIPING WITH REQUIRED** COPPER FITTINGS SIZE TO BE USED As per (BSEN) 13348 as per HTM-02..01 Copper and Copper alloys-Seamless round tube for a medical gases or vacuum, materials conforming to manufacturers as per BS:EN:13348:2001+A1:2005 Copper pipe of this European standard are suitable for distributing the following medical gases intended to be used at operating pressure up to 2000kpa and for system under vacuum * Oxygen, Nitrous Oxide, Nitrogen, Helium, Carbon Dioxide, Xenon * Air for Breathing * Specific mixture of these above mentioned gases * Air for Driving surgical tools * Anaesthetics gases and vaporous * Vacuum Mandatory Inspection Requirements: Chemical Composition Cehmical Composition of copper pipe shall conform to the following requirements. The analytical methods shall be carried out by Direct Emission Spectrometer. Copper + Silver: min. 99.90% Phosphorous : min. 0.015%, Max 0.040%	R.MTRS

I	35mm outer dia, 1.2mm thick	R. Meter
II	28mm outer dia, 0.9mm thick.	R. Meter
III	22mm outer dia 0.9mm thick.	R. Meter
IV	15mm outer dia 0.9mm thick.	R. Meter
V	12mm outer dia 0.7mm thick.	R. Meter
33	**VALVE WITH VALVE BOX AND PRESSURE GAUGE** It will be wall mounted M.S. box with powder coated and lockable front glass panel having ball type valves with PTFE seat, brass body nickel plating valves having quarter turn handle opening size suitable for 12mm od copper pipe to 28 mm od copper pipe will have screwed ends will have brass adapters suitable for copper pipe, thevalve box door can not be closed during valve close position. These valves will be manufactured by an iso 9001 certified company.	SET
I	4 services	Each
II	3 services	Each
III	2 services	Each
34	**FLOOR ISOLATION STANDARD VALVE (BALL VALVE WITH BRASS NUT & NIPPLE)**	
I	35MM	Each
II	28MM	Each
III	**22MM**	Each
IV	**15MM**	Each
35	**AREA LINE PRESSURE ALARM** The medical gas alarms will have displays for various fault indications and capable of monitoring a maximum of 4 to 5 medical gas services by means pressure switches, Which detect deviations from the normal operating limits of either pressure or medical vacuum Each gas services will be displayed by colored normal low high pressure conditions. Medical vacuum systems will be displayed in the normal & low vacuum condition only Failure indicators will be displayed by flashing lights and normal indication will be study. An audible warning will sound simultaneously with any failure indication at a mute facility will be provided. A maintenance mute switch will be provided internally to the panel for use during maintenance, which results in prolonged pipeline or plant shutdown. This facility will automatically reset when the gas service returns to normal. The alarm panel will have a test facility to prove the integrity of the internal circuit, and microprocessor based electronic circuit led and audible warning The alarm is equipped with separate gauges for each gas for showing the pressure and it complies to htm 2022 standard.	
I	Area line pressure alarm upto 3 gases	Each
II	Area line pressure alarm upto 2 gases	Each
	OXYGEN GAS OUTLET	
36	**GAS OUTLET POINT** • Allows plugging of oxygen flowmwter & probes from front. • Bears weight of the metal BPC flowmeter & humidifier • Push to insert and press to release mechanism for flowmeter & probes • Locating terminal unit pin & probe notch gives maximum stability to the flowmeter unit • Non-interchangeability between Probes & terminal outlets for different services; possibility of error in making connection is avoided	Each

I	Front Loaded outlet point (Oxygen vaccum Air Nitrous)	Each
II	Front Loaded outlet point Probe Only (Oxygen Vacuum Air Nitrous)	Each
III	BPC Flow Meter	Each
IV	Humidifier Bottle	Each
V	Front Loaded Key use for Ventilator (Air , Oxygen)	Each
37	Central ward suction ward Vaccum Unit with Regulator The system should be wall mounted type operated by central vacuum. It includes vacuum regulator range form 0-760mm hg. Use can vary negative pressure as per patient requirement. Vacuum gauge sizes 2" and 600ml capacity autoclavable plastic jars with overflow safety trap will be provided. Ward suction units should be provided with required high and low pressure tubing	
I	600ml unit with regulator	Set
II	1000ml unit with regulator	Set
III	2000ml unit with regulator	Set
38	Theatre suction trolly unit with regulator Theatre vacuum unit :- it will be trolley mounted. The unit will include one regulator having meter mounted in the trolley stand, having two re-usable each 2000ml plastic collections bottles mounted on base of trolley unit and connected with regulator and low pressure tube inter connections. The base of the trolley is fitted on castor wheel arrangement to move the system one place to another place easily.	Unit
39	High Pressure Tubing – 6mm I.D. Grey for Air Yellow for Vacuum Blue for Nitrous Oxide White for Oxygen	Per Mtr.
40	Low Pressure Tubing – 6mm I.D. Grey for Air Yellow for Vacuum Blue for Nitrous Oxide White for Oxygen	Per Mtr.
41	**ELECTRICAL CONTROL PANEL AIR** Electrical Control Panel Equipped for Duplex & Cascade system. For Compressor	Each
42	**ELECTRICAL CONTROL PANEL VACCUM** Electrical Control Panel Equipped for Duplex & Cascade system. For Vacuum Pump	Each
43	**Master Alarm for Plant** The medical gas alarms will have displays for various fault indications and capable of monitoring a maximum of 4 to 5 medical gas services by means pressure switches, Which detect deviations from the normal operating limits of either pressure or medical vacuum Each gas services will be displayed by colored normal low high pressure conditions. Medical vacuum systems will be displayed in the normal & low vacuum condition only Failure indicators will be displayed by flashing lights and normal indication will be study. An audible warning will sound simultaneously with any failure indication at a mute facility will be provided. A maintenance mute switch will be provided internally to the panel for use during maintenance, which results in prolonged pipeline or plant shutdown. This facility will automatically reset when the gas service returns to normal. The alarm panel will have a test facility to prove the integrity of the internal	Each

	circuit, and microprocessor based electronic circuit led and audible warning The alarm is equipped with separate gauges for each gas for showing the pressure and it complies to htm 2022 standard.	
44	**ICU BED HEAD PANEL-5FEET** 1. The construction of the wall section is made of extruded aluminum 2. The extruded aluminum structural lower channel will include a vertical integrate equipment mounting track to support optical track mounted equipment. 3. Optional equipments like I,v, hook infusion pole utility basket, monitor tray etc. can be install into the track at any location along the extruded aluminum channel. 4. Gas outlets/ switch –socket/monitor socket/ nurse call system can be fitted on middle portion of the bed console unit after cutting the aluminum sheet as per hospital requirements. 5. Bed Head Panel for ICU 5 Feet Long made of High strength extruded Aluminum profile with powder coated with colour. Each Bed Head Panel have provision for O2-2., Vac-2, Air-4-1 and 5/15amp Switch socket 4nos. with optional Railing and IV Stand, Ward Vacuum and Infusion pump stand	SET
44 A	**Optional Equipments**	
I	I.V. Hook	
II	Syringe Pump Pole	
III	Utility Basket	
IV	Monitor Tray	
V	Aluminum Channel (Railing)	
VI	Ward Vacuum Stand	
VII	Infusion Pump Stand	

