

Circulaire II Ordering Information

PRODUCT	NUMBER	DESCRIPTION	QTY
Circulaire II	0336	Circulaire II, Nebulizer Adult with Bacterial Viral Filter	25
	0337	Circulaire II, Nebulizer Adult with Mouthpiece	25
Masks	0290	Circulaire II Adult PEP Mask, Non Vented	50
	0291	Circulaire II Pediatric PEP Mask, Non Vented	50
Accessories	0242	Circulaire II Expiratory Side Filter	25
	0335	Circulaire II Reservoir Bag Kit	100

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Testing Data on file, Westmed, Inc.

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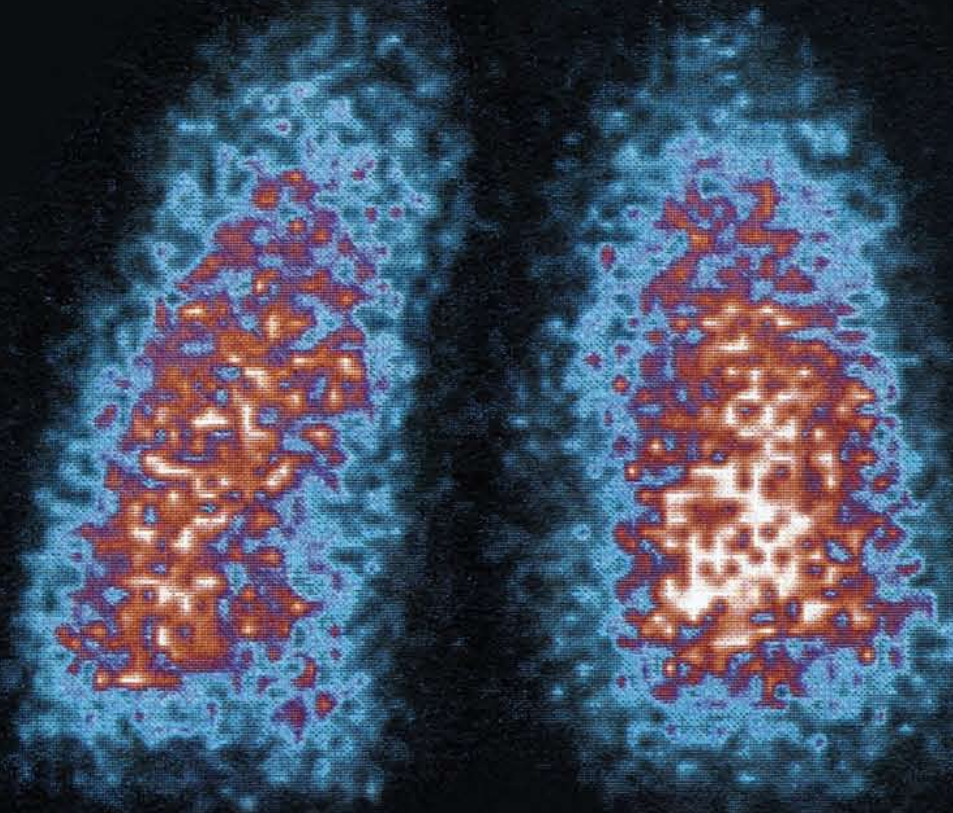
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Circulaire® II

