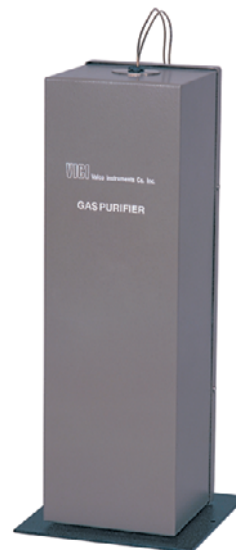


# Helium and Nitrogen Purifiers

- Point-of-use purification to low ppm levels
- CE-compliant
- Simple maintenance
- Self-regulated 24 VDC power



## Description and Operating Principle

Carrier gas purity is essential in any application requiring extreme sensitivity. Impurities limit detector sensitivity and can even destroy capillary columns. The Valco HP2 (helium purifier) provides “point-of-use” purification of helium or other noble gases, such as Ar, Ne, Kr, and Xe, to sub-ppm levels of reactive gaseous impurities. The NP2 (nitrogen purifier) is similar, purifying nitrogen to sub-ppm levels of gaseous impurities.

The purification substrate in Valco gas purifiers is a non-evaporable gettering alloy. This stable alloy is contained in a welded assembly, so the purifiers can be used safely in industrial applications with minimal precautions.

The getter is activated by heating, which eliminates the oxide film on the particle surface and allows helium to diffuse into the bulk of the getter particles. This leaves the surface free from the passivating oxide layers and available for sorption. Activation must be performed under a vacuum or inert gas (He, Ar, Kr, or Xe) atmosphere. The helium and nitrogen purifiers feature a self-regulating design which eliminates the possibility of thermal runaway and maintains the getter material at the optimum temperature.

## Specifications

	Helium Purifier (HP2)	Nitrogen Purifier (NP2)
<b>Gases purified</b>	He, Ne, Ar, Kr, Xe, Rn	He, Ne, Ar, Kr, Xe, Rn, N <sub>2</sub>
<b>Max. operating pressure</b>	1000 psig	1000 psig
<b>Max. operating temperature</b>	400°C	400°C
<b>Max. flow rate</b>	1 liter/min	1 liter/min
<b>Impurities removed</b>	Outlet impurities less than 10 ppb H <sub>2</sub> O, H <sub>2</sub> , O <sub>2</sub> , N <sub>2</sub> , NO, NH <sub>3</sub> , CO, and CO <sub>2</sub> , based on 100 ppm total inlet impurities. Other impurities removed include CF <sub>4</sub> , CCl <sub>4</sub> , SiH <sub>4</sub> , and hydrocarbons such as CH <sub>4</sub>	Outlet impurities less than 10 ppb H <sub>2</sub> O, H <sub>2</sub> , O <sub>2</sub> , NO, NH <sub>3</sub> , CO, and CO <sub>2</sub> , based on 100 ppm total inlet impurities. Other impurities removed include CF <sub>4</sub> , CCl <sub>4</sub> , SiH <sub>4</sub> , and hydrocarbons other than CH <sub>4</sub>
<b>Impurities not removed</b>	He, Ne, Ar, Kr, Xe, and Rn	He, Ne, Ar, Kr, Xe, Rn, CH <sub>4</sub> , and N <sub>2</sub>

## Miniature Gas Purifiers

Virtually all commercial gas chromatographs contain certain components which, while adequate for flame ionization and thermal conductivity detectors, are unsuitable for low ppb universal analyses. For example, unheated molecular sieve traps are certain to contaminate the carrier gas with CO<sub>2</sub> and H<sub>2</sub>O.



The Valco Miniature Helium Purifier (HPM) and Miniature Nitrogen Purifier (NPM) are designed to address this situation, providing "point-of-use" carrier gas purification to sub-ppm levels of gaseous impurities. When installed in a gas chromatograph's flow path immediately upstream of the injector, the HPM/NPM will remove any contaminants introduced by flow controllers, elastomeric tube seals, pressure regulators, crude traps, or other system components that are not completely clean and leak-tight.

## Specifications

	Helium Purifier (HPM)	Nitrogen Purifier (NPM)
<b>Gases purified</b>	He, Ne, Ar, Kr, Xe, Rn	He, Ne, Ar, Kr, Xe, Rn, N <sub>2</sub>
<b>Max. operating pressure</b>	200 psig	200 psig
<b>Max. operating temperature</b>	400°C	400°C
<b>Max. flow rate</b>	30 cc/min	30 cc/min
<b>Impurities removed</b>	Outlet impurities less than 10 ppb H <sub>2</sub> O, H <sub>2</sub> , O <sub>2</sub> , N <sub>2</sub> , NO, NH <sub>3</sub> , CO, and CO <sub>2</sub> , based on 100 ppm total inlet impurities. Other impurities removed include CF <sub>4</sub> , CCl <sub>4</sub> , SiH <sub>4</sub> , and hydrocarbons such as CH <sub>4</sub>	Outlet impurities less than 10 ppb H <sub>2</sub> O, H <sub>2</sub> , O <sub>2</sub> , NO, NH <sub>3</sub> , CO, and CO <sub>2</sub> , based on 100 ppm total inlet impurities. Other impurities removed include CF <sub>4</sub> , CCl <sub>4</sub> , SiH <sub>4</sub> , and hydrocarbons other than CH <sub>4</sub>
<b>Impurities not removed</b>	He, Ne, Ar, Kr, Xe, and Rn	He, Ne, Ar, Kr, Xe, Rn, CH <sub>4</sub> , and N <sub>2</sub>

## Ordering Information

<i>Description</i>	<i>Product numbers</i>	
<b>Standard helium and nitrogen purifiers</b>	<b>Helium</b>	<b>Nitrogen</b>
110 VAC	HP2	NP2
220 VAC	HP2-220	NP2-220
Replacement getter assembly	I-23572	I-23572NP2

	<b>Helium</b>	<b>Nitrogen</b>
<b>Miniature helium and nitrogen purifiers</b>		
110 VAC	HPM	NPM
220 VAC	HPM-220	NPM-220