Amendment No. 2

Date: 18-04-2016

Sub: Amendment to Tender Enquiry Document.

Ref: NIT No.: HLL/PCD/GNCTD/32/JSSH/15-16 dated 04-03-2016 read with amendment no. 1 dated 06.04.2016

The following changes have been incorporated in the referred Tender Enquiry Document.

ExistingGCC Clause no. 21.4 page no. 35:
Irrevocable & non – transferable LC shall be opened by the respective consignees. However, if the supplier requests specifically to open confirmed LC, the extra charges would be borne by the supplier. If LC is required to be extended and/or amended for reasons not attributable to the purchaser/consignee, the charges thereof shall be borne by the supplier.

Read as:
Irrevocable & non – transferable LC shall be opened by the respective consignees. However, if the supplier requests specifically to open confirmed LC, the extra charges would be borne by the supplier. If LC is required to be extended and/or amended for reasons not attributable to the purchaser/consignee, the charges thereof shall be borne by the supplier.

Bidder may choose to accept any of the following payment option for direct imported item(s):

1. Direct credit of payment to the beneficiary account through wire transfer for 2 (two) stages of payments (i.e. 80% & 20%) against submission of necessary documents to the NOA issuing authority as specified in GCC clause no. 21 of the TED.

2. Multiple LC may be opened in case of multiple manufacturers. In such case, the delivery period for all the items under the contract shall be counted from the date of opening of the first LC only.

3. LC may be opened for one major item only (bidder has to specify the same in their tender) and for all others items direct credit of payment to the beneficiary account through wire transfer for 2 (two) stages of payments (i.e. 80% & 20%) against submission of necessary documents to the NOA issuing authority as specified in GCC clause no. 21 of the TED.

Section – VII
Technical Specification

1. **Added Para (UNDER RESPONSIBILITY OF BIDDER) :-**
   The specification mentioned in the tender document are general in nature. If design specification meet the standards quoted (NFPA99/HTM02-01/ISO/DIN) in the tender, the same shall be acceptable. However this clause shall not applicable to the compressed air system, vacuum system & AGSS System, these shall be as per the tender specification.

2. **Existing Para:- (Pg.No.44,) Para 8:** All components of Medical gas pipeline system from source to end shall be fully complying and meeting HTM 02-01 standards of UK or NFPA 99 standards of USA No mixing of standards shall be allowed.

   Read as :- Pg.No.44, Para 8: All components of Medical gas pipeline system from source to end shall be fully complying and meeting HTM 02-01 standards of UK or NFPA 99 standards of **USA or EN ISO 7396-1. No mixing of standards shall be allowed except AGSS system.AGSS system should be as per tender specs**

3. **Existing Para:- Manifold Control System Design(Pg. No. 45)**
   It should have all regulators which should be adiabatic certified. The manifold control panel shall be designed and certified for use with oxygen at 200 bar and 60°C**. Auto-ignition testing** shall be carried out and a copy of the test report shall be provided for review.

   Read as :- It should have all regulators which should be adiabatic certified. The manifold control panel shall be designed and certified for use with oxygen at 200 bar and 60°C.

4. **Existing Para:- Materials(Pg. No. 46)**
   All polymers and elastomers in the gas flow that can be subjected to working pressure greater than 3000 kPa shall be halogen-free. The use of PTFE, PCTFE, Viton and other halogenated polymers in these applications is strictly prohibited. Non-return valves fitted to header manifolds shall have a metallic seat with ceramic ball. Soft seat non-return valves utilising polymers or elastomers are not acceptable.

   Read as :-Deleted.

5. **Existing Para:- Modular Header Manifolds (Pg. No. 46)**
   Modular header manifolds shall provide connection points for flexible cupronickel tailpipes. They shall be available in 'primary' and 'secondary' configurations, with either single or double cylinder connection points.

   Read as :- Modular Header Manifolds
   Modular header manifolds shall provide connection points for **flexible cupronickel/Rigid copper** tailpipes. They shall be available in 'primary' and 'secondary' configurations, with either single or double cylinder connection points.

6. **Existing Para:- 1b) Oxygen Emergency Reserve Manifold – 2 x 2 cylinders size (Pg. No. 46-47)**
   <u>Materials</u>
   All polymers and elastomers in the gas flow that can be subjected to working pressure greater than 3000 kPa shall be halogen-free. The use of PTFE, PCTFE, Viton and other halogenated polymers in these applications is strictly prohibited. Non-return valves fitted to header manifolds shall have a metallic seat with ceramic ball. Soft seat non-return valves utilising polymers or elastomers are not acceptable.

   <u>Modular Header Manifolds</u>
   Modular header manifolds shall provide connection points for flexible cupro nickel tailpipes. 'Secondary' headers shall connect directly to the manifold control system with

extensions for additional cylinders being provided by the addition of further headers. Non-return valves shall be fitted to each tailpipe connection point to protect the system in the event of a tailpipe fracture. Corner connectors shall be available to enable installation of manifold headers around corners of the manifold room.

Read As:- :- 1b) Oxygen Emergency Reserve Manifold – 2 x 4 cylinders size
Materials
Deleted
Modular Header Manifolds
Modular header manifolds shall provide connection points for **flexible cupronickel/Rigid copper**tailpipes. 'Secondary' headers shall connect directly to the manifold control system with extensions for additional cylinders being provided by the addition of further headers. Non-return valves shall be fitted to each tailpipe connection point to protect the system in the event of a tailpipe fracture. Corner connectors shall be available to enable installation of manifold headers around corners of the manifold room.

7. **Existing Para:- 2.0 NITROUS OXIDE MANIFOLD SUPPLY SYSTEMS Modular (Pg. No. 48)**
Manifold Control System Design
It should have all regulators which should be adiabatic certified. The manifold control panel shall be designed and certified for use with oxygen at 200 bar and 60°C. **Auto-ignition testing shall be carried out and a copy of the test report shall be provided for review.**

Read as:- Manifold Control System Design
It should have all regulators which should be adiabatic certified. The manifold control panel shall be designed and certified for use with oxygen at 200 bar and 60°C.