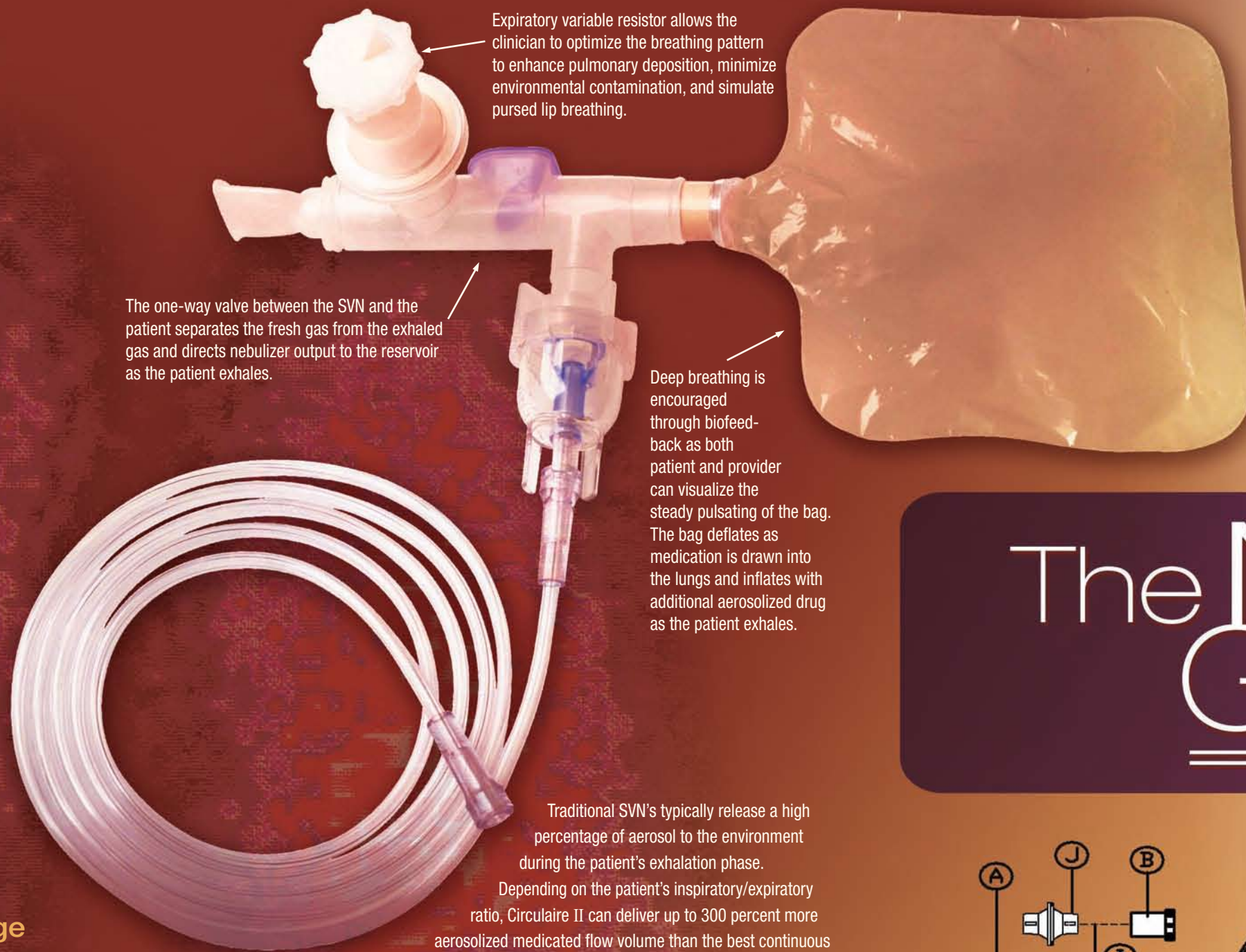
Pulmonary Drug Delivery System

The Next Generation



Westmed

Circulaire II



The one-way valve between the SVN and the patient separates the fresh gas from the exhaled gas and directs nebulizer output to the reservoir as the patient exhales.

Expiratory variable resistor allows the clinician to optimize the breathing pattern to enhance pulmonary deposition, minimize environmental contamination, and simulate pursed lip breathing.

Deep breathing is encouraged through biofeedback as both patient and provider can visualize the steady pulsating of the bag. The bag deflates as medication is drawn into the lungs and inflates with additional aerosolized drug as the patient exhales.

Traditional SVN's typically release a high percentage of aerosol to the environment during the patient's exhalation phase. Depending on the patient's inspiratory/expiratory ratio, Circulaire II can deliver up to 300 percent more aerosolized medicated flow volume than the best continuous or breath-actuated nebulizers.

Two of the standard features included with the Circulaire II make this device the ideal product for hospital and home care use. Through the use of the reservoir and expiratory filter, Circulaire II provides a closed system. These attributes benefit both patient and provider – improved clinical outcomes for the patient, less risk of exposure to exhaled aerosols for the provider.

Particle size is ideal. The aerosol generator portion of the Circulaire II is the VixOne, an industry standard and clinically proven small volume nebulizer. The MMAD (Mass Medium Aerodynamic Diameter) of the Circulaire II is generated by the VixOne™, a clinically proven industry standard, and delivers greater than 90% of the aerosol particles in the respirable range.