..T.ADMINISTRATION OF DAMAN AND DIU
OFFICE OF THE MEDICAL SUPERINTENDENT'
GOVERNMENT HOSPITAL, DAMAN

NO.GHD/E-TENDER/2012-2013/ ***DATED:- 27.12.2012***

FINANCIAL BID FOR O.T. NO. C

Sr. No.	Description		Qty.	Rate Each	Total Cost
1	WALL SURFACES:-	SQ. Mtr.			
2	WALL & CEILING PANELLING:	SQ. MTRS			
3	ESD VINYL FLOORING	SQ. Mtrs			
4	IMPORTED PLANAIR VENTILATION CEILING / PLENUM / AIR & LIGHT DIFFUSER / LAMINAR FLOW – CONFORMING TO STANDARD HTM 03-01 & HTM 6	Set			
5	DOOR AND FRAME				
	Hermetically Sealed Sliding Door – Automated	Set			
6	Double Leaf SS Door	SET			
7	Single Leaf Stainless Steel Single Side Open Flush Door with 49mm thickness,	SET			
8	WALL MOUNTED ITEMS:---	Set			
9	X-ray viewing screens (two plates)	Nos			
10	Equipment Storage Unit	Nos.			
11	Operating List - Writing Board	Nos.			
12	Cascade Pressure Stabilizer	Nos.			
13	Hatch Box	Nos.			
14	Clean-room illuminators	Nos.			
15	Surgical Scrub Sink	Nos.			
16	AHU - AIR HANDLING UNIT (DOUBLE SKIN TYPE)	LOT			
17	Imported Ceiling Pendants	SET			
18	Surgical Pendant	SET			
19	Anesthesia pendant	SET			
20	SPECIFICATIONS FOR ELECTRO HYDRAULIC TABLE	NOS.			
21	Specifications of Ceiling mounted Dual dome LED OT Lights:	NOS.			
22	Specifications of Ceiling mounted Single dome LED OT Lights:	NOS			
23	MEDICAL GAS PIPELINE				
	OXYGEN MANIFOLD SYSTEM 4 x4 gas manifold				
24	OXYGEN MANIFOLD SYSTEM 2 x2 cylinder emergency manifold				
25	Automatic oxygen control panel (	SET			

	aluminum body)				
26	**N2O MANIFOLD SYSTEM** 2 x 2 size manifold N2O complete with 4 pc tail pipes				
27	**N2O MANIFOLD SYSTEM** 2 cylinder emergency point with pressure reducing systems				
28	**Automatic n2o control panel (aluminum body**	SET			
29	**COMPRESSED AIR SYSTEM**	Each			
30	**Medical air dryers with Absorber-Date, Process-Data, Filer Date, Electrical-Date Specification as under**	Each			
30 A	***Purge saving control (optional)***	Each			
30 B	***Co & dewpoint monitor (optional)***	Each			
31	**VACUUM PUMP SYSTEM**	SET			
32	**COPPER PIPING WITH REQUIRED**				
I	35mm outer dia, 1.2mm thick	R. Meter			
II	28mm outer dia, 0.9mm thick.	R. Meter			
III	22mm outer dia 0.9mm thick.	R. Meter			
IV	15mm outer dia 0.9mm thick.	R. Meter			
V	12mm outer dia 0.7mm thick.	R. Meter			
33	**VALVE WITH VALVE BOX AND PRESSURE GAUGE**				
I	4 services	Each			
II	3 services	Each			
III	2 services	Each			
34	**FLOOR ISOLATION STANDARD VALVE (BALL VALVE WITH BRASS NUT & NIPPLE)**				
I	35MM	Each			
II	28MM	Each			
III	**22MM**	Each			
IV	**15MM**	Each			
35	**AREA LINE PRESSURE ALARM**				
I	Area line pressure alarm upto 3 gases	Each			
II	Area line pressure alarm upto 2 gases	Each			
	OXYGEN GAS OUTLET				
36	**GAS OUTLET POINT**	Each			
I	Front Loaded outlet point (Oxygen vaccum Air Nitrous)	Each			
II	Front Loaded outlet point Probe Only (Oxygen Vacuum Air Nitrous)	Each			
III	BPC Flow Meter	Each			
IV	Humidifier Bottle	Each			
V	Front Loaded Key use for Ventilator (Air , Oxygen)	Each			
37	**Central ward suction ward Vaccum Unit with Regulator**				
I	600ml unit with regulator	Set			
II	1000ml unit with regulator	Set			
III	2000ml unit with regulator	Set			
38	Theatre suction trolly unit with regulator	Unit			
39	High Pressure Tubing – 6mm I.D.	Per Mtr.			
40	Low Pressure Tubing – 6mm I.D.	Per Mtr.			

41	**ELECTRICAL CONTROL PANEL AIR**	Each			
42	**ELECTRICAL CONTROL PANEL VACCUM**	Each			
43	**Master Alarm for Plant**	Each			
44	**ICU BED HEAD PANEL-5FEET**	SET			
45	**Optional Equipments At Extra Cost**				
I	I.V. Hook	Each			
II	Syringe Pump Pole	Each			
III	Utility Basket	Each			
IV	Monitor Tray	Each			
V	Aluminum Channel (Railing)	Each			
VI	Ward Vacuum Stand	Each			
VII	Infusion Pump Stand	Each			

The annual maintenance Contract (AMC) of for the period of three years from the expiry of Guarantee /Warranty period of one year				
1	O.T. No. C	First year		
		Second Year		
		Third Year		
		Total		

U..T.ADMINISTRATION OF DAMAN AND DIU
OFFICE OF THE MEDICAL SUPERINTENDENT'
GOVERNMENT HOSPITAL, DAMAN

NO.GHD/E-TENDER/2012-2013/ ***DATED:- 27.12.2012***

TECHNICAL BID FOR O.T. NO. D

Sr. No.	Description	
1	**WALL SURFACES:-** The main requirements for any Operation theatre wall system are that they should be impact resistant, show resistance to solvents & chemicals, prevent colonizing of micro-organisms or neutralize micro-organisms which come into contact with the wall surface. The surfaces should be stable – prevent cracking and movement, scrub able – amenable to cleaning & have a completely sealed finish, Biological attack resistance & have hygiene finish & lastly have Hydrothermal performance. • All wall mounted equipment should be flush-mounted and sealed into theatre wall by means of durable sterile jointing system. • The wall panel design and construction should allow for the installation and support of all equipment's with provision of openings required for repair and maintenance without affecting rigidity and strength. In case require, one should be able to easily remove the wall panel for service requirements. • The total distance between the inside and outside surfaces of the theatre should vary to suit the architect's layout; however the composite wall thicknesses should be 100mm or less. • The cavity between the inner and outer walls should be left with minimum obstructions for the possible addition of equipment at a later date and to enable services, pipes, conduits etc, to be run within the cavity. • The Sterile coating is water resistant, does not support bacteriological or fungicidal growth and is resistant to most chemicals commonly used in hospital departments. It should neutralise micro- organisms which come into contact and should prevent colonising or sporing of micro-organisms. • The sterile coating shows resistance to a wide range of mixed species, including stubborn pathogens such as MRSA, Acinetobacter sp, Aerobacter aerogenes, Bacillus subtitles, Escherichia coli, Listeria monocytogenes, Pseudomonas aeruginosa, Pseudomonas putida, Salmonella typimurium, Serratia marcescens, Staphylococcus Aureus. • The sterile coating should remain unaffected by radiation, its anti-microbial system should not leach out & its anti-microbial properties should last for a minimum of 10 years. • The sterile coating system should be easily maintained and should withstand repeated cleaning with alkaline detergents, antiseptics and fumigation agents without any degradation to the surface finish or performance. • Conform to standards HTM 08-01 / HTM 56	SQ. Mtr.