8. **Existing Para:- Materials(Pg. No. 49)**
All polymers and elastomers in the gas flow that can be subjected to working pressure greater than 3000 kPa shall be halogen-free. The use of PTFE, PCTFE, Viton and other halogenated polymers in these applications is strictly prohibited. Non-return valves fitted to header manifolds shall have a metallic seat with ceramic ball. Soft seat non-return valves utilising polymers or elastomers are not acceptable.

Read as:- Deleted.

9. **Existing Para** :- 2b) Nitrous Oxide Emergency Reserve Manifold - 2 x 2 cylinders (Pg. No. 49)
Materials (Pg. No. 50)
All polymers and elastomers in the gas flow that can be subjected to working pressure greater than 3000 kPa shall be halogen-free. The use of PTFE, PCTFE, Viton and other halogenated polymers in these applications is strictly prohibited. Non-return valves fitted to header manifolds shall have a metallic seat with ceramic ball. Soft seat non-return valves utilising polymers or elastomers are not acceptable.
Modular Header Manifolds(Pg. No. 50)
Modular header manifolds shall provide connection points for flexible cupro nickel tailpipes. Pin indexed tailpipes shall 'Secondary' headers shall connect directly to the manifold control system with extensions for additional cylinders being provided by the addition of further headers. Non-return valves shall be fitted to each tailpipe connection point to protect the

system in the event of a tailpipe fracture. Corner connectors shall be available to enable installation of manifold headers around corners of the manifold room.

Read As:-

2b) Nitrous Oxide Emergency Reserve Manifold - 2 x 2 cylinders

Materials

Deleted

Modular Header Manifolds

Modular header manifolds shall provide connection points for **flexible cupronickel/Rigid copper** tailpipes. Pin indexed tailpipes shall 'Secondary' headers shall connect directly to the manifold control system with extensions for additional cylinders being provided by the addition of further headers. Non-return valves shall be fitted to each tailpipe connection point to protect the system in the event of a tailpipe fracture. Corner connectors shall be available to enable installation of manifold headers around corners of the manifold room.

10. **Existing Para:- 3.0 CO2 MANIFOLD SUPPLY SYSTEMS(Separate manifold in OT)**
Manifold Control System Design (Pg. No 50)

It should have all regulators which should be adiabatic certified. The manifold control panel shall be designed and certified for use with oxygen at 200 bar and 60°C**. Auto-ignition testing shall be carried out and a copy of the test report shall be provided for review.**

Read as:- It should have all regulators which should be adiabatic certified. The manifold control panel shall be designed and certified for use with oxygen at 200 bar and 60°C.

11. **Existing Para:- Materials(Pg. No 51)**

All polymers and elastomers in the gas flow that can be subjected to working pressure greater than 3000 kPa shall be halogen-free. The use of PTFE, PCTFE, Viton and other halogenated polymers in these applications is strictly prohibited. Non-return valves fitted to header manifolds shall have a metallic seat with ceramic ball. Soft seat non-return valves utilising polymers or elastomers are not acceptable.

Read as:- Deleted.

12. **Existing Para:- 3b) CO2 Emergency Reserve Manifold - 2 x 2 cylinders(Pg. No. 52)**
Materials (Pg. No. 52)

All polymers and elastomers in the gas flow that can be subjected to working pressure greater than 3000 kPa shall be halogen-free. The use of PTFE, PCTFE, Viton and other halogenated polymers in these applications is strictly prohibited. Non-return valves fitted to header manifolds shall have a metallic seat with ceramic ball. Soft seat non-return valves utilising polymers or elastomers are not acceptable.

Modular Header Manifolds(Pg. No. 53)

Modular header manifolds shall provide connection points for flexible cupro nickel tailpipes. Pin indexed tailpipes shall as required. 'Secondary' headers shall connect directly to the manifold control system with extensions for additional cylinders being provided by the addition of further headers. Non-return valves shall be fitted to each tailpipe connection point to protect the system in the event of a tailpipe fracture. Corner connectors shall be available to enable installation of manifold headers around corners of the manifold room.

Read as:-

3b) CO2 Emergency Reserve Manifold - 2 x 2 cylinders

Materials

Deleted

Modular Header Manifolds

Modular header manifolds shall provide connection points for **flexible cupronickel/Rigid copper** tailpipes.. Pin indexed tailpipes shall as required. 'Secondary' headers shall connect directly to the manifold control system with extensions for additional cylinders being provided by the addition of further headers. Non-return valves shall be fitted to each tailpipe connection point to protect the system in the event of a tailpipe fracture. Corner connectors shall be available to enable installation of manifold headers around corners of the manifold room.

13. **Existing Para:-4.0 MEDICAL COMPRESSED AIR COMBINED AIR PLANT(Pg. No. 53)**

Medical Air 4 Bar and Surgical Air 7 bar supply – 5500 LPM or more

QUADUPLEX SYSTEM 11 Bar, 50 Hz 3 Phase (Package Unit)

The medical air system shall fully meets and complies with NHS Health Technical Memorandum 02-01 /NFPA 99/ HTM 02-01/DIN/ISO/EN. Medical quality air to the European Pharmacopoeia monograph shall be delivered at pressures of 400kPa (4 bar) gauge for supply of the hospital medical and surgical air at pressure of 700kPa (7Bar) going for supply of hospital surgical air systems. The entire system shall be **'Quaduplex"** such that any single functional component failure will not affect the integrity of the medical compressed air supply.

Sources Of Supply - HTM02-01/EN ISO 7396-1/NFPA 99.

Medical Air Plant of 11bar for both 4bar MA4 Air & SA7 Air supply.

Quadruplexcompressor configurations, two identical air compressors should run to produce 5800lpm flow and 2 identical air compressors should be as stand by.

