Using Rodent Anesthesia Machines

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Proper induction of inhaled Isoflurane anesthesia using a vaporizer delivery system is critical to performing humane surgery on animals. Levels of induction and surgical planes should be monitored carefully and often. Please refer to the document attached to the rodent anesthesia machine prior to the use of the machine.

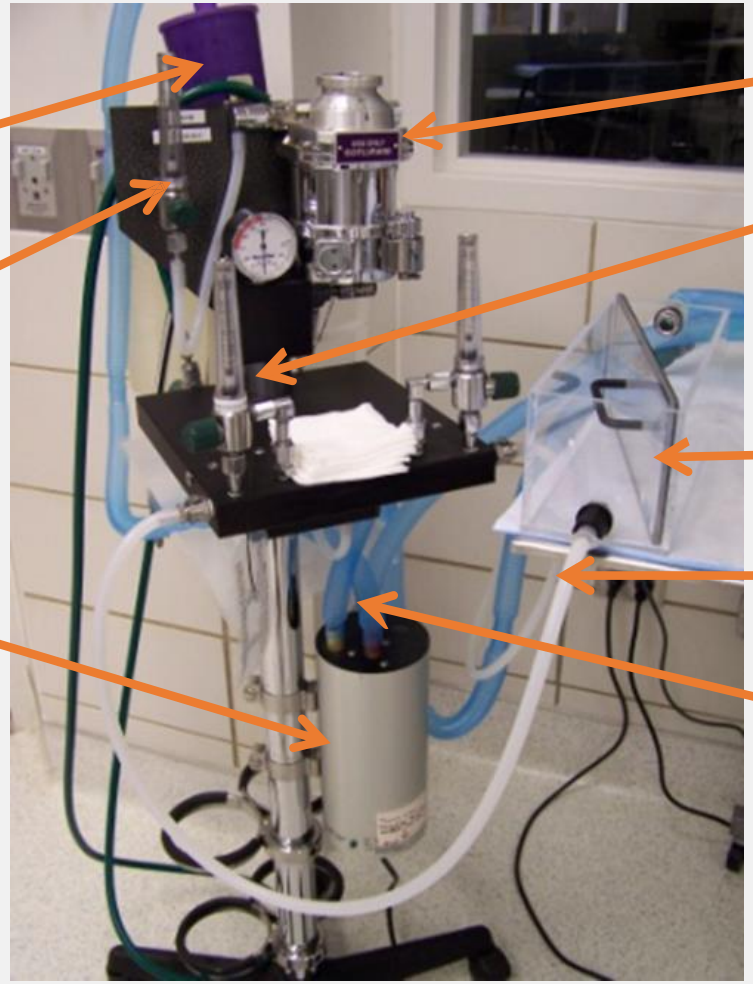
The following illustrations may assist you in becoming familiar with the various parts of the anesthesia machine and associated equipment.

Using Rodent Anesthesia Machines

Training in the proper use of the DLAR Rodent Anesthesia Machines ***PRIOR*** to being able to reserve/rent one is

MANDATORY for new research personnel

Typical Setup for Rodent Anesthesia Components



Small scavenger system (Passive)

Oxygen supply flow meter

Tank-type Scavenger system (Active)

Vaporizer

Induction Chamber/Nosecone Delivery Flow Meters

Induction chamber

Induction hose

Scavenger system exhalation hose

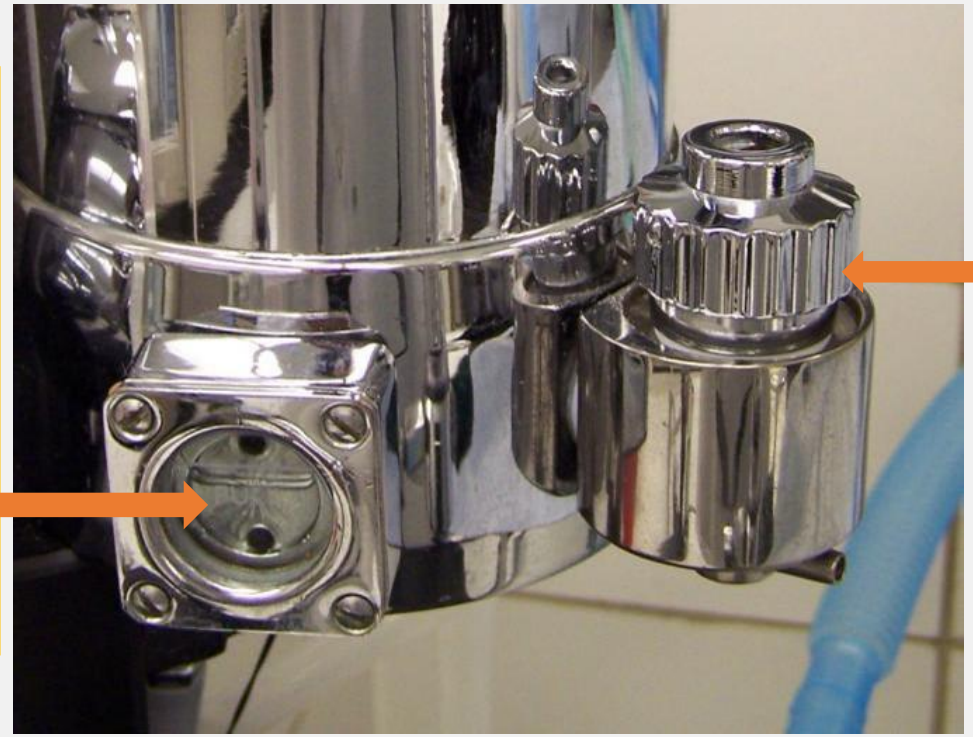
Typical Setup for Rodent Anesthesia Components

