

Aestiva®/5 anesthesia machine— pendant versions

More than superior ventilation



Aestiva/5—pendant base

Features

Superior ventilation

- Volume Mode, Pressure Control Mode, Pressure Support (PSVPro™), Synchronized Intermittent Mandatory Ventilation (SIMV), electronic PEEP
- Tidal volume compensation
- One motion from mechanical to manual mode
- Two key presses to total standby: end case
- Cardiac bypass case mode

Open systems architecture

- Lower overall height
- User configurable drawers/shelving

Innovative patient breathing system

- Eight machine hoses/cables integrated
- “No tools” disassembly of components

- Autoclavable and latex-free
- Responsive location of common gas outlet

Improved low flow/reduced life cycle costs

- Fresh gas flow compensation—automatically
- Smooth, faster acting fresh gas flow control
- Minimum O₂ flow of 50 mL
- Dual air flow tube for low flow
- Two scheduled maintenance checks per year

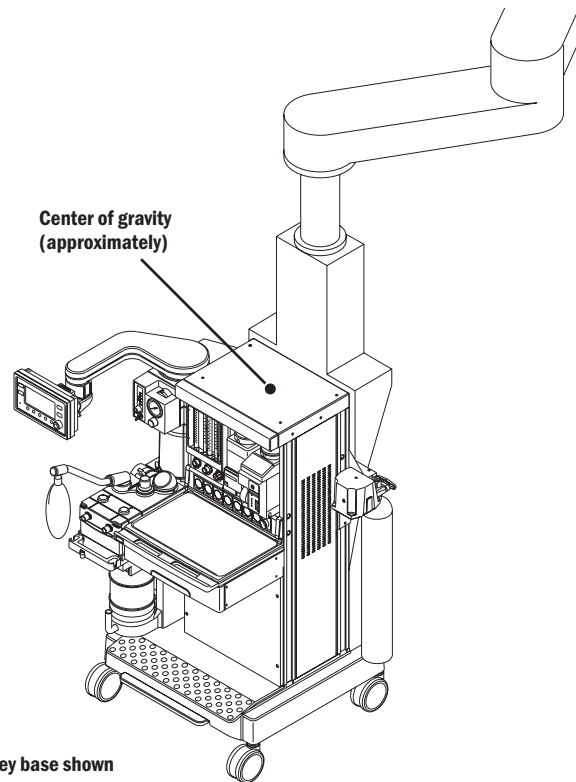
Ceiling mounts

- Pendant base or trolley base
- Mounting interface compatible with ceiling columns manufactured by Kreuzer, Dräger and Heraeus

Physical specifications

Dimensions

	Pendant base	Trolley base
Height:	118.3 cm/46.57 in	135.8 cm/53.4 in
Width:	69.1 cm/27.2 in	75 cm/29.5 in
Depth:	80.2 cm/31.6 in	83 cm/32.7 in
Weight:	Approximately 132 kg/290 lbs	Approximately 136 kg/300 lbs



Trolley base shown
with cylinder option

Top shelves (optional)

	2 vaporizer configuration
Weight limit:	46 kg/100 lbs
Width:	47.5, 67.5 or 87.5 cm/ 18.7, 26.6 or 34.4 in
Depth:	41 cm/16.1 in

Work surface

Width:	47 cm/18.5 in
Depth:	31.5 cm/12.4 in

Folding side shelf (optional)

Width:	26.5 cm/10.4 in
Depth:	31.5 cm/12.4 in
Weight limit:	23 kg/50 lbs

DIN rail (optional)

Side of tabletop:	30 cm/12 in
Side of machine:	23.5 cm/9.25 in

Top drawer (1 standard)—locking (internal dimensions)

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

Lower drawers (optional)*

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

Lower shelves (optional)*

Heights:	9.2 cm/3.7 in	13.2 cm/5.2 in
	20.6 cm/8.2 in	24.6 cm/9.8 in
	28.6 cm/11.4 in	36 cm/14.4 in
Width:	42.5 cm/16.75 in	42.5 cm/16.75 in
Depth:	36 cm/14 in	36 cm/14 in

