

S/5 Aespire®

Essential performance

Compact design



Shown with S/5 Compact Anesthesia Monitor and Tec® 7 Vaporizers

Features

- Enhanced monitor integration capabilities with our S/5™ Anesthesia Monitor and S/5 Compact Anesthesia monitor
- Lightweight and compact for easy maneuverability
- Optional integrated auxiliary O₂ flowmeter and suction control

Advanced Breathing System (ABS)

- One step bag/vent switch turns the ventilator on/off
- Minimal number of parts and tube connections greatly reduces the potential for leaks and misconnects
- Ease of disassembly (no tools)
- Fully autoclavable and latex-free

Ventilation

- Volume and Pressure modes with electronic PEEP
- Exhaled volume, airway pressure and inspired oxygen monitoring capabilities
- Direct access to ventilator parameter settings
- Smart alarms direct user to specific problems and affected parameters
- Pressure bar graph for visual reference on a breath-by-breath basis (optional pressure waveform available)

Improved low flow/reduced life cycle costs

- Only one scheduled maintenance check per year
- Fresh gas flow compensation – automatically (available with tidal volume compensation option)
- Minimum O₂ flow of 50 mL
- Dual air flow tubes standard for higher resolution of low flows



Physical specifications

Dimensions

Height:	134.5 cm/52.9 in
Width:	72 cm/28.3 in
Depth:	73 cm/28.7 in
Weight:	approximately 108 kg/238 lbs

Top shelf

Weight limit:	34 kg/75 lbs
Width:	66 cm/26 in
Depth:	40 cm/15.75 in

Work surface

Height:	81.7 cm/32.2 in
Size:	2160 cm ² /334 in ²

DIN rail

Side of machine:	34.5 cm/13.6 in
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Drawers (internal dimensions)

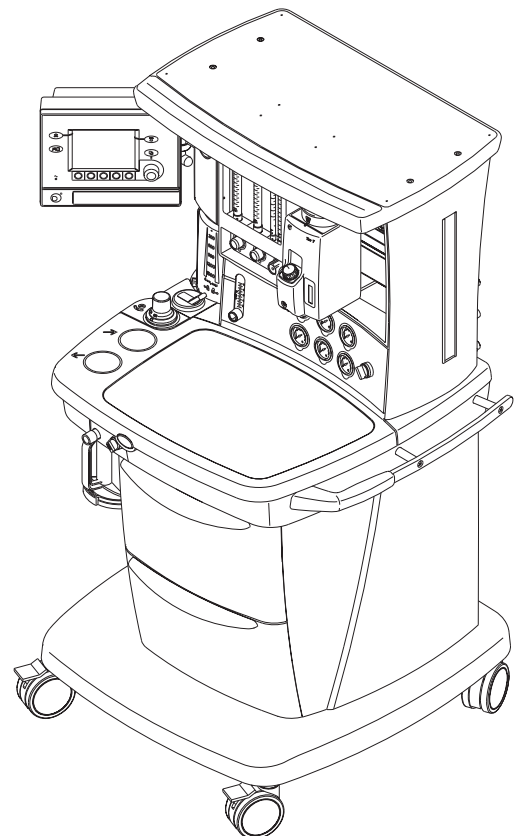
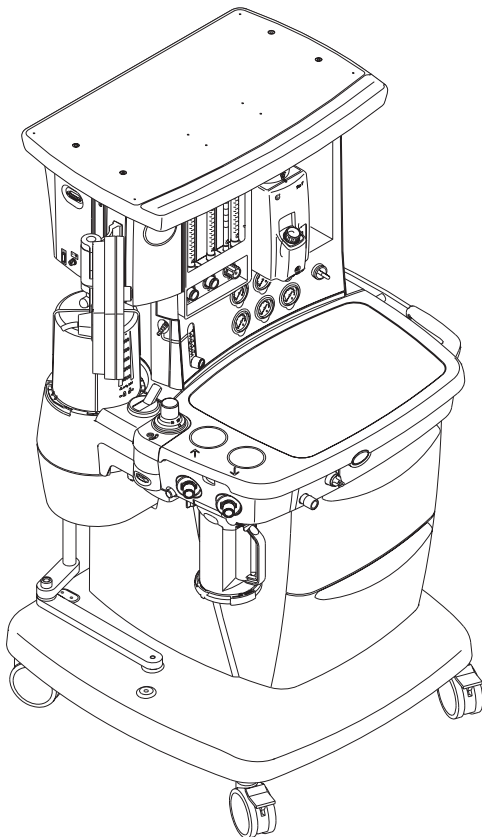
Height:	17.5 cm/6.9 in
Width:	33 cm/13 in
Depth:	26.5 cm/10.4 in