Vaporizer

Holds the liquid anesthetic and regulates the amount of anesthetic that is mixed with Oxygen

Typical Setup for Rodent Anesthesia Components

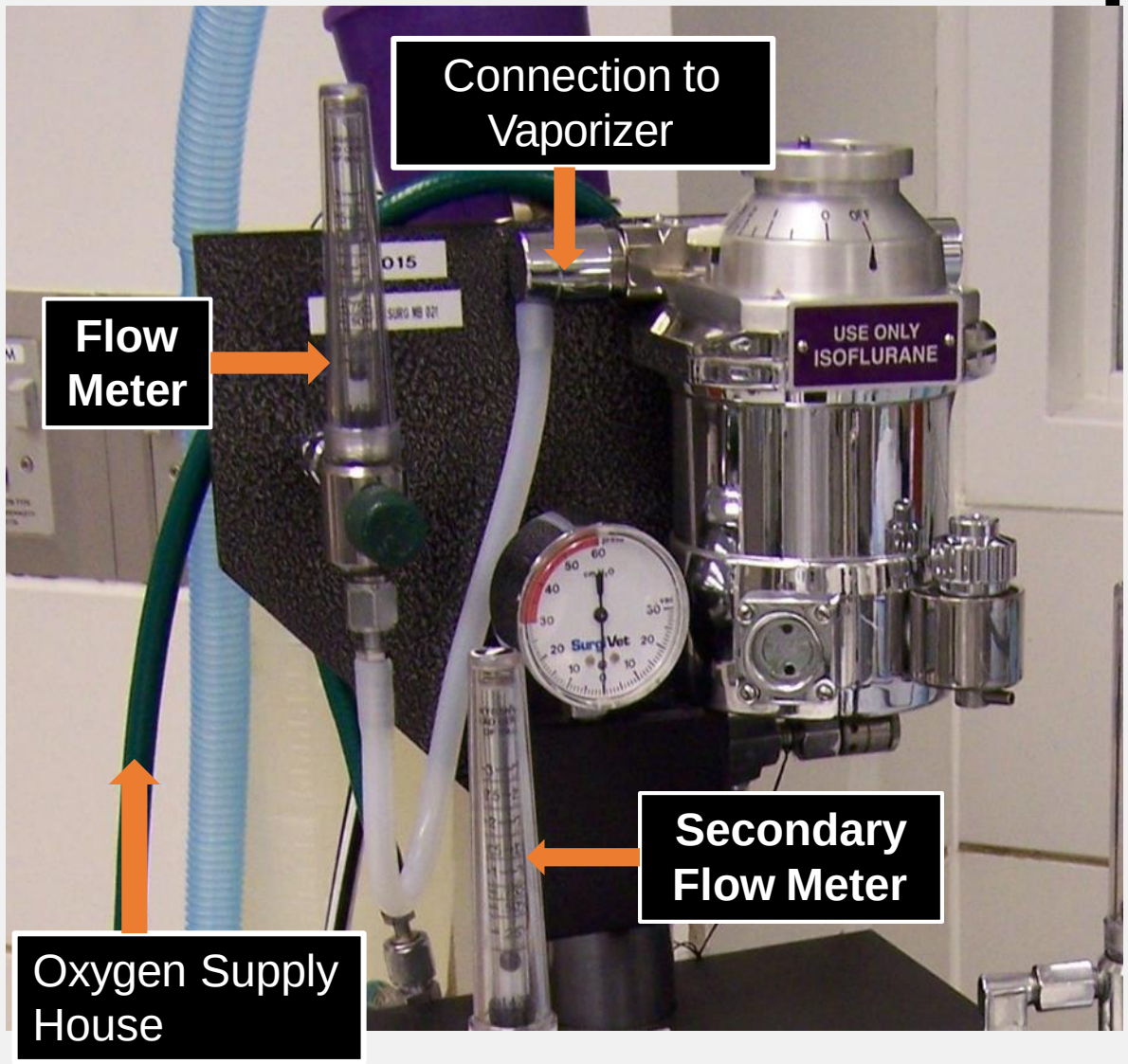
The amount of Isoflurane in the vaporizer can be seen in the sight glass located on the left side as you look at the vaporizer.



The reservoir can be accessed by unscrewing the cap and filling to the required level. The vaporizer ***MUST BE TURNED OFF BEFORE THE CAP IS REMOVED*** in order to fill the reservoir. Be careful not to overfill the chamber.

Typical Setup for Rodent Anesthesia Components

The Oxygen **Flow Meter** is located on the left side as you look at the machine. The hose should be connected directly to the vaporizer. The settings should be between 1.5 – 3 cm depending on whether you are using single or multiple induction.



Typical Setup for Rodent Anesthesia Components

Please be sure that all hoses are properly and securely connected before use.