* 2 x 2800-3000 lpm each oil-injected rotary screw air compressors/Oil Free Scroll Compressors will run to produce 5500Ipm or more of air flow.
* 4 x 22-25kw Oil-Injected Rotary Screw Compressors, with duplex air drier and air filtration,
* 3 x 2000 liters capacity vertical air receiver.
* Should be EMC Certified, EMC Certificate must be submitted

Read as:- 4.0 MEDICAL COMPRESSED AIR COMBINED AIR PLANT

Medical Air 4 Bar and Surgical Air 7 bar supply – 5500 LPM or more

11 Bar, 50 Hz 3 Phase (Package Unit)

The medical air system shall fully meets and complies with NFPA 99/ HTM 02-01/DIN/ISO/EN. Plant shall be delivered at pressures of 400kPa (4 bar) gauge for supply of the hospital medical and surgical air at pressure of 700kPa (7Bar) going for supply of hospital surgical air systems. Total flow should be 5500 LPM or more for primary & Standby.

Each oil-injected rotary screw aircompressors/Oil Free Scroll Compressors will run to produce 5500Ipm or more of air flow as primary and 5500LPM as standby(Individually) .

vertical air receiver capacity should be total **3000 liters or more.**

For reserve supply of medical AIR, vendor should supply 03 Jumbo medical air cylinders manifold with Hi-flow regulator to meet the peak flow.

14. **Existing Para:- Medical Air Compressors:- Receiver Assembly(Pg. No. 55)**

Air receivers shall comply with BS EN 286-1, supplied with relevant test certificates. Each air receiver shall be hot dip galvanised inside and out and fitted with a zero loss electronic drain valve. Float type drain valves are not acceptable. The receiver assembly shall be fitted with a pressure safety valve capable of passing the maximum flow output of the compressor at 10% receiver overpressure. The receiver shall be further protected by a safety pressure relief

valve and include a pressure gauge. The system shall consist of **total receiver vessel shall be of 6000 litres. (3 x 2000 ltrs each).**

Read as:- Receiver Assembly

Air receivers shall comply with **BS EN 286-1/ASTM Standard/Equivalent**. Each air receiver shall be hot dip galvanised inside and out and fitted with a zero loss electronic drain valve. Float type drain valves are not acceptable. The receiver assembly shall be fitted with a pressure safety valve capable of passing the maximum flow output of the compressor at 10% receiver overpressure. The receiver shall be further protected by a safety pressure relief valve and include a pressure gauge. **It shall be total capacity of 3000 litres or more"**

15. **Existing Para:- 5.0 MEDICAL VACUUM PLANT – 5000 Lpm or more(Pg No. 55)**
PENTAPLEX SYSTEM 50 Hz 3 Phase (Package Unit)
Medical Vacuum

The medical vacuum system shall fully comply and meet with the NHS Health Technical Memorandum 02-01 (HTM02-01)/ NFPA-99. The Medical Vacuum System shall ensure the minimum pipeline vacuum level of 450mmHg is maintained at the plant service connection point at the rated volumetric 'free air' flow rate with two pumps in standby. The bacteria filtration system shall be 'duplexed' such that each filter can be isolated for replacement of the filter cartridge. It Should be EMC Certified, EMC Certificate must be submitted.

Vacuum Pumps

Five 5 Kw or more Identical Vacuum pumps shall be air-cooled, oil lubricated rotary vane type suitable for both continuous and frequent start/stop operation at nominal inlet vacuum levels of between 578mmHg and 728mmHg. Three 5 Kw or more identical vacuum pump should be working and Two identical 5kw or more vacuum pumps should be as standby. Three (1600 lpm or more) each vacuum pump will run to produce 5000 lpm or more. Composite carbon fibre rotor blades shall be fitted to minimize the cost of maintenance. Rotors shall be driven by directly coupled TEFV electric motors. Pump inlets shall include a wire mesh filter and integral non-return valve to prevent oil suck back and pressure increases in the vacuum system. Each vacuum pump shall have an integral separator filter to ensure a virtually oil-free exhaust. Each pump shall be fitted with anti-vibration pads between the pump foot and mounting frame.

Read as:- 5.0 MEDICAL VACUUM PLANT – 5000 Lpm or more(Package Unit)
Medical Vacuum

The medical vacuum system shall fully comply and meet with HTM02-01/ NFPA-99/ DIN/ ISO. The Medical Vacuum System shall ensure the minimum pipeline vacuum level of 450mmHg is maintained at the plant service connection point at the rated volumetric 'free air' flow rate. The bacteria filtration system shall be 'duplexed' such that each filter can be isolated for replacement of the filter cartridge.

Vacuum Pumps

Identical Vacuum pumps shall be air-cooled, oil lubricated rotary vane type suitable for both continuous and frequent start/stop operation at nominal inlet vacuum levels of between 578mmHg and 728mmHg. **Vacuum pump will run to produce 5000 lpm or moreas Primary & 3300lpm or more as standby (Individually) .** Pump inlets shall include a wire mesh filter and integral non-return valve to prevent oil suck back and pressure increases in the vacuum system. Each vacuum pump shall have an integral separator filter to ensure a virtually oil-free exhaust. Each pump shall be fitted with anti-vibration pads between the pump foot and mounting frame.

16. **Existing Para:- 6.0 LINE BALL VALVE ASSEMBLIES**

CE Marking OR Listed to UL(Pg. No. 57)
It shall be 'CE' marked under the Medical Devices Directiv 93/42/EEC with approval from notified body no. Under this directive, the specified products are classified as Class IIb Medical Devices. OR It shall Listed to UL and should have UL no.

Read as:- Deleted

17. **Existing Para:- 7.0 Area Valve Service Units**
Single Service Area Valve Service Unit. **(Pg. No. 58)**

Read as:-07. Area Valve Service Units
Single/**multi Service Area Valve** Service Unit.

