

Proper Volumetric Airflow for Compressed Breathing Air Units

The CSA standard specifies a minimum flowrate for different types of respirators. This requirement is ensure that there is sufficient airflow to protect the worker. For example, a loose-fitting hood relies on a sufficient air flow to provide a strong continuous airstream flowing down out of the hood so that airborne contaminants cannot be drawn up into the hood and into the workers breathing zone. The flowrate can be measured by placing a rotameter to the worker connection outlet to directly measure the amount of air provided to the hood or facepiece. Because of their difference in design, a loose fitting hood requires considerably more airflow than a tight-fitting respirator.

Loose Fitting Hood



Tight Fitting Hood



Required Flowrates as Specified by CSA Standard

Type of Facepiece	Required Airflow
Loose fitting hood	170 lpm
Tight fitting facepiece	114 lpm

Lpm = litres per minute

The amount of airflow is largely determined by the horsepower rating of the compressor. Airflow can also be reduced by restriction in the airline (particularly at connections where 2 hoses join together). Large compressors typically have no trouble meeting the require air flow. Ambient air pumps sometimes have trouble meeting the required volumetric air flow. The following table shows how many of which type of units can normally be supported by an ambient air pump.

Number of Workers Who can Use an Ambient Air Pump

HP Rating	# of loose hoods	# of Tight Facepieces
3/4	1	2
1.5	2	3
2	2	4

* Example: ¾ HP compressor can provide sufficient air to 1 loose hood OR 2 tight facepieces