

Harry Diamond (Original) Test Report 2020-04-14

v1

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Calibration procedure for original

Set input flow to 22 lpm with test lungs disconnected (output venting to atmosphere) and exhaust closed

Connect test lungs - rigid construction, 11 gallons, with compliance $C=28 \text{ ml/cmH}_2\text{O}$ and resistance $R < 2 \text{ cmH}_2\text{O}/(\text{liter/second})$

Set side screw fully open, set feedback screw full open

Close feedback screw until it device is cycling and $\text{PIP} = 10 \pm 1 \text{ cmH}_2\text{O}$

Close side screw until $\text{TV}=400 \pm 50 \text{ ml}$

Check that PIP is still $10 \pm 1 \text{ cmH}_2\text{O}$

Check that RR is 16 ± 2 and I:E is around $1:2 \pm 0.3$

What the screws do

Feedback screw close

PIP ++

RR -

TV -

Side screw close

TV ++

RR -

I:E - (E increases more than I)

Inhale time +

Exhale time +

Vent close

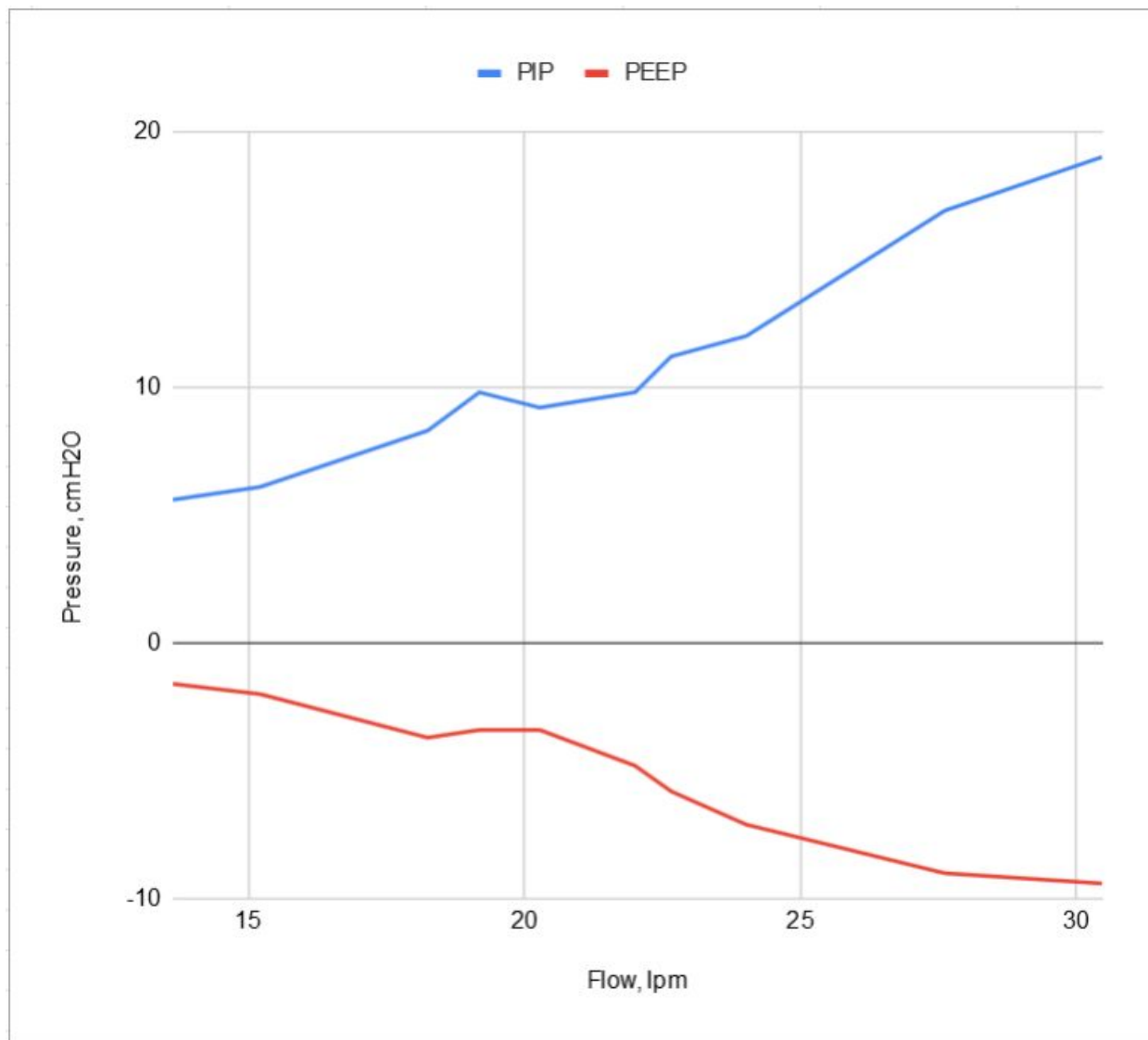
Exhale time ++
RR --

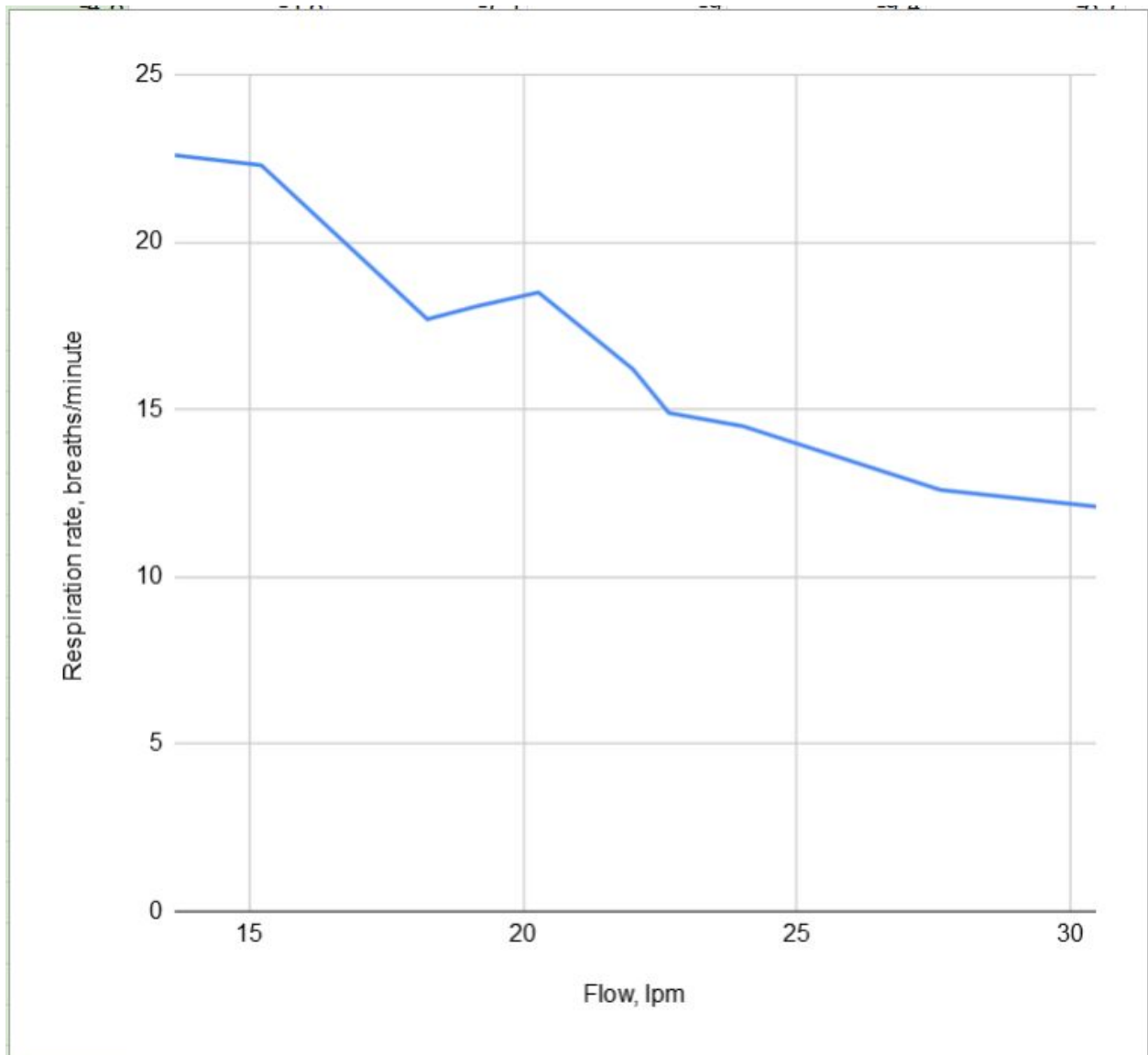
Note: the vent doesn't have a screw, it can be closed partially by means of any obstruction at the outlet