Absorber bag arm (optional)

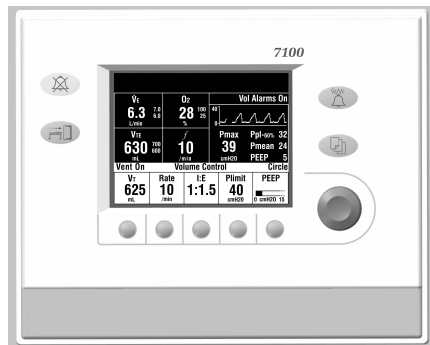
Arm length:	30.5 cm/12 in
Bag arm height (adjustable):	87 cm/34.3 in 104 cm/40.9 in

Casters

Diameter:	12.5 cm/5 in
Brakes:	Individual locking front casters



Ventilator operating specifications



Optional pressure waveform shown

Modes of ventilation

Volume Control mode

With tidal volume compensation (optional)

Pressure mode (optional)

Ventilation parameters

Tidal volume range: 45 to 1500 mL
(Volume Control mode)

Incremental settings: 45 to 100 mL
(increments of 5 mL)
100 to 300 mL
(increments of 10 mL)
300 to 1000 mL
(increments of 25 mL)
1000 to 1500 mL
(increments of 50 mL)

Pressure

(P_{Inspired}) range: 5 to 50 cm H₂O
(increments of 1 cm H₂O)

5 to 1500 mL
volume delivery

Rate: 4 to 65 breaths per
minute (increments
of 1 breath per minute)

Inspiratory/
expiratory ratio: 2:1 to 1:6
(increments of 0.5)

Inspiratory
pause adjust: 5% to 60% of
inspiratory time
(increments of 5%)

Positive End Expiratory Pressure (PEEP)

Type: Integrated, electronically controlled

Range: OFF, 4 to 30 cm H₂O
(increments of 1 cm H₂O)

Ventilator monitored values

Tidal volume: 5 to 1500 mL, 1 mL resolution

Minute volume: 0 to 99.9 L/min, 0.1 L/min resolution

Breathing rate: 0 to 65 breaths per minute,
1 breath per minute resolution

Oxygen

percentage: 5% to 110%, 1% resolution

Airway pressure: -9 to 99 cm H₂O, 1 cm H₂O
resolution

Alarm settings

Tidal volume

(V_{TE}): Low: OFF, 5 to 1500 mL
High: 20 to 1600 mL, OFF

Minute volume

(VE): Low: OFF, 0.1 to 10 L/min
High: 0.5 to 30 L/min, OFF

Inspired oxygen

(FiO_2): Low: 18 to 100%
High: 21 to 100%, OFF

Apnea alarm: Mechanical ventilation ON: < 5 mL
breath measured in 30 seconds
Mechanical ventilation OFF: < 25 mL
breath measured in 30 seconds

Low airway

pressure: Change of < 4 cm H₂O above PEEP

Pressure

(P_{limit}) range: 12 to 99 cm H₂O
(increments of 1 cm H₂O)

Sustained

airway pressure: 6 to 30 cm H₂O + PEEP
(adjusted based on ventilator
settings)

Subatmospheric

pressure: $P_{\text{aw}} < -10$ cm H₂O

Alarm silence
countdown

timer: 120 to 0 seconds

Ventilator accuracy

Delivery/monitoring accuracy

Volume delivery: > 200 mL = better than $\pm 10\%$
Set TV
75 to 200 mL = better than $\pm 20\%$
< 75 mL = better than $\pm 15\%$