Absorber 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°	85°

Ventilator screen

Height:	7.6 cm/3 in
Width:	15.2 cm/6 in

Casters

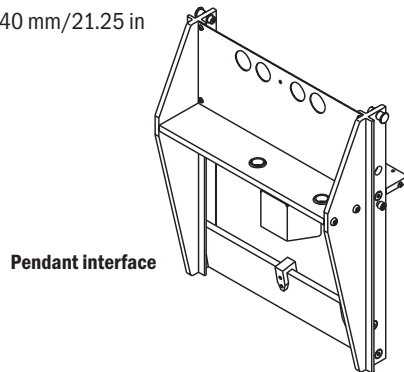
	Pendant base	Trolley base
Diameter:	5.08 cm/2 in	12.5 cm/5 in
Brakes:	N/A	Single foot lever locks and unlocks two front casters

* Lower cabinet can be configured with a variety of shelf and drawer combinations

Physical specifications, continued

Pendant mounting interface†

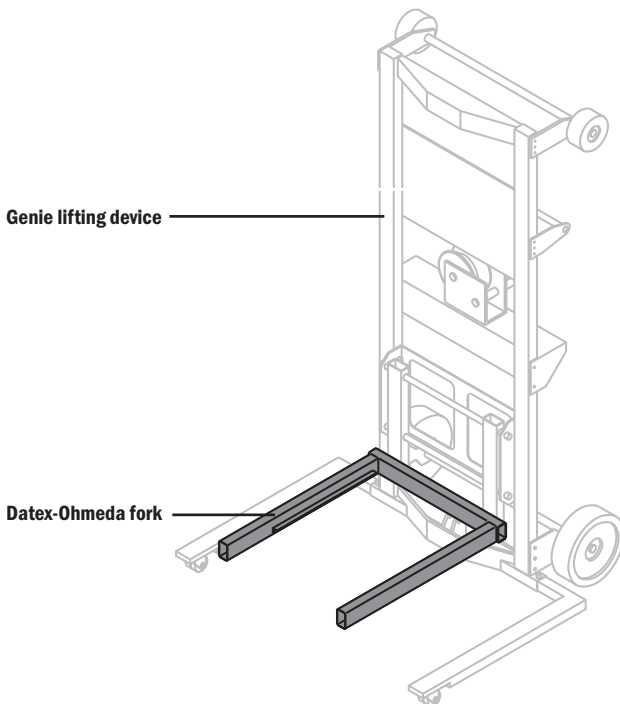
Dimensions: 462 mm/18.1 in
 Height: 540 mm/21.25 in



Pendant lifting device

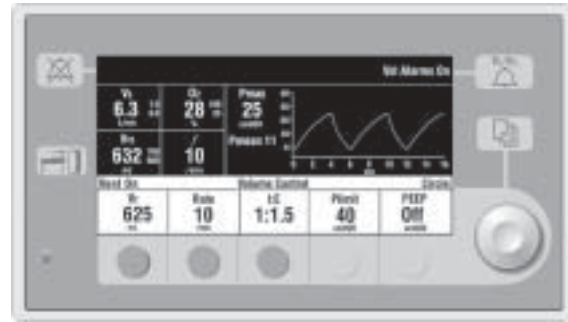
Only the fork is provided by Datex-Ohmeda. It works with both pendant base and trolley base machines. The actual lifting device is a product of the Genie Corp. Part number GL-4. Contact telephone numbers are:

Genie North America (206) 881-1800
 Genie Europe 44 1636-605030



† Interface compatible with Kreuzer, Dräger and Heraeus ceiling columns. Contact your local Datex-Ohmeda representative for solutions to other ceiling column manufacturers.

Ventilator operating specifications



Ventilation operating modes

Volume Control
 Pressure Control
 Synchronized Intermittent Mandatory Ventilation (SIMV) – (optional)
 Pressure Support (PSVPro) with Apnea Backup ventilation – (optional)

Ventilator (V_T) parameter ranges

Tidal volume range: 20 to 1500 mL (Volume Control and SIMV modes)

Incremental settings:
 20 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)

Minute volume range: 0 to 99.9 L/min

Pressure ($P_{inspired}$) range: 5 to 60 cm H₂O (increments of 1 cm H₂O)

Pressure (P_{limit}) range: 12 to 100 cm H₂O (increments of 1 cm H₂O)

Pressure ($P_{support}$) range: Off, 2 to 40 cm H₂O (increments of 1 cm H₂O)

