

## CH. PERVAIZ ELAHI INSTITUTE OF CARDIOLOGY, MULTAN

## TECHNICAL COMPARATIVE STATEMENT FOR THE YEAR 2015.16

## NAME OF EQUIPMENT: ANESTHESIA MACHINE WITH BUILT-IN VENTILATOR (INFANT MODE FACILITY)

Specification	M/S Vertex Enterprises	M/S Shirazi Trading	M/S Total Technologies	M/S Eastern Medical Technologies
<b>Model</b>	Primus	Avance CS2	Leon Plus	Pasithec-II
<b>Make</b>	Dargerwerk	GE	Heinen+Lowenstein	Heyer
<b>Country of Origin:</b> USA / Europe / Japan	Germany	USA/EU	Germany	Not mentioned
<b>Authorization</b>	31.12.2016	31.12.2016	01.08.2017	31.12.2018
<b>Certification:</b> (FDA / CE / JIS)	FDA/CE	FDA/CE	Not Provided	Not Provided
<b>Warranty:</b> 5 Years Comprehensive with parts & spare including backup	5 Years	5 Years	5 Years	5 Years
<b>PHYSICAL / TECHNICAL CHARACTERISTICS</b>				
1 3 Gas Anesthesia Workstation, O2, N2O and Air Up to 1x O2 and 1x N2O Cylinder can be connected	3 Gas, 1 Cylinder of O2 & N2O can be connected	3 Gas, 1 Cylinder of O2 & N2O can be connected	3 Gas, 1 Cylinder of O2 & N2O can be connected	3 Gas, 1 Cylinder of O2 & N2O can be connected
2 Gauges for Central Piping 1x O2 and 1x N2O and 1x Air	Electronic display of central piping on main screen, accepted as minor deviation	Gauges of Air/Oxygen available but N2O not available, accepted as minor deviation	Gauges of Air/Oxygen available but N2O not available, accepted as minor deviation	Gauges of Air/Oxygen available but N2O not available, accepted as minor deviation
3 Gauges for Cylinders 1x O2, 1x N2O	Electronic display of cylinder pressure on screen, accepted as minor deviation	Not Available, accepted as minor deviation	Electronic display of cylinder pressure on screen, accepted as minor deviation	Electronic display of cylinder pressure on screen, accepted as minor deviation
4 Pressure Gauges for pipeline and cylinders are on Main Working Surface	No pressure gauges on main working surface, accepted as minor deviation	Only pipelines not cylinders gauges available, accepted as minor deviation	Only pipelines not cylinders gauges available, accepted as minor deviation	Only pipelines not cylinders gauges available

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Specification	M/S Vertex Enterprises	M/S Shirazi Trading	M/S Total Technologies	M/S Eastern Medical Technologies
5	Must have 4 meter high quality pipe for O2, Air, N2O with NIST/DIN standard (I.O to specify)	4Meter NIST	4 meter NIST	4 meter NIST
6	1x Monitoring Shelf	Monitoring shelf	Monitoring shelf	Monitoring shelf
7	Common Gas Outlet	Gas out let	Gas out let	Gas out let
8	Side Rails and Centrally Braked Castors with Large Brake Paddle	TE Compliance	TE compliance	TE compliance
9	Drawer unit- 1 or more	2 Drawer	3 Drawer	2 Drawer
10	Table or Writing platform	Table platform	Table platform	Table platform
11	O2 Flush	>35 l/min	35 l/min	25 to 75 l/m
12	Fresh Gas Outlet	TE Compliance	TE Compliance	TE Compliance
13	Auxilliary flow meter (Digital)	Yes Offered	Analog Offered, accepted as minor deviation	Not offered
14	Anesthesia Machine should be capable of working at Low Flow Anesthesia	Volume Mode: 5ml Pressure Mode: 10ml	Low flow	Low flow capability not offered
15	Scavenging System	TE Compliance	TE Compliance	TE Compliance
16	Venturi Suction	TE Compliance	TE Compliance	TE Compliance
17	Circle/CO2 Absorber, fully Autoclavable, including Bag/Vent switch, CO2 by pass	1.5 L absorbar Bag/Vent switch & <b>CO2 bypass not available</b> but can be changed through CLIC option, accepted as minor deviation	800gm absorbar, Bag/Vent switch <b>but CO2 bypass not available</b> but can be changed through CLIC Option, accepted as minor deviation	2 L absorbar Bag/Vent switch & <b>CO2 bypass not available</b> but can be changed through CLIC Option, accepted as minor deviation
18	Complete with mounting bracket, disposable patient circuit, absorber detachable including Y-piece circuit, bag	TE Compliance	TE compliance	TE compliance

