MR-compatible
Small Animal Ventilator

- **Mice and larger animals**
- **Pneumatic operated valves**
- **Compatible with inhalation anesthesia**
- **Wide operating range**
- **Easy to use**
- **Reliable**

The **MR-compatible Ventilator** was designed specifically for use with mice and larger animals in the MR environment. It consists of a Ventilator Control Unit and a MR-compatible Valve Assembly that is positioned in the magnet bore close to the animal. The Ventilator Control Unit is positioned outside the magnet room. It is connected to the Valve Assembly using long pneumatic tubes. A Ventilator Interface Module sends data from the Ventilator Control Unit to a PC for recording and display. The MR-compatible Ventilator can be used with the Model 1025 or 1030 MR-compatible Monitoring and Gating Systems as well as with the Model 1025L and 1025T Monitoring and Gating Systems for use in other imaging environments and in the laboratory.

The **Ventilator Control Unit** works on the flow-time principle. An inspiratory airflow is delivered to the animal for a known time resulting in a known air volume. This approach provides great flexibility. A wide range of volumes, breaths/minute and Inspiration/Expiration ratios are possible without additional hardware and using just three controls: respiration rate, percent inspiration and flow rate.

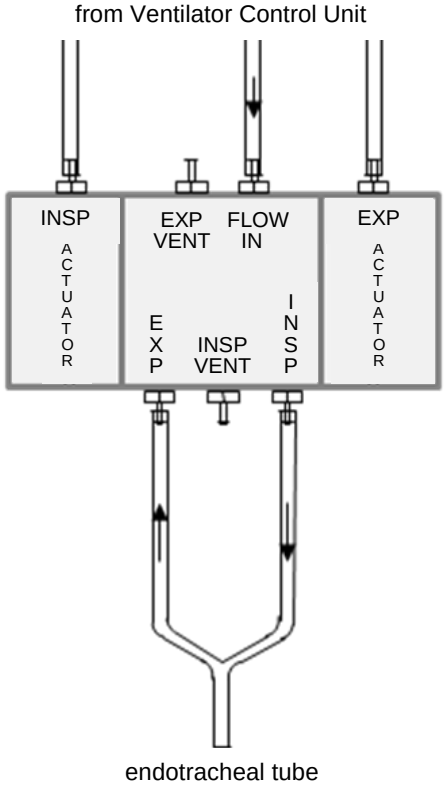
The **MR-compatible Valve Assembly** incorporates two high speed, miniature pneumatically activated, non-metallic valves to direct air between the animal and vent ports. Locating the valves close to the animal in the magnet bore improves performance by minimizing dead space and tubing compliance.

Respiratory airflow is provided by an internal air pump or by an external source of oxygen and/or anesthetic gas. The gas source to operate the valves is either compressed air or helium.

Specifications:

Respiratory rate	5 – 150 bpm
Inspiratory flow	50 – 1000 ml/min
Percent inspiration	10 – 90%
Tidal volume	0.1 – 30 ml
Internal air pump capacity	4.0 l/min
Pneumatic valve switching speed	< 75 ms (air)
Pneumatic valve switching speed	< 55 ms (helium)
Valve actuation pressure	25 – 50 psi
Control Unit size: hxwxd	23x14x23 cm
Valve assembly size hxwxd	1.0x5.4x2.4 cm
Pneumatic tube length	8 m
Power	115/230 VAC

The **MR-compatible Valve Assembly** allows inspiratory air or anesthetic gas to be delivered to the animal during inspiration. During expiration, the valves switch to vent the inspiratory airflow and to allow the lungs to vent passively to the atmosphere. The valves allow inspiratory air to flow continuously preventing pressure transients that would result from starting and stopping the flow of air.



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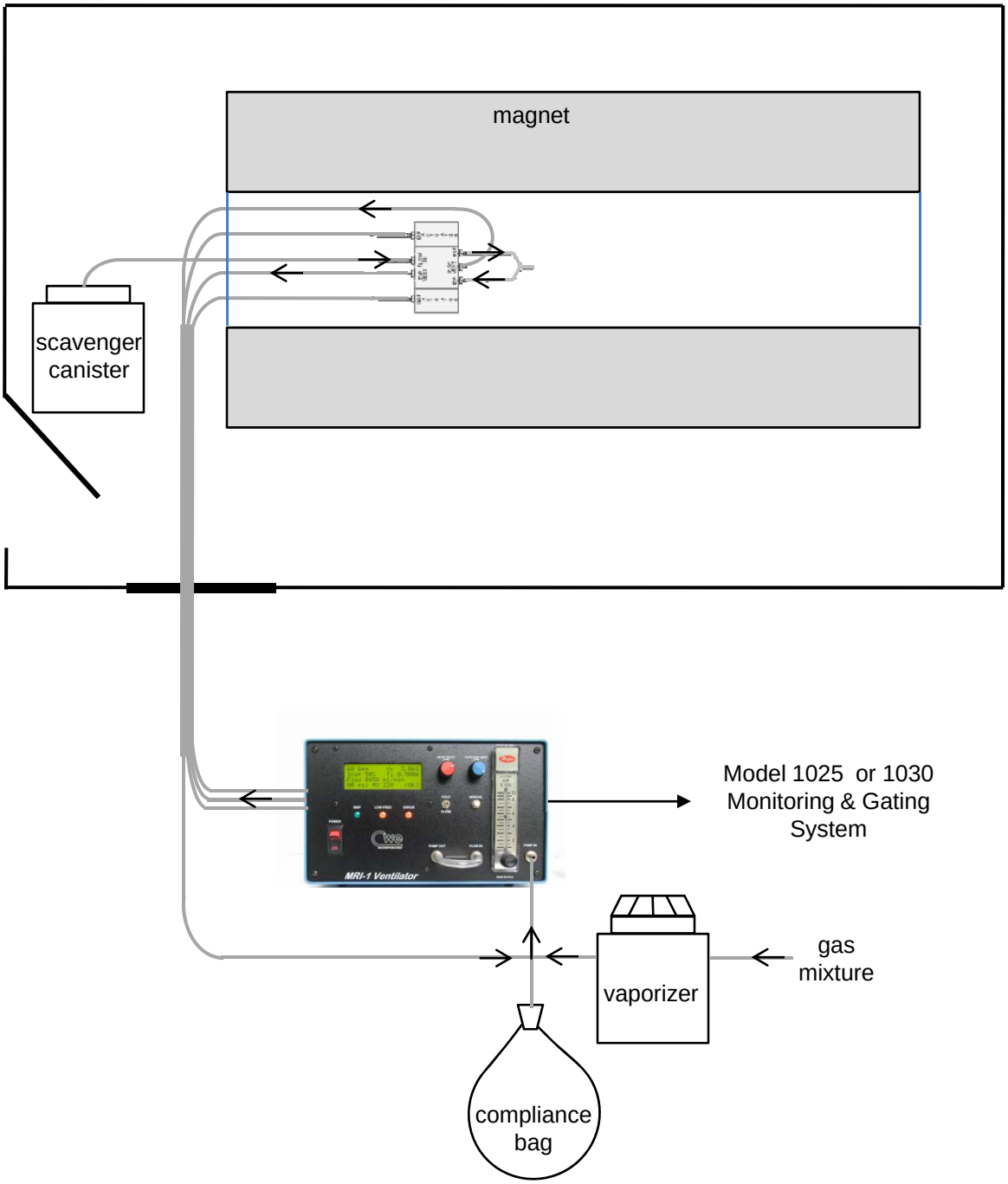

Anesthesia Connection in MR

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