Pressure (P_{Inspired}) delivery repeatability: ± 2 cm H₂O

PEEP delivery repeatability: ± 2 cm H₂O

Volume monitoring: > 200 mL = better than $\pm 10\%$
75 to 200 mL = better than $\pm 20\%$
< 75 mL = better than $\pm 15\%$

Pressure monitoring: Better than ± 2 cm H₂O and $\pm 5\%$ of reading (whichever is greater)

Ventilator components

Flow transducer

Type: Variable orifice flow sensor
Dimensions: 22 mm OD and 15 mm ID
Location: Inspiratory outlet and expiratory inlet

(Optional autoclavable sensor available)

Oxygen sensor

Type: Galvanic fuel cell

Ventilator pneumatics

Pressure range at inlet: 240 kPa to 700 kPa/35 psig to 100 psig

Peak gas flow: 70 L/min + fresh gas flow

Flow range: 2 to 70 L/min

Flow compensation range: 200 mL/min to 15 L/min

Ventilator screen

Display size: 120 mm x 92 mm

Display density: 1/4 VGA standard

Battery back-up

Backup power: Demonstrated battery time under typical operating conditions is 90 +minutes when fully charged. Battery time under extreme conditions is 30 minutes.

Battery type: Internal rechargeable sealed lead acid

Communication port

Serial interface: Isolated RS-232C compatible port

Anesthetic agent delivery

Delivery

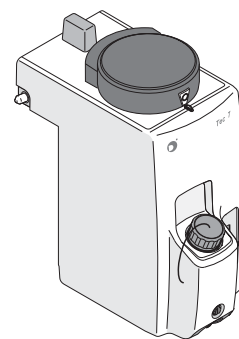
Vaporizers: Tec 5, Tec 6 Plus, Tec 7

Number of positions: 2

Mounting: Tool-free installation
Selectatec® manifold interlocks and isolates vaporizers



Tec 6 Plus vaporizer



Tec 7 vaporizer

Electrical specifications

Current leakage

100/120 V: < 300 μ A

220/240 V: < 500 μ A

Power

Power input: 100-120 Vac, 50/60 Hz
220-240 Vac, 50/60 Hz

Power cord: Length: 5 m/16.4 ft
Rating: 10A @ 220 Vac or 15A @ 120

Vac

Inlet/outlet modules

	220-240 V	120 V	100 V
System circuit breakers:	8A	15A	15A
Outlets (optional):	4 outlets on back, 3-1A, 1-2A individual breakers, optional isolation transformer	4 outlets on back, 3-2A, 1-3A individual breakers, optional isolation transformer	3 outlets on back, 2-2A, 1-4A individual breakers, optional isolation transformer

Pneumatic specifications

Auxiliary common gas outlet

Connector: ISO 22 mm OD and 15 mm ID

Gas supply

Pipeline input range: 240 kPa to 600 kPa/35 psig to 88 psig

Pipeline connections: DISS-male, DISS-female, DIN 13252, AS4059, F90-116, PrEN737-6, or NIST (ISO 5359). All fittings available for O₂, N₂O, and Air, and contain pipeline filter and check valve.

Cylinder input: Pin indexed in accordance with CGA-V-1 or DIN (nut and gland); contains input filter and check valve

Note: Maximum 3 cylinders; two inboard mounted, one outboard mounted.

Primary regulator diaphragm minimum burst pressure: 2758 kPa/400 psig

Primary regulator nominal output: \leq 338 kPa/49 psig
Pin indexed cylinder connections

\leq 407 kPa/59 psig
DIN cylinder connections

O₂ controls

Method: Proportionate decrease of N₂O with reduction in O₂ pressure

Supply failure alarm: Range: 193 kPa to 221 kPa/28 psig to 32 psig
Sounds at maximum volume every 10 seconds

O₂ flush: Range: 25 to 75 L/min

Flowmeters

O₂ ranges: 0.05 to 0.95 L/min and 1.0 to 15.0 L/min;
Minimum O₂ flow: 50 mL/min \pm 25 mL

N₂O ranges: 0 to 0.95 L/min and 1.0 to 10.0 L/min

Air range: 0 to 0.95 and 1 to 15 L/min

Pneumatic specifications, continued

Calibration:	Percent of full scale flow	Accuracy (% of flowrate)
	100	±2.5%
	90	±2.5%
	80	±2.6%
	70	±2.7%
	60	±2.9%
	50	±3.1%
	40	±3.4%
	30	±4.0%
	20	±5.0%
	10	±8.1%

Calibration conditions:* 20°C/68°F, 101.3 kPa/760 mmHg

* Different breathing circuit pressures, barometric pressures or temperatures change flowtube accuracy.