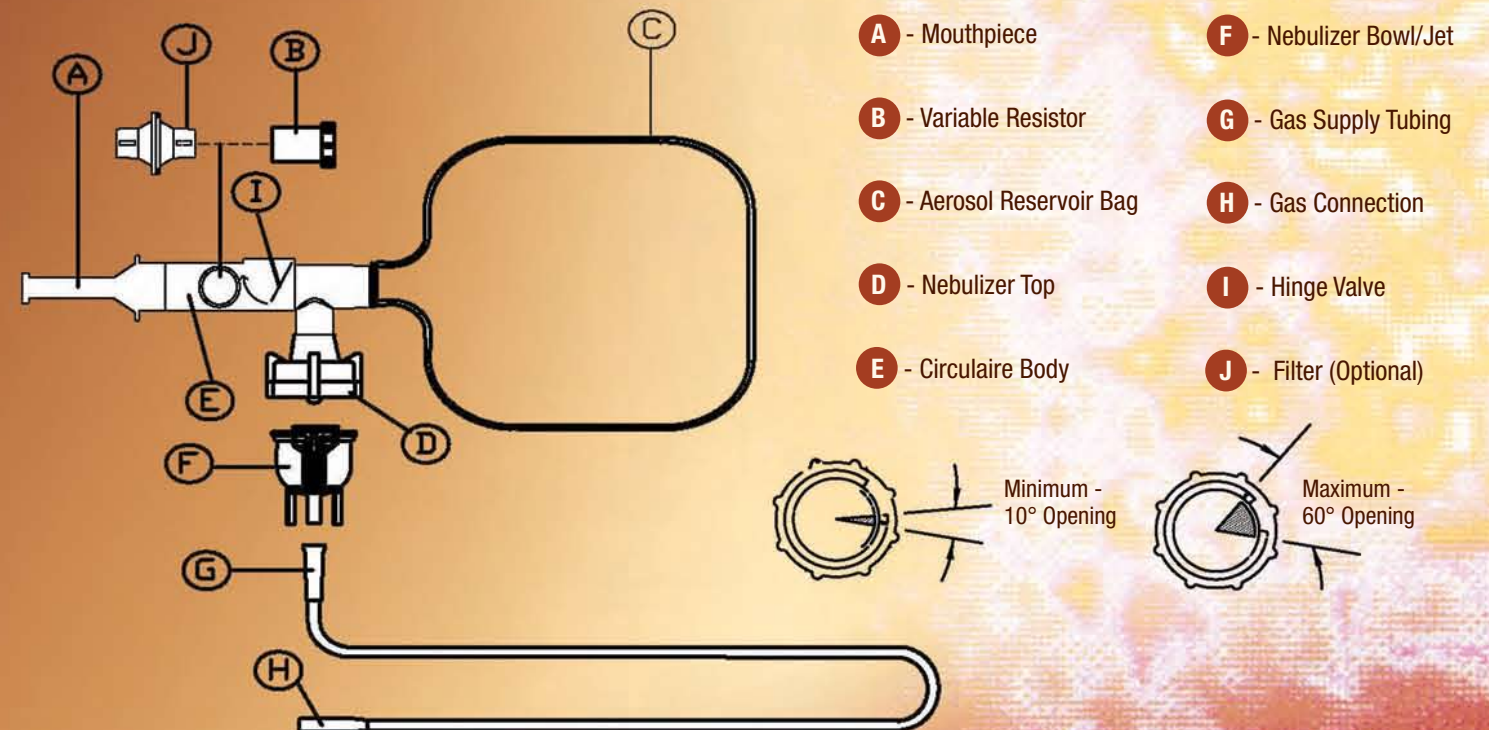
- Positive Expiratory Pressure (PEP) therapy drives air into the lungs and behind the mucus using collateral airways. PEP therapy can easily be incorporated when using Circulaire II as it is included as a standard feature. Set the expiratory variable resistor to the minimal opening and you have simulated pursed lip breathing as part of the delivery system.
- The Circulaire II can be administered with the use of a mask or mouthpiece. By design, the Westmed swivel mask alleviates cumbersome posturing of the patient as this unique characteristic allows you to accommodate your patient's position. These features plus others make for a very versatile and universal pulmonary drug delivery system.
- The system includes a detachable reservoir bag. Bag replacement simplifies the delivery of a variety of aerosolized medicines such as bronchodilator therapy, antibiotic therapy, mucolytics, antifungals, etc.