Rate: 4 to 100 breaths per minute for Volume Control and Pressure Control;
 2 to 60 breaths per minute for SIMV, PSVPro and SIMV-PC+PSV (increments of 1 breath per minute)

Inspiratory/expiratory ratio: 2:1 to 1:8 (increments of 0.5)

Inspiratory time: 0.2 to 5.0 seconds (increments of 0.1 seconds) (SIMV and PSV Pro)

Trigger window: 0 to 80% (increments of 5%)

Flow trigger: 0.2 to 1 L/min (increments of 0.2 L/min)
 1 to 10 L/min (increments of 0.5 L/min)

Inspiration termination level: 5 to 75% (increments of 5%)

Backup mode delay: 10 to 30 seconds (increments of 5 seconds)

Ventilator operating specifications

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 performance

Pressure range at inlet:	240 kPa to 700 kPa/35 psig to 100 psig
Peak gas flow:	120 L/min + fresh gas flow
Flow valve range:	1 to 120 L/min
Flow compensation range:	200 mL/min to 15 L/min

Ventilator monitoring

Expiratory minute volume range:	0 to 99.9 L/min
Expiratory tidal volume range:	0 to 9999 mL
O ₂ %:	8 to 100%
Peak pressure:	-20 to 120 cm H ₂ O
Mean pressure:	-20 to 120 cm H ₂ O
Plateau pressure:	0 to 120 cm H ₂ O
Pressure waveform sweep speed:	4 to 25 breaths per minute (0 to 15 seconds) 26 to 75 breaths per minute (0 to 5 seconds) 75 breaths per minute (0 to 3 seconds)

Ventilator accuracy

Delivery/monitoring accuracy

Volume delivery:	> 210 mL = better than 7% < 210 mL = better than 15 mL < 60 mL = better than 10 mL
Pressure delivery:	±10% or ±3 cm H ₂ O
PEEP delivery:	±1.5 cm H ₂ O
Volume monitoring:	> 210 mL = better than 9% < 210 mL = better than 18 mL < 60 mL = better than 10 mL
Pressure monitoring:	±5% or ±2 cm H ₂ O

Alarm settings

Tidal volume (V _{TE}):	Low: OFF, 0 to 1500 mL High: 20 to 1600 mL, OFF
Minute volume (V _E):	Low: OFF, 0 to 10 L/min High: 0 to 30 L/min, OFF
Inspired oxygen (FiO ₂):	Low: 18 to 100% High: 18 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

High pressure: 12 to 100 cm H₂O (increments of 1 cm H₂O)

Sustained airway pressure: *Mechanical ventilation ON:*
P_{limit} < 30 cm H₂O, the sustained limit is 6 cm H₂O
P_{limit} 30 to 60 cm H₂O, the sustained limit is 20% of P_{limit}
P_{limit} > 60 cm H₂O, the sustained limit is 12 cm H₂O

PEEP and mechanical ventilation ON:
Sustained limit increases by PEEP minus 2 cm H₂O

Mechanical ventilation OFF:
P_{limit} ≤ 60 cm H₂O, the sustained limit is 50% of P_{limit}
P_{limit} > 60 cm H₂O, the sustained limit is 30 cm H₂O

Subatmospheric pressure: Paw < -10 cm H₂O

Alarm silence countdown timer: 120 to 0 seconds

Ventilator components

Flow transducer

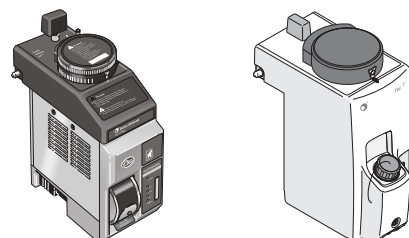
Type:	Variable orifice flow sensor
Dimensions:	22 mm OD and 15 mm ID
Location:	Inspiratory outlet and expiratory inlet
Optional autoclavable sensor available	

Oxygen sensor

Type:	Galvanic fuel cell
Life cycle:	Approximately 18 months (dependent on usage)

Anesthetic agent delivery

Vaporizers:	Tec 4, Tec 5, Tec 6 Plus, Tec 7
Number of positions:	2 or 3
Mounting:	Tool-free installation Selectatec® manifold interlocks and isolates vaporizers