Hypoxic guard system

Type: Mechanical Link-25™
Range: Provides a nominal minimum 25% concentration of oxygen in O₂/N₂O mixture

Materials

All materials in contact with patient breathing gases are free of natural rubber latex.

Environmental specifications

System operation

Temperature: 10° to 40°C/50° to 104°F
Humidity: 15 to 95% relative humidity (non-condensing) per IEC 68-2-3
Altitude: -440 to 3565 m/500 to 800 mmHg

System storage

Temperature: -15° to 50°C/-5° to 122°F
Humidity: 10 to 95% relative humidity (including condensing) per IEC 68-2-3
Altitude: -440 to 5860 m/375 to 800 mmHg
Oxygen cell storage: -15° to 50°C/5° to 122°F
10 to 95% relative humidity
500 to 800 mmHg

Electromagnetic compatibility

Immunity: Complies with all requirements of EN 60601-1-2
Emissions: CISPR 11 group 1 class B
Approvals: UL 2601-1,
CSA C22.2 #601.1
EN/IEC 60601-1
CE 0197

Breathing circuit specifications

Operational modes

Breathing circuit is circle mode only

Carbon dioxide absorbent canister

Absorbent capacity: 800 g
Integrated expiratory limb water reservoir

Ports and connectors

Exhalation: 22 mm OD ISO 15 mm ID taper
Inhalation: 22 mm OD ISO 15 mm ID taper
Bag port: 22 mm OD

Pressure gauge

Scale range: 0 to 10 kPa/
-20 to 100 cm H₂O

Bag-to-Ventilator switch

Type: Bi-stable
Control: Controls ventilator and direction of breathing gas within the circuit

Integrated Adjustable Pressure Limiting (APL) valve

Range: 0.8 to 70 cm H₂O
Tactile knob indication at: 30 cm H₂O and above
Adjustment range of rotation: 0.8 to 30 cm H₂O (0 to 230°)
30 to 70 cm H₂O (230 to 330°)

Materials

All materials in contact with exhaled patient gases are autoclavable, except disposable flow sensors and O₂ cell. (Autoclavable flow sensors optional).

All materials in contact with patient gas are free of natural rubber latex.

Breathing circuit parameters

Compliance: Bag mode: 1.82 mL/cm H₂O
Mechanical mode: Automatically compensates for compression losses within the absorber and bellows assembly

Circuit volume: 2.7 L Vent Mode
1.2 L Bag Mode

Expiratory resistance:	Flow rate	Pexp Bag Mode Pressure drop	Pexp Vent Mode Pressure drop
	10 L/min	0.78 cm H ₂ O	0.77 cm H ₂ O
	30 L/min	1.59 cm H ₂ O	1.71 cm H ₂ O
	60 L/min	3.48 cm H ₂ O	3.88 cm H ₂ O

Note: With patient circuit and wye piece add +0.89 cm H₂O

Anesthetic gas scavenging

Type	Hospital system required	Machine connection
Active low flow:	High vacuum 36 L/min (300 mmHg) @ 12 in Hg	DISS evac
Active low flow:	Adjustable Venturi with >30 L/min	12.7 mm/0.5 in hose barb
Active high flow:	Low vacuum 40-130 L/min	30 mm/1.2 in BSI male threaded
Active high flow:	Venturi 50 L/min	25 mm/0.98 in hose barb
Passive:	Passive or externally attached active system	30 mm/1/2 in MISO taper
Active:	Venturi/Ejector >30L/min	12 mm/0.47 in hose barb
Active:	Venturi/Ejector >30L/min	8 mm/0.31 in hose barb
Active adjustable flow:	>30L/min	

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