The Next Generation

Maximum drug dosage to the lungs. In less time. With less waste.

In today's health care environment, maximizing efficiency and minimizing waste are more important than ever. This increased efficiency must be achieved without compromising patient care. The Circulaire II delivers equivalent drug delivery with improved clinical outcomes, in a fraction of the time – and with less waste of medication.

The unique lightweight reservoir captures aerosol during the patient's expiratory phase and retains it for "On-Demand Delivery" during the subsequent inspiratory phase. The combination of aerosolized medicine generated by the VixOne™ nebulizer, and that which is inhaled from the reservoir ensures the maximum percentage of a patient's tidal volume is medicated.



RESPIRATORY CARE

The Science Journal of the American Association for Respiratory Care

2010 OPEN FORUM Abstracts

IN VITRO INHALED AEROSOL COMPARISON OF A CONSERVER NEBULIZER (CIRCULAIRE II) VS. A BREATH-ACTUATED NEBULIZER.

Michael McPeck; Respiratory Care Services, Long Beach Memorial Medical Center, Long Beach, CA

BACKGROUND: Two different aerosol drug delivery systems claim to enhance Inhaled Aerosol (IA) and shorten treatment time (TT). The Westmed Circulaire II (CIRC) uses the conserver principle, incorporating a unidirectional valve and reservoir bag that stores aerosol generated during the patients exhalation phase, which would otherwise be wasted, and delivers it on the subsequent inhalation. Conversely, the Monaghan Medical AeroEclipse II Breath-Actuated Nebulizer (BAN) powers the nebulizer jet during inspiration only, to reduce waste during exhalation. Our department was already using the BAN and wished to decrease TT to comply with stricter corporate productivity standards. Acquisition cost differential favored a switch to CIRC but we needed to determine if TT could be shortened with equivalent IA. **STUDY QUESTION:** How does the IA of the CIRC compare to the BAN during adult and pediatric breathing patterns and different TTs? **METHODS:** We bench tested 2 new samples each of CIRC and BAN taken from hospital stock. Each device was charged with 2-8 mCi of radiolabeled (^{99m}Tc) unit-dose albuterol (2.5 mg in 3 mL 0.9% NaCl). An adjustable piston ventilator created 4 different sinusoidal breathing patterns with a constant 7.5 L/min Minute Volume (fVT/I-time%): 15/500/50%, 15/500/30%, 30/250/50%, and 30/250/30%. The devices were run on wall air at 50 psig & 8 L/min. IA was captured on HEPA filters positioned at the mouth of the lung model. Each test was run up to 12 mins; fresh filters were exchanged every 2 mins; exposed filters were measured in a radioisotope counter and the IA fraction (radioactivity on filter/radioactivity of initial nebulizer charge) was calculated for all filters. IA, expressed as mass of albuterol (mg) delivered to the HEPA filter, was determined by multiplying the IA fraction at 4 and 8 mins by 2.5 (mass of albuterol in mg in Initial Charge). **RESULTS:** The IA, shown graphically, depicts the mass of IA against TT for 4 breathing patterns. The mean (\pm SD) IA for the CIRC at 4 mins was 0.66 (\pm 0.09) mg compared to 0.55 (\pm 0.14) mg for the BAN at 8 mins. **SUMMARY:** CIRC out-performed BAN inasmuch as equivalent IA was delivered in roughly half the time (4 vs 8 mins). **CONCLUSION:** For equivalent IA delivery, TT with the Circulaire II is significantly shorter than the BAN and, coupled with a favorable supply cost differential, meets our requirements for an aerosol drug delivery system for deliberately shortened routine therapy. **Sponsored Research -** As mentioned above, I have a consulting relationship with Westmed for public

speaking. For this study, I approached Westmed to fund a product preference study for our hospital. Westmed rented the aerosol lab and paid for the materials on my behalf but did not direct either me or the study and its methodology or influence the results in any way. They allowed me to be completely independent.

