Hydrogen Gas Generators

Parker Balston® Hydrogen Generators

- Proton Exchange Membrane (PEM) cell eliminates the need for liquid electrolytes.
- Reliably generate 99.9995% pure hydrogen—for better chromatography.
- Eliminates high-pressure cylinders—greater convenience and improved lab safety.
- Compact unit, requiring only one square foot of bench space.
- Quick and easy to service and maintain; unique display lighting changes color for easy status checks and water level indication.
- Comes with a set of universal power adapters for US, European, and Asian plug types.

Fuel-grade high purity hydrogen generators are safer alternatives to high-pressure gas cylinders. The new Proton Exchange Membrane (PEM) cell eliminates the use of liquid electrolytes with hydrogen generators. Deionized water is all that is required to generate hydrogen for weeks of continuous operation. With an output capacity of up to 510cc/minute, one generator can supply 99.9995% pure hydrogen for up to several FIDs. Based on cylinder gas savings alone, a hydrogen generator pays for itself in one or two years.

new and improved!

Hydrogen PEM generators now come with a set of universal power adapters for US, European, and Asian plug types.

CE

Produced and supported by an ISO 9001 registered organization, Parker Balston® hydrogen generators are the first built to meet the toughest laboratory standards in the world: CSA, UL, IEC 1010, and CE Mark. A great safety feature is the built-in sensing circuit, which shuts the generator down if a hydrogen leak is detected.

Specifications

Purity:	99.9995% pure hydrogen
Delivery Pressure:	10-100psig ± 1psig (69-689kPa ± 7kPa)
Outlet Port:	1/8" compression
Electrical Requirements:	100-230VAC/50-60Hz
Physical Dimensions:	17.12"h x 13.46"w x 17.95"d (43.48 x 34.19 x 45.6cm)
Shipping Weight:	40 lbs. (18kg) dry

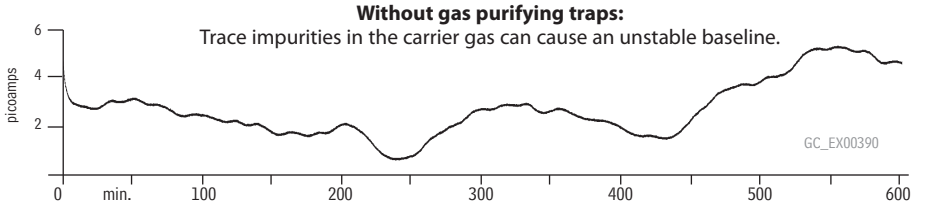
Description	Capacity	qty.	cat.#
Hydrogen Generator H2PEM-100	100cc/min.	ea.	23065
Hydrogen Generator H2PEM-165	165cc/min.	ea.	23066
Hydrogen Generator H2PEM-260	260cc/min.	ea.	23067
Hydrogen Generator H2PEM-510	510cc/min.	ea.	23068
Replacement and Maintenance Components for Hydrogen Generators (for all models listed above)			
Replacement Desiccant Cartridge for H2PEM Generators		ea.	23069
6-Month Maintenance Kit for H2PEM Generators (Includes: 1 deionizer cartridge, 1 water filter, 3 environmental filters)		kit	23070
24-Month Maintenance Kit for H2PEM Generators (Includes: 1 deionizer cartridge, 1 water filter, 3 environmental filters, 1 water level sensor, 1 water pump, and 1 desiccant cartridge)		kit	23071

tech tip

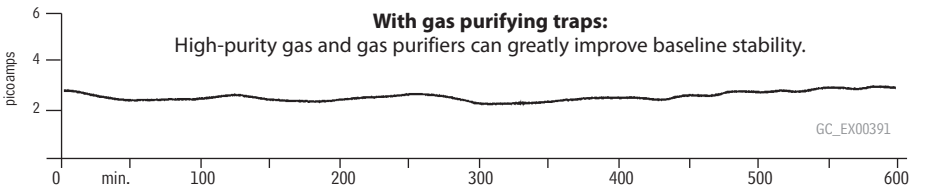
Gas generators are an economical source of pure gases, and eliminate the inconvenience and danger of high-pressure cylinders.

The combination of high-purity gas and gas purifying traps can save analytical time in the long run.

Without gas purifying traps:
Trace impurities in the carrier gas can cause an unstable baseline.



With gas purifying traps:
High-purity gas and gas purifiers can greatly improve baseline stability.



free literature

Parker Balston® Hydrogen Generators

Download your free copy from www.restek.com.

