



Precision series
Modular gas generation
solution for GC



Perform with Precision

Specifically designed and engineered for GC laboratory applications, the Precision series represents the cutting-edge of Peak Scientific innovation in on-demand gas generator design. Combining convenience and reliability in a stackable, modular and compact design, Precision is the safe and practical choice for your GC gas requirements.

Why Precision is the complete solution for GC gas

- **Continuous and consistent source of laboratory-grade gas for GC**
- **Safer and more convenient than pressurized cylinders, dewars or bulk storage**
- **Compact, modular, stackable system allowing maximum use of valuable laboratory floor or bench space**
- **Nitrogen, Hydrogen and Zero Air models, with various flow rates available**
- **Complete gas solution for carrier, detector, reference, flame support and sample preparation**
- **Combine modules in a single stack to deliver various gas types, flows and purities required to meet your specific needs**
- **Economical solution—long term fixed-cost investment, eliminate risk of rising gas cylinder prices**
- **Very low lifetime maintenance requirement**
- **Proven and robust safety systems including internal leak detection on Hydrogen models**
- **LED front panel status indicator and touch screen panel on Hydrogen models**
- **12 month warranty across the range, 3 year PEM cell warranty on Hydrogen models**
- **Complete peace of mind and lifetime performance with [Peak Protected] generator care plans (available separately), protecting your productivity**

Tailor a Precision system to suit your needs

The key to Precision is the flexibility it gives in specifying models best suited to your application. The N₂ and H₂ generators are available in two variants — Standard and Trace laboratory grades. Recommendation of the correct model depends on the use of the product. For most GC detectors, the standard grade purity is sufficient, but for carrier gas use, the trace models are recommended to ensure the lowest possible baseline and precision in your results.



Zero Air



Nitrogen Trace



Hydrogen Trace



Compressor



Zero Air + Nitrogen + Hydrogen Trace

(Total solution for detector and carrier for GC-FID)



Zero Air + Hydrogen

(Supply for detector combustion mixture)



Zero Air + Compressor

(For Hydrocarbon free flame support gas supply)

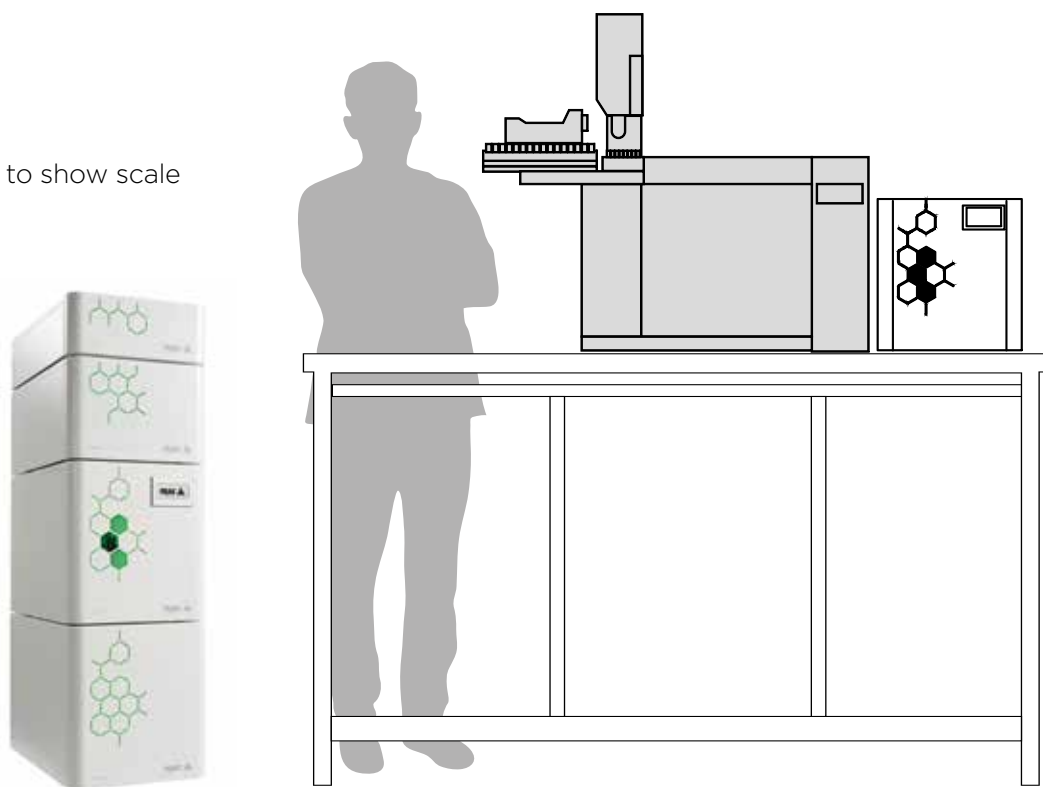
Zero Air + Nitrogen Trace + Hydrogen Trace + Compressor