Typical Setup for Rodent Anesthesia Components

Canister type of Scavenging System:

This system is based on the amount of weight accumulated as a result of waste gases building up in the filter media. It should be checked before and after each use of the anesthesia machine and the weight gain recorded on the canister. The canister should remain in its' holder and not be placed on a flat surface. There are vents in the bottom to allow for circulation.

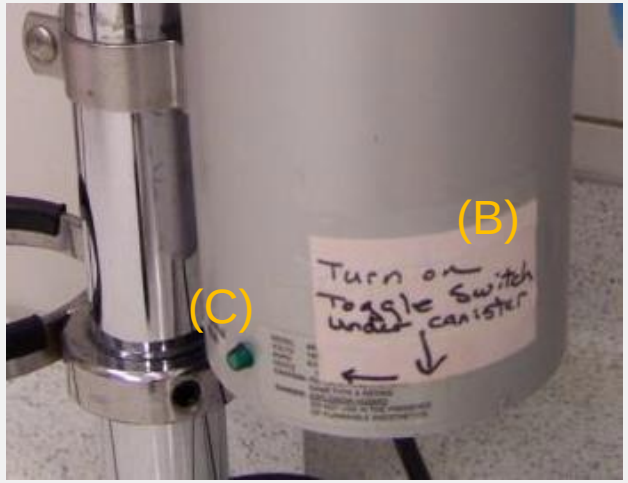
Typical Setup for Rodent Anesthesia Components

Active Scavenging System:

(A) Please check to be sure that all exhaust hoses are in place and well connected.

(B) This type of scavenging system requires you to turn it on at the bottom of the canister.

(C) You will see a green indicator light come on when it is working properly.



Typical Setup for Rodent Anesthesia Components

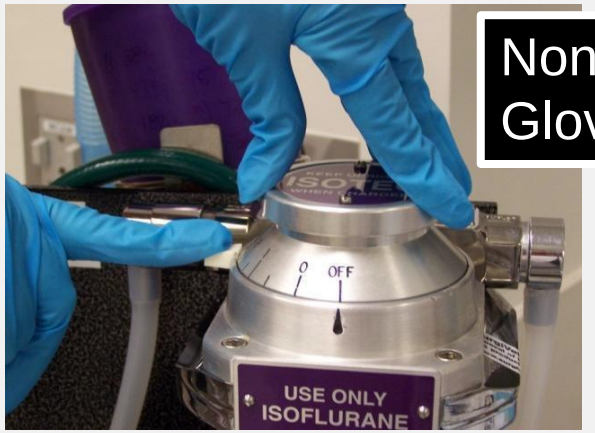
Adjusting the Isoflurane Vaporizer:

Push down on the white lever and turn the knob simultaneously to the desired level

If wearing sterile gloves, remember to use sterile gauze or towels to adjust the lever

Sterile gauze is ***NOT*** needed if your gloves are ***NOT*** sterile

The adjustment knob is automatically locked in place when you release the white lever