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Specification	M/S Vertex Enterprises	M/S Shirazi Trading	M/S Total Technologies	M/S Eastern Medical Technologies
19 Vaporizers: Tested, Temperature compensated, interlock with refill keys	TE Compliance	TE compliance	TE compliance	TE compliance
20 2 Station Selectatec Back bar to accommodate up to two vaporizers at a time	TE Compliance	TE compliance	TE compliance	TE compliance
21 1x Vaporizer, Selectatec Type, Isoflurane	Selectatec, Model: 2000	Selectatec, Model: Tec 7	Selectatec, or Drager equivalent	Selectatec, Model?
22 1x Vaporizer, Selectatec Type, Sevoflurane	Selectatec, Model: 2000	Selectatec, Model: Tec 7	Selectatec, or Drager equivalent	Selectatec, Model?
23 1 Pin Index Cylinders for O <sub>2</sub>	Certified brand new locally supplied	Certified brand new	Certified not offered	Certified not offered
24 1 Pin Index Cylinders for N <sub>2</sub> O	Certified brand new locally supplied	Certified brand new	certified not offered	Certified not offered
25 <b>ELECTRONIC / DIGITAL FLOW METERS</b>				
26 Three Gas Configurations (O <sub>2</sub> , N <sub>2</sub> O and Air)	3 Gases	3 Gases	3 Gases	3 Gases
27 O <sub>2</sub> and Air: 0 to 12 LPM	TE Compliance	TE Compliance	TE Compliance	TE Compliance
28 N <sub>2</sub> O: 0 to 12 LPM	TE Compliance	TE Compliance	TE Compliance	TE Compliance
29 Thermal Mass Flow Sensor Type	Thermal flow sensor	infrared sensor	infrared sensor	Thermal flow sensor
30 Electronic Hypoxic Guard for minimum of 25% O <sub>2</sub>	Electronic	Electronic	Electronic not available	Electronic not available
31 Agent Monitoring for Iso/Sevo/Des	TE Compliance	ISO/SEVO/DES	TE Compliance	ISO/SEVO/DES
32 Low flow oxygen at 200ml flow meter	TE Compliance	TE Compliance	TE Compliance	No detail provided
33 <b>ANESTHESIA VENTILATOR BUILT-IN (Paeds to Adult)</b>				
34 Microprocessor Controlled Anesthesia Ventilator	Microprocessor based, electrically driven electronically controlled	Microprocessor based, pneumatic driven, electronically controlled	Microprocessor based, pneumatic driven, electronically controlled	Microprocessor based, pneumatic driven, electronically controlled

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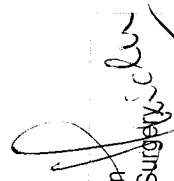
Specification	M/S Vertex Enterprises	M/S Shirazi Trading	M/S Total Technologies	M/S Eastern Medical Technologies
35	Full Colour Minimum 8" or more LCD / TFT Touch Screen Display Automatic Leak and Compliance Test	15" TFT, Automatic leak & compliance test	15" TFT, Automatic leak & compliance test	12.1" TFT, Automatic leak & compliance test
36	Ventilation Modes: Volume Control, Pressure Control. SIMV+PSV, Pressure Support, CPAP, Spontaneous manual	All modes available	All modes available except CPAP	All modes available except CPAP
37	Ventilator Monitoring:	TE Compliance	TE Compliance	TE Compliance
38	Oxygen (F102), Inspired & Expired Volumes, Paw, Pressure, Real Time Waveforms for Flow, Volume, & Pressure	TE Compliance	TE Compliance	TE Compliance
39	Tidal Volume: 05 — 1400 ml	5 to 1500ml	3 to 600ml	20 to 1500ml
40	IE Ratio: 1:2	2:1 to 1:8	4:1 to 1:4	4:1 to 1:8
41	Frequency: 4 — 60 bpm	4 to 100bpm	4 to 100bpm	4 to 100bpm
42	Minute Volume: 0.3 — 25 LPM	0.1 to 99.9 L/M	0 to 50L/M	20 L/M
43	Pressure Limit: 10 - 70 cmH2O (Adult)	12 - 100cmH2O	5 - 100cmH2O	5 - 70cmH2O
44	10-50 cmH2O (Paeds)	5 - 60cmH2O	5 - 80cmH2O	3 - 50cmH2O
45	PEEP: 3 — 20 cmH2O	4 - 30cmH2O	1 - 20cmH2O	3 to 30cmH2O
46	Patient Trigger: 1 — 10 LPM	1 to 10L/M	1 to 10L/M	1 to 10L/M
47	Battery Back Up of 30 minutes Minimum.	30min	>100Mins	120 Min
48	User Alarms: High/Low Pressure; High/Low Minute Volume; High/Low Breath Per Minute (BPM); High/Low Oxygen Static Alarms: Apnea, Low Supply Gas,	TE Compliance	TE Compliance	TE Compliance
49	No Charge, Fresh Gas Too High, Ventilator Inoperative, Under Pressure, Power Fail, Battery Low, Apnea Alarm in Bag Mode	TE Compliance	TE Compliance	TE Compliance
50	Electronic Gas Mixing	Electronic Mixing	Electronic Mixing	Not available
51	Spirometry Loops	Spirometry loops	Spirometry loops	Spirometry loops
52	Heart Lung Mode	Cardiac bypass mode	HL Mode	Not available
53	User service manuals with error code book.	TE Compliance	TE Compliance	TE Compliance

*Shahid Raza*

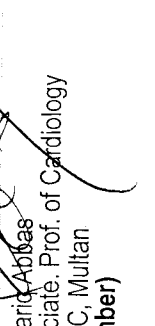
*Dr. [Signature]*


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54	User Manual	TE Compliance	TE Compliance	TE Compliance
55	In case of electricity and battery failure, manual ventilation, gas delivery and agent delivery should be possible.	TE Compliance	No Detail provided	No Detail provided
<b>REMARKS</b>	<b>Technically accepted</b>	<b>Technically accepted</b>	<b>Technically rejected</b>	<b>Technically rejected</b>

  
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