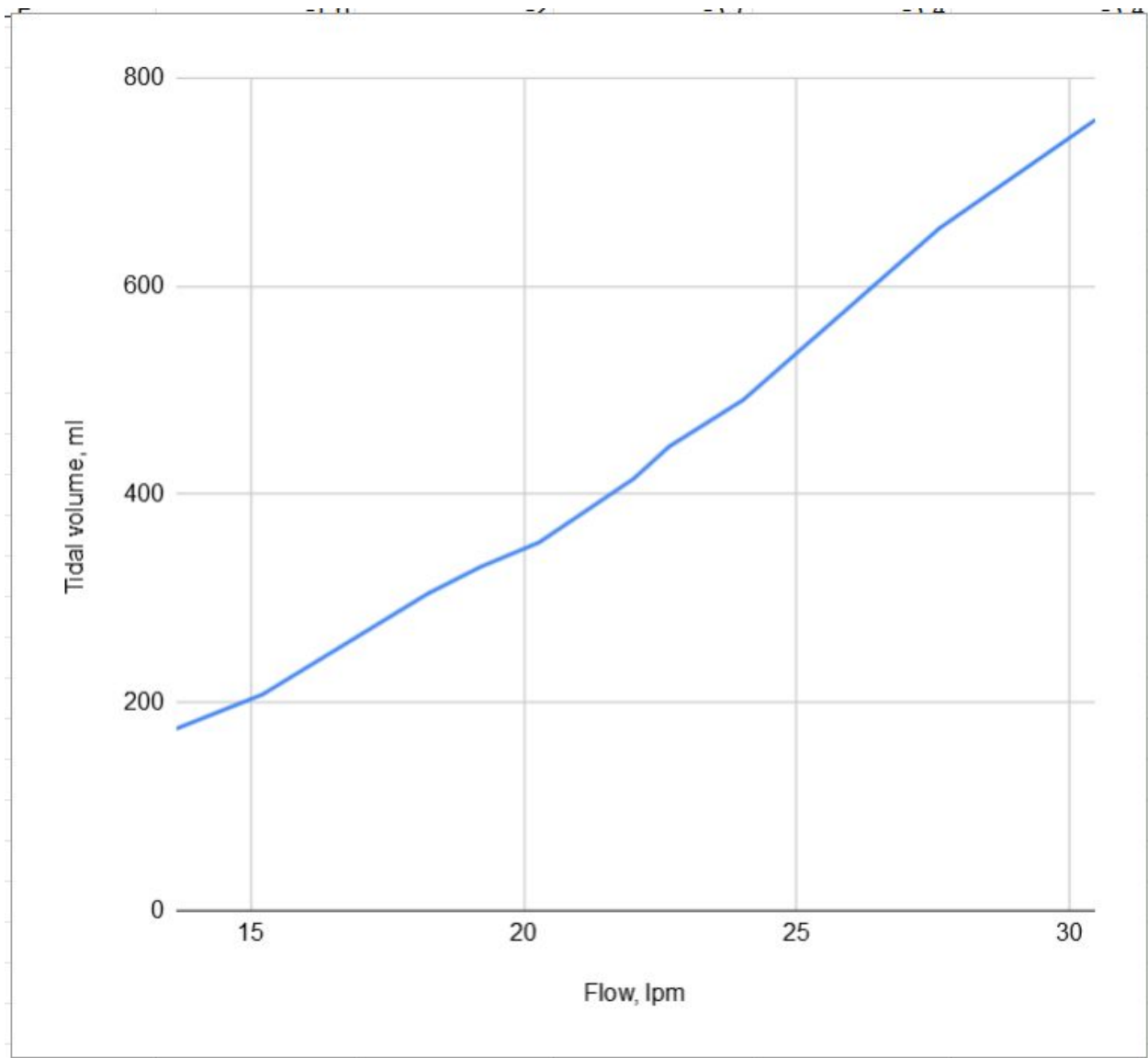
Results

Flow vs everything - flow is independent variable, the rest are the result of changing the flow

Flow	13.6	15.2	18.3	19.2	20.3	22.0	22.7	24.0	27.6	30.5
MV	3.95	4.65	5.41	5.98	6.54	6.73	6.64	7.11	8.26	9.2
RR	22.6	22.3	17.7	18.1	18.5	16.2	14.9	14.5	12.6	12.1
TV	175	208	305	330	354	415	446	491	656	760
PIF	16.74	18.68	22.4	23.55	24.89	27.01	27.81	29.48	33.89	37.39
IE	1.58	2.16	2.19	2.06	2	2.27	2.41	2.36	2.37	2.32
PIP	5.6	6.1	8.3	9.8	9.2	9.8	11.2	12	16.9	19
PEEP	-1.6	-2	-3.7	-3.4	-3.4	-4.8	-5.8	-7.1	-9	-9.4







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Source Location: https://github.com/MillionVentilators/ARMEE_Ventilator_1.0

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