UCL Ventura Mark II healthy volunteers testing

(i) Normal breathing at 10 cm H_2O CPAP

O_2 %	Oxygen flow rate (l/min)
30%	10.8
40%	13.6
50%	12.9
60%	17.4
70%	17.3
80%	17.8

n.b. the higher FiO_2 values had an interesting calming effect so there was little change in flow between 60-80%.

(ii) Normal breathing at 10 cm H_2O CPAP versus breathing to mimic a COVID-19 patient breathing deeply at 30 breaths/min

	Oxygen flow rate (l/min)	
O_2 %	Normal breathing	COVID-19 mimicked
60%	16.6	21.4
90%	32.2	47.0

n.b. mimicking the respiratory pattern of a COVID patient increased flow rates. Usual requirements are in the 40-60% range and are not too dissimilar from standard oxygen use on mechanical ventilation (10-12 l/min). While higher at 90% oxygen, this is still much lower than commercially available high flow devices. For example, the Pulmodyne system does not report specific data https://portal.pulmodyne.com/v/T13vx0XmMGKCvLYUuCj4 but notes flow rates up to 140 l/min, presumably at 90% oxygen.

(iii) Forced maximal hyperventilations over 30-60 seconds at 10 cm H_2O CPAP

O_2 %	Oxygen flow rate (l/min)
30%	14.3
40%	25.4
50%	40.4
60%	46.7
70%	55.7
80%	76.7

n.b. this is to maximally stress the system ... no patient (or normal subject) could maintain this level of hyperventilation for longer than 1-2 minutes!