18. **Existing Para:- 8.0 MEDICAL TERMINAL UNITS /GAS OUTLETS(Pg. No. 58-59)**
Terminal Unit
It shall fully comply and meet with NHS Health Technical Memorandum 02-01/ NFPA-99/HTM 02-01/DIN/ISO/EN. Terminal units shall be capable of single-handed insertion and removal of the medical gas probe. **The anesthetic gas scavenging (AGS) terminal unit shall conform to BS6834: 1987**.

Read as:- 8.0 MEDICAL TERMINAL UNITS /GAS OUTLETS
Terminal Unit
It shall fully comply and meet with NHS Health Technical Memorandum 02-01/ NFPA-99/HTM 02-01/DIN/ISO/EN. Terminal units shall be capable of single-handed insertion and removal of the medical gas probe.

19. **Existing Para:- 11.0 ANAESTHETIC GAS SCAVENGING DISPOSAL SYSTEM – 2900 Liters per minute** (Pg. No. 61-62)
Anaesthetic Gas Scavenging System
The Anaesthetic Gas Scavenging (AGS) System It shall fully comply and meet with NHS Health Technical Memorandum 02-01 (HTM02-01)/ NFPA-99/HTM02-01/DIN/ISO/EN. The AGS system shall be a dedicated, specifically designed active extraction and disposal system for waste anaesthetic gas. Duplex AGSS System - Twin stand alone AGSS pumps of 3 phase 2900l/min capacity each with built in flow indication and pressure regulation valve. Mounted on single frame with control panel and separate warning label. One pump will be standby with the other in operation. • 2 x 3KW Nominal Motar per blower. 1 x DOl starter.• 54mm service connection.
Anaesthetic Gas Scavenging (AGS) Plants are intended to provide a continuous low level vacuum supply to pipeline systems in healthcare facilities for the removal of waste anaesthetic gases captured from patient breathing circuits via AGS receivers. The plant shall be a duplex configuration such that the vacuum supply is maintained in single fault condition. The stated volumetric flow rate shall be delivered with one blower on standby. AGS Plants shall comply with BS EN ISO 7396-2 and United Kingdom Department of Health (DoH) publications HTM 02-01, HTM 2022 and NHS Model Engineering Specification C11. The entire AGS Plant shall be skid mounted, fully assembled and factory tested as a complete system. A test certificate shall be provided showing the results of all tests, which shall include the free-air flow rate obtained with the system delivering a working pressure of -125 mbar gauge. **Type testing or testing in component form is not acceptable.**

Read as:- 11.0 ANAESTHETIC GAS SCAVENGING DISPOSAL SYSTEM – 2000 LPM or more -

System It shall fully comply and meet with NFPA-99/HTM02-01/DIN/ISO/EN.The AGS system shall be a dedicated, specifically designed active extraction and disposal system for waste anaesthetic gas. Duplex AGSS System - Twin stand alone AGSS pumps of 3 phase **2000l/min capacity** each with built in flow indication and pressure regulation valve.
Anaesthetic Gas Scavenging (AGS) Plants are intended to provide a continuous low level vacuum supply to pipeline systems in healthcare facilities for the removal of waste anaesthetic gases captured from patient breathing circuits via AGS receivers. it shall include the free-air flow rate obtained with the system delivering a working pressure of -125 mbar gauge.

20. **Existing Para:- 15.0 BSi Kite Mark Certified COPPER PIPES.(Pg. No. 63-64)**
Medical Gas pipes
d) BSI Kite Mark identification;

Read as:-15.0 Medical Grade Copper pipes -
Medical Gas pipes
d) Deleted.

21. **Existing Para:- 16b) Ceiling Double Arm Anaesthesia Pendants(Pg. No. 65)**
Configuration: Rated for maximum 125 kg load.
1 No. RGB Luminaries on both the arms of the pendants with controller.

Read as:-
16b) Ceiling Double Arm Anaesthesia Pendant
Configuration: Rated for 120 **kg load or more.**
DELETED

22. **Existing Para:- 16 c) Ceiling Double Arm Surgeon Pendants (Pg. No. 65-66)**
Configuration: Rated for maximum 125 kg load.
1 No. RGB Luminaries on both the arms of the pendants with controller.

Read as:-
16 c) Ceiling Double Arm Surgeon Pendants
Configuration: Rated for **120 kg load or more.**
DELETED

23. **Existing Para:- 17.0 Oxygen Flow Meter with Humidifier Bottle (Pg. No.66)**

It shall fully comply and meets with active medical device of class IIa and in compliance with the EN ISO 15002: 2008 standard. It should be duly CE marked and comply with 93/42/EEC Medical Devices: General. It shall be CE marked with the notified body number specified. It shall be provided with a copy of the certificate of origin.

Read as:- 17.0 Oxygen Flow Meter with Humidifier Bottle
It shall fully comply and meets with active medical device of class IIa and in compliance with the EN ISO 15002: 2008 standard/**Equivalent**. It should be **US FDA/ European CE/UL.** It shall be provided with a copy of the certificate of origin.

24. **Existing Para:- 18 Vacuum Unit** (Pg. No. 66-67)
It shall fully comply and meets with active medical device of class IIa and in compliance with the EN ISO 10079-3: 2009 standard. It should be duly CE marked and comply with 93/42/EEC Medical Devices: General. It shall be CE marked with the notified body number

specified. Vacuum Regulator: It should be continuous vacuum regulator, compact, strong and ergonomic device. It should have manual adjustment of the vacuum gauge from -45degree to +45degree for a better visibility. Vacuum gauge should be protected by a plastic housing. It should have on/off switch-button providing a quick restoration of the pre-adjusted vacuum level. It should have central regulation knob with a free rotation at the end of the course (impossible blocking). It should have quick adjustment :2.5turns are enough to reach the maximum vacuum level. It should have vacuum levels : 0-1000 mbar/hPa. The vacuum regulator should be 3-in-1 system. It should have a device with a metal outlet tubing nipple integrated in the body of the regulator for a better safety, emergency suctions can even be processed. It should be supplied with a 100ml safety jar equipped with a mechanical anti-over flow safety valve and single use antibacterial plastic filter upfront. The safety jar should be made of **polycarbonate**, autoclavable up to 134degree C and unbreakable. The safety jar should be fixed by an easy-click rotation. The safety jar should be able to rotate to avoid any pinch of the tubing. It should have a unit serial number laser engraved on the body of each vacuum regulator ensuring its identifications and traceability. It should be light weight 490g and dimensions (height230mm X Width 70mm X Depth 90mm).**Polysulphone** collection jar of 2 litres with lid : it should be unbreakable and autoclavableupto 134º C must be fitted with an extremely simple anti overflow safety device, thereby ensuring easy maintenance. Should be totally transparent, they ensure perfect sucked liquid visibility.

