Visor
Healthcare Solutions

Aspiration 9

Anesthesia Machine

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ISO13485

Various ventilation modes for comprehensive ventilation designed to meet different medical needs depending on the patient's condition and the goals of treatment so as to provide efficient and safe ventilation.

Available Ventilation Modes:

Volume Control Ventilation (VCV)

Pressure Control Ventilation (PCV)

Pressure Control Ventilation with Volume Guarantee (PCV-VG)

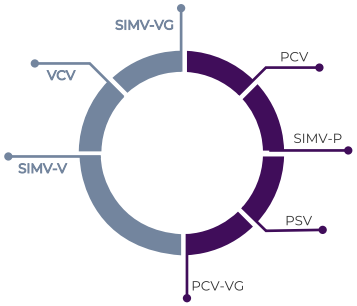
Synchronized Intermittent Mandatory Ventilation (SIMV-V)

Synchronized Intermittent Mandatory Ventilation (SIMV-P)

Synchronized Intermittent Mandatory Ventilation (SIMV-VG)

Pressure Support Ventilation (PSV)

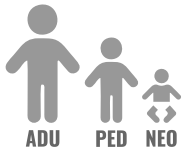
Ventilation Modes



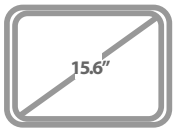
Integrated design of the breathing circuit with simplified connections ensures no exposed cables and enhances functionality, safety and efficiency while minimizing complexity to provide precise ventilation for adult and paediatric patients

Advanced Online By-Pass Technology in this machine allows for the safe and efficient replacement of soda lime in the circle absorber canister without causing leakage issues. This innovative feature enables seamless switching of the absorbent material while maintaining a continuous flow of gases through the system

Patient Type



Touch Screen Display



Electronic Flowmeter

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Anesthesia Workstation

Technical Specification

Configurations

Dimensions	Height (With casters)	1358mm
	Width	945mm
	Depth	745mm
Screen	15.6 inch TFT LCD touch screen	
Gas supply	O_2, N_2O, AIR	
By-pass	Standard	
ACGO	Standard	
Flowmeter	Electronic Flowmeter	
Tidal Volume	15 - 1500ml	
Ventilator Software	VCV, PCV, PSV, SIMV-V, SIMV-P, SIMV-VG, PCV-VG, Manual / Spont	
Spirometry loop	P-V,P-F,F-V	
Spare Cylinder yoke	O2 (optional), N2O (Optional), Air (Optional)	
Li-ion Battery	1 Battery, 6600mAh	
FiO2	18% - 100%	
Waveforms	P - T, F - T, V - T	
Auxiliary power outlets	3	
Wheels	Four wheels with central braking system	
Drawers	2	
Reading lamp	LED lighting Included	
Module Slots	2	
Built-in Heater	Standard	
O2 cell	Standard	
Vaporizer	2 Selectatec mount, 3rd mount optional	
Compatibility	Isoflurane, Sevoflurane, Enflurane, Halothane	
Optional	Suctioning, AGSS, 3rd Drawer, AG, EtCO2, PSI, SpO2	

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Technical Specifications

Anesthesia Machine	
Technical Specification	
Physical Specification	
Dimensions and Weight	
Height	1358mm
Width	945mm
Depth	745mm
Weight	180Kg
Top Shelf	
Weight limit	30kg
Width	641mm
Depth	350mm
Work Surface(Stainless steel)	
Height	850mm
Width	565mm
Depth	340mm
Drawer (Optional 3 drawers)	
Height	118mm
Width	417mm
Depth	368mm
Bag Arm	
Height	1042mm
Length	312mm
Casters	
Brake	Four wheels with central braking system
Working Light	
Settings	LED stripe light/OFF, Low, High(3 gears)
Screen	
Display type	15 inch TFT LCD Touch screen
Display parameters	All setting and alarm parameters (including Breath rate, I/E ratio, Tidal volume, Minute volume, PEEP, MEAN, PEAK, PLAT, and O2 concentration, EtCO2, N2O, Aesthesia gas concentration, PSI)
Resolution	1024*768
Graphic waveforms	Pressure, Flow, Volume, CO2 ,NO2,PSI,SPO2, Anesthetic gas
Timer	Display on screen timer
Spirometry loops	Pressure vs Volume，Flow vs Volume, Flow vs Pressure
Screen Control	Touch screen/Mouse control
Ventilator Specifications	