Fast Facts
lit. cat.# 580053A

Parker Balston® Model FID-1000 and FID-2500 Gas Stations

- Single unit produces UHP zero air from house compressed air and 99.9995% pure hydrogen from deionized water.
- Ideal for supplying up to 5-6 FIDs.
- Eliminates inconvenient and dangerous gas cylinders.
- Silent operation, minimal operator attention required.

Parker Balston® Gas Stations provide both UHP grade hydrogen gas and zero grade air for flame ionization detectors. The system is specifically designed to supply gas to FIDs and to support flame thermionic and flame photometric detectors. The units produce zero air by purifying compressed air to a total hydrocarbon concentration of 0.1ppm or less (measured as methane).

The hydrogen generators produce hydrogen gas from deionized water, using the principle of electrolytic dissociation of water and hydrogen proton conduction through a proton exchange membrane cell.

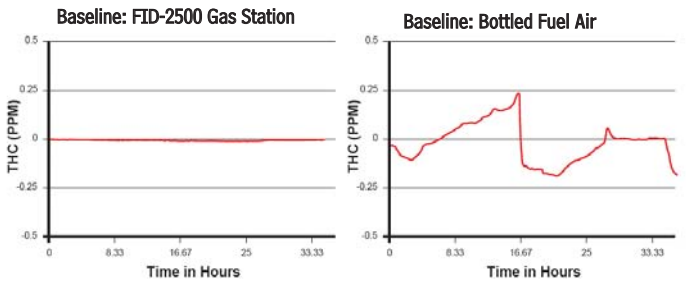
Specifications

Hydrogen Purity:	99.9995%
Zero Air Purity:	FID-1000:
	< 0.1ppm total hydrocarbons as methane
	FID-2500:
	< 0.05ppm total hydrocarbons as methane
Max. Hydrogen Flow Rate:	FID-1000: 90cc/min.
	FID-2500: 250cc/min.
Max. Zero Air Flow Rate:	FID-1000: 1000cc/min.
	FID-2500: 2500cc/min.
Power:	120VAC/amp, 60Hz, 400 watts
Hydrogen Outlet Pressure:	60 psig (414kPa)
Zero Air Outlet Pressure:	40-125 psig* (276-862kPa)
Inlet Connection:	1/4" NPT (female)
Outlet:	1/8" compression
Dimensions:	16.5"h x 10.5"w x 17"d
	(42cm x 27cm x 43cm)
Weight:	53 lbs. (24kg)

*Zero air inlet requires minimum of 40psig (276kPa) compressed air pressure.

Produce zero air and pure hydrogen from one unit!

Compare baselines produced by a Parker Balston® FID Gas Station and bottled fuel air. The baseline produced by the Parker Balston® Generator is flat, with no fluctuations or peaks; the chromatogram from the bottled air fuel supply has many peaks ranging from 0.25 ppm to -0.25 ppm total hydrocarbons.



free literature

FID Gas Stations

Download your free copy from www.restek.com.

Fast Facts
lit. cat.# 580051

Description	qty.	cat. #
Model FID-1000 Gas Station (ideal for 1-2 FIDs)	ea.	20177
Model FID-2500 Gas Station (ideal for 5-6 FIDs)	ea.	24913
Replacement Components for FID Gas Stations		
Resin Bed Cartridge for Hydrogen Generators in FID-1000 and FID-2500 Gas Stations	ea.	24914
Replacement Desiccant Cartridge	ea.	21671
FID Gas Station Maintenance Kit Includes 1 desiccant cartridge, 1 resin bed cartridge, 1 filter cartridge)	ea.	24915

ordering note

For **international orders**, please add the appropriate power cord suffix from the table below.

International Power Cord Sets

Just add the proper suffix to the catalog number for the gas generator you are ordering.

Location	qty.	cat.# suffix
United Kingdom (230VAC, 50/50Hz)	ea.	-550
European (230VAC, 50/60Hz)	ea.	-551
IEC Connector Only (230VAC, 50/60Hz)	ea.	-552
Japanese (200VAC, 50/60Hz)	ea.	-556
Japanese for Zero Air (100VAC, 50/60Hz)	ea.	-553
Japanese for Hydrogen (100VAC, 50/60Hz)	ea.	-554
Japanese for Nitrogen (100VAC, 50/60Hz)	ea.	-555

Zero Air Generators

Parker Filtration

Parker Balston® Zero Air Generators

- Turn in-house compressed air into ultra-pure air (<0.1ppm total hydrocarbons).
- Remove hydrocarbons to less than 0.1ppm by catalytic oxidation.
- Operate at 40 to 125psi (276-862kPa).
- Typical payback is less than one year, based on cylinder costs.
- Install easily and take up little bench space.
- Maintenance kits include a one year supply of prefilters and final filter.

