

Aespire 7100

Essential performance
Compact design



Aespire® 7100 shown with Datex-Ohmeda
Cardiocard™/5 monitor and Tec® 7 Vaporizers

Features

- Enhanced monitor integration capabilities with our Datex-Ohmeda Anesthesia Monitor and 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

7100 Ventilator

- 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 lb

Top shelf

Weight limit:	34 kg/75 lb
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)

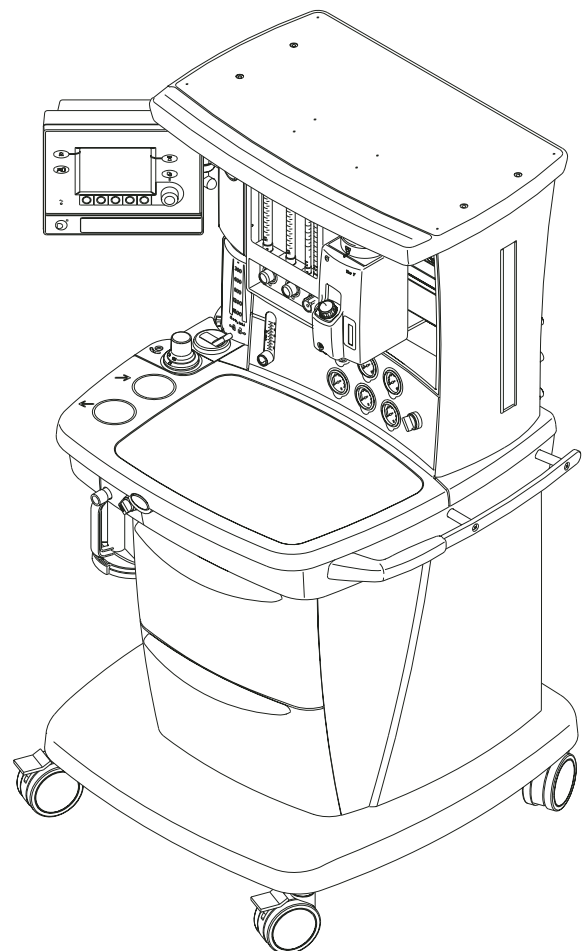
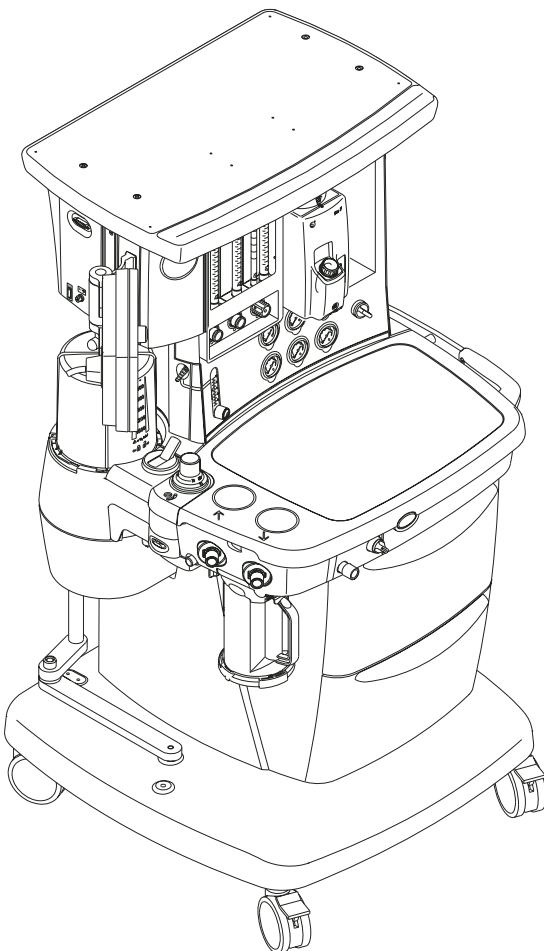
Height:	17.5 cm/6.9 in
Width:	33 cm/13 in
Depth:	26.5 cm/10.4 in

Absorber bag arm (optional)

