

## Anesthesia Delivery System

## Technical Specifications

## PHYSICAL

**Construction:** Tabular, Rigid Thermostat moulded with large drawer for storage. Four large diameter anti-static castor wheels providing easy mobility. Front castors have brakes.

## GAS INLETS

Cylinder yokes: Gas specific, pin indexed yokes with slinding steel clamping bar for O<sub>2</sub> and N<sub>2</sub>O as per model below:  
2XO<sub>2</sub>, 2XN<sub>2</sub>O  
Pipeline inlets: O<sub>2</sub>, N<sub>2</sub>O and Air pipeline inlets

## PRESSURE REDUCING REGULATORS

Highly efficient and reliable PRESSURE regulators (2 stage in PRIMA) for O<sub>2</sub> and N<sub>2</sub>O. N<sub>2</sub>O regulators are activated only if O<sub>2</sub> regulators are pressurized. N<sub>2</sub>O regulators cut off on O<sub>2</sub> supply failure

## PRESSURE GAUGE

\* Pressure gauge cylinder: O<sub>2</sub> and N<sub>2</sub>O: 0 to 250 kg/cm<sup>2</sup>

Pipeline systems: O<sub>2</sub>/N<sub>2</sub>O/AIR, diameter-indexed

O<sub>2</sub>/N<sub>2</sub>O piping station block with pressure gauge and 5m hose (Optional)

## FLOWMETER

5 Tube long (230 mm) flowmeters calibrated in double scale for accuracy and clarity in reading.  
3 gas: O<sub>2</sub>, N<sub>2</sub>O, Air (PRIMA).  
Anti-hypoxia system: Minimum 25-30% O<sub>2</sub> at about 3kg/cm<sup>2</sup> (PRIMA)  
Scale: O<sub>2</sub>: 0.1-1 LPM, 1-10LPM  
N<sub>2</sub>O: 0.1-1 LPM, 1-10LPM  
AIR: 0.1-10LPM

N<sub>2</sub>O SAFETY CUT-OFF VALVE FOR OXYGEN SUPPLYING FAILURE

When the pressure of the supplying oxygen drops below about 2.5kg/cm<sup>2</sup>, nitrous oxide will be automatically shut off to protect a patient from the danger of hypo-oxygenation

## OXYGEN FLUSH VALVE

Self-returning push Button

Flow: 35-75 LPM at 4 kg/cm<sup>2</sup>

## ALARM FOR OXYGEN SUPPLYING FAILURE

Audio visual Alarm with buzzer and LED indicator, for more than 7 seconds to warn a danger when the pressure of supplying oxygen drops below about 2.5kg/cm<sup>2</sup>

## VAPORIZER

Designed to install up to maximum TWO Selectatec vaporizers.

Breathing Attachment: Standard Bains breathing Circuit

## Intellegent Breathing System

GSM absorber with Integrated Bellows & Sodalime Canister system offering highest absorption efficiency offering advance features like Inbuilt APL Valve, Pressure Manometer for breath to breath Airway pressure display, integrated O<sub>2</sub> Sensor offering FIO<sub>2</sub> Monitoring, Inspiratory & expiratory flow sensors ensuring accurate delivery & monitoring of Volume.

## INTEGRATED ANESTHETIC VENTILATOR

**A) Vent X**  
Microprocessor controlled pneumatically driven integrated ventilator with ascending bellows for Adult, pediatric & neonatal application.

## GENERAL

Operating Power: 100 to 240 VAC, 50/60Hz, 6.5A  
Battery: 12V DC, Battery backup: 2 Hrs (full charge Time: 4 Hrs)

## DISPLAY

Screen: 12.1" Color LCD Display

## DISPLAY PARAMETERS

- Real time display of P-T, F-T, V-T waveforms & P-V, F-V loops, ETCO<sub>2</sub> (Optional), A/C, Manual, Standby
- Upto 4 waveforms & 2 loops simultaneously.
- Multigas Monitoring Parameters (Optional)
- Digital Flow Meter (Optional)

## CONTROL

- Pressure, Volume and Time controlled ventilator
- Modes: VCV, PCV, SIMV+PSV, Manual, Standby
- Breath Rate: 1 – 100 bpm
- Tidal Volume: 20 – 1500 ml
- I : E ratio : 4:1 - 1:10
- PEEP: Integrated Electronic PEEP: 4 – 30 cmH<sub>2</sub>O
- Flow Trigger: 1 – 15 L/min
- Insp. Time: 0.1 – 10 sec (Increment: 0.1 sec)
- Pressure Limit: (PEEP+5) – 70 cmH<sub>2</sub>O
- Pressure Control: 5 – 70 cmH<sub>2</sub>O
- Pressure Support: 5 – 60 cmH<sub>2</sub>O
- Inspiratory Pause: 5 – 50 %

