

Aestiva®/5 Compact anesthesia machine

A new level of excellence and economy



Aestiva/5 Compact, wall-rail mounted



Aestiva/5 Compact, trolley base

Features

Ventilation

- Volume mode, electronic PEEP and optional pressure mode
- Airway pressure monitoring and pressure bar graph for visual reference on a breath-by-breath basis are standard (optional pressure waveform available)
- Tidal volume compensation, integrated volume and inspired oxygen monitoring capabilities
- Direct access to ventilator parameter settings
- Smart alarms direct user to specific problems and affected parameters

Innovative patient breathing system

- Mechanical bag/vent switch turns the mechanical ventilation on/off
- Integrated machine hoses/cables to minimize disconnects and clutter
- “No tools” disassembly
- Autoclavable and latex-free

Improved low flow/reduced life cycle costs

- Minimum O₂ flow of 50 mL
- Optional dual air flow tubes for resolution of low flows
- Two scheduled planned maintenance checks per year

Physical specifications

Dimensions (trolley base only)	
Height:	130.3 cm/51.3 in
Width:	75 cm/29.5 in
Depth:	83 cm/32.7 in
Weight:	Approximately 106.6 kg/235 lb (machine configured with one drawer and no vaporizers)

Dimensions (wall-rail mounted only)	
Height (bottom of TNA to top of display):	99.1 cm/39 in
Width (with TNA at tabletop):	77.5 cm/30.5 in
Width (with TNA swung out):	106.7 cm/42 in
Depth (rear clamp to front of TNA handle):	61 cm/24 in
Depth (rear clamp to front of tabletop when folded down, TNA swung out):	29.2 cm/11.5 in
Weight:	Approximately 53.6 kg/118 lb (machine configured with no vaporizers)

Top shelf (optional on trolley base only)	
Weight limit:	46 kg/100 lb
Width:	67.5 cm/26.6 in
Depth:	41 cm/16.1 in

Top of machine (wall-rail mount)	
Weight limit:	11.5 kg/25 lb

Work surface (trolley base only)	
Height:	82.6 cm/32.5 in
Width:	47 cm/18.5 in
Depth:	31.5 cm/12.4 in

Optional folding front work surface (wall-rail mount only) and side shelf (trolley base only)	
Height:	82.6 cm/32.5 in
Width:	26.5 cm/10.4 in
Depth:	31.5 cm/12.4 in
Weight limit:	11 kg/25 lb

DIN rail (optional on trolley base only)	
Side of tabletop:	30 cm/12 in
Side of machine:	23.5 cm/9.25 in

Top drawer — locking (internal dimensions) (One standard on trolley base only)

Height:	10.5 cm/4.1 in
Width:	38.5 cm/15.2 in
Depth:	26 cm/10.2 in

Lower drawers (optional on trolley base only)*

Height:	14.5 cm/5.7 in
Width:	38.5 cm/15.2 in
Depth:	26 cm/10.2 in

Lower shelves (optional on trolley base only)*

Heights:	9.2 cm/3.6 in	13.2 cm/5.2 in
	20.6 cm/8.1 in	24.6 cm/9.7 in
	28.6 cm/11.3 in	36 cm/14.4 in
Width:	42.5 cm/16.75 in	42.5 cm/16.75 in
Depth:	36 cm/14.2 in	36 cm/14.2 in

Absorber bag arms

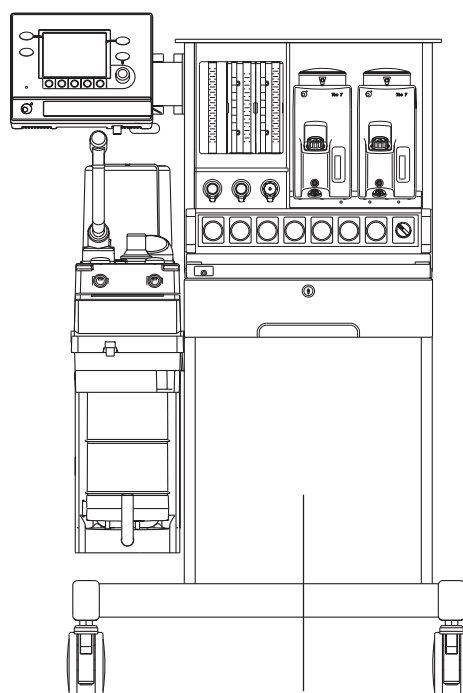
	Adjustable	Non-adjustable
Arm length:	30.5 cm/12 in	25.4 cm/10 in
Bag arm height:	87 cm/34.3 in 104 cm/40.9 in	91.5 cm/36 in