Non-Sterile Gloves

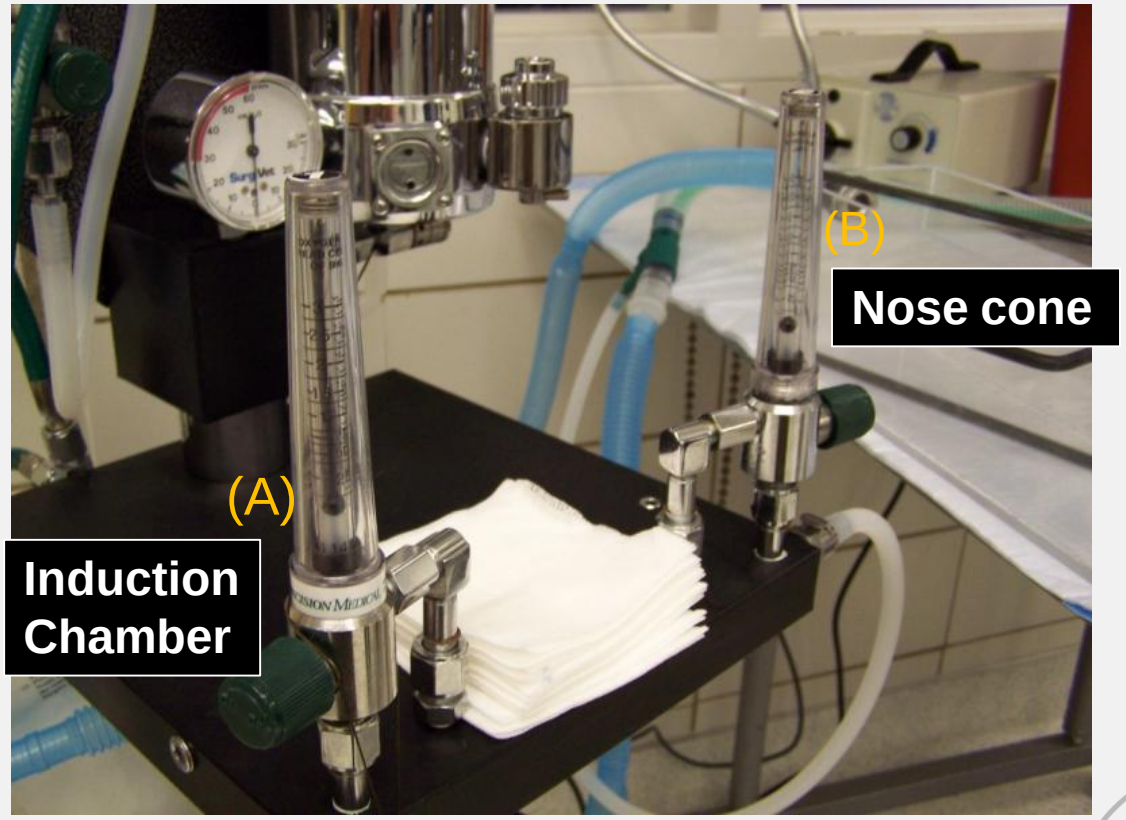
Sterile Gloves

Typical Setup for Rodent Anesthesia Components

Two Induction Chamber Delivery:

The flow meter on the left delivers anesthesia to the induction chamber (A)

The flow meter on the right delivers anesthesia to the nose cone (B)

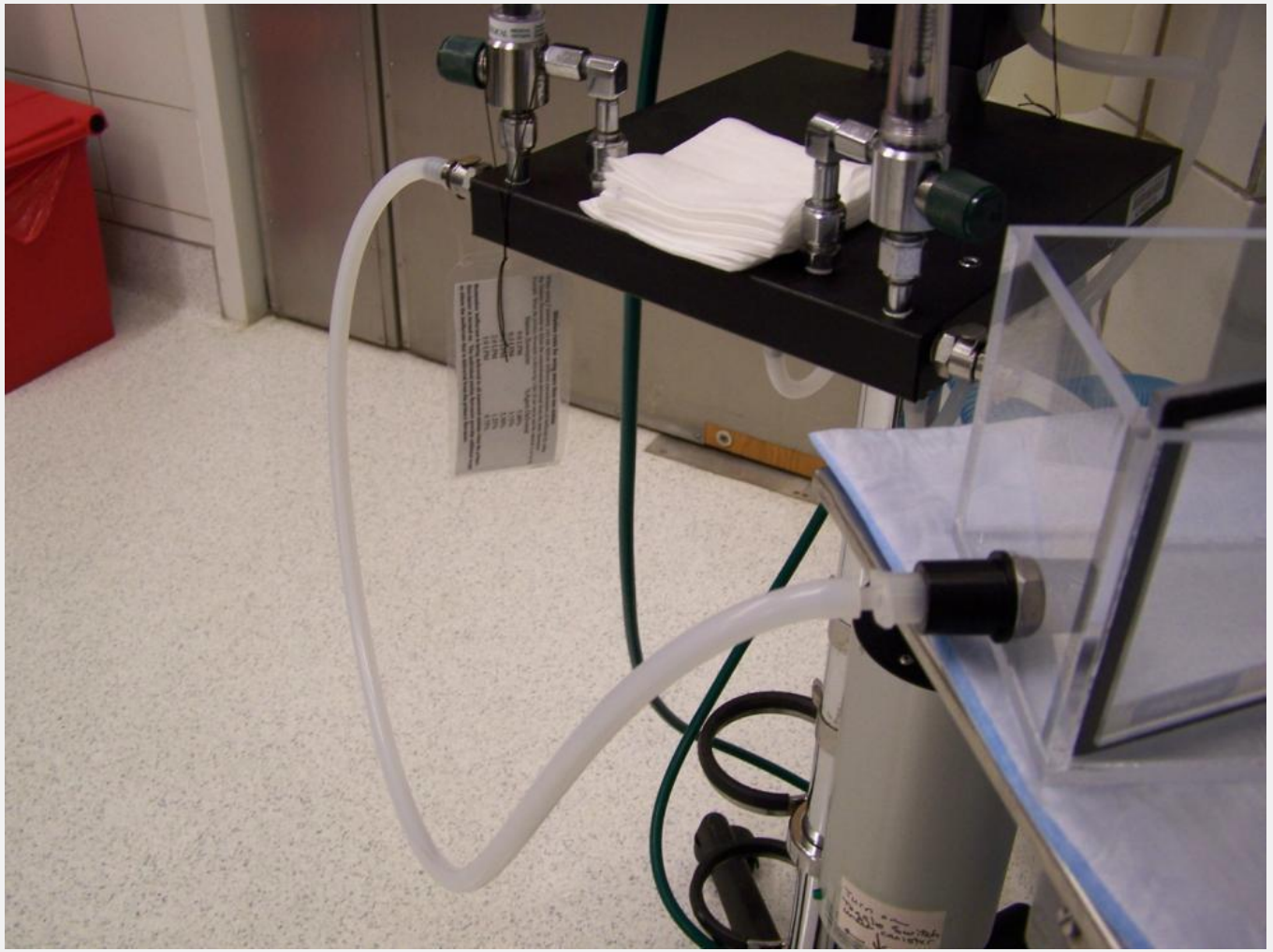


Typical Setup for Rodent Anesthesia Components

Nose Cone:

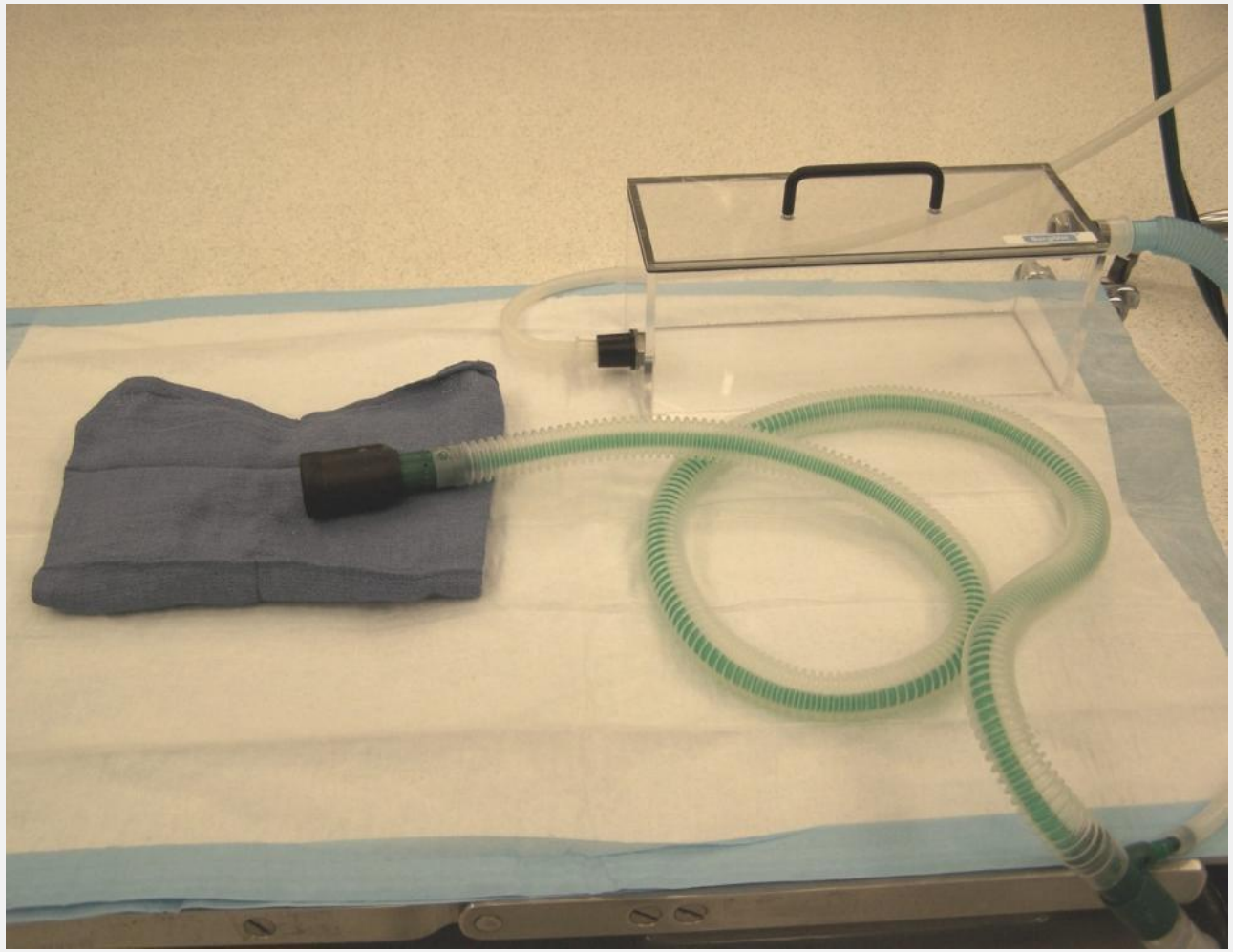
Typical Setup for Rodent Anesthesia Components

Induction Chamber:



Typical Setup for Rodent Anesthesia Components

Dual Setup:



Safety Precautions

Be ***EXTREMELY*** cautious when using ***ANY*** flammable liquids or materials such as Ethanol or alcohol