2	**WALL & CEILING PANELLING:** The Pre-fabricated operating room should be free standing structure, constructed from composite, free standing insulated steel wall panels. These panels should be produced in a double band laminator, in which two continuously moving belts of Stainless Steel 304 sheets of 0.80mm thickness are firmly bonded together by the sprayed in insulating foam, which hardens during this process. All panels should have a fifteen year de-lamination warranty. The core should consist of rigid polyurethane foam, which has been injected under high pressure, with a minimum density of 40 kg / m3. The walls should be modular in construction, consisting of 1180 mm, 875 mm, 570 mm and 265 mm wide panels, together with corner panels 200 x 200 mm to achieve the desired false ceiling height. The thickness of the complete panel, including the core should be a minimum of 60 mm. Conform with respective certificate copy duly attached herewith having clearly mentioning of above, The modular wall panels are installed upon floor using a “U” channel. Each Pre-Fabricated Operating Room may optionally include sloping ceiling panels at an angle of 45 degrees from the straight wall panel edge. This options reduces the overall volume of the room, decreasing the running costs for air- conditioning and ventilation, while at the same time maintaining the necessary height at the center of the room for the installation of ceiling mounted equipment’s. The inner surface of the operating theatre should be seamless, free from visible joints and sharp edges. All internal corners and panel joints should be filled with proper Epoxy filler, Sanded flush or radiused on site, ready to receive the sterile plastic finish. All panel joints should be invisible when the final plastic coating is applied. All wall-mounted equipment should be flush mounted and sealed into theatre wall by means of a sterile jointing system. The wall panel design and construction should allow for the installation and support of all equipment and the provision for openings required for the installations, without affecting the rigidity and strength. The internal surfaces of the theatre walls and ceiling should be sprayed with water based, non-reflective liquid plastic, to a color approved by the architect, to a minimum dry film thickness of 60 microns. The plastic coating should overlap the floor covering, ceiling system and door frames by 25 mm to provide a continuous sealed surface. The sterile coating applied to a thickness of 60 microns of the already applied primer coating on the panels inner surface, should be water resistant, does not support bacteriological or fungicidal growth and should be resistant to most chemicals commonly used in hospital departments. The sterile coating should remain unaffected by radiation and other ionizing radiation at levels in excess of 1,000 mrad and should be classified to class 1 when tested in accordance with the requirements as specified under BS:476:part 7 ;1971, surface spread of flame test for materials. The coating should be SILVER Ion based. The coating system should be easily maintainable and should be able to withstand repeated cleaning with alkaline detergents, antiseptics and fumigation agents without any degradation to the surface finish or performance.	SQ. MTRS

	The thickness of the wall panels should be a minimum of 10mm and mounted on the existing Wall structure using the necessary steel frame work. The Wall panels should be easily removable for catering to service related needs. **Electrical Components** Each modular panel should contain separate cable pathways for the routing of electrical services and a variety of openings and rear enclosures for the fixing of electrical components. Cable sizes for power sockets, earth and potential equalization wiring should be provided according to the specific requirements of the site. Separation of LV & ELV Supplies to BS7971, conforming to HTM 06-01 & HTM 06-02 standards. **Communication Components** Each modular panel should contain separate cable pathways for the routing of communication services and a variety of openings and rear enclosures for the fixing of components. Internal wiring is executed according to the existing valid standards, running in a separated cable pathway up to an integrated services connection point. **Mechanical Components** Medical gas outlets are connected to the wall panels from pipes running within. Piping for medical gases is segregated by means of a separate duct within the modular panel; the piping used will be medical grade copper tube according to EN737-3. The modular panel is delivered in a pre-piped configuration, including the CE-marked medical gas outlets of which all common brand types are available.	
3	**ESD VINYL FLOORING** The flooring should conform to standards DIN EN 1081, DIN EN 1815 , EN 12466, EN 425, EN 423 & EN 433. It should be fire resistant, scratch resistant, chemical resistant & resistance to fungi – bacterial growth. Vinyl is the oldest effective ESD flooring material. Solid vinyl tile (SVT) can give a facility that hospital look of cleanliness and shine. Facilities managers often favor vinyl floor because vinyl has a reputation for being inexpensive, simple to repair and easy to clean. The joints between individual tiles are to be welded by heat fusion process to get a seamless floor. The PVC welding bar should of the same matching color as that of the tile and a hot air gun is used for fusion of welding bar with flooring tile. Conductive flooring to be installed within the OT area to prevent damage to sensitive medical electronic equipment's, inadvertent movement of surgeons / technicians, accumulation of static dirt. Maintenance should be simple such as each individual tile can be replaced in very short down-time. The conductive flooring should ensure: • The protection of Electronic equipment and components • The protection of people against electro-static discharge risks • The protection of premises against explosive risks. The Conductive tiles should be static – conductive, flexible, homogenous vinyl floor covering with an electrical resistance of 5 x 104≤ Rt ≤ 106 (EN 1081). The Conductive flooring should have the following characteristics: • Low accumulation of electrostatic charges to people & Equipment. • Should provide an enduring resistance to static and dynamic loads • Should display excellent resistance to chemical products such as detergents, acids and alkaline products. • Low VOC emissions. • Should have Fungistatic and bactreostatic treatment throughout the total thickness of flooring. • It should be non-absorbent, impervious and non-porus.	SQ. Mtrs

4	**IMPORTED PLANAIR VENTILATION CEILING / PLENUM / AIR & LIGHT DIFFUSER / LAMINAR FLOW – CONFORMING TO STANDARD HTM 03-01 & HTM 60** The Planair ceiling ventilation system should dilute the bacteria generated by the operating team and patient in the theatre and to create an Air flow pattern that carries contaminated air away from the operating table & entering surgical wounds. It should be designed such that filtered, sterile air flows through the operating zone without an admixture of indoor air. The germs and aerosols released by occupants are displaced into adjacent room zone and removed with the exhaust air. The main components that the Laminar flow should be having is a rectangular air outlet housing with air outlet frame and air discharge element on the underside and two housings on the top side each with a built in HEPA filter. The air discharge element should be a fine - meshed fabric for laminar displacement flow. The air discharge element should be split with a feed through for the Surgical light. The element should be removable or can be folded downwards for easy accessibility to the housing interior for cleaning and disinfection. It should be also easily accessible to the HEPA filters which can be easily replaced when required to do so. The complete Laminar flow system should be Pre-manufactured and pre-assembled unit, modular in design, having connection box and filter frame. The construction should consist of four units' modular in design with filter frames and variable connection hoods for the supply air, The air discharge element should be made of fine-mesh laminar fabric (polyester) with a surrounding stainless steel frame. The air outlet housing should be made of stainless steel and the filter housing of powder coated steel sheet. The Laminar air distribution element should be modular in design, divided into four parts with a minimum number of bars, individually foldable, covered with monofilament polyamide from one side, fixed without screws. It should have a connection for differential pressure measurement. The Laminar flow should be of following characteristics: 1) Planair Pleanum Size : 2800mm x 2800mm with 4000CFM capacity Laminar Air Flow 2) Planair Pleanum Size : 1800mm x 1800mm with 2000CFM capacity Laminar Air Flow The system should be certified according to DIN 1946-4 (12-2008), tested to DIN 4799, having horizontally arranged terminal HEPA filters of H 14 type with grip protection on both sides; filter exchange from pure air side, filter tested and certified according to DIN EN 1822-1.	Set
5	**DOOR AND FRAME**	
	Hermetically Sealed Sliding Door – Automated • Automated operated hermetically sealing sliding main door on OT, of appropriate size, 2100mm (H) X 1000 (W) and 2100mm (H) X 1500 (W) • Having a track system wherein the door blade is guided under a 45° angle with approximately 6mm deep indentations at the closed position. • Having a special inside & outside Stainless Steel lever handle that lifts out the door blade from its hermetic closing position, thus allowing even very heavy doors to be opened effortlessly, manually. • Encased within an extruded anodized 2.5 mm thick aluminum profile frame all around the door blade with solid high pressure laminate on both sides. • Should have special nylon top rollers with double roller bearings, to enable the door to slide smoothly & silently. • The door blade to have a special 3-tier specially designed 3 side heavy duty replaceable EPDM gasket, for the hermetic sealing on the wall	Set