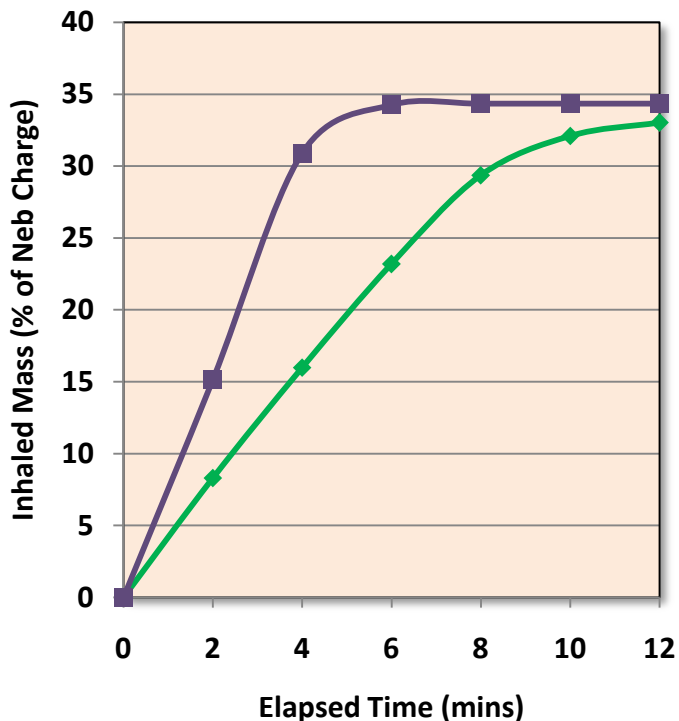
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Normal Tidal Volume & Normal Respiratory rate + Effect of Decreasing Inspiratory Time

Circulaire II vs AeroEclipse II

[3 mL (2.5 mg) Albuterol; Air @ 8 L/min]

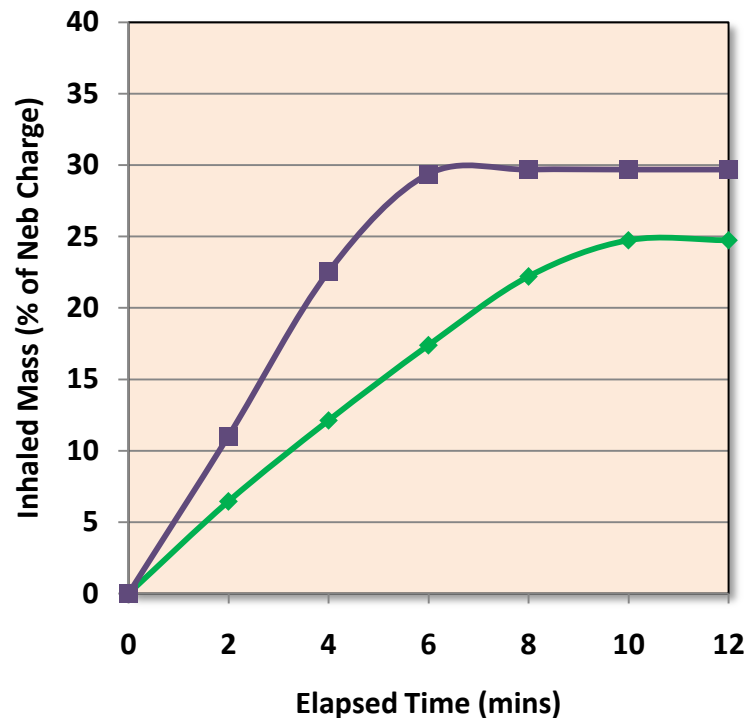


◆ Test #3: AEROECLIPSE II, VT 500, f 15, 50% I-time
 ■ Test #4: CIRCULAIRE II, VT 500, f 15, 50% I-time

I-time = 50%

Circulaire II vs AeroEclipse II

[3 mL (2.5 mg) Albuterol; Air @ 8 L/min]



◆ Test #1: AEROECLIPSE II, VT 500, f 15, 30% I-time
 ■ Test #2: CIRCULAIRE II, VT 500, f 15, 30% I-time

