

Estimate Tidal Volume Requirements

A spontaneously breathing animal's Tidal Volume is approximately 5 ml/lb. if less than 400 lb., 3 - 4 ml/lb. if greater than 400 lb. During IPPV the Tidal Volume is generally increased by 1 - 2 ml/lb. to compensate for system compliance. That equates to $6.5 \times 2.2 = 14.3$ ml/kg for small animals and $5 \times 2.2 = 11$ ml/kg for larger animals (approximately).

					11 ml/kg	14.3 ml/kg
					Large Animal	Small Animal
kilograms	pounds	small	medium	large	milliliters	milliliters
.5	1.1					7
1	2.2					14
2	4.4					29
3	6.6					43
4	8.8					57
5	11					72
6	13.2					86
7	15.4					100
8	17.6					114
9	19.8					129
10	22					143
12	26.4					172
14	30.8					200
16	35.2					229
18	39.6					257
20	44					286
25	55					358
30	66					429
35	77					501
40	88					572
45	99					644
50	110				550	715
60	132				660	858
70	154				770	1001
80	176				880	1144
90	198				990	1287
100	220				1100	1430
120	264				1320	1716
130	286				1430	
140	308				1540	
150	330				1650	
175	385				1925	
200	440				2200	
250	550				2750	
300	660				3300	

Source: Handbook of Veterinary Anesthesia, Muir, Hubbell et al. 2nd ed 1995:pg 215.

Interchangeable Bellows and Housings

The **Hallowell EMC Model 2000** ventilator system is designed to be used with animals ranging in weight from 1 to 200 kg.. This wide variation in patient size is accommodated by having interchangeable bellows and housing units to meet the animal's breathing requirements. This bellows and housing change can be accomplished quickly and easily -- within thirty seconds -- and without the use of tools! The three different sizes are: 0 - 300 ml for animals from 1 to 25 kg, 300 - 1600 ml for animals from 20 to 120 kg, and 1600 - 3000 ml for animals from 100 to 200 kg. Use of the proper size bellows and housing minimizes the ventilator's dead space contribution to the breathing system and provides better resolution of tidal volume deliveries in the range of 0 - 300 ml.