	frame. The bottom sealing should be with a 2-tier heavy duty EPDM gasket to flush with the finished floor. • The door core should be 60 mm thick, built up with 4 mm thick HPL (High pressure compact laminate) skin on both sides of the door to provide better strength and rigidity. Having between the two sides of laminates – CFC free, high density polyurethane puff (density 40 Kg / m3), thickness 52mm. • Vision panels - double glazed, laminated safety glass, flush finished on both sides with door blade should be provided in the doors. • The automation controller for the door should be microprocessor based with regulated electro-mechanical sliding door drive. • The automation should be able to operate a door with maximum door weight of 250Kg. • The wall frame should be high grade aluminum extrusion with natural anodized 15 micron finish wall frame profile. The wall frame profile should be 3 sided blind fixed with cladding on wall cut-out section from inside and outside of the room. • The automation should have variable / adjustable opening & closing speeds, with opening speed adjustable between 120mm / sec --- 800mm / sec and the closing speed adjustable between 120mm / sec ---- 500mm / sec. • The automation / door can be controlled/operated using either push-button switch, Kick switch or Sensor (touch less – infra-red) switches OR all in combination.	
6	**Double Leaf SS Door** Double Leaf Stainless Steel Door Single Side Open Flush Door with 49mm thickness of both door leafs, having size of 1800mm x 2100mm with view window of 300mm x 300mm duly complete with clean view glass, The Door should be having .8mm thick SS304 sheet on both faces while door core should be of PU, The Door should be hinge mounted and should complete with all necessary accessories i.e.Door closer, D type SS Door Handle etc.	SET
7	**Single Leaf Stainless Steel Single Side Open Flush Door with 49mm thickness,** having size of 1000mm x 2100mm with view window of 300mm x 300mm duly complete with clean view glass, The Door should be having .8mm thick SS304 sheet on both faces while door core should be of PU, The Door should be hinge mounted and should complete with all necessary accessories i.e.Door closer, D type SS Door Handle etc.	SET
8	**WALL MOUNTED ITEMS:---** Imported Operation theatre control panel It should be a digital control panel consisting of a computer and a touch screen managed by a PLC. It should integrate all controls, signals and alarms of the operation theatre and offer several services addressed to the maintenance staff. The information management system should be managed by the programmable software – PLC and the visual and control parameters by the PC / Touch screen, IP64 protected, 15" (inches) in size. It should have a digital microphone and speakers, a 300K pixel camera, ambient light sensor and a wireless LAN 802.11 a Bluetooth V2.0. Following frequent used functions should be available **a) Controls:** ☐☐ General Light Switch control, 3 controls in number, having dimming facility ☐☐ Temperature and humidity display ☐☐ Operation theater status – occupied / free / cleaning ☐☐ Stopwatch control ☐☐ OT surgical light switch (depending upon the make ,model of the	Set

	light) **b) Alarms:** ☐☐ Electrical Alarm (visual & Acoustic) ☐☐ Gases Alarm repeater (Visual & Acoustic) ☐☐ UPS charging status **c) Communications:** ☐☐ Telephone / IP Telephone if line available ☐☐ Ethernet connection ☐☐ SMS Alarms ☐☐ Video- Conference facility d) Signals: ☐☐ Digital Inputs / Outputs: 14 Nos / 10 Nos. ☐☐ Analogue : (0-10V) Inputs / Outputs (2 Nos. / 1 Nos.	
9	**X-ray viewing screens (two plates)** • The theatre should be equipped with a twin plate X-Ray Viewing Screen, recessed in the wall and designed to provide a high level of control luminance, without flicker, from a unit that is easy to clean and maintain. • The X-Ray viewing screen illumination should be by LED lamps, controlled by dimming ballast. • The front panel diffuser is of a glare free type, sealed flush with the inside face of the operating theatre wall (or may as an option be integrated within the control panel fascia). • The LED lamps should provide a uniform level of illumination across the entire front panel. • Access for maintenance and lamp changing is from the front of the panel. • All internal wiring is terminated in connectors with screw and clamp spring connections. • Individual fuses or miniature circuit breakers protect all internal circuits. • All internal wiring is of high temperature resistance and secured by propriety cable clips It is flush mounted and sealed into theatre wall by means of a sterile jointing system.	EACH
10	**Equipment Storage Unit** • Equipment Storage Unit to be provided in operating theatre of dimensions approved by the user. • It should be flush mounted into the theatre wall with a sterile jointing system. • The cabinets should be made of Stainless Steel AISI 304 material. • Doors of cabinet should open right to left and made of clear safety glass. • It is suitably partitioned / shelved to allow storage of common endoscopic equipment's. • It has the facility of secure locking. • Conform to standard HTM 63	EACH
11	**Operating List - Writing Board** • It is flush mounted with a sterile jointing system, 1.50mm thick, white laminate board, bonded to a 2mm steel sheet for additional rigidity.	EACH
12	**Cascade Pressure Stabilizer** • Cascade pressure stabilizers should be a range of multi-bladed units specifically designed to control room air pressures in critical areas,	EACH

	such as operating theatre suites. • Each stabilizer should comprise of carbon steel housing with up to four Grade 304 Stainless steel blades, which pivot upon sealed for life bearing assemblies. • Balancing is carried out utilizing a proven balance weight assembly. • These stabilizers should be accurate to a range of 1 Pascal over their working range of 5-35Pa.	
13	**Hatch Box** A hatch should be provided to remove waste material from the operation theatre to dirty linen area just adjacent to the operation theatre. Each hatch should be equipped with two doors and the door should be operated electronically. The hatch should be designed in such a way that only one door should be opened at one time. The UV light should be so installed that it is kept on while both the doors are closed, this UV light should automatically turn "OFF" in case of opening of either of the doors. There shall be indicators on both sides of the OT such that door open / close status can be monitored from both ends.	EACH
14	**Clean-room illuminators** Lamp covered with translucent Plexiglas with high transmission level (higher than 80%), held in a frame of white shell sheet, with integrated screw angles for fastening the lights to the panel system. Including closed mounting frame for the built-in LED lamps; the connection between the illuminator and the ceiling hollow space should be completely airtight. Clean-installed light should non-hygroscopic and be of IP 54 grade. Dimensions should approximately be 600 x 300mm (length x width).	EACH
15	**Surgical Scrub Sink** The Surgical Scrub Sink should be made of Stainless Steel of grade AISI 304. It should be destined to be used for operating theatres, where high hygienic standards are to be maintained. It should be free standing sink with wall mounted possibility, having a depth of 300 mm. It should be two bay, having standard 2 x drain traps, water and soap dispensers activated by sensor, water and soap time adjustable, water thermostat – temperature adjustable and having chrome faucets. It should have open able front panel with two latches for maintenance purposes, having approximate dimensions of 1600 (L) x 635 (w) x 1271 (H) in mm.	EACH
16	**AHU - AIR HANDLING UNIT (DOUBLE SKIN TYPE)** **Type** The air-handling units are of double skin construction, draw-thru type comprising of various sections such as Pre-filter section, coil section, as shown on drawings and included in schedule of quantities. Unit must be able to work satisfactory in exposed atmosphere conditions. **Casing** Double skinned panels are fabricated with anodized extruded aluminum extrusion frame work bolted together with sandwich panel having powder coated 0.70 mm sheet for outer skin and plain GP 0.63 mm sheet for inner skin. 43 mm thick PUF insulation material is injected between the two panels (with U value no greater than 0. 85 W / m2/k) The entire frame duly painted is mounted on sheet steel channel based. The panels are sealed to the framework by heavy-duty 'O' ring gaskets held captive in the framed extrusion. All panels are detachable or hinged. Hinges are made of die cast aluminum with stainless steel pivots, handles are made of hard nylon and be operational from both inside and outside of the unit. All fixing and gaskets shall be concealed.	SET

Motor and Drive
Fan motors are highly efficient and work on 440 ± 10% volts, 50 cycles, three phase with explosion proof type with class F installation, with IP 55 protection. Motors are especially designed for quiet operation and motor speed does not exceed 1440 rpm. Drive to fan is provided through belt-drive arrangement. Belts are of the oil-resistant type.