(Total GC solution for detector and carrier (N₂ or H₂) with air compressor)

Compact and convenient

Precision series affords you many benefits over traditional sources of laboratory gas such as cylinders. Above all, investing in a Precision system removes the need for nitrogen, zero air and hydrogen cylinders from your laboratory altogether. Offering a more **convenient** (no re-ordering and swapping tanks), **safer** (no risk of injury, leak or explosion), and **economic** (no ongoing gas purchase costs) solution. All in a **compact**, space-saving form, sitting either on the bench next to your GC or floor-stacked.

Illustration to show scale



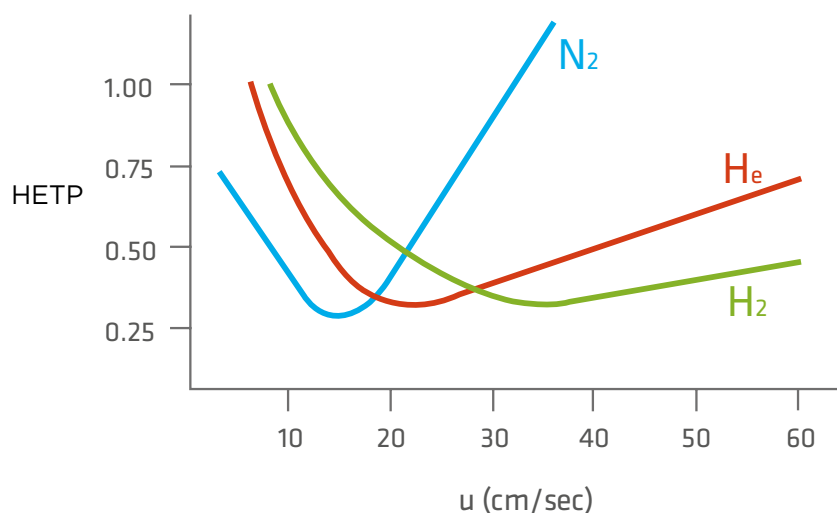
About helium and hydrogen

Helium is considered by many working with GC to be the carrier gas of choice. It is inert, relatively safe and does its chromatographic job very well. However, as a finite resource, helium is rapidly increasing in price and its long-term availability is not guaranteed to GC users.

As a result, many GC labs and instrument manufacturers are now making a switch from helium to hydrogen. By making the switch, laboratories can unlock a number of advantages in terms of performance, economics and productivity. All in addition to convenience and lower carbon footprint (no gas deliveries and stock management).

There are major benefits of using hydrogen as your carrier gas:

- **Increased speed:** increasing the linear velocity of your carrier gas allows for shorter run times, thereby increasing the throughput of your laboratory samples. Hydrogen out-performs helium at higher velocities (see van Deemter curve, below) meaning quicker run times without compromising performance of analysis.
- **Use of shorter, narrower bore columns with hydrogen carrier gas** can improve efficiency and resolution meaning better chromatography.
- **Lower temperature separations:** with lower elution temperatures of analytes, it may be possible to reduce the maximum GC oven temperature needed for your analysis, potentially extending column lifetime.



