

AMIS 24 Adaptive Mixing Chamber

Unique Solution for Fast Response Mixing Chamber in Research and Elite Athletics applications



- ▶ Adaptive Variable volume 4-15 litres
- ▶ Constant Wash-out time at any exercise ventilation (50-300L min)
- ▶ Response time almost equivalent to Breath by breath
- ▶ Suitable for fast kinetics protocols
- ▶ Douglas-bag-like technique with continuous measurement

Gas Exchange Technology, whether utilizing a breath-by-breath (BxB) or a mixing chamber system (MIX), each has its own set of limitations. While recent sensor advancements have improved BxB measurements, criticisms regarding their accuracy at very high respiratory frequencies (>60-70 breaths/min) persist^{1,2}.

On the other hand, the conventional Mixing Chamber remains a more dependable method as it is unaffected by respiratory frequency. However, it falls short when dealing with rapid changes in ventilation^{1,2}.

To address these challenges, COSMED proudly presents The AMIS 24 Adaptive Mixing Chamber module, which enables metabolic assessment across a full range of ventilation rates during exercise testing, effectively overcoming the limitations of a conventional Mixing Chamber system.

AMIS 24 has been designed to bring the accuracy and reliability at the maximum level.

The AMIS 24 varies its volume as exercise intensity increases and thanks to this "adaptive" feature it is capable to maintain a constant and rapid washout time at each ventilation. This makes the new mixing chamber module comparable to a breath-by-breath system (with a truly 10-second averaged data).

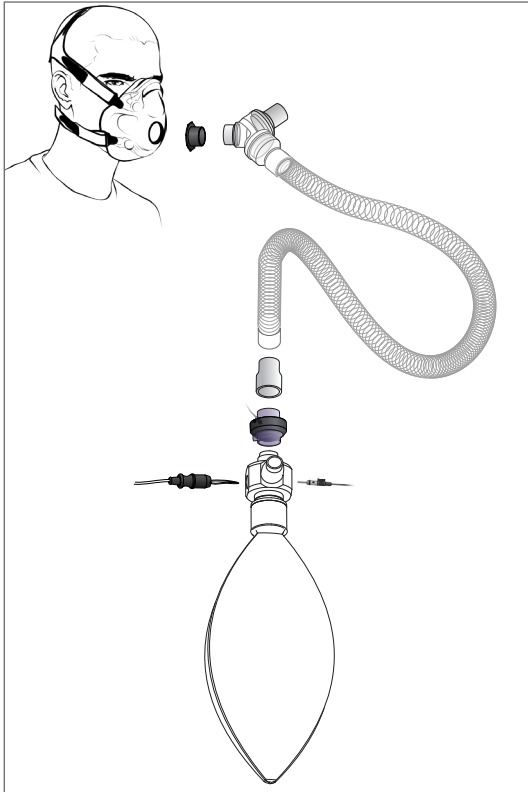
The mixing chamber module consists of a variable volume bag where optimal mixing is assured by a «flute» design and an output valve which smooths the flow at any ventilation.

Mixed gas concentrations are measured continuously by a sampling line placed at the exhalation port of the system whereas the ventilation is measured with a turbine flowmeter at the inlet of the bag.

Subjects wear a face mask or a silicone mouthpiece attached to a two-way non-rebreathing valve connected to a plastic hose for transfer of expired air to the mixing chamber.

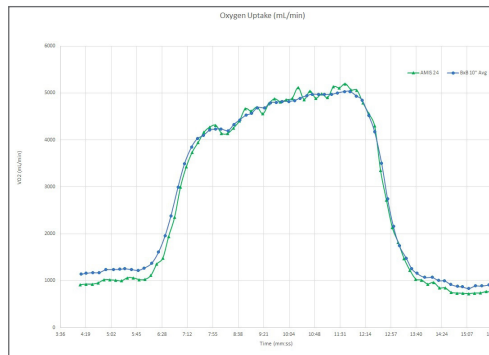
REFERENCES

- (1) Proctor DN, Beck KC. Delay time adjustments to minimize errors in breath-by-breath measurement of Vo2 during exercise. *J Appl Physiol.* 1996 Dec;81(6):2495-9.
- (2) Roecker K, Prettin S, Sorichter S. Gas exchange measurements with high temporal resolution: the breath-by-breath approach. *Int J Sports Med.* 2005 Feb;26 Suppl 1:S11-8.

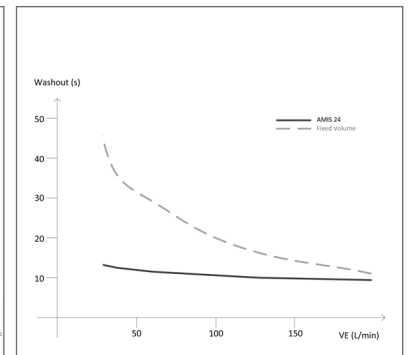


Technical Specifications

Product	Description	REF
AMIS24	Adaptive Mixing Chamber	C05420-01-11
Standard packaging	AMC valve w/ bracket, Mounting Clamp, 15L Mixing Bag, T5 Turbine, Two-Way-Non-Rebreathing Valve (Y-shape), V2 face mask (medium), Corrugated tube 35mm (2100 mm length), Tube holder, Adapters.	
Compatible devices	Quark PFT, Quark CPET, Quark RMR	
Hardware		
Dimensions	80x30x30 cm	
Weight	1.5 kg	
Volume	Variable from 4L (rest) to 15L (exercise)	
Data presentation rate	10 s (rolling time average)	



AMIS 24 VO2 response during constant load exercise (300W), compared to BxB



AMIS 24 VS fixed volume mixing chamber washout kinetics



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