Aespire 7900 SmartVent

Superior performance
Compact design

Features

• Enhanced monitor integration capabilities with our Datex-Ohmeda Anesthesia Monitor and Compact Monitor
• Lightweight and compact for easy maneuverability
• Optional integrated auxiliary O₂ flowmeter and suction control

Superior Ventilation: 7900 SmartVent™

• Maximum versatility for full patient range – neonatal to adult
• Ventilation Modes:
  Volume Control
  Pressure Control
  PSVPro® (Pressure Support with Apnea Backup)
  SIMV (Synchronized Intermittent Mandatory Ventilation)
  Electronic PEEP
• Automatic fresh gas flow (tidal volume) compensation
• Cardiac bypass case mode
• Direct access to ventilator parameter settings
• Pressure waveform for visual reference on a breath-by-breath basis
• Smart alarms direct user to specific problems and affected parameters
• Inspired oxygen monitoring

Advanced Breathing System (ABS™)

• Easy to clean, fully autoclavable, latex-free
• Faster response – ideal for low flow anesthesia
• Easy removal – no tools required
• Integrated design – less parts and connections reduces potential for leaks and misconnects
• One step bag/vent switch turns ventilator on/off

GE Healthcare

Aespire® 7900 SmartVent shown with Datex-Ohmeda Compact Monitor and Tec® 7 Vaporizer
# Physical Specifications

## Dimensions

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>134.5 cm/52.9 in</td>
</tr>
<tr>
<td>Width</td>
<td>72 cm/28.3 in</td>
</tr>
<tr>
<td>Depth</td>
<td>73 cm/28.7 in</td>
</tr>
<tr>
<td>Weight</td>
<td>Approximately 108 kg/238 lb</td>
</tr>
</tbody>
</table>

## Top shelf

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight limit</td>
<td>34 kg/75 lb</td>
</tr>
<tr>
<td>Width</td>
<td>66 cm/26 in</td>
</tr>
<tr>
<td>Depth</td>
<td>40 cm/15.75 in</td>
</tr>
</tbody>
</table>

## Work surface

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>81.7 cm/32.2 in</td>
</tr>
<tr>
<td>Size</td>
<td>2160 cm²/334 in²</td>
</tr>
</tbody>
</table>

## DIN rail

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Side of machine</td>
<td>34.5 cm/13.6 in</td>
</tr>
</tbody>
</table>

## Drawers (internal dimensions)

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>17.5 cm/6.9 in</td>
</tr>
<tr>
<td>Width</td>
<td>33 cm/13 in</td>
</tr>
<tr>
<td>Depth</td>
<td>26.5 cm/10.4 in</td>
</tr>
</tbody>
</table>

## Absorber bag arm (optional)

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm length</td>
<td>30.5 cm/12 in</td>
</tr>
<tr>
<td>Bag arm height (adjustable)</td>
<td>87 cm/34.3 in, 104 cm/40.9 in</td>
</tr>
</tbody>
</table>

## Casters

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter</td>
<td>12.5 cm/5 in</td>
</tr>
<tr>
<td>Brakes</td>
<td>Individual locking</td>
</tr>
</tbody>
</table>

## Ventilator screen

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>7.6 cm/3 in</td>
</tr>
<tr>
<td>Width</td>
<td>15.2 cm/6 in</td>
</tr>
</tbody>
</table>
Ventilator Operating Specifications

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

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

Flow trigger: 0.2 to 1.0 L/min (increments of 0.2 L/min)

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

T\text{pause}: Off, 5 to 60% (increments of 5%) (VCV and SIMV/PSV modes)

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

Positive End Expiratory Pressure (PEEP)

Type: Integrated, electronically controlled

Range: OFF, 4 to 30 cm H\text{2O} (increments of 1 cm H\text{2O})

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 \geq 1500 mL

O\text{2} \%: \leq 5 to 110%

Peak pressure: -20 to 120 cm H\text{2O}

Mean pressure: -20 to 120 cm H\text{2O}

Plateau pressure: 0 to 120 cm H\text{2O}

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)

Ventilation operating modes

VCV (Volume Control) Mode

Pressure Control

SIMV (Synchronized Intermittent Mandatory Ventilation)

Pressure Support (PSVPro) with Apnea Backup ventilation – (optional)

Ventilator (V\text{T}) parameter ranges

Tidal volume range: 20 to 1500 mL (Volume Control and SIMV modes) 5 to 1500 mL (Pressure Control Mode)

Incremental settings: 20 to 50 mL (increments of 1 mL) 50 to 100 mL (increments of 10 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 H\text{2O} (increments of 1 cm H\text{2O})

Pressure [P_{measured}] range: 12 to 100 cm H\text{2O} (increments of 1 cm H\text{2O})

Pressure [P_{support}] range: Off, 2 to 40 cm H\text{2O} (increments of 1 cm H\text{2O})

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)
**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 H₂O
- **PEEP delivery:** ±1.5 cm H₂O
- **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 H₂O