Fan
Fan are of centrifugal type, conforming to AMCA 210 and are double width, double inlet with forward- inclined airfoil blades, specially designed and suitable for the required operating pressure. Fan casing are made from galvanized steel sheet. Fan shaft is grounded C 40 carbon steel and supported in self-aligning plumber block operating less than 75% of first critical speed, grease lubricated bearings.

Cooling Coils
DX coils have 12.5 to 15 mm dia tubes minimum 24G thick with sine wave aluminum fins firmly bonded to copper tubes assembled in zinc coated steel frame. Face and surfaces areas are such as to ensure rated capacity from each unit and such that the air velocity across the coil does not exceed
150 meters per minutes. Each coil is factory tested at 21-kg/m2 air pressures under water. Tube is

Hydraulically / mechanically expanded for minimum thermal contact resistance with fins. Fin spacing is 4 - 5 fins per cm.

Filters

Each unit is provided with a factory assembled filter section containing washable synthetic type air filters having anodized aluminum frame. The media is supported with HDP mesh. Filter banks are easily accessible and designed for easy withdrawal and renewal of filter cells. Filter banks face velocities do not exceed 100 m/minutes. Differential pressure switch is to be fixed across the filter as part of AHU's system.

Ducting

The duct supply system should be free of construction debris. Ducting shall be made of Aluminum with curves & bends where indicated for easy flow of air and ensured to be air tight by applying silicon sealant after fabrication. Hangers shall be provided to ducts & shall be suspended by means of G.I. coated rods & these shall not be more than 2.5mtrs apart. Thermal insulation with 9mm XPE for supply & return air ducts. Joints will be lapped with Nitrile rubber tape for better insulation.

Air Cooled Package Chiller / Condensing Units.

Compressor
The compressor shall be of screw, scroll / reciprocating type, hermitic, in accordance with ARI 520, direct driven with capacity control arrangement. The compressor casing shall be of cast iron and designed for 450 psig or higher. The compressor shall incorporate rolling element bearing to support rotating assembly. The rotor shall be higher steel alloy. We prefer the use of Copeland USA Compressors Hermetic Compressors.
Refrigerant circuit components shall include flexible pipe connectors, hot gas muffler, high side pressure switch, liquid line shut-off valves, suction and discharge shut-off valves, filter drier, moisture- indicating sight glass, electronic or thermostatic expansion valve (EXV), heavy duty pressure gauge with cocks to monitor suction, discharge and oil pressure and complete operating charge of refrigerant and compressor oil.

	Motor Compressor motor shall be of Hermetic / semi-hermetic direct drive, squirrel cage, two pole, induction type, refrigerant cooled motor suitable for 415V / 50 Hz. 3 phase supply. Hot gas motor cooling is not acceptable. We prefer the use of Copeland USA Compressors Hermetic Compressors. **Condenser** **Condenser shall be Air Cooled type.** Tubing shall be copper, Aluminum fins high efficiency type. Tubes shall be nominal 19mm. Outer diameter and thickness shall not be less than 22 g. and rolled into rube sheets and shall be individually replaceable and also tubes shall be coated with corrosion resistant coating. Condenser fans shall be direct coupled to motor and protected against overloading and with minimum **1.15 service factor.** Condenser shall design to allow isolating refrigerant charge when servicing the compressor. With maintain the above said technical specifications, The Air Handling Unit with Air Cooled Package Chiller / Condensing Units should have following capacity: 1) 17.5 tr with 5000CFM 2) 11 tr with 3500 CFM	
17	**Imported Ceiling Pendants** The idea of using ceiling mounts is such that they can be easily swiveled in place to have medical equipment or gases readily available for patient treatment or care. The benefits should translate to flexible positioning and optimal space utilization & in addition hygiene and safety advantages. In nutshell it should eliminate cable clutter and above all the unrestricted movement of all components in the space around the place of use. They should be CE marked / approved.	SET
18	**Surgical Pendant** The surgical arm shall be double arm, each arm length of 800mm length. The arm should be able to swivel around each joint by 330 degrees. It should be able to withhold a weight of not less than 150kg. The surgical pendant should have the following features: • Distributor heads / consoles should be modular of length 1100mm & capable of accepting a range of shelves (3 Nos.) and a drawer with a top shelf, each having weight carrying capacity of at least 30kg. • The distributor head should have 10 universal electrical sockets, 1 set of RJ45 / RJ11 connectors, have 2 * Infusion poles with 4 bottle holders. • Five medical gas outlet terminals: 1 * O_2 : 2 * Vac : 2 * Air (4 bar) OR 2 * CO_2: 1 * O_2 : 1* Vac : 1 * Air	SET
19	**Anesthesia pendant** The arm of pendant shall be single arm of length of 800 mm. The arm should be able to swivel around each joint by 330 degrees. It should be able to withhold a weight of not less than 150kg. The pendant should have the following features: • Distributor heads / consoles should be modular of length 800mm long approx. & capable of accepting a range of shelves (2 Nos.) and a drawer with a top shelf, each having weight carrying capacity of at	SET

	least 30kg. • The distributor head should have 8 universal electrical sockets, 1 set of RJ45 / RJ11 connectors, have 2 Infusion poles with 4 bottle holders. • Five medical gas outlet terminals: 2 * O_2 : 2 * N_2O : 1 * Air (4 bar) :1* Vac	
20	**<u>SPECIFICATIONS FOR ELECTRO HYDRAULIC TABLE</u>** ➢ Electro Hydraulic operated eight function remote control table up and down, trendelenbreg and reverse trendelenberg, right lateral, left lateral, backrest, up & down. ➢ Should be Remote control table with corded remote. ➢ Power supply should be 220 v, 5 amps and three pin plug point. ➢ Remote cord and main plug should come from head end of the table (i.e) from the bottom of the base, to facilitate the anesthetist ➢ Table should have 100mm central lock castors for longitudinal and lateral movements, the castors should be made of polyurethane and molded to prevent water and rust entering inside. ➢ Braking should be effective and should have a dead lock when broken; it should be on the head end side of the table, to facilitate the anesthetist, and one brake on the tail end for better stability. ➢ Leg bed should be two pieces right and left and should be detachable and abductable and also should move up & down. ➢ Table top should have five sections; it should be breakable into inverted v-shape from the head side. ➢ Trendelenberg and lateral mechanism should be concealed with bellows; column should be straight without any projection on right or left. ➢ Table column size should be 280mm x 280mm. ➢ Table should have provision to view spine ap and lateral c-arm. ➢ Polyurethane detachable cushion top should be provided on the table top. ➢ Base covers should be covered with impact, shock resistant, fire resistant and disinfectant free material. Base should be broader in the head end. ➢ The column casing, table top frame, traction bars and all accessories made of non-corrosive steel. The main column should be covered with non-corrosive stainless steel. ➢ Inbuilt battery back up should be provided. ➢ The table top should be reversible, the headrest attachments should fix to the tail side and the tail side attachment should fix to the head side. ➢ The table should have a provision to fix top leg traction attachment. ➢ The table should have manual pre sector for all positions. ➢ In case of electrical components failure, the table should be operated manually by mechanical pedaling for all positions. ➢ The table should be capable of taking off centered load from neck to toe should be screened in to C-Arm without any disturbance. ➢ Should be ISO 9001, ISO 13485 Approved. ➢ The entire vertebral column should be viewed without any hindrance. ➢ Patient sitting position, with Tendlenburg maximum should be possible. ➢ Minimum height 27” preferred. ➢ Should adapt Mayfield sugitha and Lyela retractor.	EACH
21	**Specifications of Ceiling mounted Dual dome LED OT Lights:** • Dual Dome Ceiling mount structure with use of multiple LEDs • Output Lux intensity of 1,20,000 Lux at 1 meter in one dome (size cm: 61x52x11) and 60,000 lux at 1 meter in another dome(size cm: 38x32x10) • Total Power consumption of less than or equal to 200 watts • Color temperature of the LED to be equal to daylight color temperature – 5500 k • Life of LED - 50,000 hours or more	EACH