What about safety?

Hydrogen gas is already being used commonly in the laboratory for a variety of purposes. It is the fuel used for the most commonly used detector (FID) and is therefore already present in most GC Labs. Nevertheless we understand any concerns you may have and have therefore incorporated numerous safety features in our Hydrogen generators' design:

- **Minimal storage of hydrogen**
- **Automatic shut down on leak detection**
- **Mechanical shut down fail safe**
- **Hydrogen generation on demand**

Precision Hydrogen

Hydrogen Generator for GC



Key Features

- Suitable for fuel gas at standard detection limits
- 99.9995% Purity
- Internal leak detection with automatic shutdown features
- Automatic loading pump as standard
- Simple maintenance, limited to replacing de-ionizer cartridge and silica gel
- Short and easy start-up and shutdown procedures
- Compact, space-saving modular design
- Creates hydrogen on demand, minimal storage of hydrogen in the system
- Peak offers a 3 year cell warranty with this generator as standard (1 year warranty on cell for the 1200cc models)
- 12 month comprehensive on-site warranty

Precision Hydrogen Trace

Hydrogen Generator for GC



Key Features

- Suitable for flame gas and carrier gas at trace detection limits
- 99.9999% Purity
- Internal leak detection with automatic shutdown features
- Proven PEM technology to generate hydrogen safely and reliably
- Regenerative PSA dryers to ensure highest level of purity
- Automatic loading pump as standard
- Maintenance limited to replacing de-ionizer cartridge
- Short and easy start-up and shutdown procedures
- Combine multiple units for higher flow requirements
- GC in-oven hydrogen leak detector available as an optional extra
- Peak offers a 3 year cell warranty with this generator as standard
- 12 month comprehensive on-site warranty

Technical Specifications

	Hydrogen, 100cc	Hydrogen, 200cc	Hydrogen, 300cc	Hydrogen, 450cc	Hydrogen, 1200cc
Max Flow Rate	100cc/min	200cc/min	300cc/min	450cc/min	1200cc/min
Max Pressure	100 psi / 6.9 bar				
Purity	99.9995%				
Gas Outlets	1 x 1/8" Swagelok compression fitting				
Water Purity Requirement	<1.0μ Siemens/cm OR >1 Mohm-cm				
Water Consumption	up to 0.12L/ day	up to 0.24L/day	up to 0.36L/day	up to 0.53L/day	up to 2.1L/day
Operating Temperature	10°C - 35°C / 50°F - 95°F				
Electrical Requirements	110/230V 50/60HZ 6A (max.)				
Power Consumption	309 - 422 Watts	367 - 422 Watts	405 - 422 Watts	422 Watts	600 W
Heat Output	up to 1000 BTU/hr				
Generator Dimensions (WxDxH)	38.0cm x 54.0 cm x 40.6cm / 14.9" x 21.2" x 15.9"				
Generator Weight	29 Kg (64 lbs)				38kg (84 lbs)
Noise Level	Silent in operation				

Technical Specifications

	Hydrogen Trace 250	Hydrogen Trace 500
Max Flow Rate	250 cc/min	500 cc/min
Max Pressure	100 psi / 6.9 bar	
Purity	99.9999%	
Gas Outlets	1 x 1/8" Swagelok compression fitting	
Water Purity Requirement	<1.0μ Siemens/cm OR >1 Mohm-cm	
Water Consumption	0.17 - 0.46L/day	0.4 - 1.2L/day
Operating Temperature	10°C - 35°C / 50°F - 95°F	
Electrical Requirements	110/230V 50/60HZ 6A (max.)	
Power Consumption	477 Watts	787 Watts
Heat Output	up to 1000 BTU/ hr	
Generator Dimensions (WxDxH)	38.0 x 54.0 x 40.6cm / 14.9 x 21.2 x 15.9"	
Generator Weight	29 Kg (64 lbs)	
Noise Level	Silent in operation	

