PRODUCT SPECIFICATIONS VENTILATOR **Aeros-4600**

Classification

According to EN60601-1 1988, **AEROS 4600** belongs to the following classifications :

- Class **I** equipment
- Type B equipment
- IPX0
- Transportable equipment
- Internal power supply
- Operate continuously

Physical specification

All specifications are approximately, maybe changed at any moment without notice.

Main unit	Height	280 mm
	Width	303 mm
	Depth	350 mm
	Weight	15 kg
Cart	Height	1100 mm
	Width	650 mm
	Depth	650 mm
	Weight	23 kg
Truckle	Diameter 75 mm, the forth two truckles with arresters.	

Environment requirements

	Temperature	Relative humidity	Atmospheric Pressure
Operation	5 ~ 40 °C	≤ 90%	70 ~ 106 kPa
Storage/Transportation	-20 ~ 55 °C	≤ 93%	50 ~ 106 kPa

CAUTION: The device should be stored at the room that is drafty and no corrosion gas exists.

CAUTION: When the transportation (storage) conditions are beyond the environment requirements, and the transportation (storage) state is transferred into operation state, the product only can be used after being stored in operation environment for over 24 hours.

PRODUCT SPECIFICATIONS VENTILATOR **Aeros-4600**

SYSTEM TECHNICAL SPECIFICATION

Gas supply

Type	Compressed O_2
Pressure	280 ~ 600 kPa
Rating flow	max 120 l/min

Power supply

Voltage	AC 100 V ~ 240 V, 50 ~ 60 Hz DC 24V 2.3 AH
Input power	≤ 80 VA (AC 220 V, input current ≤ 0.36 A)
AC fuse	250 V 1 A Φ5X20(T) Two
DC fuse	250 V 6.3 A Φ5X20(T) One
Earth resistance	< 0.1 Ω

WARNING: If having any problem in wire protective earthing during installation and layout, the ventilator must work by internal power supply.

VENTILATOR TECHNICAL SPECIFICATION

Performance of ventilation

Maximum security pressure of airway system:	80 cmH_2O
System compliance:	≤ 4 ml/cmH_2O
Electrical safety:	Meet requirements for Class I, Type B, equipment specified in EN60601-1 Medical Electrical equipment: Part one: General requirement for safety and EN60601-2-12 Medical electrical equipment-Part 2: Particular requirements for the safety of lung ventilators-Critical care ventilators.
Noise of whole unit:	≤ 65dB (A)
Power	Not more than 80 VA
Preheating time	Not more than 5 min
Inspiratory and expiratory resistance	At flow of 60 l/min for adult use, inspiratory resistance ≤0.6 kPa; expiratory resistance ≤0.6 kPa At flow of 30 l/min for pediatric, inspiratory resistance ≤ 0.6 kPa; expiratory resistance ≤ 0.6 kPa

WARNING: Adding accessories will add impedance when using AEROS 4600 ventilator.

Ventilation mode

AEROS 4600 is having the following ventilation modes:

- VCV
- VCV+Sigh
- SIMV
- SPONT
- PCV
- PSV

PRODUCT SPECIFICATIONS VENTILATOR **Aeros-4600**

Setting ventilating parameters

Item	Range	Resolution	Accuracy	Remark
f	1 ~ 70 bpm	1 bpm	±1 bpm (≤10 bpm); ±10% (other)	F in VCV mode
V_T	50 ~ 1500 mL	10 mL (0 ~ 1000 mL); 100 mL (1000 ~ 1500 mL)	±25 mL (50 ~ 100 mL); ±15% (other)	-----
f	1 ~ 40 bpm	1 bpm	±1 bpm (≤10 bpm); ±10% (other)	F in SIMV mode
T_I	0.2 ~ 6 s	0.1 s	±0.1 s (0.2 ~ 0.5 s); ±20% (other)	----
T_P	0 ~ 2 s	0.1 s	±0.1 s (0 ~ 0.5 s); ±20% (other)	Limited by T_I, the maximum of T_P is 50% T_I
FiO_2	21% ~ 100%	1%	±15%	Invalid when no oxygen supply operated
P_{sens}	-20 ~ 0 cmH_2O	1 cmH_2O	±1 cmH_2O (-10 ~ 0 cmH_2O); ±10% (other)	-----
V_{sens}	2 ~ 30 l/min	1 l/min	±1 l/min (2 ~ 5 l/min); ±20% (other)	-----
PEEP	0 ~ 30 cmH_2O	1 cmH_2O	±2 cmH_2O (≤10 cmH_2O); ±20% (other)	-----
PSV	0 ~ 60 cmH_2O	1 cmH_2O (based on PEEP)	The error upper limit: setting value + 6 cmH_2O. The error lower limit: (setting value within 10 cmH_2O) setting value – 2 cmH_2O; (setting value is others) setting value * (1 – 20%).	-----
PCV	5 ~ 60 cmH_2O	1 cmH_2O (based on PEEP)	±2 cmH_2O (≤10 cmH_2O); ±20% (other)	-----
MV_{max}	more than 18 l	-----	-----	-----

Monitoring performance

Item	Range	Resolution	Accuracy
V_{TI}	0 ~ 2000 mL	1 mL	±25 mL (≤100 mL); ±15% (other)
V_{TE}	0 ~ 2000 mL	1 mL	±25 mL (≤100 mL); ±15% (other)
f_{spont}	0 ~ 100 bpm	1 bpm	±2 bpm (≤20 bpm); ±10% (other)
f_{total}	0 ~ 100 bpm	1 bpm	±2 bpm (≤20 bpm); ±10% (other)
MV	0 ~ 99 l (display value range); 0 ~ 30 l (useable)	0.01 l (<10 l); 0.1 l (other)	±1 l (≤3 l); ±15% (other)
P_{mean}, P_{plat}, P_{peak}	0 ~ 80 cmH_2O	0.1 cmH_2O	± (2% full scale + 4% actual reading)
PEEP	0 ~ 30 cmH_2O	0.1 cmH_2O	± (2% full scale + 4% actual reading)
FiO_2	15% ~ 100%	0.1 vol.%	±3% full scale
RSBI	0 ~ 9999 1/(min × L)		±15%
I:E	4:1 ~ 1:9		±20%
Pressure waveform monitor	-20 ~ +100 cmH_2O	-----	-----
Flow waveform monitor	-180 ~ +180 l	-----	-----
Volume waveform monitor	0 ~ 1800 mL	-----	-----

CAUTION: The monitored and displayed volume and ventilation is considered to meet precision requirement.

The ventilator internal components which are sensitive to airflow have check valves. The replacement of the above components requires technician authorized by DIXION.

Alarm performance

Item	Range	Accuracy	Default value	Remark
MV-lower limit	OFF, 0 ~ 29 l (adjustable); 0 ~ 20 l (useable)	±1 l (≤ 3 l); ±15% (other)	OFF	Medium priority alarm with light and buzz. Test this alarm by setting MV-lower limit different values.
MV-upper limit	0 ~ 30 l (adjustable); 0 ~ 20 l (useable)	±1 l (≤ 3 l); ±15% (other)	20 l	Medium priority alarm with light and buzz. Test this alarm by setting MV-upper limit different values.
Paw-lower limit	0 ~ 40 cmH_2O	±1 cmH_2O (≤5 cmH_2O); ±20% (other)	0	When Paw is lower than low limit, delaying 4~15 seconds, it will occur high priority with light and buzz. Test this alarm by setting Paw-lower limit different values.
Paw-upper limit	20 ~ 80 cmH_2O	±10%	40 cmH_2O	When Paw is greater than high limit, it will occur high priority with light and buzz and change to expiratory state. Test this alarm by setting Paw-upper limit different values.
V_{TE}-lower limit	OFF, 100 ~ 2000 mL	±30 ml or actual reading ±15%, whichever is greater	OFF	Medium priority alarm with light and buzz. VT low limit should be lower than VT setting value. Test this alarm by setting VTE-lower limit different values.
f_{spont}-upper limit	OFF, 1 ~ 60 bpm	±2 bpm (≤20 bpm); 10% (other)	OFF	Medium priority alarm with light and buzz. Test this alarm by setting fspont different limits.
T_{apnea}	10 ~ 60 s	±20%	20 s	Message prompts on display when Tapnea occurs with light and buzz. Ventilation mode switch to backup ventilation and it will switch to normal mode when next spontaneous trigger occurs. High priority alarm with light and buzz. It is validate in SIMV, PSV and SPONT. Switch to backup ventilation after alarm occurs. Test this alarm by setting Tapnea different limits.
FiO_2-lower limit	OFF, 20% ~ 99%	±10%	20%	The monitored values getting by smoothing algorithm is lower than the limit for 30 seconds. Medium priority with light and buzz. Test this alarm by setting different limits.
FiO_2-upper limit	21% ~ 100%, OFF	±10%	50%	The monitored value getting by smoothing algorithm is higher than the limit for 30 seconds. Medium priority with light and buzz. Test this alarm by setting different limits.
Battery Low	Battery capability detected less than 23.4 ~ 23.7 V after startup	-----	-----	Medium priority alarm with light and buzz. Test this alarm by simulation battery or battery discharge.