Absorber

Rotation:	85° (trolley base only) 90° (wall-rail mount only)
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Casters (standard on trolley base only)

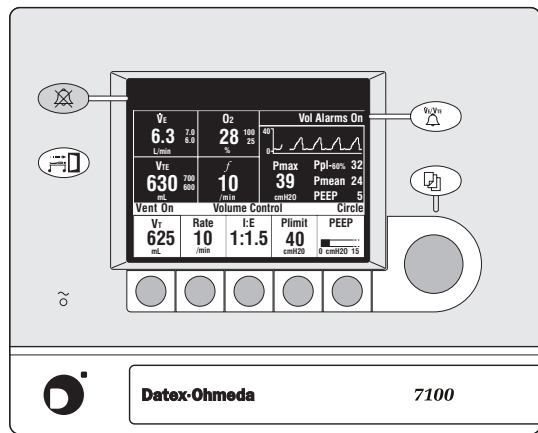
Diameter:	12.5 cm/5 in
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Space for additional
shelves and drawers

* Lower cabinet can be configured with a variety of shelf and drawer combinations on the trolley base only.

Ventilator operating specifications



Optional pressure waveform shown

Modes of ventilation

Volume control mode

With tidal volume compensation (standard in US)

Pressure mode (optional)

Ventilation parameters

Tidal volume range: 45 to 1500 mL

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)

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

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: OFF, 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_{T}): 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: *Mechanical ventilation ON:*
< 5 mL breath measured in 30 seconds

Mechanical ventilation OFF:
< 5 mL breath measured in 30 seconds

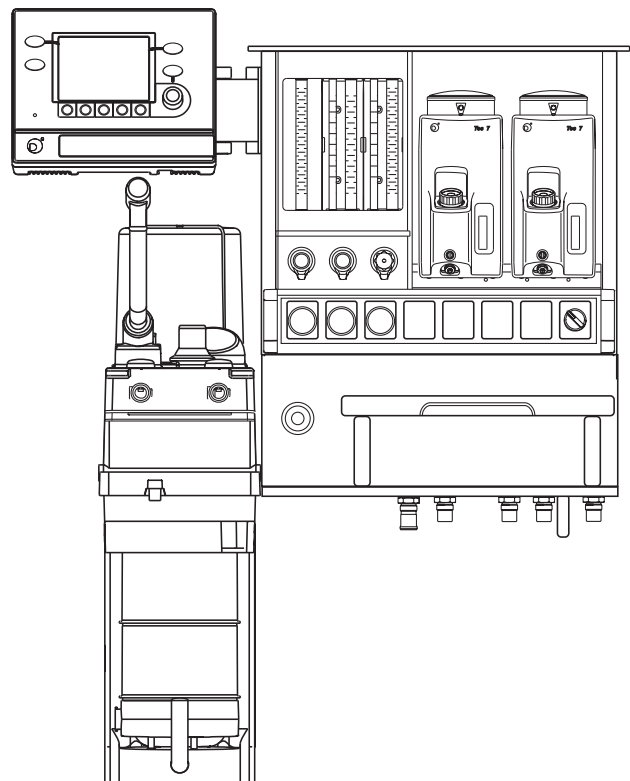
Low airway
pressure: 4 cm H₂O above PEEP

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

Sustained airway
pressure: Adjustable: 6 to 30 cm H₂O

Subatmospheric
pressure: Paw < -10 cm H₂O

Alarm silence
countdown timer: 120 to 0 seconds



Wall-rail mounted

Ventilator accuracy

Delivery/monitoring accuracy	
Compensated volume delivery:	> 200 mL = better than $\pm 10\%$ Set TV 75 to 200 mL = better than ± 20 mL < 75 mL = better than ± 15 mL
(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 or $\pm 5\%$ of reading (whichever is greater)