Precision Nitrogen

Nitrogen Generator for GC

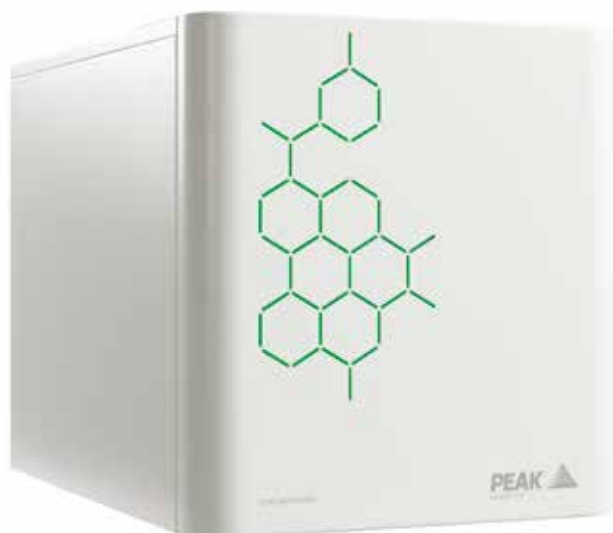


Key Features

- Suitable as make-up gas and sample preparation at standard detection limits
- Nitrogen generated on demand, as and when it is required
- Constant and consistent supply, avoid running out of gas during analysis
- Avoid contaminants entering system as result of changing over empty cylinders
- Dedicated Precision compressor module available
- Ultra-fast start-up time, quick to reach standard operating purity
- Minimum maintenance with an annual filter change
- 12 month comprehensive on-site warranty

Precision Nitrogen Trace

Nitrogen Generator for GC



Key Features

- Suitable for carrier gas, make-up gas and sample preparation
- This generator produces “zero nitrogen” on demand from a compressed air source
- Regenerative CMS columns remove oxygen and moisture
- Catalyst chamber to remove hydrocarbons (as methane) to <0.05ppm with no expensive catalyst chamber replacements
- Ultra-fast start-up time, quick to reach standard operating purity
- Minimum maintenance with an annual filter change
- Compact, space-saving modular design
- 12 month comprehensive on-site warranty

Technical Specifications

	Nitrogen, 250cc	Nitrogen, 600cc	Nitrogen, 1000cc
Max Flow Rate	250cc/min	600cc/min	1000cc/min
Max Pressure	80 psi / 5.5 bar		
Purity	> 99.9995%		
Gas Outlets	1 x 1/4 " BSPP		
Min/Max Air Inlet Pressure	7.6-8.27 bar / 100-120 psi		
Min Air Inlet Flow	35 lpm		
Min Inlet Air Quality	ISO8573 - 1:2010 Class 1.4.1		
Phthalates	None		
Suspended Liquids	None		
Start-Up Time For Purity	1.5 hours		
Operating Temperature	5°C - 35°C / 41°F - 95 °F		
Electrical Requirements	110 VAC ± 10% 60 Hz 0.37A / 230 VAC ± 10% 50 Hz 0.17A		
Power Consumption	39.1 - 40.7 Watts		
Heat Output	Up to 140 BTU/Hr		
Generator Dimensions (WxDxH)	38.0 x 54.0 x 25.6 cm / 14.9 x 21.2 x 10"		
Generator Weight	21 Kg (46.2 lbs)	21 Kg (46.2 lbs)	26 Kg (57.3 lbs)
Noise Level	Silent in operation		

