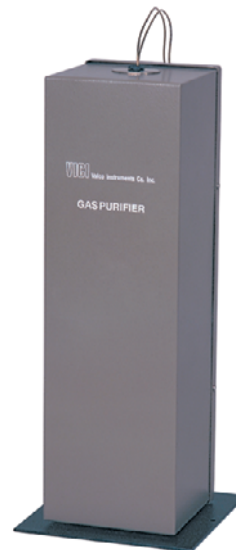


Helium and Nitrogen Purifiers

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

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 CO₂ and H₂O.



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

Ordering Information

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

VICI Valco Instruments Co. Inc.
 tel: 800 367-8424
 fax: 713 688-8106
 valco@vici.com

VICI AG

Valco International
 tel: Int + 41 41 925-6200
 fax: Int + 41 41 925-6201
 vici@vici.com

2002
 PB-022 7/02

VICI® is a registered trademark of Valco Instruments Co. Inc. and VICI AG

 HROMalytic +61(0)3 9762 2034  ECHnology Pty Ltd	Australian Distributors Importers & Manufacturers www.chromtech.net.au
Website NEW : www.chromalytic.net.au E-mail : info@chromtech.net.au Tel: 03 9762 2034 . . . in AUSTRALIA	

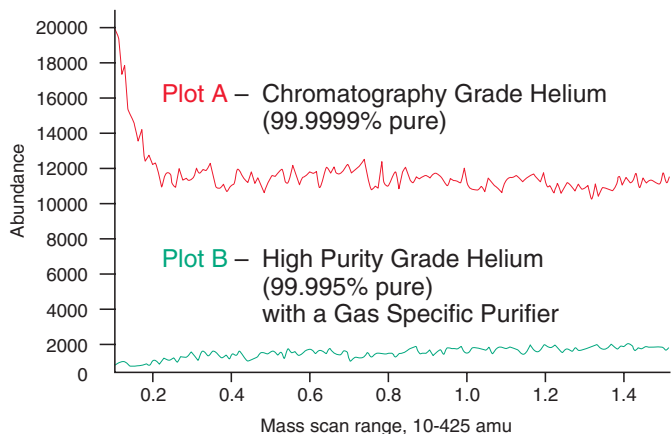
Gas Specific Purifiers and Contaminant Traps

- Reduce gas impurities from high PPM to low PPB levels
- Decrease baseline noise and increase GC/MS sensitivity
- Replace three traps with one purifier



Description

Several types of contaminants are detrimental to GC performance – notably moisture, hydrocarbons, and oxygen. VICI Metronics gas-specific purifier modules are designed to be placed in-line with the GC carrier or detector gas supply to remove these contaminants from the analytical gases prior to entering the GC. The modules dramatically reduce contaminant levels and absorb a greater variety of contaminants than other products.



Performance is optimized by a multiple bed format. Each bed functions at a lower contaminant concentration, resulting in a series of contaminant concentration gradients across the length of the module. Advanced materials and design features guarantee that the modules will produce gases that are at least a factor of ten higher than a 99.9999% "chromatography grade" cylinder of gas when the purifier is supplied by a 99.995% cylinder. The cost difference between the two grades of gas will pay for the cost of the purifier several times over during its operating life.

Our successive bed format achieves the highest purity gas commercially available

Two very high capacity hydrocarbon and moisture sorbents at the inlet for effective contaminant removal

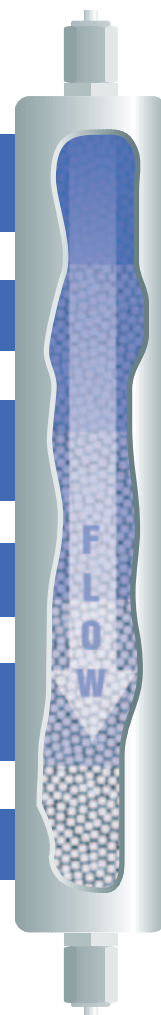
Unique proprietary broad spectrum sorbent material for multiple contaminant removal

Two oxygen scavenging materials for both high capacity and high efficiency O₂ removal