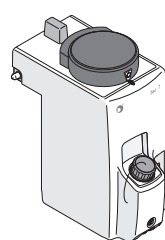
Ventilator components

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 type:	Internal rechargeable sealed lead acid

Communication port	
Serial interface:	Isolated RS-232C compatible port

Anesthetic agent delivery

Delivery	
Vaporizers:	Tec 4, Tec 5, Tec 6 Plus, Tec 7
Number of positions:	2
Mounting:	Tool-free installation Selectatec® manifold interlocks and isolates vaporizers



Tec 7



Tec 6 Plus

Electrical specifications

Current leakage	
120 V:	< 300 μ A
Power	
Power input:	USA/Canada/Mexico: 120 Vac, 60 Hz
Power cord:	Length: 5 m/16.4 ft Rating: 15A @ 120 Vac

Inlet/outlet modules (trolley base only)	
Note: Wall-rail mounted has no inlet/outlet modules available	

120 V

System circuit breakers:	No outlets 5A w/outlets 10A
Outlets (optional):	4 outlets on back, 3-2A, 1-3A individual breakers and 1-5A combined outlet breaker, optional isolation transformer

Electrical specifications, continued

Auxiliary outlet box
(optional on trolley
base only): 5 NEMA
outlets on
dovetail-
mounted
box, 5-2A
breakers,
isolation
transformer

Pneumatic specifications

Internal common gas outlet

Connector: ISO 22 mm OD and 15 mm ID

Auxiliary common gas outlet (optional)

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 or DISS-female:
All fittings available for O₂, N₂O, and Air, contain
pipeline filter and check valve.

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

Note: Three inboard mounted, two outboard
mounted; one oxygen, one other.

Cylinder input
options (for
wall-rail mounted
base only): CGA pin indexed yolks; contains input filter
and check valve

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

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

Gas power outlet (optional)

Connector: DISS indexed in accordance with CGA-V-5

Gas: Oxygen

Pressure and flow
characteristics: Varies with source

O₂ controls

Method: Proportionate decrease of N₂O, CO₂, He/O₂
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: 35 to 50 L/min

Flowmeters

O₂ ranges: Two tubes: 0.05 to 0.95 L/min and 1 to 15 L/min
Minimum O₂ flow: 50 mL/min ±25 mL

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

Air range: One tube option: 1 to 15 L/min
Two tube option: 0 to 0.95 and 1 to 15 L/min
(low flow tube optional)

CO₂ (optional): One tube: 0 to 0.5 L/min

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:	–20° to 70°C/–4° to 158°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

Safety standards

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

Breathing circuit specifications

Operational modes

Breathing circuit modules:	Interchangeable circle or optional Bain (Mapleson D)
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Carbon dioxide absorbent canisters (2)

Absorbent capacity:	1.35 kg/3 lb each
Canister release:	Integrated sensing mechanism

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, mechanical
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 standard flow sensors. (Autoclavable sensors optional)

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

Breathing circuit specifications, continued

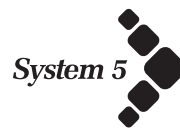
Breathing circuit parameters			
Compliance:	Bag mode:	5.15 mL/cm H ₂ O	
	Mechanical mode:	Automatically compensates for compression losses within the absorber and bellows assembly	
Circuit volume:	5.5 L		
Expiratory resistance:		P_{insp}	P_{exp}
	Flow rate	Pressure drop	Pressure drop
	10 L/min	0.74 cm H ₂ O	1.00 cm H ₂ O
	30 L/min	2.32 cm H ₂ O	2.36 cm H ₂ O
	60 L/min	5.93 cm H ₂ O	5.26 cm H ₂ O

Anesthetic gas scavenging (optional)			
Type	Market	Hospital system required	Machine connection
Active low flow:	US and others	High vacuum 36 L/min @ 12 in Hg (300 mmHg)	DISS evac
Passive:	Generic	Passive or externally attached active system	30 mm/1.2 in M ISO taper



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Aestiva/5



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