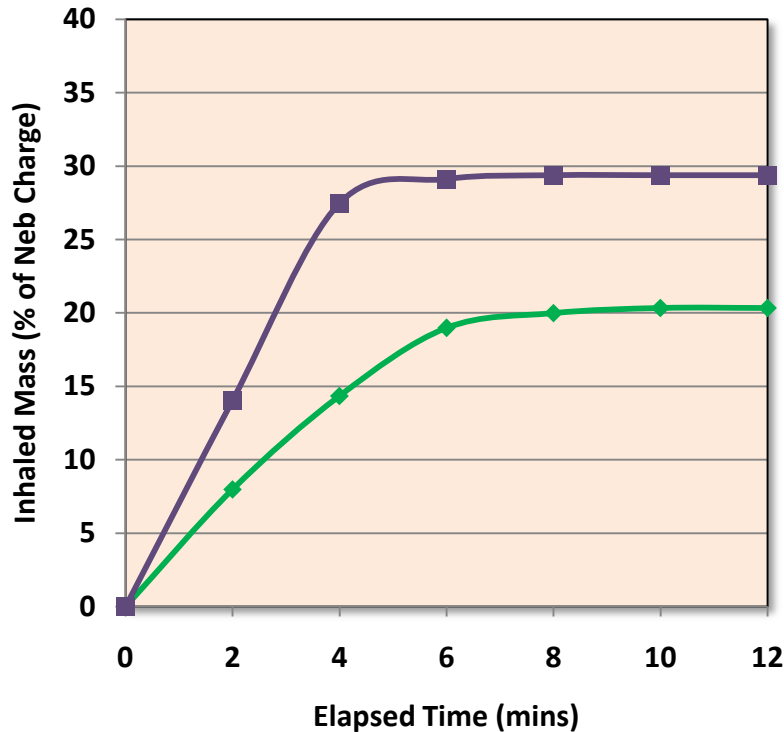
I-time = 30%

Inhaled Mass Graphs: Inhaled Mass vs Treatment Time

Shallow Tidal Volume & Rapid Respiratory Rate + Effect of Decreasing Inspiratory Time

Circulaire II vs AeroEclipse II

[3 mL (2.5 mg) Albuterol; Air @ 8 L/min]

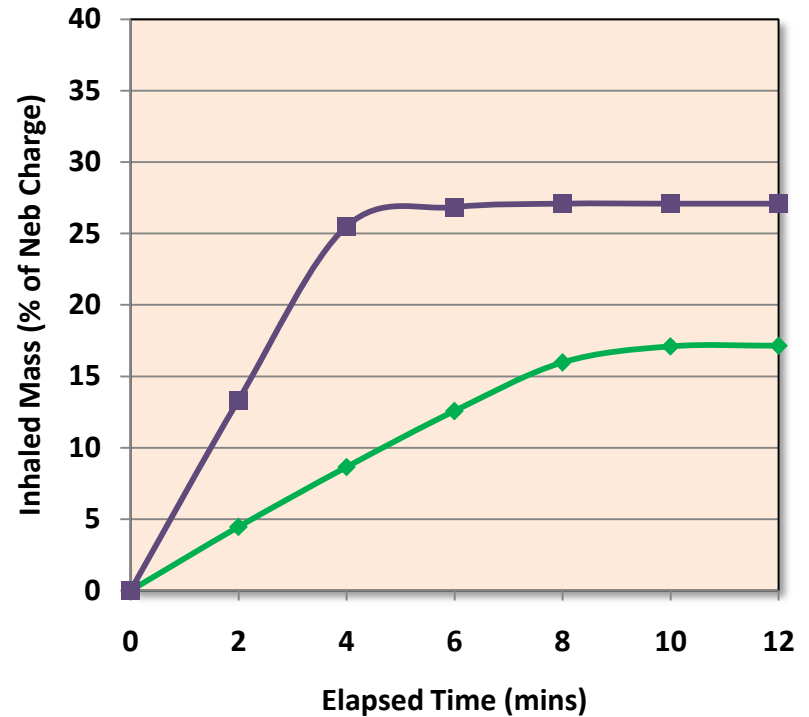


◆ Test #7: AEROECLIPSE II, VT 250, f 30, 50% I-time
 ■ Test #8: CIRCULAIRE II, VT 250, f 30, 50% I-time

I-time = 50%

Circulaire II vs AeroEclipse II

[3 mL (2.5 mg) Albuterol; Air @ 8 L/min]



◆ Test #5: AEROECLIPSE II, VT 250, f 30, 30% I-time
 ■ Test #6: CIRCULAIRE II, VT 250, f 30, 30% I-time