Multiple bed format to allow several step reduction in contaminants

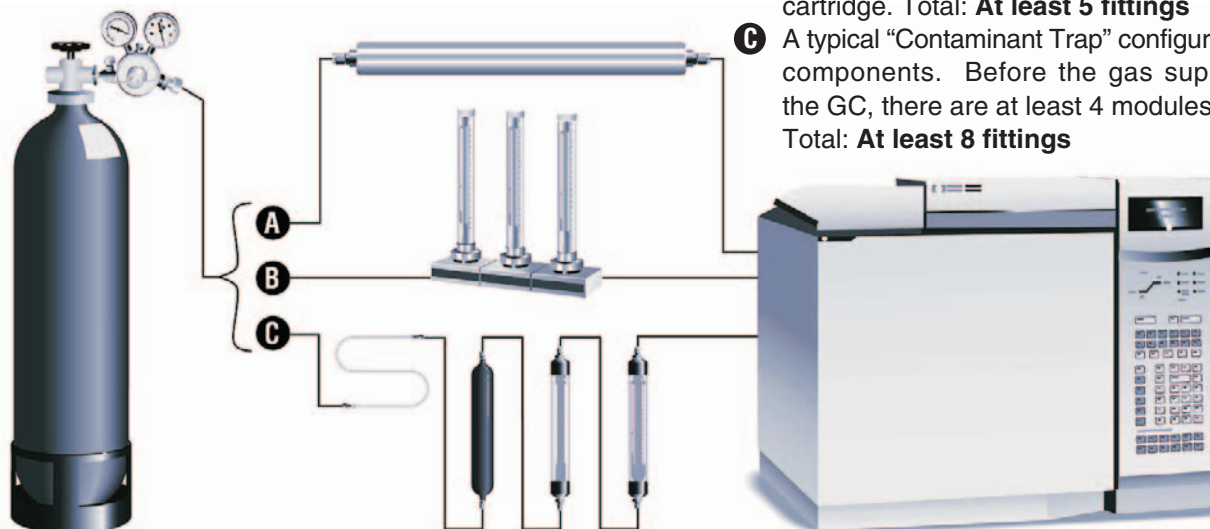
Removal of H₂O, O₂, halocarbons, hydrocarbons, CO, CO₂, H₂, and sulfur containing compounds with a single purifier

Very high efficiency sorbents at the outlet for trace contaminant removal



Fittings: the Fewer the Better

Every connection in your gas delivery system has the potential for leaks; the more fittings you have, the greater the potential. In the illustration below, several gas purification options are depicted:



- A** The VICI Metronics Gas Specific Purifier minimizes the number of fittings. Total: **2 fittings**
- B** The “Manifold System” has two compression fittings for the system and one organic O-ring seal for each cartridge. Total: **At least 5 fittings**
- C** A typical “Contaminant Trap” configuration has several components. Before the gas supply even enters the GC, there are at least 4 modules. Total: **At least 8 fittings**

Specifications

Length 52.3 cm (21")
 Diameter 3.8 cm (1.5")
 Maximum inlet pressure 6895 kPa (1000 psi)
 Maximum recommended flow 500 ml/min

Pressure drop, 827 kPa (120 psi) inlet,
 at a flow of 0 to 500 ml/min < 0.20 psi
 Compression end fittings 1/8" or 1/4"
 Shipping weight 1,300 g (3.04 lb)

Selection Guide and Ordering Information

Product Description	Product no.	Fitting	PPB at outlet, based on 50 PPM nominal inlet concentration level					
			CO	CO ₂	O ₂	H ₂ O	Sulfur compounds	NMHC*
Helium purifier	P-100-1	1/8"	<1	<1	<1	<1	<1	<3
	P-100-2	1/4"	<1	<1	<1	<1	<1	<3
Hydrogen purifier	P-200-1	1/8"	<1	<1	<1	<1	<1	<3
	P-200-2	1/4"	<1	<1	<1	<1	<1	<3
Nitrogen purifier	P-300-1	1/8"	<1	<1	<1	<1	<1	<3
	P-300-2	1/4"	<1	<1	<1	<1	<1	<3
Nitrogen purifier for LC/MS apps	P-310-1	1/8"				<25	<25	<25
	P-310-2	1/4"				<25	<25	<25
Purifier for nitrogen generators	P-350-1	1/8"				<25	<25	<25
	P-350-2	1/4"				<25	<25	<25
Air purifier	P-400-1	1/8"				<1		<3
	P-400-2	1/4"				<1		<3
Moisture trap	T-100-1	1/8"				<1		
	T-100-2	1/4"				<1		
Hydrocarbon trap	T-200-1	1/8"						<3
	T-200-2	1/4"						<3
Oxygen trap	T-300-1	1/8"			<1	<1		
	T-300-2	1/4"			<1	<1		
Sulfur trap	T-400-1	1/8"				<1	<1	
Methane purifier	P-500-1	1/8"	<1	<1	<1	<1	<1	<3
Carbon dioxide	P-600-1	1/8"	<1		<1	<1	<1	<3
	P-600-2	1/4"	<1		<1	<1	<1	<3

*NMHC = non-methane hydrocarbons

VICI® Metronics
 tel: 360 697-9199
 fax: 360 697-6682
 purifiers@vici.com

VICIAG

VICI AG International
 tel: Int + 41 41 925-6200
 fax: Int + 41 41 925-6201
 info@vici.ch

**US customers
 call toll-free
 (877) 737-1887**

VICI® is a registr

HROMalytic +61(0)3 9762 2034
ECHnology Pty Ltd

Australian Distributors
 Importers & Manufacturers
 www.chromtech.net.au

Website NEW : www.chromalytic.net.au E-mail : info@chromtech.net.au Tel: 03 9762 2034 . . . in AUSTRALIA

rev 2/14