**Alarm settings**

- **Tidal volume (Vₜ):**
  - Low: OFF, 0 to 1500 mL
  - High: 20 to 1600 mL, OFF
- **Minute volume (Vₑ):**
  - Low: OFF, 0 to 10 L/min
  - High: 0 to 30 L/min, OFF
- **Inspired oxygen (FiO₂):**
  - Low: 18 to 99%
  - High: 18 to 99%, 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:
    - Pₘₐₓ < 30 cm H₂O, the sustained limit is 6 cm H₂O
    - Pₘₐₓ 30 to 60 cm H₂O, the sustained limit is 20% of Pₘₐₓ
    - Pₘₐₓ > 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:
    - Pₘₐₓ ≤ 60 cm H₂O, the sustained limit is 50% of Pₘₐₓ
    - Pₘₐₓ > 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 outlet

**Oxygen Sensor**

- **Type:** Galvanic fuel cell
- **Life Cycle:** Approximately 18 months (Dependent on usage)

**Vent Pneumatics**

- **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

**Anesthetic Agent Delivery**

**Delivery**

- **Vaporizers:** Tec 5, Tec 6 Plus, Tec 7
- **Number of positions:** 2
- **Mounting:** Tool-free installation

- Tec 6 Plus vaporizer
- Tec 7 vaporizer
### Electrical Specifications

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

#### Power and battery backup
- **Power input:** 100-120 Vac, 50/60 Hz, 220-240 Vac, 50/60 Hz
- **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 @ 220 Vac or 15A @ 120 Vac

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

### 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:** ≤ 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

### Inlet/outlet modules

#### 220-240 V
- **System circuit breakers:** 8A
- **Outlets:** 4 outlets on back, 3-1A, 1-2A individual breakers, with isolation transformer

#### 120 V
- **System circuit breakers:** 15A
- **Outlets:** 4 outlets on back, 3-2A, 1-3A individual breakers, with isolation transformer

#### 100 V
- **System circuit breakers:** 15A
- **Outlets:** 3 outlets on back, 2-2A, 1-4A individual breakers, with isolation transformer
**Pneumatic Specifications, continued**

**Flowmeters**

| O₂ ranges: | 0.05 to 0.95 L/min and 1.0 to 15.0 L/min; Minimum O₂ flow: 50 mL/min ±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 |

Calibration:

| Percent of full scale flow (% of flowrate) | ±2.5% |
| 100 | 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

**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.

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**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: | -25° to 65°C/-13° to 149°F |
| Humidity: | 10 to 95% relative humidity (non-condensing) per IEC 68-2-3 |
| Altitude: | -440 to 5860 m/375 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 |

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

<table>
<thead>
<tr>
<th>Flow rate</th>
<th>Pexp Bag Mode Pressure drop</th>
<th>Pexp Vent Mode Pressure drop</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 L/min</td>
<td>0.78 cm H₂O</td>
<td>0.77 cm H₂O</td>
</tr>
<tr>
<td>30 L/min</td>
<td>1.59 cm H₂O</td>
<td>1.71 cm H₂O</td>
</tr>
<tr>
<td>60 L/min</td>
<td>3.48 cm H₂O</td>
<td>3.88 cm H₂O</td>
</tr>
</tbody>
</table>

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

Anesthetic gas scavenging

<table>
<thead>
<tr>
<th>Type</th>
<th>Hospital system required</th>
<th>Machine connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active low flow:</td>
<td>High vacuum 36 L/min</td>
<td>DISS evac</td>
</tr>
<tr>
<td>Active low flow:</td>
<td>Adjustable Venturi with &gt; 30 L/min</td>
<td>12.7 mm/0.5 in hose barb</td>
</tr>
<tr>
<td>Active high flow:</td>
<td>Low vacuum 40 to 130 L/min</td>
<td>30 mm/1.2 in BSI male threaded</td>
</tr>
<tr>
<td>Active high flow:</td>
<td>Venturi 50 L/min</td>
<td>25 mm/0.98 in hose barb</td>
</tr>
<tr>
<td>Passive</td>
<td>Passive or externally attached active system</td>
<td>30 mm/1/2 in MISO taper</td>
</tr>
<tr>
<td>Active</td>
<td>Venturi/Ejector &gt; 30 L/min</td>
<td>12 mm/0.47 in hose barb</td>
</tr>
<tr>
<td>Active</td>
<td>Venturi/Ejector &gt; 30 L/min</td>
<td>8 mm/0.31 in hose barb</td>
</tr>
<tr>
<td>Active adjustable flow:</td>
<td>&gt; 30 L/min</td>
<td></td>
</tr>
</tbody>
</table>
About GE Healthcare

GE Healthcare provides transformational medical technologies and services that are shaping a new age of patient care. Our broad expertise in medical imaging and information technologies, medical diagnostics, patient monitoring systems, drug discovery, biopharmaceutical manufacturing technologies, performance improvement and performance solutions services help our customers to deliver better care to more people around the world at a lower cost. In addition, we partner with healthcare leaders, striving to leverage the global policy change necessary to implement a successful shift to sustainable healthcare systems.

Our “healthymagination” vision for the future invites the world to join us on our journey as we continuously develop innovations focused on reducing costs, increasing access and improving quality around the world. Headquartered in the United Kingdom, GE Healthcare is a unit of General Electric Company (NYSE: GE). Worldwide, GE Healthcare employees are committed to serving healthcare professionals and their patients in more than 100 countries. For more information about GE Healthcare, visit our website at www.gehealthcare.com

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