I-time = 30%

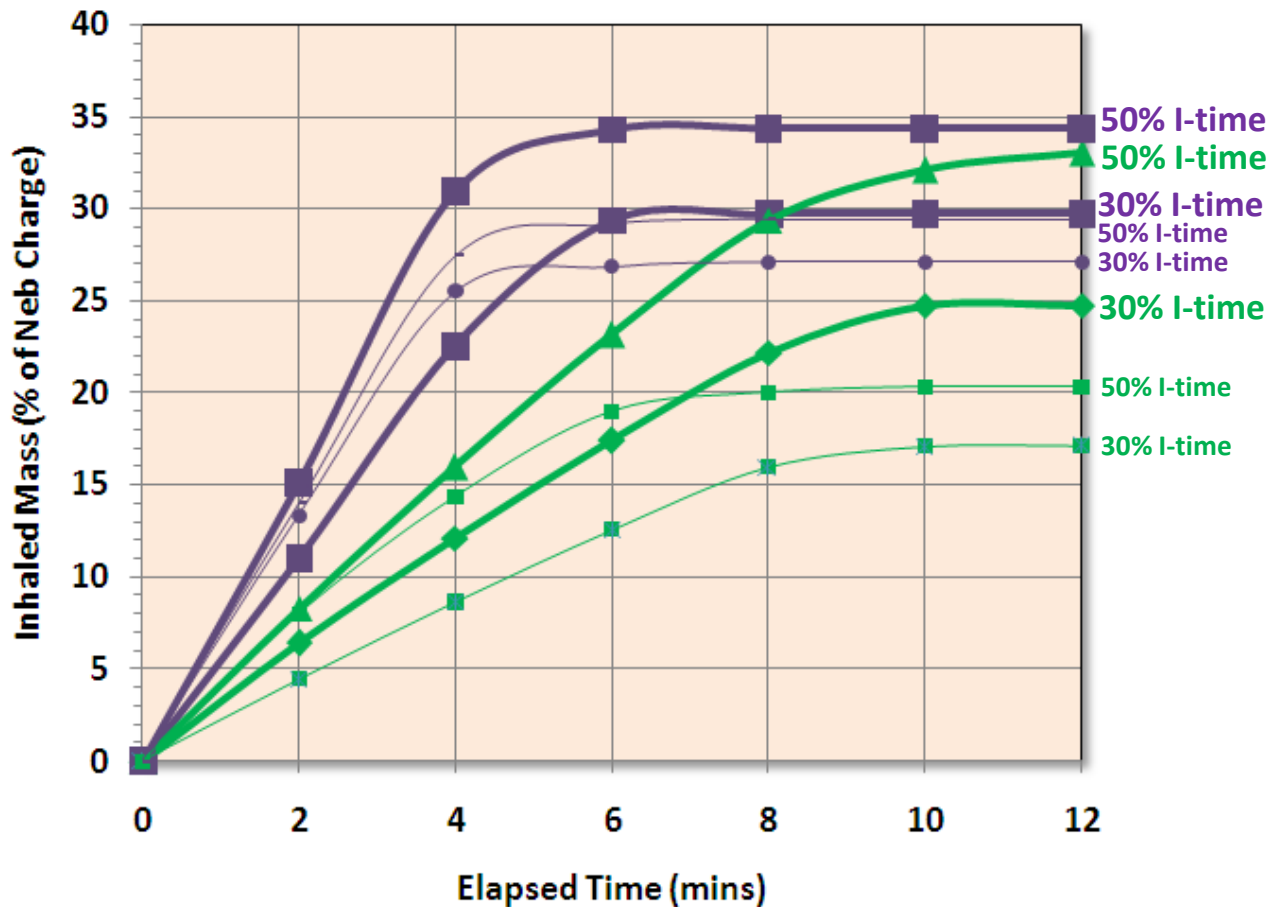
Inhaled Mass Graphs: Inhaled Mass vs Treatment Time

Circulaire II vs AeroEclipse II

3 mL (2.5 mg) Albuterol Unit Dose; Air @ 8 L/min

Purple – Circulaire II

Green = AeroEclipse II



Bold Lines: f 15, VT 500; Thin Lines: f 30, VT 250