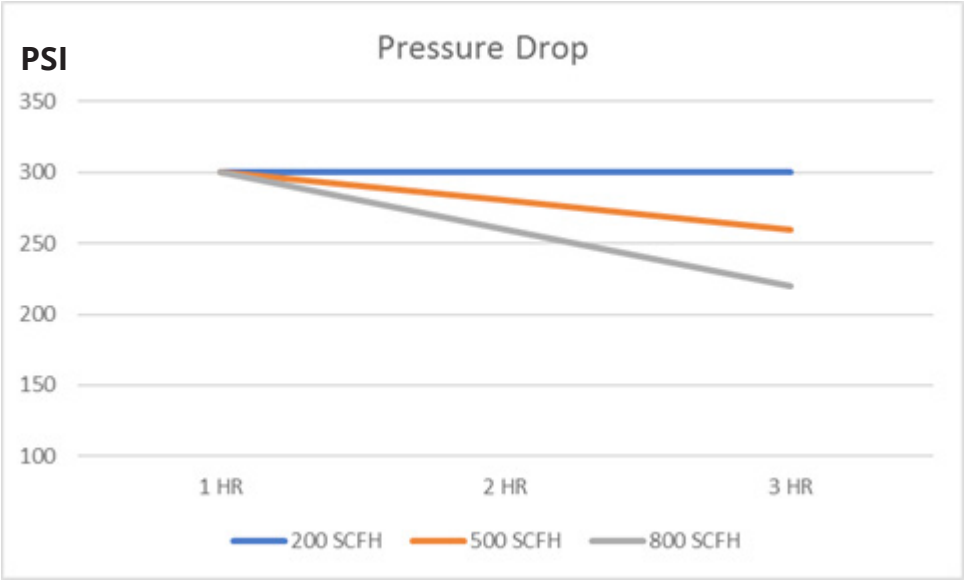
HOW TO SIZE A VAPORIZER FOR FLOW RATE ON A LIQUID CYLINDER

When You Need a Vaporizer: Short answer: If the demand of gas needed (also known as flow rate) is higher than the output of a liquid cylinder the pressure and flow rate will drop. Adding a vaporizer to the liquid cylinder increases the flow rate of the liquid cylinder while keeping the same pressure. Meaning the flow rate and pressure stays constant.

Longer explanation: A typical 160 liter cryogenic liquid container with a medium pressure has an output of about 350 standard cubic feet per hour of liquid nitrogen. After the first hour of operating, the output of the dewar starts to slow because the container becomes cold. Warm air allows the container to convert the liquid into gas quickly. The lack of warm air drops the output of the tank after the 1st hour of use. If more than 350 standard cubic feet of liquid nitrogen is needed per hour, the dewar would be unable to keep up with the demand. The tank would start to over draw the vaporization. A scenario such as this is when you would use a vaporizer. A vaporizer allows you to continue to convert liquid into gas for long periods of time as oppose to being limited to a liquid cylinders standard output. If customers need a higher flow rate, a vaporizer can be attached to the liquid container and will generate a higher flow rate for a longer period of time.

FLOW RATE USING A LIQUID CYLINDERS BUILT IN VAPORIZING COIL

Graph demonstrates pressure drop of liquid cylinder not using a vaporizer but instead using built in pressure builder of liquid cylinder.



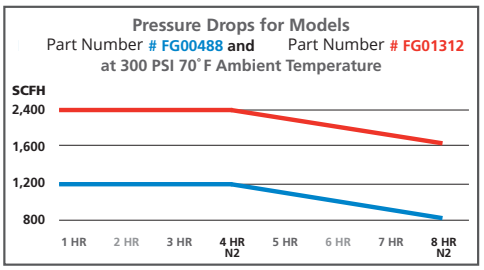
A liquid cylinder converting liquid into gas uses the vaporizer built into the liquid cylinder also known as the vaporizing coil and pressure building coil. The regulator is hooked up to the gas outlet. The pressure and flow rate drops when the demand exceeds the output capability of the vaporizing coil.

FLOW RATE USING A LIQUID CYLINDER WITH AN EXTERNAL AMBIENT AIR VAPORIZER

* hose connections & regulators available separately

Graph shows the flow rate of liquid cylinders using an ambient air vaporizer in 4 & 8 hour time periods of continuous use at ambient air temperature of 70* Fahrenheit. (SCFH = Standard Cubic Feet Per Hour)

Part Number	4 HOUR N2 Capacity (SCFH) 300PSI 70F	8 HOUR N2 Capacity (SCFH) 300PSI 70F
FG00488	1,200	800
FG01312	2,400	1,600



A liquid cylinder using an ambient vaporizer is connected through the liquid use valve of the cylinder into the vaporizer. The vaporizer is hooked up to the regulator which supplies the gas. The drop in pressure through the vaporizer is typically 1% . For example, if the liquid going into the vaporizer is around 300 PSI the gas would be at 297 PSI output.

IF USING FOR 24 OR 48 CONTINUOUS HOURS AT 300PSI 70F:

PART NUMBER	24 Hour N2 Capacity (SCFH)	48 Hour N2 Capacity (SCFH)
FG00488	640	510
FG01312	1,280	1,020

The numbers shown in the graphs above are average values. The conditions of the liquids and/or the ambient conditions (outside temperature) may cause the values to differ.