Modes of Ventilation	
Manual/Spontaneous Ventilation/Bypass VCV、PCV、PCV-VG、SIMV-VC、SIMV-PC、SIMV-VG、PSV PSV backup ventilation VCV mode PSV backup ventilation PCV mode	
Compensation	
Circuit gas leakage compensation and automatic compliance compensation	
Ventilation Parameters Range	
Patient type	Adult, Pediatric, Neonate
Tidal volume	10-1500mL(increments of 1 mL)
Pinsp	5-70cmH2O (increments of 1 cmH2O)
Plimit	10-100cmH2O (increments of 1 cmH2O)
△*Psupp*	3-60cmH2O(increments of 1 cmH2O)
Respiration Rate	4-100bpm(increments of 1 bpm)
I:E	8:1-1:10 (increments of 0.5)
Tpause	OFF, 5% - 60% (increments of 1%)
Tinsp	0.2 - 10.0 s (increments of 0.1 s)
Trigger window	5% - 90% (increments of 1%)
Flow trigger	0.2 ~ 15 L/min (increments of 0.1L/min)
Pressure trigger	-20~ -1 cmH2O (increments of 1 cmH2O)
Exp%	5% - 80% (increments of 1%)
Tslope	0.0 - 2.0 s (increments of 0.1 s)
Positive End Expiratory Pressure (PEEP)	
Type	Integrated, electronic controlled
Range	OFF, 3~30 cmH2O (increments of 1 cm H2O)
Ventilator Performance	
Driving pressure	280 kPa to 600 kPa
Flow valve range	V'max. 120 L/min
Monitoring Parameters	
Minute volume	0-100L/min
Tidal volume	0-3000mL
Inspired oxygen (FiO2)	18% to100%
Pressure (Peak,Mean,Plateau)	-20-120cmH2O
Rate	0-120bpm
PEEP	0-70cmH2O
Resistance (R)	0-600cmH2O/(L/s)
Compliance (C)	0-300ml/cmH2O
I:E	10:1-1:10
Control Accuracy	
Tidal volume(Vt)	15-59:±10mL
	60-209:±15mL
	210-1500:±7%of set value
Pinsp	±2.5 cmH2O or ±7 of set value
Psupp	±2.5 cmH2O or ±7 of set value
PEEP	±2cmH2O or ±8% of set value
Rate	±1 bpm or ±10% of set value

I:E	The inspiratory/expiratory ratio is expressed as I: E, within the range of 8.0:1 to 2.5:1, the error is ± 25% of I; Within the range of 2.0:1 to 1.5:1, the error is ± 10% of I; Within the range of 1:1.0 to 1:4.0, the error is ± 10% of E; In the range of 1:4.5~1:10.0, the error is ± 25% of E.
Tinsp	±0.2s
Trigger window	±10%
Monitoring Accuracy	
Tidal volume(Vt)	0mL~59mL: ± 10mL
	60mL~209mL:± 15mL
	210mL~3000mL： ± 7% of the monitoring value.
Pressure (Peak,Mean,Plateau)	± 2.0cmH2O or ± 4% of the monitoring value, whichever is greater
PEEP	± 2.0cmH2O or ± 4% of the monitoring value, whichever is greater.
Rate	± 1bpm, or ± 5% of the monitoring value, whichever is greater.
Minute volume	± 0.1L/min or ± 8% of the monitoring value, whichever is greater
Resistance (R)	0cmH2O/(L/S) ~ 20cmH2O/(L/S): ±10cmH2O/(L/S);
	21cmH2O/(L/S) ~ 600cmH2O/(L/s) : ± 50% of the monitoring valve
Compliance (C)	± (10mL/cmH2O+20% of the actual reading)
Cstat	± (10mL/cmH2O+20% of the actual reading)
I:E	The inspiratory/expiratory ratio is expressed as I: E, within the range of 10.0:1 to 2.5:1, the error is ± 25% of I; Within the range of 2.0:1 to 1.5:1, the error is ± 10% of I; Within the range of 1:1.0 to 1:4.0, the error is ± 10% of E; In the range of 1:4.5~1:10.0, the error is ± 25% of E
Alarm setting	
FiO2 high	20%-99%
FiO2 low	18%-98%
Paw high	2-100 cmH2O
Paw low	OFF,(1-98) cmH2O
Vte high	20-1600 ml
Vte low	OFF,(5-1595) ml
MV high	0.2-99 L/min
MV low	OFF,(0.1-98) L/min
Rate high	4-100 /min
Rate low	2-98 /min
Apnea alarm	Adjustment range is 15s to 60s, the error is ± 2s.
Lung Recruitment Tool	
Lung Recruitment Maneuver :	Increasing PEEP progressively (with a maximum of 8 stages)
Adjustable Ventilation Parameters for Lung Recruitment:	Pinsp,I:E,PEEP,Rate,P_step,B_step
Data Storage	
Patient types	Adult, Child and Infant for each Configuration
Log Storage	1000 sets