Specifications

Maximum Zero Air Flow Rate:	75-83NA	1 lpm
	HPZA-3500	3.5 lpm
	HPZA-7000	7 lpm
	HPZA-18000	18 lpm
	HPZA-30000	30 lpm
Outlet Hydrocarbon Concentration (as methane):	75-83NA	< 0.1 ppm
	HPZA-30000	< 0.1 ppm
	Other Models	< .05 ppm
Minimum/Maximum Inlet Air Pressure:	40 psig/125 psig (276/862kPa)	
Maximum Inlet Hydrocarbon Concentration (as methane):	100 ppm	
Pressure Drop at Maximum Flow Rate:	4 psi (28kPa) differential	
Maximum Inlet Air Temperature:	78°F (25°C)	
Inlet/Outlet Ports:	1/4" NPT (female)	
Start-up Time to Specified Hydrocarbon Concentration:	45 minutes	
Electrical Requirements:	75-83NA	120 VAC/60 Hz, 0.5 amps
	Other Models	120 VAC/60 Hz, 3.5 amps
Dimensions:	75-83NA	12"h x 10"w x 3"d (30cm x 25cm x 8cm)
	Other Models	16"h x 11"w x 13"d (42cm x 27cm x 34cm)
Shipping Weight:	75-83NA	7 lbs. (3 kg)
	Other Models	41 lbs. (19 kg)

Model	Number of FIDs*
75-83NA	Up to 3
HPZA-3500	Up to 11
HPZA-7000	Up to 23
HPZA-18000	Up to 60
HPZA-30000	Up to 100

*based on a 300 cc/min. fuel air rate

Zero Air Generator	Capacity	qty.	cat. #
Zero Air Generator Model 75-83NA	1000cc/min.	ea.	20684
Zero Air Generator Model 75-83NA with United Kingdom Power Cord	1000cc/min.	ea.	20684-550
Zero Air Generator Model HPZA-3500	3500cc/min.	ea.	20680
Zero Air Generator Model HPZA-3500 with European Power Cord	3500cc/min.	ea.	20680-551
Zero Air Generator Model HPZA-7000	7000cc/min.	ea.	20681
Zero Air Generator Model HPZA-18000	18,000cc/min.	ea.	20682
Zero Air Generator Model HPZA-30000	30,000cc/min.	ea.	20683
Maintenance Kits (includes a one-year supply of prefilters and final filter)		**qty.**	**cat. #**
Maintenance Kit for Model 75-83NA		kit	21646
Maintenance Kit for Models HPZA-3500, HPZA-7000, HPZA-18000, HPZA-30000		kit	21647
Replacement Catalyst Towers	**Capacity**	**qty.**	**cat. #**
Replacement Catalyst Tower for Model 75-83NA	1000cc/min.	ea.	22005
Replacement Catalyst Tower for Model HPZA-3500	3500cc/min.	ea.	22004
Replacement Catalyst Tower for Model HPZA-7000	7000cc/min.	ea.	22006
Replacement Catalyst Tower for Model HPZA-18000	18,000cc/min.	ea.	22007
Replacement Catalyst Tower for Model HPZA-30000	30,000cc/min.	ea.	22008

ordering **note**

For **international orders**, please add the appropriate power cord suffix from the table below.

free literature

Zero Air Generators

Download your free copy from www.restek.com.

Fast Facts
lit. cat.# 580050

International Power Cord Sets

Just add the proper suffix to the catalog number for the gas generator you are ordering.

Location	qty.	cat.# suffix
United Kingdom (230VAC, 50/50Hz)	ea.	-550
European (230VAC, 50/60Hz)	ea.	-551
IEC Connector Only (230VAC, 50/60Hz)	ea.	-552
Japanese (200VAC, 50/60Hz)	ea.	-556
Japanese for Zero Air (100VAC, 50/60Hz)	ea.	-553
Japanese for Hydrogen (100VAC, 50/60Hz)	ea.	-554
Japanese for Nitrogen (100VAC, 50/60Hz)	ea.	-555

Parker Balston® Nitrogen Gas Generators

- Turn compressed air into ultra-pure nitrogen (up to 99.9995%).
- Flows from 1 to 75+ lpm.
- Require only a compressed air source and 110 volt AC power.
- Safe, reliable, low maintenance.
- Maintenance kits include replacement filters.
- N2-14 and N2-14A can be used for LC/MS.