Technical Specifications

	Nitrogen Trace, 250cc	Nitrogen Trace, 600cc	Nitrogen Trace, 1000cc
Max Flow Rate	250cc/min	600cc/min	1000cc/min
Max Pressure	80 psi / 5.5 bar		
Purity	> 99.9995%		
Hydrocarbon Content	<0.05 ppm		
Gas Outlets	1 x 1/4" BSPP		
Min/Max Air Inlet Pressure	120-145 psi / 8.3-10 bar		
Min Air Inlet Flow	18 lpm		22 lpm
Min Inlet Air Quality	ISO8573 - 1:2010 Class 1.4.1		
Phthalates	None		
Suspended Liquids	None		
Start-Up Time For Purity	1.5 Hours		
Operating Temperature	5°C - 35°C / 41°F - 95°F		
Electrical Requirements	110VAC ± 10%/60 Hz/4.4A or 230VAC ± 10%/50 Hz/2.1A		
Power Consumption	484 Watts		
Heat Output	up to 1650 BTU/Hr		
Generator Dimensions (WxDxH)	38.0 x 54.0 x 40.6 cm / 14.9 x 21.2 x 15.9"		
Generator Weight	38 Kg / 83.6 lbs		
Noise Level	Silent in operation		

Precision Zero Air

Zero Air Generator for GC

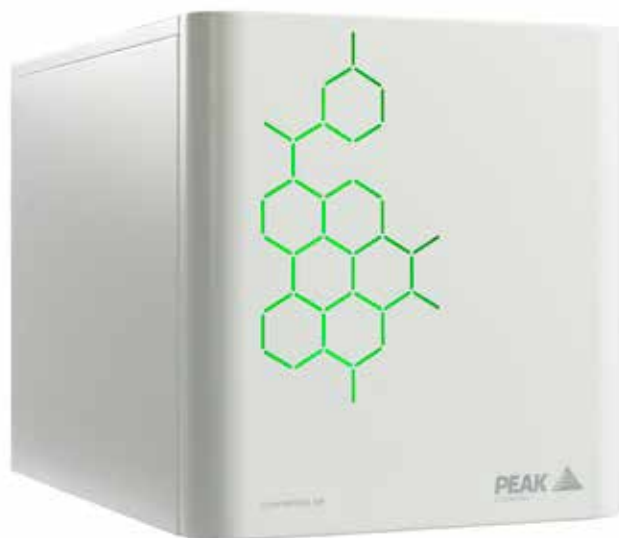


Key Features

- Integrates seamlessly with other Precision units
- Hydrocarbon content <0.05ppm for market-leading purity
- Minimum lifetime maintenance requirements, no expensive catalyst chamber replacements
- Avoid risk of contaminants entering the system (when switching out empty cylinders)
- No risk of running out of gas in middle of analysis
- Compatible with Precision Air Compressor
- Status indicative lighting feature
- 12 month comprehensive on-site warranty

Precision Air Compressor

Air Compressor for GC



Key Features

- Compressed air supply for Precision Nitrogen and Zero Air generators
- Single unit can supply both the N2 and ZA generators in a stack
- Duplex compressor mounting system to dampen noise and vibration
- Service and repair status indicators
- 12 month comprehensive on-site warranty

