S/5™ Aespire

Essential performance
Compact design

Shown with Cardiocap™/5 monitor and Tec 7 Vaporizers

Features

- Enhanced monitor integration capabilities with our S/5™ Anesthesia Monitor and Cardiocap™/5 monitor
- Lightweight and compact for easy maneuverability
- Optional integrated auxiliary O_2 flowmeter and suction control

Advanced Breathing System (ABS)

- 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

- One scheduled maintenance check per year
- Fresh gas flow compensation—automatically (available with volume ventilation option)
- Minimum O_2 flow of 50 mL (available with dual flow tube option)
- Optional dual air flow tubes for resolution of low flows

Datex-Ohmeda

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

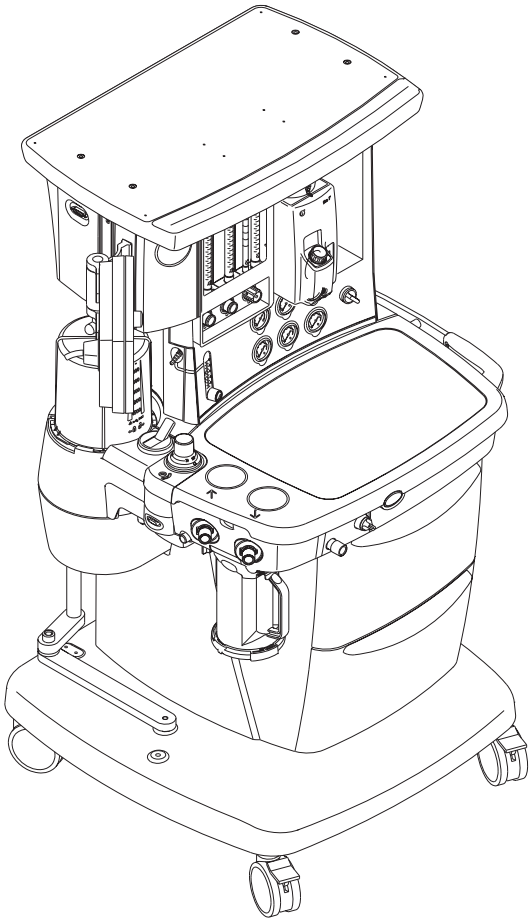
Work surface	
Height:	81.7 cm/32.2 in
Size:	2640 cm^2/409 in^2

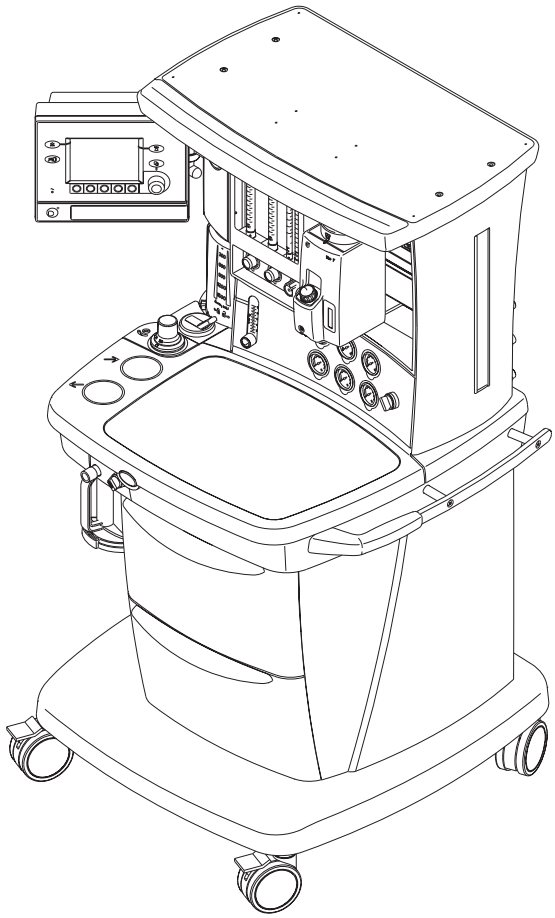
DIN rail	
Side of machine:	34.5 cm/13.6 in

Drawers (internal dimensions)	
Height:	17.5 cm/6.9 in
Width:	33 cm/13 in
Depth:	26.5 cm/10.4 in

