Mapleson-D Non-Rebreathing (NRB) System

A. 6mm X 15mm male Endotracheal Tube Adaptor. This adapter plugs into the 15mm vaporizer Common Outlet (fresh gas outlet) on the inhalant anesthesia system or diverter system tubing with Common Outlet on the end.

B. Fresh Gas Feed Tube.

C. Body of Mapleson-D NRB System.
   a. Rodent Face Mask is connected to the front of the Mapleson-D Body.
   b. ¼” I.D. tubing with 6mm X 15mm male Endotracheal Tube Adaptor, or 19mm EVAC tubing fits on the end of this body to collect and manage waste Anesthetic Gases (see above pictures). NOTE: ¼” I.D. tubing with Endotracheal Tube Adaptor and 19mm EVAC tubing are sold separately.
Application:

The Mapleson-D NRB system is a coaxial non-rebreathing system and is designed to be used primarily with rodents. This device is usually used in conjunction with an inhalant anesthesia system; however, it can be used to administer oxygen and/or other metabolic gases without inhalant anesthesia. Any species can be safely anesthetized with the Mapleson-D NRB as long as:

1. The subject’s muzzle and/or breathing apparatus can fit within the Rodent Face Mask (sold separately).
2. The reservoir of fresh gas Rodent Face Mask is large enough to meet and/or exceed the tidal volume of the subject.
3. The proper oxygen flow rate is maintained to ensure no buildup of CO₂ in the Rodent Face Mask.

Use and Operation:

The Mapleson-D NRB is a coaxial flow system in which the fresh gases flow towards the subject via the fresh gas feed tube (see arrows for direction of flow). The exhausted gases (CO₂) and other unused waste anesthetic gases flow away from the subject towards the waste gas management system (see arrow for direction of flow).

1. Fit Mapleson-D with appropriately sized Rodent Face Mask for subject. Cut appropriately sized hole in diaphragm of Rodent Face Mask (see User Instructions for Rodent Face Masks).
2. Connect the Fresh Gas Feed Tube (B) to your inhalant anesthesia machine fresh gas outlet utilizing the 6mm x 15mm male Endotracheal Tube Adapter (A).
   a. Connect directly to anesthetic vaporizer Common Outlet or diverter system tubing with Common Outlet adapter at the end.
3. Connect 19mm EVAC tubing to end of Mapleson-D NRB body (C), opposite from the nosecone- connect EVAC tubing to your waste gas management system:
   a. Activated Charcoal Canister, non-recirculating vent, hood or snorkel system.
4. Insert the anesthetized subject’s muzzle into the diaphragm of the nosecone.
   a. Since rodents are obligatory nose breathers in sternal recumbence (lying on the stomach), it is not necessary to insert more than the subject’s nose into the nosecone.
   b. If the subject is in dorsal recumbence (lying on the back) or lateral recumbence (lying on the side), mouth breathing is possible and both the nose and mouth should be within the diaphragm of the nosecone.
5. Turn on the fresh gas flow from the inhalant anesthesia system.
   a. The flow rate of fresh gas is set relatively high in relation to the subject’s tidal volume. This is done to ensure that the exhaled CO₂ from the subject is flushed towards the waste gas management system.
   b. Suggested minimum flow rate for a mouse: 500cc/minute.
   c. Suggested minimum flow rate for rats and small ferrets: 1 lpm.
   d. Suggested minimum flow rate for rabbits, guinea pigs and large ferrets: 1.5 lpm

**CAUTION:** Using fresh gas flowrates lower than the suggested flowrates may result in CO₂ buildup within the nosecone.