Technical Specifications

Technical Specifications	Zero Air 1.5L	Zero Air 3.5L	Zero Air 7L	Zero Air 18L	Zero Air 30L
Max Flow Rate	1.5L/min	3.5L/min	7L/min	18L/min	30L/min
Max Pressure	80 psi / 5.5 bar				100 psi / 6.9 bar
Hydrocarbon Concentration (as Methane)	<0.05ppm				
Gas Outlets	1 x 1/4" BSPP				
Min/Max Air Inlet Pressure	90-145 psi / 6.2-10 bar		110 psi / 7.5 bar		110-145 psi / 7.6-10.0 bar
Min Air Inlet Flow	1.5L/min	3.5L/min	7L/min	18L/min	30L/min
Min Inlet Air Quality	ISO8573 - 1:2010 Class 1.4.1				
Phthalates	None				
Suspended Liquids	None				
Start-Up Time For Purity	60 minutes				
Operating Temperature	5°C - 35°C / 41°F - 95°F				
Electrical Requirements	110/230VAC 50/60Hz 2/1A		110/230VAC 50/60Hz 5.4/3.3A		110/230VAC 50/60Hz 11/6.7A
Power Consumption	220 Watts or 230 Watts		594 Watts or 759 Watts		1210 Watts or 1541 Watts
Heat Output	up to 785 BTU/Hr		up to 2590 BTU/Hr		up to 5255 BTU/Hr
Generator Dimensions (WxDxH)	38.0 x 54.0 x 15.6 cm / 14.9 x 21.2 x 6.14"		38.0 x 54.0 x 25.6 cm / 14.9 x 21.2 x 10"		38.0 x 54.0 x 40.5 cm / 14.9 x 21.2 x 15.9"
Generator Weight	16 Kg / 35 lbs		25kg / 55.1 lbs		41 Kg / 90.3 lbs
Noise Level	Silent in operation				

Technical Specifications

	Air Compressor
Flow Rate	Suitable for various Precision combinations
Max Pressure	120 psi (8.27 bar)
Gas Outlets	1 x 1/4" BSPP
Operating Temperature	5°C - 35°C / 41°F - 95°F
Electrical Requirements	110-115V 50/60Hz 10A / 208-230V 50/60Hz 2.45A
Power Consumption	510 - 1150 Watts
Heat Output	1740 - 3922 BTU/Hr
Generator Dimensions (WxDxH)	38.0 x 54.0 x 40.6cm / 14.9 x 21.2 x 15.9"
Generator Weight	42 Kg / 93 lbs

Model Description	110v	230v	110/230v	Annual Service Kit
Precision Nitrogen Trace, 250cc	62-0251	62-0250	-	www.peakscientific.com/ordering
Precision Nitrogen Trace, 600cc	62-0601	62-0600	-	
Precision Nitrogen Trace, 1L	62-1001	62-1000	-	
Precision Zero Air, 1.5L	60-1501	60-1500	-	
Precision Zero Air, 3.5L	60-3501	60-3500	-	
Precision Zero Air 7L	60-0008	60-0007	-	
Precision Zero Air 18L	60-0019	60-0018	-	
Precision Zero Air, 30L	60-0031	60-0030	-	
Precision Air Compressor	65-1555	65-0555	-	
Precision Nitrogen, 250cc	-	-	61-0250	
Precision Nitrogen Headspace 250cc	-	-	65-3000	
Precision Nitrogen, 600cc	-	-	61-0600	
Precision Nitrogen, 1L	-	-	61-1000	
Precision Hydrogen, 100cc	-	-	63-0100	
Precision Hydrogen, 200cc	-	-	63-0200	
Precision Hydrogen, 300cc	-	-	63-0300	
Precision Hydrogen, 450cc	-	-	63-0450	
Precision Hydrogen Trace, 250cc	-	-	64-0250	
Precision Hydrogen Trace, 500cc	-	-	64-0500	

Accessories	Water Bottle 4L	Water Bottle 8L	Hydrogen Leak Detector (GC in-oven)
Description	4L Water bottle for use with Precision Hydrogen & Hydrogen Trace	8L Water bottle for use with Precision Hydrogen & Hydrogen Trace	Hydrogen Gas Detector for use with Precision Hydrogen Trace models
Part No	www.peakscientific.com/ordering		

[PEAK Protected]TM

Peak Scientific has highly trained, fully certified Field Service Engineers located in over 20 countries across every continent around the world. This allows us to provide an industry-leading rapid response service to our customers. With **[Peak Protected]**, your laboratory's productivity becomes our top priority.

To discuss our different coverage levels and payment options speak to your local Peak Representative or for further information contact: protected@peakscientific.com.



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