	• Six motions in each arm to achieve all positions and angles • More than 1100 mm up-down movement for both Domes • All five rotary motions in each arm to have stopper less design for continuous rotation • Wide reach of more than 2 meters in all direction from center for both arms to cover majority of Operation room area • Wide operating voltage range from 90 v to 260 v to cover mains voltage fluctuations • User selectable intensity variation with digital display from 0 % to 100 %, individual for each dome • Digital Display of Life of LED used in hours for each dome • Quarter yoke sets in domes for easy handling • Availability of Direct battery operation option • Provision of Camera at the center of Main Dome • Sterilisable & detachable Plastic handle at the center of the each dome for focus adjustment • To have ISO 13485 & ISO 9001 certification • with German Spring Arm • Intensity variable from 0-100%	
22	**Specifications of Ceiling mounted Single dome LED OT Lights:** 1. Single Dome Ceiling mount structure with use of multiple LEDs 2. Output Lux intensity of 90,000 Lux at 1 meter in one dome (size cm: 61x52x11) 3. Total Power consumption of less than or equal to 90 watts 4. Color temperature of the LED to be equal to daylight color temperature – 5500 k 5. Life of LED - 50,000 hours or more 6. Six motions to achieve all positions and angles 7. More than 1100 mm up-down movement of dome 8. All five rotary motions to have stopper less design for continuous rotation 9. Wide reach of more than 2 meters in all direction from center to cover majority of Operation room area 10. Wide operating voltage range from 90 v to 260 v to cover mains voltage fluctuations 11. User selectable intensity variation with digital display from 0 % to 100 % 12. Digital Display of Life of LED used in hours 13. Quarter yoke sets in dome for easy handling 14. Availability of Direct battery operation option 15. Sterilisable & detachable Plastic handle at the center of the dome for focus adjustment 16. To have ISO 13485 & ISO 9001 certification 17. with German Spring Arm 18. Intensity variable from 0-100%	EACH
	<u>MEDICAL GAS PIPELINE</u>	
23	**OXYGEN MANIFOLD SYSTEM** 4 x4 gas manifold are extendable & non extendable type with choice of size of cylinders bank for bulk ‘d’ type jumbo cylinders, manifold is suitable to with stand a working pressure of 140kg/cm manifold have high pressure copper annealed tail pipes with one end having brass adapter suitable for cylinders. Manifold have brass non-return valves for individual cylinders (cylinders must be provides by the Govt. Hospital).	EACH
24	**OXYGEN MANIFOLD SYSTEM** 2 x2 cylinder emergency manifold with pressure reducing systems extendable & non extendable type with choice of size of cylinders bank for bulk ‘d’ type jumbo cylinders, manifold is suitable to with stand a working pressure of 140kg/cm manifold have high pressure copper annealed tail pipes with one	EACH

<table>
<tr><td></td><td>end having brass adapter suitable for cylinders. Manifold have brass non-return valves for individual cylinders (cylinders must be provides by the Govt. Hospital).</td><td></td></tr>
<tr><td>25</td><td>Automatic oxygen control panel (aluminum body)
A) compact and fully automatic manifold control system for oxygen n2o and co2
B) designed with both safety and continuity of flow supply at a constant pressure via two banks f botted gas cylinders with following status monitoring
C) a-bank in use (green indicator)
D) B-bank ready for use (yellow indication)
E) control panel has build in led display to indicate normal, low for line pressure
F) the control panel includes pressure gauge (63mm) to indicate the gas pressure of each header ad pipe line distribution pressure
G) capable to provide a distribution flow rate in excess of 1500 lpm
H) the control panel incorporate safety puncture in case pressure excess 100 psi
I) Oxygen Failure Alarm System with Indication</td><td>SET</td></tr>
<tr><td>26</td><td>N2O MANIFOLD SYSTEM
2 x 2 size manifold n2o complete with 4 pc tail pipes
extendable & non extendable type with choice of size of cylinders bank for bulk ‘d’ type jumbo cylinders, manifold is suitable to with stand a working pressure of 140kg/cm manifold have high pressure copper annealed tail pipes with one end having brass adapter suitable for cylinders. Manifold have brass non-return valves for individual cylinders (cylinders must be provides by the Govt. Hospital).</td><td>EACH</td></tr>
<tr><td>27</td><td>N2O MANIFOLD SYSTEM
2 cylinder emergency point with pressure reducing systems
extendable & non extendable type with choice of size of cylinders bank for bulk ‘d’ type jumbo cylinders, manifold is suitable to with stand a working pressure of 140kg/cm manifold have high pressure copper annealed tail pipes with one end having brass adapter suitable for cylinders. Manifold have brass non-return valves for individual cylinders (cylinders must be provides by the Govt. Hospital).</td><td>EACH</td></tr>
<tr><td>28</td><td>Automatic n2o control panel (aluminum body)
A) compact and fully automatic manifold control system for oxygen n2o
B) designed with both safety and continuity of flow supply at a constant pressure via two banks f botted gas cylinders with following status monitoring
C) a-bank in use (green indicator)
D) B-bank ready for use (yellow indication)
E) control panel has build in led display to indicate normal, low for line pressure
F)the control panel includes pressure gauge (63mm) to indicate the gas pressure of each header ad pipe line distribution pressure
G) capable to provide a distribution flow rate in excess of 1500 lpm
H) the control panel incorporate safety puncture in case pressure excess 100 psi
I) N2O Failure Alarm System with Indication</td><td>SET</td></tr>
<tr><td>29</td><td>COMPRESSED AIR SYSTEM
Air compressed system Oil Free with (2 /24/28cfm) 7.5 hp head 7.5 hp motor mounted air receiver tank capacity , 1000liter complete and Lubricating Two stage air compressors

<table>
<tr><td rowspan="2">H.P.</td><td rowspan="2">No. of cyl.</td><td colspan="2">Piston displacement</td><td colspan="2">pressure</td><td rowspan="2">r.p.m.</td><td rowspan="2">Tank capacity in liter</td></tr>
<tr><td>c.f.m</td><td>l.p.m.</td><td>Psi</td><td>Kg/cm2</td></tr>
</table>
</td><td>EACH</td></tr>
</table>