Read as:- (Page No. 67, Para - Ist, Point no. 18) Vacuum Unit
It shall fully comply and meets with active medical device of class IIa and in compliance with the EN ISO 10079-3: 2009 standard/ **Equivalent**. It should be **US FDA/ European CE/UL.** Vacuum Regulator: It should be continuous vacuum regulator, compact, strong and ergonomic device. It should have manual adjustment of the vacuum gauge from -45degree to +45degree for a better visibility. Vacuum gauge should be protected by a plastic housing. It should have on/off switch-button providing a quick restoration of the pre-adjusted vacuum level. It should have central regulation knob with a free rotation at the end of the course (impossible blocking). It should have quick adjustment :2.5turns are enough to reach the maximum vacuum level. It should have vacuum levels : 0-1000 mbar/hPa. The vacuum regulator should be 3-in-1 system. It should have a device with a metal outlet tubing nipple integrated in the body of the regulator for a better safety, emergency suctions can even be processed. It should be supplied with a 100ml safety jar equipped with a mechanical anti-over flow safety valve and single use antibacterial plastic filter upfront. The safety jar should be made of **Polysulphone/Polycarbonate**, autoclavable up to 134degree C and unbreakable. The safety jar should be fixed by an easy-click rotation. The safety jar should be able to rotate to avoid any pinch of the tubing. It should have a unit serial number laser engraved on the body of each vacuum regulator ensuring its identifications and traceability. It should be light weight 490g and dimensions (height230mm X Width 70mm X Depth 90mm). **Polysulphone/Polycarbonate** collection jar of 2 litres with lid : it should be unbreakable and autoclavableupto 134º C must be fitted with an extremely simple anti overflow safety device, thereby ensuring easy maintenance. Should be totally transparent, they ensure perfect sucked liquid visibility.

25. Existing Para:- 19. Theatre Vacuum Unit (Pg. No. 67)
It shall fully comply and meets with active medical device of class IIa and in compliance with the EN ISO 10079-3: 2009 standard. It should be duly CE marked and comply with 93/42/EEC Medical Devices: General. It shall be CE marked with the notified body number specified. Vacuum Regulator : It should be continuous vacuum regulator, compact, strong and ergonomic device. It should have manual adjustment of the vacuum gauge from -45degree to +45degree for a better visibility. Vacuum gauge should be protected by a plastic

housing. It should have on/off switch-button providing a quick restoration of the pre-adjusted vacuum level. It should have central regulation knob with a free rotation at the end of the course (impossible blocking). It should have quick adjustment :2.5turns are enough to reach the maximum vacuum level. It should have vacuum levels : 0-1000 mbar/hPa. The vacuum regulator should be 3-in-1 system. It should have a device with a metal outlet tubing nipple integrated in the body of the regulator for a better safety, emergency suctions can even be processed. It should be supplied with a 100ml safety jar equipped with a mechanical anti-over flow safety valve and single use antibacterial plastic filter upfront. The safety jar should be made of polycarbonate, autoclavable up to 134degree C and unbreakable. The safety jar should be fixed by an easy-click rotation. The safety jar should be able to rotate to avoid any pinch of the tubing. It should have a unit serial number laser engraved on the body of each vacuum regulator ensuring its identifications and traceability. It should be light weight 490g and dimensions (height230mm X Width 70mm X Depth 90mm). Polysulphone collection Jar of 2litres with lid : it should be unbreakable and autoclavableupto 134º C must be fitted with an extremely simple anti overflow safety device, thereby ensuring easy maintenance. Should be totally transparent, they ensure perfect sucked liquid visibility.

Read as:-(Page no. 67, Para-Iind, Point no. 19) Theatre Vacuum Unit
It shall fully comply and meets with active medical device of class IIa and in compliance with the EN ISO 10079-3: 2009 standard**/Equivalent.** It should be **US FDA/ European CE/UL.** Vacuum Regulator : It should be continuous vacuum regulator, compact, strong and ergonomic device. It should have manual adjustment of the vacuum gauge from -45degree to +45degree for a better visibility. Vacuum gauge should be protected by a plastic housing. It should have on/off switch-button providing a quick restoration of the pre-adjusted vacuum level. It should have central regulation knob with a free rotation at the end of the course (impossible blocking). It should have quick adjustment :2.5turns are enough to reach the maximum vacuum level. It should have vacuum levels : 0-1000 mbar/hPa. The vacuum regulator should be 3-in-1 system. It should have a device with a metal outlet tubing nipple integrated in the body of the regulator for a better safety, emergency suctions can even be processed. It should be supplied with a 100ml safety jar equipped with a mechanical anti-over flow safety valve and single use antibacterial plastic filter upfront. The safety jar should be made of **Polysulphone/Polycarbonate**, autoclavable up to 134degree C and unbreakable. The safety jar should be fixed by an easy-click rotation. The safety jar should be able to rotate to avoid any pinch of the tubing. It should have a unit serial number laser engraved on the body of each vacuum regulator ensuring its identifications and traceability. It should be light weight 490g and dimensions (height230mm X Width 70mm X Depth 90mm). **Polysulphone/Polycarbonate** collection Jar of 2litres with lid : it should be unbreakable and autoclavableupto 134º C must be fitted with an extremely simple anti overflow safety device, thereby ensuring easy maintenance. Should be totally transparent, they ensure perfect sucked liquid visibility.