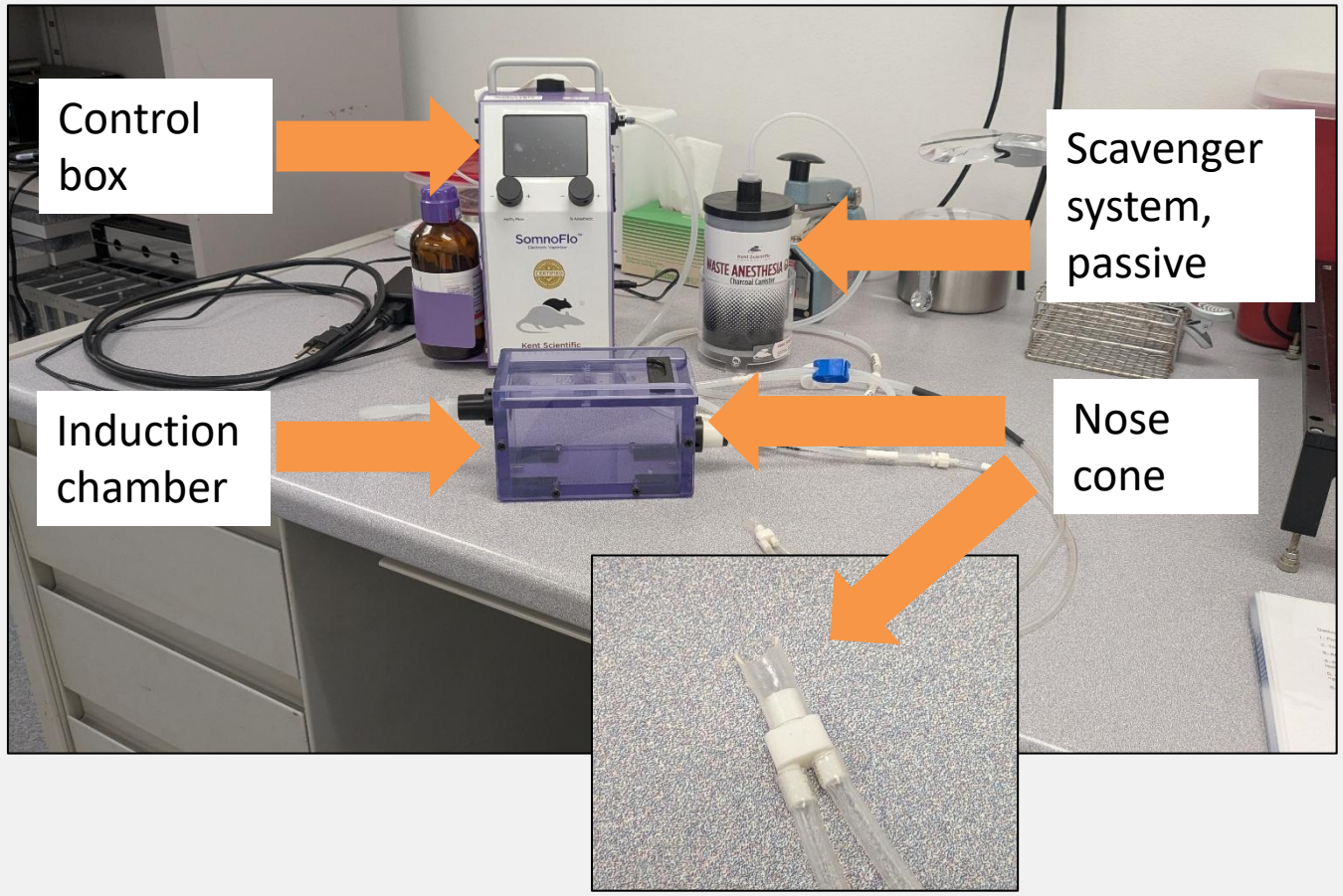
Equipment that generates heat or risk of spark such as hot bead sterilizers or items used to cauterize should be kept away from oxygen and anesthetics such as Isoflurane

Be certain the scavenger system is turned on

Safety Precautions

Dangers of Fire and Explosion are **VERY REAL**

Typical Setup for SomnoFlo



The SomnoFlo is a low flow electronic vaporizer. It uses smaller airflow and isoflurane amounts, minimizing waste anesthetic gas exposure for the operator.

Typical Setup for SomnoFlo

The power switch is a small black switch on the right side.

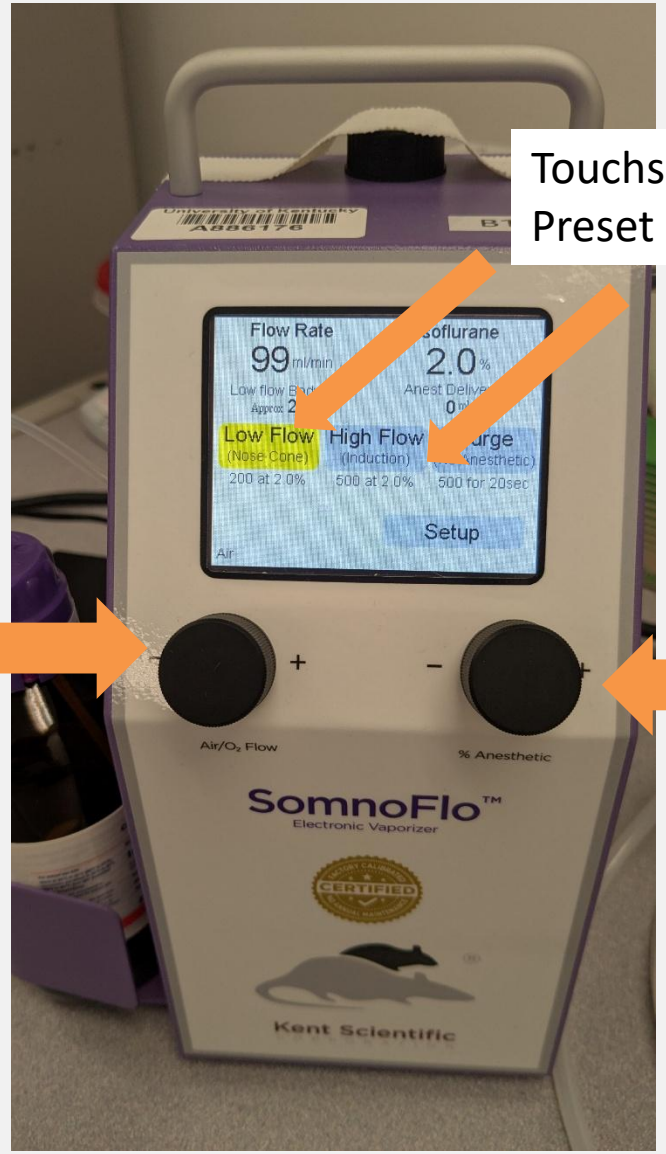
Leave space around all sides of the control box to allow the unit to cool and to avoid blocking the air intake valves.