Model: N2-14

Specifications

	Model HPN2-1100 or UHPN2-1100	Model HPN2-2000	Model N2-14 or N2-14A
Maximum Nitrogen Flow Rate:	See Flow Table	2 lpm	78scfh** at 95% purity
Nitrogen Purity:	99.9999%	99.99%	95.0%–99.5%
Maximum Nitrogen Outlet Pressure:	See Flow Table	90 psig	
CO Concentration:	< 1.0 ppm	NA	
CO_2 Concentration:	< 1 ppm	< 1 ppm	
O_2 Concentration:	< 1 ppm	< 100 ppm	
H_2O Concentration:	≤ 2 ppm	≤ 2 ppm	
Hydrocarbon Concentration[1]:	< 0.1 ppm	NA	
Argon Concentration[2]:	0.9%	0.9%	
Atmospheric Dewpoint:			-58°F (-50°C)
Suspended Liquids:			None
Particles > 0.01μm:			None
Oxygen Analyzer:			Included with Model 75-720NA
Commercially Sterile:			Yes
Minimum/Maximum Inlet Pressure:	60 psig/125 psig (414/862kPa)	75 psig/120 psig (517/827kPa)	60 psig/145 psig (414/1,000kPa)
Maximum Pressure Drop (99% N_2 Purity, 125 psig):			10 psig (69kPa)
Recommended Inlet Temperature:	≤ 78°F (25°C)	≤ 78°F (25°C)	≤ 68°F (25°C) (Max.)
Ambient Operating Temperature:	60°F–100°F (16°C–38°C)	40°F–100°F (4°C–38°C)	110°F (43°C) (Max.)
Maximum Air Consumption:	42 lpm (1.5 scfm)*	42 lpm (1.5 scfm)*	
Inlet Connection:	1/4" NPT (female)	1/4" NPT (female)	1/4" NPT
Outlet Connection:	1/4" compression	1/8" NPT compression	1/8" NPT
Electrical Requirements[3]:	120 VAC/60 Hz	120 VAC/60 Hz	N2-14: None N2-14A: 120 VAC/60 Hz/25 Watts
Dimensions:	35"h x 12"w x 16"d (89cm x 30cm x 41cm)	35"h x 12"w x 16"d (89cm x 30cm x 41cm)	50"h x 16"w x 16"d (127cm x 41cm x 41cm)
Shipping Weight:	115 lbs. (52 kg)	115 lbs. (52 kg)	N2-14: 75 lbs. (34 kg) N2-14A: 80 lbs. (36 kg)

[1]Models HPN2-1100 and HPN2-2000 do not remove hydrocarbons.
[2]Purity specification for nitrogen does not include argon concentration.
[3]Power consumption is:
Model HPN2-1100 = 25 Watts
Model UHPN2-1100 = 700 Watts
Model HPN2-2000 = 25 Watts

Flow Table for Models HPN2-2000, HPN2-1100, and UHPN2-1100

Inlet Air Pressure	Maximum Outlet Flow (cc/min.)	Maximum Outlet Pressure
	Models HPN2-1100 and UHPN2-1100	
125 psig (862kPa)	1100	85 psig (586kPa)
110 psig (758kPa)	1000	75 psig (517kPa)
100 psig (689kPa)	900	65 psig (448kPa)
90 psig (621kPa)	800	60 psig (414kPa)
80 psig (552kPa)	700	50 psig (345kPa)
70 psig (483kPa)	600	45 psig (310kPa)
60 psig (414kPa)	500	35 psig (241kPa)
	Model HPN2-2000	
75-120 psig (517-827kPa)	2000	90 psig (621kPa)

Nitrogen Generators for LC/MS or General Purpose	qty.	cat.#
Nitrogen Generator N2-14 (general purpose) 78 scfh** max. flow at 95% purity	ea.	20677
Nitrogen Generator N2-14 with European Power Cord	ea.	20677-551
Nitrogen Generator N2-14A (general purpose w/oxygen analyzer) 78 scfh** max. flow at 95% purity	ea.	21652

Nitrogen Generators	qty.	cat.#
Nitrogen Generator HPN2-2000 (high purity—99.99%) 2.0 lpm max. flow	ea.	21654
Nitrogen Generator HPN2-1100 (ultra-high purity—99.9995%) 1.1 lpm max. flow	ea.	21653
Nitrogen Generator UHPN2-1100 (ultra-high purity—99.9995%); [HC<0.1ppm] 1.1 lpm max. flow	ea.	20697

Maintenance Kits	qty.	cat.#
Maintenance Kit for Models N2-14, N2-14A, 75-72, 75-720NA	kit	21648
Maintenance Kit for Models HPN2-1100, HPN2-2000, 76-96, 76-92	kit	21649
Maintenance Kit for Models UHPN2-1100, 76-94	kit	21655

*Standard cubic feet per minute.

free literature

Nitrogen Generators

Download your free copy from www.restek.com.

Fast Facts
lit. cat.# 580052

ordering note

For **international orders**, please add the appropriate power cord suffix from the table on the previous page.