26. Existing Para:- Medical Gas Hose(Pg. No. 67-68)
Medical gas hose assemblies shall comply with BS EN ISO 5359
PVC hoses and hoses containing phthalates are not acceptable.
Hoses shall be color coded throughout their length as specified in BS EN 5359 as follows:

Read as:- Medical Gas Hose:
Medical gas hose assemblies shall comply with **BS EN ISO 5359/ASTM/ISO/NFPA/HTM**
PVC hoses and hoses containing phthalates are not acceptable.
Hoses shall be color coded throughout their length as specified in **BS EN 5359 /ASTM/ISO/ NFPA/ HTM** as follows:

Existing BOQ:

JANAKPURI SUPER SPECIALITY HOSPITAL,JANKPURI – NEW DELHI

BILL OF QUANTITY (BOQ) FOR MEDICAL GAS PIPELINE SYSTEM

.No.	Description of work	Quantity	Unit
1	Oxygen System (Should fully comply with the requirements of NFPA-99C, UL Listed or HTM 02-01, C11 Standards)		
A	Main oxygen manifold of size 10 + 10 Cylinder (without cylinders) As per technical specifications	1	Set
B	Electronic Fully Automatic Control Panel 1500lpm, as per technical specifications etc. as required.	1	Set
C	Emergency oxygen manifold of size 2x4 Cylinder, as per technical specifications	1	Set
D	Oxygen flow meter with humidifier bottle, as per technical specifications	315	Nos.
2	Nitrous Oxide System (Should fully comply with the requirements of NFPA-99C, UL Listed or HTM 02-01, C11 Standards)		
A	Main nitrous oxide manifold of size 4 + 4 Cylinder (without cylinders) As per technical specifications	1	Set
B	Electronic Fully Automatic Control Panel 500lpm, as per technical specifications etc. as required.	1	Set
C	Emergency nitrous oxide manifold of size 2x2 Cylinder, as per technical specifications	1	Set
3	CO2 System (Should fully comply with the requirements of NFPA-99C, UL Listed or HTM 02-01, C11 Standards)		
A	Main CO2 manifold of size 4 + 4 Cylinder (without cylinders) As per technical specifications	1	Set
B	Electronic Fully Automatic Control Panel 500lpm, as per technical specifications etc. as required.	1	Set
C	Emergency CO2 manifold of size 2x2 Cylinder, as per technical specifications.	1	Set
4	Vacuum System - 5000LPM or more (Should fully comply with the requirements of NFPA-99C, UL Listed or HTM 02-01, C11 Standards)		

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31.3.16

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A	Pentaplex (5000lpm or more) Medical Vacuum Plant System 50Hz 3 Phase (Package Unit). Three identical (5Kw or more) rotary vane vacuum pump should be working and 2 identical (5Kw or more) rotary vane should be stand-by with quadruple vacuum bacterial filter with 2x 2500l or more tank. As per Tender Technical Specifications	1	Set
B	Ward Vacuum Unit consist of 0-1000m/bar vacuum regulator, vacuum filter and 1000ml polysulphone vacuum collection jar with basket. As per Tender Technical Specifications	315	Nos.
C	Low Flow Vacuum Unit consist of 0-250m/bar vacuum regulator, vacuum filter and 1000ml polysulphane vacuum collection jar with basket As per Tender Technical Specifications	85	Nos.
D	High Suction Theater Vacuum Unit consist of 0-1000m/bar vacuum regulator, vacuum filter and twin 2000ml polysulphone vacuum collection jar with basket.. As per Tender Technical Specifications	26	Nos.
5	**Medical Air Plant Package Unit (Should fully comply with the requirements of NFPA-99C, UL Listed or HTM 02-01, C11 Standards)**		
A	Quadruplex 5500lpm or more Medical Air Plant System 11Bar, 50Hz 3 Phase (Package Unit). To provide 7 Bar surgical air supply and 4 Bar medical air supply from same plant. Two identical 22-25Kw oil injected screw air compressors should be working and 2 22-25Kw identical screw air compressors should stand by. with duplex air dryer and air filteration system with 3x2000l tank. As per Tender Technical Specifications	1	Set
B	Duplex Pressure Reducing Station for 7 Bar Supply As per Tender Technical Specifications	1	Set
C	Duplex Pressure Reducing Station for 4 Bar Supply As per Tender Technical Specifications	1	Set
6	**Anaesthesia Gas Scavenging System (Should fully comply with the requirements of NFPA-99C, UL Listed or HTM 02-01, C11 Standards)**		
A	Duplex AGSS Plant 2900lpm. As per Tender Specifications	1	Set

