



VETAMAC VAPORS



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Non-Rebreathing Systems for Small Animal Anesthesia

By: Michelle McConnell, LVT, VTS (Anesthesia)

Non-rebreathing systems (also known as **Mapleson Systems**) are recommended for patients weighing 7 kilograms (15.4 pounds) and under. A non-rebreathing system bypasses the soda lime canister, pop-off valve and manometer in the circle system. The fresh gas tube of the system attaches to the fresh gas flow coming from the anesthesia machine after the vaporizer. Another tube will attach to the F/air canister or active waste gas evacuation system to remove carbon dioxide and waste anesthetic gas. The two systems used mostly today are the **Bain Coaxial System** and **Modified Jackson Rees System**. Bain Coaxial Systems consist of a tube within a tube. The inner tube carries fresh gas and anesthetic to the patient and the outer tube carries gas away from the patient. Modified Jackson Rees systems consist of a fresh gas tube connecting to an elbow adapter that connects to the patient. Another corrugated tube connects to the pop-off valve on the anesthetic circuit to remove waste gas. Vetamac manufactures our own **Modified Jackson Rees** system as our **SafeSigh Non-Rebreathing System**. The SafeSigh allows for safer ventilation of the patient because of our patented “One Touch” valve stem that cannot be left in the closed position possibly causing harm and even death to the patient.

A higher flow rate is required when using a non-rebreather. We recommend 100ml-300ml/kg/min of oxygen with a minimum of 500ml/min. Using a non-rebreathing system decreases dead space and does not add in resistance to ventilation. When using a non-rebreathing system, you will be able to change planes of anesthesia more rapidly than with a circle system. Care must be given because with the quicker changes in anesthetic depth your patient can become lighter or deeper in a shorter amount of time. Because non-rebreathing systems require a higher oxygen flow rate more oxygen will be used. Patients can experience hypothermia and respiratory tract dryness due to the higher flow rates.



SafeSigh Non-Rebreathing System



One Touch Valve Stem



SafeSigh Manometer

Most non-rebreathing systems used in veterinary clinics today will not have the use of a manometer unless a **Bain Block** is used. Without the use of a manometer it is very difficult to gauge the amount of tidal volume given in one breath while using the valve to ventilate the patient. This can lead to serious and sometimes fatal outcomes. Vetamac now carries the SafeSigh Non-Rebreather Manometer. The SafeSigh Manometer attaches in the non-rebreathing system between the bag and valve or between the patient and elbow adapter. The SafeSigh Manometer allows you to safely ventilate the patient, knowing how much pressure is being delivered with each breath given.

Works cited: Anesthesia for the Veterinary Technician, Susan Bryant.