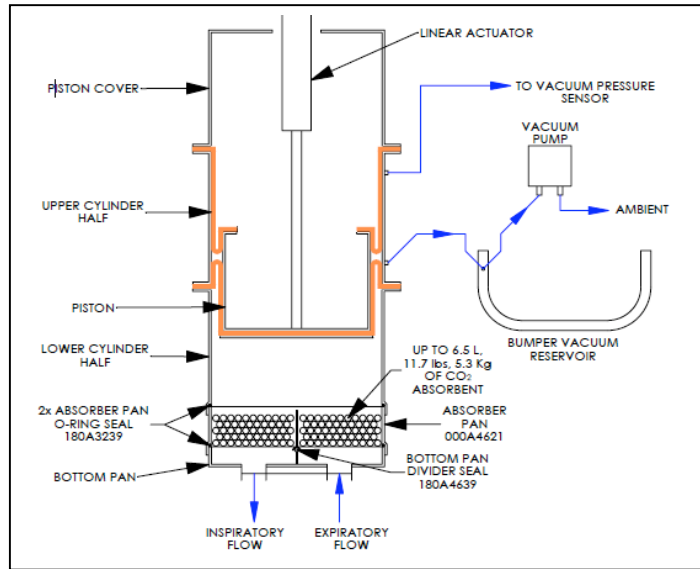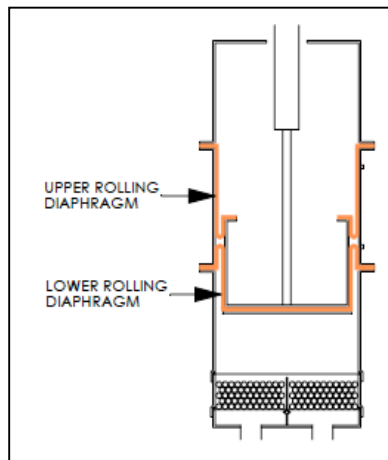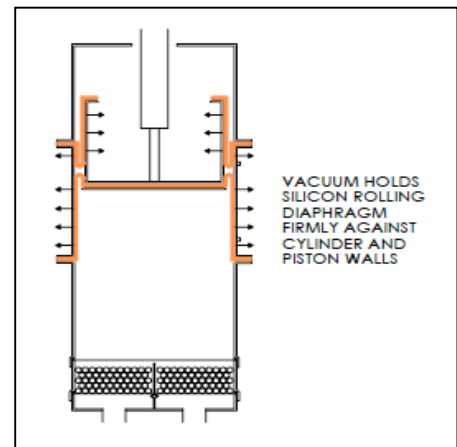# TAFONIUS™

Short on tradition

The "bag in a bottle" or bellows of the traditional ventilator has been replaced in TAFONIUS with a servo-controlled piston. This implementation completely eliminates the mushy pneumatic driving layer used to move the breathing gases that is found in every other large animal ventilator in existence today. It obviates the need for large volumes of high pressure driving gas; in fact it eliminates the need for any driving gas at all. The servomotor used in TAFONIUS moves the piston with a resolution of 20cc; the maximum stroke volume (tidal volume) deliverable is 20 liters. The piston can also be moved at different speeds yielding different inspiratory flow rates; in fact the speed at which the piston moves can be changed every 5ms, 200 phases/second. The maximum speed the piston can move translates to an inspiratory flow rate of 1000 lpm and the maximum pressure that can be developed is 80cmH$_2$O.

Such fast and precise control of distance and speed permits the development of virtually any inspiratory and/or expiratory waveform imaginable.

Left: the piston with 5 L under it. Right: 20 L under the piston. The vacuum, indicated by the arrows, holds the silicone rolling diaphragm tight against the cylinder walls facilitating very smooth operation as the piston moves.

Tafonese, the programming language for TAFONIUS will improve the pace of research by putting complete control of what TAFONIUS does, based on any of the measured, set, newly defined and calculated parameters and time, in the hand of the researcher.

This combination of a flexible programmable control system, sturdy, durable, stainless steel and aluminum construction and the integration of a complete patient monitoring system insures that you will no longer need to buy a new machine every time new features or yet developed modes of ventilation become available.