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B	AGSS Remote Indicator. As per Tender specifications	8	Nos.
C	AGSS Hose Assembly. As per Tender Specifications	7	Nos.
D	AGSS Reservior Transducer Kit. As per Tender Specifications	7	Nos.
7	**Gas Outlet Points (Should fully comply with the requirements of NFPA-99C, UL Listed or HTM 02-01, C11 Standards)**		
	Gas Outlet Points As per Tender Technical Specifications		
A	Oxygen Gas Outlet Points	503	Nos.
B	N2O Gas Outlet Points	36	Nos.
C	MA4 Air 4 Bar Gas Outlet Points	237	Nos.
D	SA7 Air 7 Bar Gas Outlet Points	38	Nos.
E	Vacuum Gas Outlet Points	505	Nos.
F	CO2 Gas Outlet Points	15	Nos.
G	AGSS Gas Outlet Points	29	Nos.
8	**Probes (Should fully comply with the requirements of NFPA-99C, UL Listed or HTM 02-01, C11 Standards)**		
	Probe Matching to Gas Outlet Points As per Tender Technical Specifications		
A	Oxygen Probe	503	Nos.
B	N2O Probe	36	Nos.
C	MA4 Air 4 Bar Probe	237	Nos.
D	SA7 Air 7 Bar Probe	38	Nos.
E	Vacuum Probe	505	Nos.
F	CO2 Probe	15	Nos.
G	AGSS Probe	29	Nos.
9	**Antimicrobial Medical Gas Area Line Pressure Alarm (Should fully comply with the requirements of NFPA-99C, UL Listed or HTM 02-01, C11 Standards)**		
	Antimicrobial Medical Gas Area Alarm Units. As per Tender Technical Specifications		
A	2 Gas Area Alarm (Oxygen and Vacuum)	20	Nos.
B	3 Gas Area Alarm (Oxygen, MA4 Air and Vacuum)	16	Nos.
C	5 Gas Area Alarm (Oxygen, N2O, MA4 Air, SA7 Air and Vacuum)	15	Nos.

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D	6 Gas Area Alarm (Oxygen, N2O, MA4 Air, SA7 Air, CO2 and Vacuum)	7	Nos.
E	Main Master Alarm 6 Gas (Oxygen, N2O, MA4 Air, SA7 Air, CO2 and Vacuum)	1	Nos.
10	High Pressure Tubing (Should fully comply with the requirements of NFPA-99C, UL Listed or HTM 02-01, C11 Standards)		
	High Pressure Antistatic Rubber Tubing. As per Tender Technical Specifications		
A	Oxygen White Color	80	Mtrs
B	N2O Blue Color	80	Mtrs
C	Air Black Color	160	Mtrs
D	Vacuum Yellow Color	600	Mtrs
11	Low Pressure Rubber Vacuum Tubing	1200	Mtrs
12	Double Arm Pendants for Surgeon and Anaesthesist (Should fully comply with the requirements of NFPA-99C, UL Listed or HTM 02-01, C11 Standards)		
A	Double Arm Surgeon Pendant As per Tender Technical Specifications	5	Nos.
B	Double Arm Anaesthesia Pendant As per Tender Technical Specifications	5	Nos.
13	Vertical Bed Head Panel (Should fully comply with the requirements of NFPA-99C, UL Listed or HTM 02-01, C11 Standards)		
A	Vertical Bed Head 2100mm Panel with NIST. (Imported). As per Tender Technical Specifications	73	Nos.
14	Medical Grade Copper Pipes BSi Kite Mark certified. EN 13348:2008		
	Medical Grade Copper Pipes. Copper pipes manufactured from phosphorous de-oxidised non-arsenical copper to BS EN 1412:1996 grade CW024A (Cu-DHP), manufactured to metric outside diameters and having mechanical properties in accordance with BS EN 13348:2008- R250 (half hard) for sizes up to 54mm or BS EN 13348:2008 – R290 for larger sizes. As per Tender Technical Specifications		

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A	54mm OD x 1.2 mm thick	195	Mtr.
B	42mm OD x 1.2 mm thick	690	Mtr.
C	35mm OD x 1mm thick	1125	Mtr.
D	28mm OD x 1mm thick	2930	Mtr.
E	22 mm OD x 1mm thick	6720	Mtr.
F	15 mm OD x 1mm thick	5700	Mtr.
G	12 mm OD x 1mm thick	1790	Mtr.
15	Line Lockable Valves (Should fully comply with the requirements of NFPA-99C, UL Listed or HTM 02-01, C11 Standards)		
	Line Lockable Valves. As per Tender Technical Specifications.		
A	54 mm Dia Line Valve	4	Nos.
B	42 mm Dia Line Valve	6	Nos.
C	35 mm Dia Line Valve	4	Nos.
D	28 mm Dia Line Valve	20	Nos.
E	22 mm Dia Line Valve	30	Nos.
F	15 mm Dia Line Valve	60	Nos.
16	Area Valve Service Unit (Should fully comply with the requirements of NFPA-99C, UL Listed or HTM 02-01, C11 Standards)		
A	Single Service Area Valve Service Unit. 22mm single service unit for each gases with NIST. Oxygen, N2O, MA4 Air, SA7 Air and Vacuum. (Imported). As per Tender Technical Specifications	263	Nos.
17	Demolition, reconstruction,water proofing,plumbing,repainting and replacement as per tender specifications	1	Lot
18	Electrical Control Panel	1	Nos.
19	Electrical wiring for AGSS (from each OT to AGSS Pump)	1	Lot
20	Electrical wiring inside gas manifold and plant room Note: Hospital will provide at one point 3 phase and single phase power supply with cable	1	Lot

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BOQ to be read as:

JANAKPURI SUPER SPECIALITY HOSPITAL,JANKPURI – NEW DELHI

BILL OF QUANTITY (BOQ) FOR MEDICAL GAS PIPELINE SYSTEM

.No.	Description of work	Quantity	Unit	Indian /Imported
1	**Oxygen System (As per tender specs)**			
A	Main oxygen manifold of size 10 + 10 Cylinder (without cylinders)	1	Set	Imported
B	Electronic Fully Automatic Control Panel	1	Set	Imported
C	Emergency oxygen manifold of size 2x4 Cylinder, (without cylinders)	1	Set	Imported
D	Oxygen flow meter with humidifier bottle	315	Nos.	Imported
2	**Nitrous Oxide System (As per tender specs)**			
A	Main nitrous oxide manifold of size 4 + 4 Cylinder (without cylinders)	1	Set	Imported
B	Electronic Fully Automatic Control Panel	1	Set	Imported
C	Emergency nitrous oxide manifold of size 2x2 Cylinder(Without Cylinder)	1	Set	Imported
3	**CO2 System (As per tender specs)**			
A	Main CO2 manifold of size 4 + 4 Cylinder (without cylinders)	1	Set	Imported
B	Electronic Fully Automatic Control Panel	1	Set	Imported
C	Emergency CO2 manifold of size 2x2 Cylinder (without cylinder)	1	Set	Imported
4	**Vacuum System - (As per tender specs)**			
A	Medical Vacuum Plant System(Package Unit) As per Tender Technical Specifications	1	Set	Imported
B	Ward Vacuum Unit	315	Nos.	Imported
C	Low Flow Vacuum Unit	45	Nos.	Imported
D	High Suction Theatre Vacuum Unit	26	Nos.	Imported
5	**Medical Air Plant Package Unit (As per tender specs)**			
A	Medical Air Plant System (Package Unit)	1	Set	Imported
B	Duplex Pressure Reducing Station for 7 Bar Supply	1	Set	Imported
C	Duplex Pressure Reducing Station for 4 Bar Supply	1	Set	Imported
6	**Anaesthesia Gas Scavenging System (As per tender specs)**			