History trend	72 consecutive hours
Graphic Trends Resolution	30min,1hour,2hour,3hour,6hour
Tabular Trends Resolution	5min,10min,20min,30min,60min
Pneumatic Specifications	
Pipeline Supply	
Gas type	O2, N2O and Air
Pipeline input range	280 to 600 kPa (40 to 87 psi)
Pipeline connections	DISS/NIST
Pipeline Supply Pressure Gauge	
Display type	Mechanical
Ranges	0～1.4MPa;
Resolution	0.1MPa;
Accuracy	±0.1MPa or reading ±4%, select the max value
O2 Controls	
O2 flush flow rate range	35 – 75 L/min
Auxiliary O2 Flowmeter	
Flow Range	0~15L/min
Accuracy	± 10%of the indicated value (between 10%and 100%full range)
Reserve Oxygen supply input flow rate range	
Pressure range	280 to 600 kPa
Maximum flow	Driving gas is oxygen:O2:V'max. 120 L/min
	Driving gas is air:O2:V'max. 120 L/min
Negative pressure suction device (optional)	
High negative pressure/high flow continuous negative pressure suction mode	
Maximum vacuum	When the external pressure pressure is 72kPa and the free flow rate is 40L/min, the maximum negative pressure generated is 69kPa ~ 72kPa.
Maximum flow	When the external pressure pressure is 72kPa and the free flow rate is 40L/min, the maximum flow generated is 39L/min ~ 40L/min.
Venturi negsative pressure suction mode	
Maximum negative pressure	When the pressure of the driving gas is 280kPa, the maximum negative pressure is ≥60kPa.
	When the pressure of the driving gas is 600kPa, the maximum negative pressure is ≥73kPa.
Maximum flow	When the pressure of the driving gas is 280kPa, the maximum flow (not equipped with a liquid bottle and filter) ≥25L/min.
	When the pressure of the driving gas is 600kPa, the maximum flow (not equipped with liquid collecting bottle and filter) ≥25L/min.
Electronic Flow control system (Electronic Mixer)	
Direct Flow Control Mode	
O2 flow range	0~15L/min
Air flow range	0~15L/min
N2O flow range	0~12L/min
Accuracy	less than ± 10% of the indicated value (under 20 ° C, 101.3 kPa, between 10%and 100%of the full scale)
Total Flow Control Mode	