Electrical specifications

Current leakage

120 V:	< 300µA
220 V:	< 500µA

Light package

Task light:	12 V, 3 lamps, type 194, .270A each
Goose neck (optional):	12 V, type 1815, .200A

Power and battery back-up

Power input:	USA/Canada/Mexico: 120 Vac, 60 Hz, 10A Euro: 220-240 Vac, 50 Hz, 6A France/Belgium: 230 Vac, 50 Hz, 6A Japan: 100 Vac, 50 or 60 Hz, 10A UK: 240 Vac, 50 Hz, 6A
Backup power:	Demonstrated battery backup time under typical operating conditions is 45 minutes when fully charged
Battery type:	Internal rechargeable sealed lead acid
Power cord:	Length: 5 m/16.4 ft Rating: 10A @ 250 Vac or 15A @ 120 Vac

Communication port

Serial interface:	Isolated RS-232C compatible port
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Inlet/outlet modules

	220-240 V	120 V	100 V
System circuit breakers:	<i>No outlets 3A w/outlets 6A</i>	<i>No outlets 5A w/outlets 10A</i>	<i>No outlets 5A w/ outlets 10A</i>
Outlets (optional):	4 outlets on back, 3-1A, 1-2A individual breakers and 1-3A combined outlet breaker, optional isolation transformer	4 outlets on back, 3-2A, 1-3A individual breakers and 1-5A combined outlet breaker, optional isolation transformer	3 outlets on back, 2-2A, 1-4A individual breakers and 1-5A combined outlet breaker, optional isolation transformer
Auxiliary outlet box (optional):	5 CEE 7/7 outlets on dovetail-mounted box, 5-2A breakers, isolation transformer	5 NEMA outlets on dovetail-mounted box, 5-2A breakers, isolation transformer	
Tec 6 Plus outlet:	1 IEC 320 located above vaporizer backbar		

Pneumatic specifications

Internal common gas outlet

Connector:	ISO 22 mm OD and 15 mm ID
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Auxiliary common gas outlet (optional)

Connector:	ISO 22 mm OD and 15 mm ID
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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 O ₂ , N ₂ O, 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 5 cylinders total; one oxygen, one other. 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

Gas power outlet (optional)

Connector:	DISS indexed in accordance with CGA-V-5 or Anatrir
Gas:	Oxygen
Pressure and flow characteristics:	Varies with source

O₂ controls

Method:	Proportionate decrease of N ₂ O, CO ₂ , O ₂ /He with reduction in O ₂ pressure
Supply failure alarm:	Range: 193 kPa to 221 kPa/28 psig to 32 psig Sounds at maximum volume every 10 seconds
O ₂ flush:	Range: 35 to 50 L/min

Pneumatic specifications, continued

Flowmeters		
O ₂ ranges:	Two tubes: 0.05 to 0.95 L/min and 1 to 15 L/min Minimum O ₂ flow: 50 mL/min ±25 mL	
N ₂ O 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)	
CO ₂ (optional):	One tube: 0 to 0.5 L/min	
Heliox range (optional):	One tube: 0 to 15 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.

Hyoxic guard system

Type:	Mechanical Link-25™
Range:	Provides a nominal 25% concentration of oxygen in any O ₂ /N ₂ O mixture

Materials

All materials in contact with patient gas 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)
Altitude:	-440 to 3565 m/500 to 800 mmHg
System storage	
Temperature:	-25° to 65° C/-13° to 149° F
Humidity:	10 to 100% relative humidity (including condensing)
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 IEC 601-1 EN 60601-1

Breathing circuit specifications

Operational modes

Breathing circuit modules: Interchangeable circle or bain (Mapleson D)

Carbon dioxide absorbent canisters (2)

Absorbent capacity: 1.35 kg/3 lb each

Canister release: Integrated sensing mechanism
CO₂ bypass capability (optional)

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 (0-230°)
30 to 70 cm H₂O (230-330°)

Materials

All materials in contact with exhaled patient gases are autoclavable, except standard flow sensors. (Autoclavable sensors optional)

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

Breathing circuit parameters

Compliance: Bag mode: 5.15 mL/cm H₂O

Mechanical mode: Automatically compensates for compression losses within the absorber and bellows assembly

Circuit volume: 5.5 L

Expiratory resistance:	Flow rate	P _{insp}	P _{exp}
		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



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