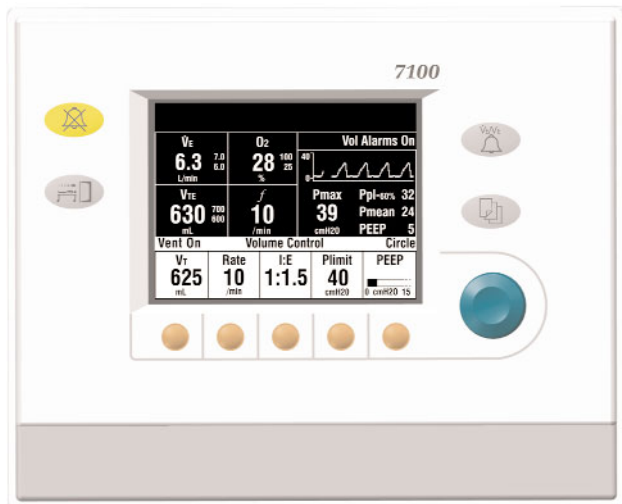
Arm length:	30.5 cm/12 in
Bag arm height (adjustable):	87 cm/34.3 in 104 cm/40.9 in

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 H ₂ O (increments of 1 cm H ₂ O) 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 H ₂ O (increments of 1 cm H ₂ O)

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 H ₂ O, 1 cm H ₂ O resolution

Alarm settings

Tidal volume (V_{TE}):	Low: OFF, 5 to 1500 mL High: 20 to 1600 mL, OFF
Minute volume (V_E):	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:	<i>Mechanical ventilation ON:</i> < 5 mL breath measured in 30 seconds <i>Mechanical ventilation OFF:</i> < 25 mL breath measured in 30 seconds
Low airway pressure:	Change of < 4 cm H ₂ O above PEEP
Pressure (P_{limit}) range:	12 to 99 cm H ₂ O (increments of 1 cm H ₂ O)
Sustained airway pressure:	6 to 30 cm H ₂ O + PEEP (adjusted based on ventilator settings)
Subatmospheric pressure:	$P_{aw} < -10$ cm H ₂ O
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 ± 20 mL < 75 mL = better than ± 15 mL
Pressure (P_{Inspired}) delivery repeatability:	± 2 cm H ₂ O
PEEP delivery repeatability:	± 2 cm H ₂ O
Volume monitoring:	> 200 mL = better than $\pm 10\%$ 75 to 200 mL = better than ± 20 mL < 75 mL = better than ± 15 mL
Pressure monitoring:	Better than ± 2 cm H ₂ O 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
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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 backup

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

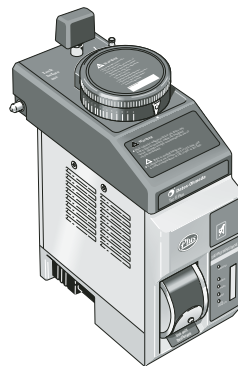
Communication port

Serial interface:	Isolated RS-232C compatible port
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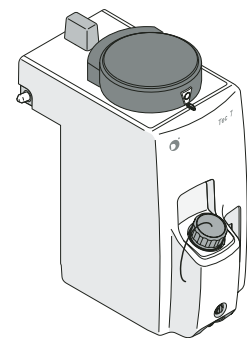
Anesthetic Agent Delivery

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

Power

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

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

Inlet/outlet modules (120 V)

System circuit breakers: 15A

Outlets (optional): 4 outlets on back, 3-2A,
1-3A 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, S90-116
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: < 338 kPa/49 psig
Pin indexed cylinder connections
< 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 to 15 L/min;

Minimum O₂ flow:
50 mL/min \pm 25 mL

N₂O ranges: 0 to 0.95 L/min and 1 to 10 L/min

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

Calibration:

	<i>Percent of full scale flow</i>	<i>Accuracy (% of flowrate)</i>
100		\pm 2.5%
90		\pm 2.5%
80		\pm 2.6%
70		\pm 2.7%
60		\pm 2.9%
50		\pm 3.1%
40		\pm 3.4%
30		\pm 4.0%
20		\pm 5.0%
10		\pm 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 H ₂ O
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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 H ₂ O
Tactile knob indication at:	30 cm H ₂ O and above
Adjustment range of rotation:	0.8 to 30 cm H ₂ O (0 to 230°) 30 to 70 cm H ₂ O (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 H ₂ O
	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:	<i>P_{exp} Bag Mode</i>	<i>P_{exp} Vent Mode</i>
	<i>Flow rate</i>	<i>Pressure drop</i>
	10 L/min	0.78 cm H ₂ O
	30 L/min	1.59 cm H ₂ O
	60 L/min	3.48 cm H ₂ O
		0.77 cm H ₂ O
		1.71 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

<i>Type</i>	<i>Hospital system required</i>	<i>Machine connection</i>
Active low flow:	High vacuum 36 L/min (300 mmHg) @ 12 in Hg	DISS evac
Passive:	Passive or externally attached active system	30 mm/0.5 in M ISO taper
Active adjustable flow:	> 30L/min	

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