Total flow range	0L/min ~ 15L/min
Total flow accuracy	± 10%of the indicated value (between 10%and 100%full range)
O2 concentration	
Range	18%to 100%
Accuracy	± (2.5%volume percentage+2.5%of gas concentration)
Optimizer	
The Optimizer flow is for reference only, and the setting of specific ventilation parameters needs to be determined according to the patient's physical skills and clinical symptoms.	
Flow Pause	
The Flow Pause time is 120s by default, and the Flow Pause function is automatically turned off when the countdown is over;	
Backup Flow Control System	
Control Type	
Mechanical (Control Needle Valve and Knob)	
Flow Range	
Control Range (O2)	0 to15 L/min
Total flow meter	
Range	0 to15 L/min
Indicator	Flow tube
Indicator accuracy	± 10% of the indicated value for flows
Breathing System Specification	
Breathing system volume (Pre-pak)	
Automatic ventilation	
Manual ventilation	3000ml
CO2 Absorber Assembly	
Absorber capacity	1500mL
Absorber Canister Contents	1 Pre-Pak canister or Loose Fill absorbent
Water Collection Cup	
Detachable with 23 mL of capacity	
Inspiratory Airway Pressure Gauge	
Range	-20 ~ 100 cmH2O
Accuracy	± (2% of the full scale reading + 4% of the actual reading)
Flow Sensor	
Type	Variable orifice flow sensor
Location	Inspiratory and expiratory port
Digital Pramagnetic O2 sensor(Optional)	
Type	Digital Pramagnetic O2 sensor
Measuring Range	0-100% O2
Signal Output	9-13mV
Response Time 90%	T90=6s
Accuracy Full Scale	±2.5%
Accuracy Over Operating Range	± 5%
Drift % Signal/Month	< 1%
Linearity	±0.2%
Recommended Flow Rate	0.1-10
Breathing system connectors	

Exhalation	Standard 22mm OD/15mm ID conical connectors
Inhalation	Standard 22mm OD/15mm ID conical connectors
Manual bag port	Standard 22mm OD/15mm ID conical connectors
Connections to a Gas Scavenger	30 mm OD ISO
Bag-to-Ventilator Switch	
Type	Bi-stable
Control	Switch between manual and mechanical ventilation
Adjustable Pressure Limiting (APL) Valve	
Type	Manually control with quick relief function
Range	0cmH2O to 75cmH2O
Breathing System Temperature Controller	
The system has heating function to heat the gas delivered to the patient through the breathing	
Anesthetic Gas Scavenging System (AGSS) Optional	
Size (H x W x D)	445×142×95 mm
Type of disposal system	Low-flow
Extract flow	35L/min～50L/min
Materials	
All materials in contact with exhaled patient gases are autoclavable up to a maximum temperature of 134°C, except O2 sensor, and mechanical pressure gauge.	
Breathing circuit parameters	
System Compliance	≤4ml/cmH2O
Impedance in Manual Mode	≤ 6 cmH2O
Impedance in Automatic Ventilation Mode	≤ 6 cmH2O
Leakage	≤ 150 mL @ 3 kPa
Vaporizers	
Anesthetic agent delivery	
Vaporizer	
Support agents	Enurane,Isourane,Sevourane,Halothane
Position	2 positisons (3 positions, optional)
Mounting mode	Selectatec®, with interlocking function Plug-in®, with interlocking function
Monitor Modules	
Anesthesia Gas (AG) Module-Main-	Optional
Anesthesia Gas (AG) Module-Side-	Optional
CO2 Module-Mainstream	Optional
CO2 Module-Side Stream	Optional
SPO2 module	Optional
PSI	Optional
Electrical Specifications	
Main Electrical Power	
Power input	AC100-240V,Frequency 50/60Hz,6A
Battery Power	
Type	Built-in Li-ion cel 14.4 VDC 6600mAh(Single)
No. of Cell	1 cells（Optional 2 cells)
Serving Time	1 cells 120 minutes(new and fully charged)
Charging Time	Less than8 hours
Auxiliary Electrical Outlets	
Auxiliary Output Power	AC100-240V,Frequency 50/60 Hz,1.5A
Auxiliary Output Power Fuse	T4AH250V—5x20mm
Number of Outlets	3
Environmental Specifications	

Operating	
Temperature	10℃~40℃
Relative Humidity	15%-95%,Non-condensing
Barometric (Kpa)	70kPa-106kPa
Storage	
Temperature	-20℃~55℃
Relative Humidity	10%-95%,Non-condensing
Barometric (Kpa)	50kPa-106kPa
Resistance to Ingress of Fluids	
Complies with the requirements of clause 11.6.3 in IEC 60601-1 and also the requirements in IEC 60529 for protection against vertically falling water drops equipment (IPX0)	
Interface	
Communication Port	
Auxiliary Output Interface	Provide power supply to external devices
USB (1) port	USB 2.0, Connect to external storage device, upgrade software
Network Interface	One RJ45 network interface
Communicate	One HDMI interface