7.5	2	27	756	175	12	550	1000ltr	

30	**Medical air dryers with Absorber-Date, Process-Data, Filer Date, Electrical-Date Specification as under**	SET

Guaranteed dew point performance
No cfc refrigerants
Desiccant immobilized to eliminate dusting
Design simplicity

30 A ***Purge saving control (optional)***

30 B ***Co & dewpoint monitor (optional)***

Flow cfm	End connection bsp	Dimensions (mm)			Weight Kgs
		H	W	D	
30	½"	810	1050	780	70

General Data

Product: Regenerative type Heatless Desiccant Dryer
Flow: 30 scfm
Operating pressure: 7 bar (g)
Design Pressure: 16 bar (g)
Max. Pressure drop: 0.3 bar
Inlet temperature: 45 deg C Max
End connection: ½" BSP F
Atmospheric dew point: - 40 deg C

3.2 Adsorber – Data

Adsorbant: Activated alumina
Size: 2 to 6 mm
Desiccant life: 1 year
No. of adsorber: 2 Nos.
Quantity of adsorbant: 3 Kg per Tower
Diameter of Adsorber: OD 101 mm
Straight head of adsorber: 515 mm
Thickness of Adsorber: 3 mm
Adsorber Shell: Aluminium IS 63400
Top & Bottom block : Aluminium IS 63400

Process –Data

Data/Component : Description
Cycle time : 4 min
Drying time per tower : 2 min
Regeneration time per tower : 1.5 min
Repressurising time per tower : 0.5 min

Filter Data

Pre filter:
Micron rating : 0.3 - 0.6 microns
Filtering media : Borosilicate fiber
Efficiency : 99.9 %
Utilities : Auto drain valve
After filter:
Micron rating : 25 microns
Filtering media : Sintered Bronze

Electrical – Data

Controller : Custom made Micro controller based system
Input voltage : 85 – 265 V AC, 50 / 60 Hz., 20 Watts Max.
Output : 2 Exhaust & 1 Drain valve 24 V / 8 Watts Solenoid coils
Display : 3 LED indicating Drain, Tower 1 & Tower 2 Status
Enclosure : IP 55 Protection, ABS plastic

	Connection : DIN 43650 Micro	
31	**VACUUM PUMP SYSTEM** **Technical specification:-** Bore & stroke 3" & 3" x 2 ¾" R.P.M. 960 P.D. 21.6 Max. working pressure (psig / kg / cm2) 29.6" barometer reading ar the sea level Vacuum tank (liters 500ltr) Motor HP required 2 Scope of supply - Suction air filter - Vacuum pump with v.sheave along with electrically mounted on the vacuum tank - Regulation : ASSC vacuum switch of standard co. make - Vacuum pump & motor pulley, v-belts belt guard, motor slide rail etc. - Vacuum pump with v. sheave along with electrical mounted on the vacuum tank - Motor of standard co. with ISI and ISo standard along with DOL starter of standard co. CE marked only	SET
32	**COPPER PIPING WITH REQUIRED** COPPER FITTINGS SIZE TO BE USED As per (BSEN) 13348 as per HTM-02..01 Copper and Copper alloys-Seamless round tube for a medical gases or vacuum, materials conforming to manufacturers as per BS:EN:13348:2001+A1:2005 Copper pipe of this European standard are suitable for distributing the following medical gases intended to be used at operating pressure up to 2000kpa and for system under vacuum * Oxygen, Nitrous Oxide, Nitrogen, Helium, Carbon Dioxide, Xenon * Air for Breathing * Specific mixture of these above mentioned gases * Air for Driving surgical tools * Anaesthetics gases and vaporous * Vacuum Mandatory Inspection Requirements: Chemical Composition Cehmical Composition of copper pipe shall conform to the following requirements. The analytical methods shall be carried out by Direct Emission Spectrometer. Copper + Silver: min. 99.90% Phosphorous : min. 0.015%, Max 0.040% 11) 35mm outer dia, 1.2mm thick 12) 28mm outer dia, 0.9mm thick. 13) 22mm outer dia 0.9mm thick. 14) 15mm outer dia 0.9mm thick. 15) 12mm outer dia 0.7mm thick.	Running Meter
33	**VALVE WITH VALVE BOX AND PRESSURE GAUGE** It will be wall mounted M.S. box with powder coated and lockable front glass panel having ball type valves with PTFE seat, brass body nickel plating valves having quarter turn handle opening size suitable for 12mm od copper pipe to 28 mm od copper pipe will have screwed ends will have brass adapters suitable for copper pipe, thevalve box door can not be closed during valve close position. These valves will be manufactured by an iso 9001 certified company. 7) 4 Services 8) 3 Services 9) 2 Services	SET

34	**FLOOR ISOLATION STANDARD VALVE (BALL VALVE WITH BRASS NUT & NIPPLE)** **35MM** **28MM** **22MM** **15MM**	Each
35	**AREA LINE PRESSURE ALARM** Area line pressure alarm upto 3 gases Area line pressure alarm upto 2 gases The medical gas alarms will have displays for various fault indications and capable of monitoring a maximum of 4 to 5 medical gas services by means pressure switches, Which detect deviations from the normal operating limits of either pressure or medical vacuum Each gas services will be displayed by colored normal low high pressure conditions. Medical vacuum systems will be displayed in the normal & low vacuum condition only Failure indicators will be displayed by flashing lights and normal indication will be study. An audible warning will sound simultaneously with any failure indication at a mute facility will be provided. A maintenance mute switch will be provided internally to the panel for use during maintenance, which results in prolonged pipeline or plant shutdown. This facility will automatically reset when the gas service returns to normal. The alarm panel will have a test facility to prove the integrity of the internal circuit, and microprocessor based electronic circuit led and audible warning The alarm is equipped with separate gauges for each gas for showing the pressure and it complies to htm 2022 standard.	Each
	OXYGEN GAS OUTLET	
36	**GAS OUTLET POINT** • Allows plugging of oxygen flowmwter & probes from front. • Bears weight of the metal BPC flowmeter & humidifier • Push to insert and press to release mechanism for flowmeter & probes • Locating terminal unit pin & probe notch gives maximum stability to the flowmeter unit • Non-interchangeability between Probes & terminal outlets for different services; possibility of error in making connection is avoided	Each
I	Front Loaded outlet point (Oxygen vaccum Air Nitrous)	Each
II	Front Loaded outlet point Probe Only (Oxygen Vacuum Air Nitrous)	Each
III	BPC Flow Meter	Each
IV	Humidifier Bottle	Each
V	Front Loaded Key use for Ventilator (Air , Oxygen)	Each
37	**Central ward suction ward Vacuum Unit (600ml, 1000ml, 2000ml) with Regulator** The system should be wall mounted type operated by central vacuum. It includes vacuum regulator range form 0-760mm hg. Use can vary negative pressure as per patient requirement. Vacuum gauge sizes 2” and 600ml capacity autoclavable plastic jars with overflow safety trap will be provided. Ward suction units should be provided with required high and low pressure tubing 600ml unit with	Set
38	Theatre suction trolly unit with regulator Theatre vacuum unit: - it will be trolley mounted. The unit will include one regulator having meter mounted in the trolley stand, having two re-usable each 2000ml plastic collections bottles mounted on base of trolley unit and connected with regulator and low pressure tube inter connections. The base of	Unit