A	Duplex AGSS Plant	1	Set	Imported
B	AGSS Remote Indicator(**If required)**	8	Nos.	Imported
C	AGSS Hose Assembly	7	Nos.	Imported
D	AGSS Reservoir Transducer Kit	7	Nos.	Imported
7	**Gas Outlet Points (As per tender specs)**			
A	Oxygen Gas Outlet Points	503	Nos.	Imported
B	N2O Gas Outlet Points	20	Nos.	Imported
C	MA4 Air 4 Bar Gas Outlet Points	135	Nos.	Imported
D	SA7 Air 7 Bar Gas Outlet Points	20	Nos.	Imported
E	Vacuum Gas Outlet Points	505	Nos.	Imported
F	CO2 Gas Outlet Points	08	Nos.	Imported
G	AGSS Gas Outlet Points	22	Nos.	Imported
8	**Probes (As per tender specs)**			
A	Oxygen Probe	503	Nos.	Imported
B	N2O Probe	25	Nos.	Imported
C	MA4 Air 4 Bar Probe	150	Nos.	Imported
D	SA7 Air 7 Bar Probe	25	Nos.	Imported
E	Vacuum Probe	505	Nos.	Imported
F	CO2 Probe	10	Nos.	Imported
G	AGSS Probe	25	Nos.	Imported
9	**Medical Gas Area Line Pressure Alarm(As per tender specs)**			
A	2 Gas Area Alarm (Oxygen and Vacuum)	07	Nos.	Imported
B	3 Gas Area Alarm (Oxygen, MA4 Air and Vacuum)	10	Nos.	Imported
C	5 Gas Area Alarm (Oxygen, N2O, MA4 Air, SA7 Air and Vacuum)	11	Nos.	Imported
D	6 Gas Area Alarm (Oxygen, N2O, MA4 Air, SA7 Air, CO2 and Vacuum)	03	Nos.	Imported
E	Main Master Alarm 6 Gas (Oxygen, N2O, MA4 Air, SA7 Air, CO2 and Vacuum)	1	Nos.	Imported
10	**High Pressure Tubing (As per tender specs)**			
A	Oxygen White Color/As per standard	100	Mtrs	Imported
B	N2O Blue Color/As per standard	40	Mtrs	Imported
C	Air Black Color/As per standard	100	Mtrs	Imported
D	Vacuum Yellow Color/As per standard	380	Mtrs	Imported
11	**Low Pressure Rubber Vacuum Tubing**	1000	Mtrs	Imported
12	**Double Arm Pendants for Surgeon and Anaesthetist (As per tender specs)**			

A	Double Arm Surgeon Pendant	7	Nos.	Imported
B	Double Arm Anaesthesia Pendant	7	Nos.	Imported
13	**Vertical Bed Head Panel (As per tender specs)**			
A	Vertical Bed Head Panel with NIST	73	Nos.	Imported
14	**Medical Grade Copper Pipes (As per tender specs)**			
A	54mm OD x 1.2 mm thick	195	Mtr.	Indian/ Imported
B	42mm OD x 1.2 mm thick	690	Mtr.	Indian/ Imported
C	35mm OD x 1mm thick	1125	Mtr.	Indian/ Imported
D	28mm OD x 1mm thick	2930	Mtr.	Indian/ Imported
E	22 mm OD x 1mm thick	6720	Mtr.	Indian/ Imported
F	15 mm OD x 1mm thick	5700	Mtr.	Indian/ Imported
G	12 mm OD x 1mm thick	1790	Mtr.	Indian/ Imported
15	**Line Lockable Valves (As per tender specs)**			
A	54 mm Dia Line Valve	4	Nos.	Imported
B	42 mm Dia Line Valve	6	Nos.	Imported
C	35 mm Dia Line Valve	4	Nos.	Imported
D	28 mm Dia Line Valve	20	Nos.	Imported
E	22 mm Dia Line Valve	30	Nos.	Imported
F	15 mm Dia Line Valve	60	Nos.	Imported
16	**Area Valve Service Unit (As per tender specs)**			
A	Single Service Area Valve Service Unit. Or Equivalent Zonal AVSUs(Vendor can offer multi service AVSUs for total 263 services)	263/Equivalent Zonal AVSUs	Nos.	Imported
17	Demolition, reconstruction, water proofing, plumbing, repainting and replacement as per tender specifications	1	Lot	Indian
18	Electrical Control Panel/Distribution board	1	Nos.	Indian/ Imported
19	Electrical wiring for AGSS (from each OT to AGSS Pump) **(if required)**	1	Lot	Indian/ Imported
20	**Electrical wiring inside gas manifold and plant room** Note: Hospital will provide at one point 3 phase and single phase power supply with cable till site	1	Lot	Indian

13.04.2016 13/4/16

Dr R. Uppal Dr U.C. Garg Dr A.S. Tomar

All other contents of the tender enquiry including terms & conditions remain unaltered.

Note: Prospective Bidders are also advised to check the website regularly prior to the closing date and time of online submission of tenders.