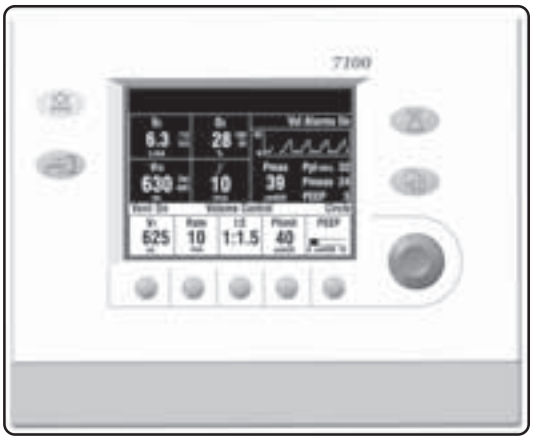
Absorber bag arm (optional)	
Arm length:	30.5 cm/12 in
Bag arm height (adjustable):	87 cm/34.3 in 104 cm/40.9 in

Casters	
Diameter:	10.1 cm/4 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_2O (increments of 1 cm H_2O) 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_2O (increments of 1 cm H_2O)

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_2O, 1 cm H_2O 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:	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 H_2O above PEEP
Pressure (P_{limit}) range:	12 to 99 cm H_2O (increments of 1 cm H_2O)
Sustained airway pressure:	6 to 30 cm H_2O + PEEP (adjusted based on ventilator settings)
Subatmospheric pressure:	Paw < –10 cm H_2O
Alarm silence countdown timer:	120 to 0 seconds

Ventilator accuracy

Delivery/monitoring accuracy	
Volume delivery:	> 200 mL = better than ±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_2O
PEEP delivery repeatability:	±2 cm H_2O
Volume monitoring:	> 200 mL = better than ±10% 75 to 200 mL = better than ±20 mL < 75 mL = better than ±15 mL
Pressure monitoring:	Better than ±2 cm H_2O and ±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

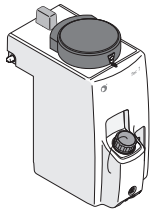
Battery back-up	
Backup power:	Demonstrated battery time under typical operating conditions is 90 +minutes when fully charged. Battery time under extreme conditions is 30 minutes.
Battery type:	Internal rechargeable sealed lead acid

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



Tec7

Electrical specifications

Current leakage	
100/120 V:	< 300µA
220/240 V:	< 500µA

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 O_2, N_2O, 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

O_2 controls	
Method:	Proportionate decrease of N_2O 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

Flowmeters	
O_2 ranges:	One tube option: 0.20 to 12 L/min; Minimum 02 flow: 200 mL/min Two tubes: 0.05 to 0.95 L/min and 1.0 to 15.0 L/min; Minimum O_2 flow: 50 mL/min ±25 mL
N_2O ranges:	Two tubes: 0 to 0.95 L/min and 1.0 to 10.0 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)

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 O_2/N_2O 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 reservoír

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_2O

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_2O
Tactile knob indication at:	30 cm H_2O and above
Adjustment range of rotation:	0.8 to 30 cm H_2O (0 to 230°) 30 to 70 cm H_2O (230 to 330°)

Materials

All materials in contact with exhaled patient gases are autoclavable, except disposable flow sensors and O_2 cell. (Autoclavable flow sensors optional)

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

Breathing circuit specifications, continued

Breathing circuit parameters			
Compliance:	Bag mode:	1.82 mL/cm H_2O	
	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	P_{exp} Bag Mode Pressure drop	P_{exp} Vent Mode Pressure drop
	10 L/min	0.78 cm H_2O	0.77 cm H_2O
	30 L/min	1.59 cm H_2O	1.71 cm H_2O
	60 L/min	3.48 cm H_2O	3.88 cm H_2O

Note: With patient circuit and wye piece add +0.89 cm H_2O

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 flowmeter > 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 M ISO taper
Active:	Venturi/Ejector > 30 L/min	12 mm/0.47 in hose barb
Active:	Venturi/Ejector > 30 L/min	8 mm/0.31 in hose barb
Active adjustable flow:	> 30 L/min	

System 5

Datex-Ohmeda

Datex-Ohmeda Division ▪ Instrumentarium Corp.
P.O. Box 900, FIN-00031 Datex-Ohmeda, Finland
Tel. +358 10 39411 ▪ Fax +358 9 146 3310

www.datex-ohmeda.com