Typical Setup for SomnoFlo

To adjust the air and anesthetic flow using the presets, use the touchscreen for low or high flow. The button will be yellow when selected. To stop the flow, touch the button again.

The amounts delivered can be seen under the buttons on the screen.

If different amounts from the presets are desired, use the dials underneath the screen to adjust air and isoflurane concentrations.



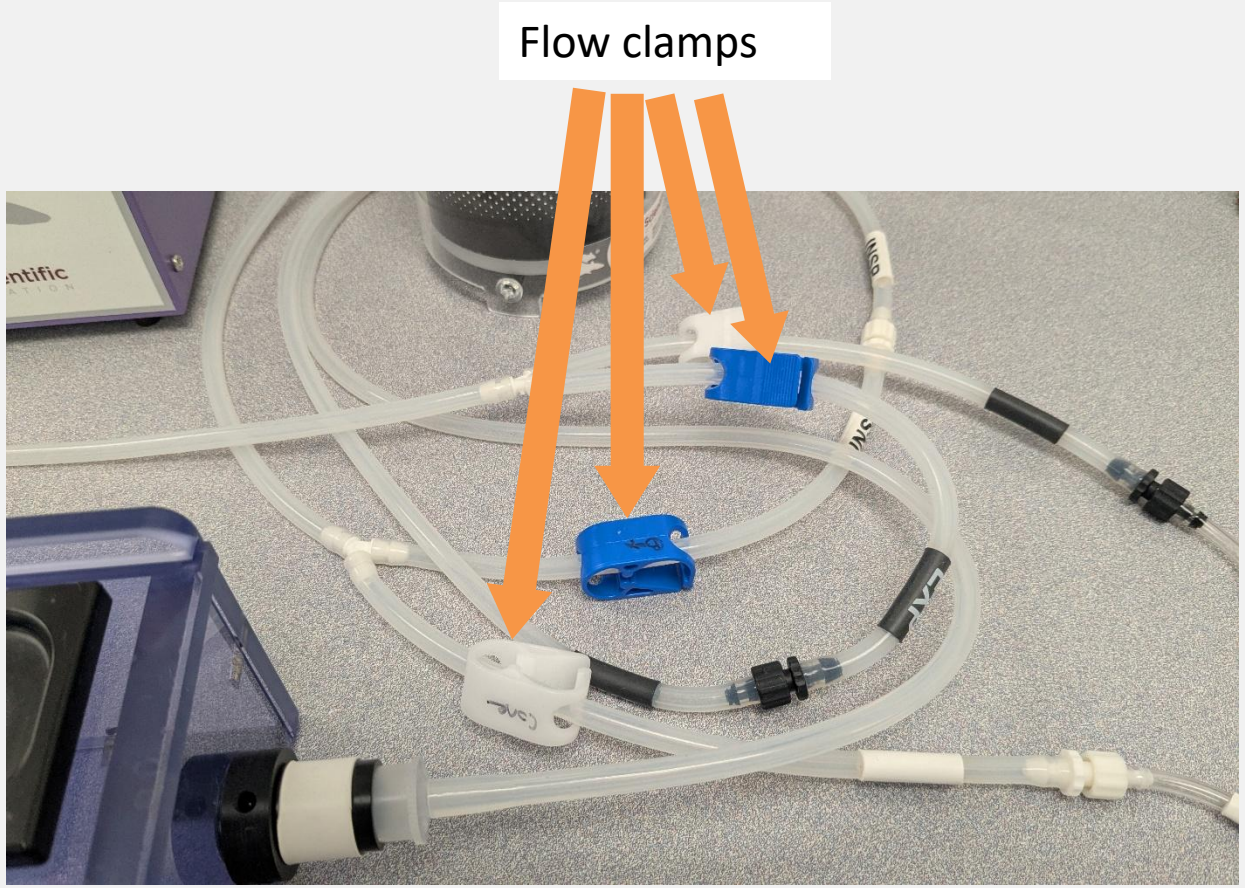
Typical Setup for SomnoFlo

Recommended Flow Rates

Body Weight	Low-Profile Nose Cone (mL/min)	Standard Face Mask (mL/min)	Stereotaxic Mask (mL/min)
			
<60g	100	100-120	120-140
60-80g	100	100-150	140-180
80g-100g	100	120-180	180-210
100-120g	100-120	140-200	200-240
120-140g	120-130	150-220	240-270
140-160g	130-150	180-250	270-300
160-180g	150-160	200-270	300-330
180g-200g	160-180	220-300	330-350
200-300g	180-250	230-400	350-480
300g-400g	250-300	320-500	480-580
400-500g	300-360	400-600	600-720
500-600g	360-420	480-680	720-830
600-700g	420-460	550-770	830-920
700-800g	460-520	620-850	920-1000
800-900g	520-560	680-740	1000, with caution
900-1000g	560-610	740-1000, with caution	1000, with caution
1000-1100g	610-660	820-1000, with caution	Not Recommended
1100-1250g	660-730	880-1000, with caution	Not Recommended

Recommended flow rates are typically much lower than traditional anesthesia machines and are determined by body weight of the animal and system set-up.