## MONITORING

- Insp tidal Volume: 0 to 2000ml
- Exp tidal Volume: 0 to 2000ml
- Minute Volume: 0 to 60L

## MONITORING

- Insp tidal Volume: 0 to 1500ml
- Exp tidal Volume: 0 to 1500ml
- Minute Volume: 0 to 60L
- Spontaneous Minute Volume: 0 to 60L
- Frequency: 0 to 100bpm
- Spontaneous frequency: 0 to 99 bpm
- I:E ratio: 3:1 to 1:6
- Peak Pressure: -12 to 100 cmH<sub>2</sub>O
- Mean Pressure: 0 to 100 cmH<sub>2</sub>O
- Insp Plat pressure: 0 to 100 cmH<sub>2</sub>O
- Insp O<sub>2</sub>: 21% to 100%
- Compliance: 0 to 200mL/cmH<sub>2</sub>O
- Resistance: 0 to 200cmH<sub>2</sub>O(L/S)
- ETCO<sub>2</sub>

## ALARMS SETTINGS

- Tidal Volume: 20 to 1500ml
- Minute Volume: 1 to 40L
- Frequency: 1 to 60bpm
- Airway Pressure: -12 to 100 cmH<sub>2</sub>O
- Insp O<sub>2</sub>: 21% to 100%
- High Continuous Airway Pressure: Alarm when airway pressure exceeds ( PEEP + 15) cmH<sub>2</sub>O for 15 seconds
- Negative Pressure: Alarm when airway pressure exceeds -10cmH<sub>2</sub>O
- Alarms for Apnea, O<sub>2</sub> failure, Mains Failure, low battery.

## OPTIONS

- Vent VII - 7" LCD Display with VCV, PEEP Manual, Standby
- Vent VIII - 8.4" LCD Display with VCV, PCV, SMV, A/C, Manual + Standby Mode

## OPTIONAL SYSTEMS &amp; ACCESSORIES

## TEMPERATURE COMPENSATED VAPORIZER (Optional)

It is possible to use SELECTATEC Vaporizers of choice: Halothane / ISOFLURANE / ENFLURANE / SEVOFLURANE additionally installed with manifold for SELECTATEC Vaporizers.

## Concentration increments

0-2 vol% in 0.2 intervals  
2-6 vol% in 0.5 intervals

3 vol% safety lock

Agent capacity : 300 ± 10ml

Non-contamination-baffle in the anesthetic agent reservoir can prevent chamber inside from contaminating due to accidental tilting or inverting

Mounting type : Selectatec

Weight : 6.6kg

## GAS ATTACHMENT (OPTIONAL)

Mox regulator with High Pressure Tubing for connecting to 10 Litres H<sub>2</sub>O capacity cylinder .



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NOTE : specification subject to change without prior notice

Asteros Royale

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*ASTEROS ROYALE A new generation anesthesia workstation offers intuitive usability and extensive flexibility providing the highest level of anesthesia delivery.*

ASTEROS ROYALE is designed to grow to meet changing needs in anesthesia ensuring quality and high level patient safety it offers outstanding feature of low flow anesthesia, thereby ensuring cost efficiency and reliability

## Asteros Royale



### Features

- Expandable from basic anesthesia to high level ventilation parameters
- Modular design, Light weight & Compact
- Outstanding mobility.
- Strengthened safety system.
- Convenient View safety system.
- Low Flow through dual cascaded tubes of O2 and N2O.
- Supports wide range of vapourisers.
- Internationally designed GSM circle absorber system of effective recycling of gases.
- Ergonomic design ventilator.
- Top space for mounting patient monitoring system.

### Ventilator options



Vent VII



Vent VIII



Vent X

### Panel



- Intuitive design front panel displaying at convenient viewing range Consist of panel pressure gauges for O2, N2O & AIR main ON/OFF switch, Fresh Gas out let Emergency Flush and O2 Failure Alarm.
- Tube rotameter with backlight available for low flow selection of O2 & N2O Gas+Air.
- Choice of temperature compensated vaporizer, easy selectatec compatible vaporiser

### Vaporiser (optional)



- Wide range of vaprisers of choice Halothane, isoflurane, sevoflurane, Desflurane, Enflurane.