Item	Range	Accuracy	Default value	Remark
Battery Exhausted	Battery capability detected less than 23 V after startup	-----	-----	High priority alarm with sound and buzz. Test this alarm by simulation battery or battery discharge.
O_2 supply down	less than 0.25 MPa	±20%	-----	High priority alarm with light and buzz (in ventilation state and FiO_2 setting is more than 21%). Low priority alarm with sound and buzz (in standby state and FiO_2 setting is less than 21%). Test this alarm by adjusting oxygen source pressure.
Airway pressure continue high	Paw is 15 cmH_2O higher than PEEP for 15 seconds.	±10%	-----	High priority alarm with light and buzz. Test this alarm by block exhaust vent.
Mains Failure	-----	-----	-----	If the ventilator without internal batteries, alarm sound keeping 120 seconds; otherwise the ventilator working by internal batteries and showing "Mains Failure" medium priority with light and buzz. Test this alarm by cutting AC power supply.
Leakage alarm	-----	±10%	-----	When satisfy one of the following three conditions and delay 3 breath cycles, it will send high priority alarm with light and buzz and show circuit disconnect or leakage alarm messages. 1.The monitored value of inspiratory VT is 500mL higher than expiratory vale; 2.Paw is less than 3 cmH_2O, meanwhile the monitored value of inspiratory VT is 100 mL higher than expiratory vale; 3.Paw is less than 3 cmH_2O; meanwhile the monitored value of inspiratory VT is more than 40 mL and expiratory vale less than 5 mL.
Alarm silence	-----	-----	-----	No more than 120 s.

CAUTION: All low limits of parameters in above table may not be set up the high limits, nor may the high limits be set below the low limits.

PRODUCT SPECIFICATIONS VENTILATOR **Aeros-4600**

Accessories

Item	Specifications
Ventilation mode	Standard configuration: VCV, SIMV, SIGH, SPONT, PSV, PCV
Breath frequency	Standard configuration: CMV frequency 1 - 70; SIMV frequency 1 - 40;
TV	50 ~ 1500 ml
PEEP/CPAP	Standard configuration
PSV level	Standard configuration
FiO_2 adjust	Standard configuration
Monitor Fspont	Standard configuration
Monitor FiO_2	Standard configuration
RSBI	Standard configuration
F_{spont} high limit	Standard configuration
FiO_2 high	Standard configuration
FiO_2 low	Standard configuration
O_2 Deficiency	Standard configuration
Battery low	Standard configuration
Battery exhausted	Standard configuration
T_P	Standard configuration
Monitor I:E	Standard configuration
Monitor PEEP	Standard configuration
Alarm log	Standard configuration
Screen lock	Standard configuration
Alarm reset	Standard configuration
Day/Night mode	Standard configuration
Standby	Standard configuration
Unit selection	Standard configuration
Intended use	Adult and pediatric