Typical Setup for SomnoFlo

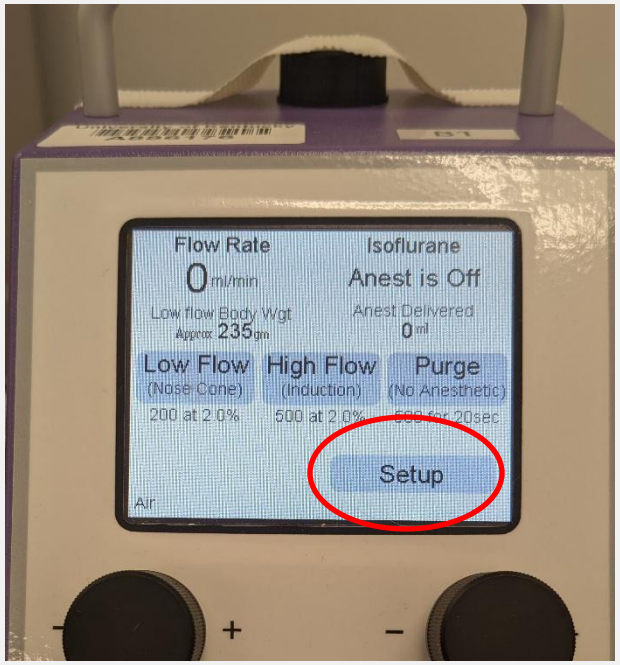


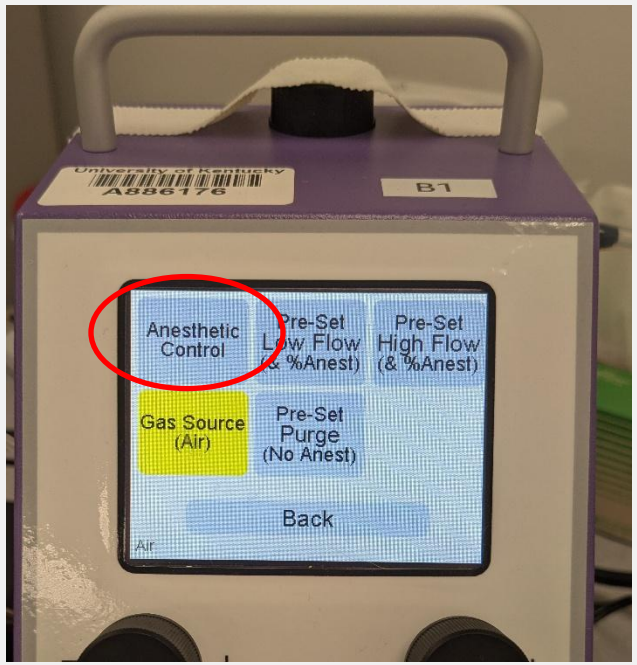
To direct the flow of gas to the induction chamber or the nose cone, use the flow clamps.

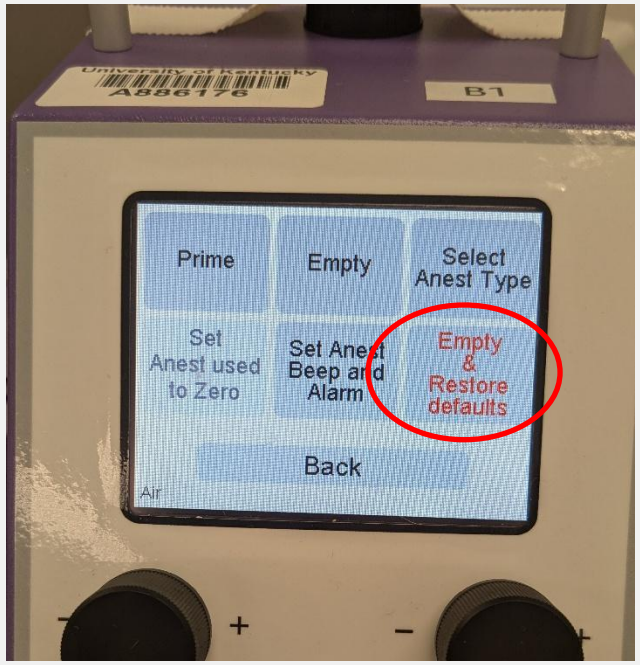
Blue clamps go to the induction box. White clamps go to nose cone. Clamps of the same color should always match (either both opened or both closed).

All four clamps should not be closed at the same time if the unit is delivering anesthetic. This will cause the unit to alarm.

Typical Setup for SomnoFlo







After the last animal, select Setup on the touchscreen.

Then select Anesthetic Control.

Then select Empty & Restore defaults.

The unit will empty the isoflurane it contains into the bottle. When finished, it will prompt you to switch off the unit. Failure to empty the isoflurane damages the machine and will result in an additional tech time charge applied to your rental fee.

For Assistance Call

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