	the trolley is fitted on castor wheel arrangement to move the system one place to another place easily.	
39	High Pressure Tubing – 6mm I.D. Grey for Air Yellow for Vacuum Blue for Nitrous Oxide White for Oxygen	Per Mtr.
40	Low Pressure Tubing – 6mm I.D. Grey for Air Yellow for Vacuum Blue for Nitrous Oxide White for Oxygen	Per Mtr.
41	**ELECTRICAL CONTROL PANEL AIR** Electrical Control Panel Equipped for Duplex & Cascade system. For Compressor	Each
42	**ELECTRICAL CONTROL PANEL VACCUM** Electrical Control Panel Equipped for Duplex & Cascade system. For Vacuum Pump	Each
43	**Master Alarm for Plant** The medical gas alarms will have displays for various fault indications and capable of monitoring a maximum of 4 to 5 medical gas services by means pressure switches, Which detect deviations from the normal operating limits of either pressure or medical vacuum Each gas services will be displayed by colored normal low high pressure conditions. Medical vacuum systems will be displayed in the normal & low vacuum condition only Failure indicators will be displayed by flashing lights and normal indication will be study. An audible warning will sound simultaneously with any failure indication at a mute facility will be provided. A maintenance mute switch will be provided internally to the panel for use during maintenance, which results in prolonged pipeline or plant shutdown. This facility will automatically reset when the gas service returns to normal. The alarm panel will have a test facility to prove the integrity of the internal circuit, and microprocessor based electronic circuit led and audible warning The alarm is equipped with separate gauges for each gas for showing the pressure and it complies to htm 2022 standard.	Each
44	**ICU BED HEAD PANEL-5FEET** 1. The construction of the wall section is made of extruded aluminum 2. The extruded aluminum structural lower channel will include a vertical integrate equipment mounting track to support optical track mounted equipment. 3. Optional equipments like I,v, hook infusion pole utility basket, monitor tray etc. can be install into the track at any location along the extruded aluminum channel. 4. Gas outlets/ switch –socket/monitor socket/ nurse call system can be fitted on middle portion of the bed console unit after cutting the aluminum sheet as per hospital requirements. 5. Bed Head Panel for ICU 5 Feet Long made of High strength extruded Aluminum profile with powder coated with colour. Each Bed Head Panel have provision for O2-2., Vac-2, Air-4-1 and 5/15amp Switch socket 4nos. with optional Railing and IV Stand, Ward Vacuum and Infusion pump stand	SET

44 A	**Optional Equipments At Extra Cost**	
I	I.V. Hook	Each
II	Syringe Pump Pole	Each
III	Utility Basket	Each
IV	Monitor Tray	Each
V	Aluminum Channel (Railing)	Each
VI	Ward Vacuum Stand	Each
VII	Infusion Pump Stand	Each

U..T.ADMINISTRATION OF DAMAN AND DIU
OFFICE OF THE MEDICAL SUPERINTENDENT'
GOVERNMENT HOSPITAL, DAMAN

NO.GHD/E-TENDER/2012-2013/ ***DATED:- 27.12.2012***

FINANCIAL BID FOR O.T. NO. D

Sr. No.	Description		Qty.	Rate Each	Total Cost
1	WALL SURFACES:-	SQ. Mtr.			
2	WALL & CEILING PANELLING:	SQ. MTRS			
3	ESD VINYL FLOORING	SQ. Mtrs			
4	IMPORTED PLANAIR VENTILATION CEILING / PLENUM / AIR & LIGHT DIFFUSER / LAMINAR FLOW – CONFORMING TO STANDARD HTM 03-01 & HTM 6	Set			
	DOOR AND FRAME				
5	Hermetically Sealed Sliding Door – Automated	Set			
6	Double Leaf SS Door	SET			
7	7Single Leaf Stainless Steel Single Side Open Flush Door with 49mm thickness,	SET			
8	WALL MOUNTED ITEMS:---	Set			
9	X-ray viewing screens (two plates)	Nos			
10	Equipment Storage Unit	Nos.			
11	Operating List - Writing Board	Nos.			
12	Cascade Pressure Stabilizer	Nos.			
13	Hatch Box	Nos.			
14	Clean-room illuminators	Nos.			
15	Surgical Scrub Sink	Nos.			
16	AHU - AIR HANDLING UNIT (DOUBLE SKIN TYPE)	LOT			
17	Imported Ceiling Pendants	SET			
18	Surgical Pendant	SET			
19	Anesthesia pendant	SET			
20	SPECIFICATIONS FOR ELECTRO HYDRAULIC TABLE	NOS.			
21	Specifications of Ceiling mounted Dual dome LED OT Lights:	NOS.			
22	Specifications of Ceiling mounted Single dome LED OT Lights:	NOS			
	MEDICAL GAS PIPELINE				
23	OXYGEN MANIFOLD SYSTEM 4 x4 gas manifold				
24	OXYGEN MANIFOLD SYSTEM 2 x2 cylinder emergency manifold				
25	Automatic oxygen control panel (aluminum body)	SET			

26	N2O MANIFOLD SYSTEM 2 x 2 size manifold N2O complete with 4 pc tail pipes				
27	N2O MANIFOLD SYSTEM 2 cylinder emergency point with pressure reducing systems				
28	Automatic n2o control panel (aluminum body	SET			
29	COMPRESSED AIR SYSTEM	Each			
30	Medical air dryers with Absorber-Date, Process-Data, Filer Date, Electrical-Date Specification as under	Each			
30.A	*Purge saving control (optional)*	Each			
30.B	*Co & dewpoint monitor (optional)*	Each			
31	VACUUM PUMP SYSTEM	SET			
32	COPPER PIPING WITH REQUIRED				
I	35mm outer dia, 1.2mm thick	R. Meter			
II	28mm outer dia, 0.9mm thick.	R. Meter			
III	22mm outer dia 0.9mm thick.	R. Meter			
IV	15mm outer dia 0.9mm thick.	R. Meter			
V	12mm outer dia 0.7mm thick.	R. Meter			
33	VALVE WITH VALVE BOX AND PRESSURE GAUGE				
I	4 services	Each			
II	3 services	Each			
III	2 services	Each			
34	FLOOR ISOLATION STANDARD VALVE (BALL VALVE WITH BRASS NUT & NIPPLE)				
I	35MM	Each			
II	28MM	Each			
III	22MM	Each			
IV	15MM	Each			
35	AREA LINE PRESSURE ALARM				
I	Area line pressure alarm upto 3 gases	Each			
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	OXYGEN GAS OUTLET				
36	GAS OUTLET POINT	Each			
I	Front Loaded outlet point (Oxygen vaccum Air Nitrous)	Each			
II	Front Loaded outlet point Probe Only (Oxygen Vacuum Air Nitrous)	Each			
III	BPC Flow Meter	Each			
IV	Humidifier Bottle	Each			
V	Front Loaded Key use for Ventilator (Air , Oxygen)	Each			
37	Central ward suction ward Vaccum Unit with Regulator				
I	600ml unit with regulator	Set			
II	1000ml unit with regulator	Set			
III	2000ml unit with regulator	Set			
38	Theatre suction trolly unit with regulator	Unit			
39	High Pressure Tubing – 6mm I.D.	Per Mtr.			
40	Low Pressure Tubing – 6mm I.D.	Per Mtr.			
41	ELECTRICAL CONTROL PANEL AIR	Each			

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43	Master Alarm for Plant	Each			
44	ICU BED HEAD PANEL-5FEET	SET			
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II	Syringe Pump Pole	Each			
III	Utility Basket	Each			
IV	Monitor Tray	Each			
V	Aluminum Channel (Railing)	Each			
VI	Ward Vacuum Stand	Each			
VII	Infusion Pump Stand	Each			

The annual maintenance Contract (AMC) of for the period of three years from the expiry of Guarantee /Warranty period of one year				
1	O.T. No. D	First year		
		Second Year		
		Third Year		
		Total		