



Analytical Gas Systems

Analytical Gas Systems Product Catalog

Products for the Laboratory



NitroVap Gas Generators

- ▲ Ideal for any combination of sample evaporators up to 100 nozzle positions
- ▲ Produces clean, dry (to -20°F) dewpoint evaporator grade nitrogen from any standard laboratory compressed air source
- ▲ Accelerates evaporation by decreasing the partial vapor pressure above the solvent liquid
- ▲ Eliminates inconvenient and dangerous LN2 boil-off dewars and nitrogen gas cylinders from the laboratory
- ▲ Recommended and used by many sample concentrator and sample evaporator manufacturers
- ▲ Payback period of typically less than one year
- ▲ Sleep economy mode
- ▲ Silent operation and minimal operator attention required



NitroVap-1LV and NitroVap-2LV

Proven Technology

Parker Balston's NitroVap-1LV and NitroVap-2LV Nitrogen Generators can provide clean, ultra-dry nitrogen to sample evaporators. These systems offer high nitrogen output flows in a miniature cabinet. The user can activate the manual SLEEP economy mode to eliminate compressed air consumption when the sample concentrator is not in use.

Nitrogen Technology

Nitrogen is produced by utilizing a combination of filtration and membrane separation technologies. A high efficiency prefiltration system pretreats the compressed air to remove all contaminants down to 0.01 micron. Hollow fiber membranes subsequently separate the clean air into a concentrated nitrogen output stream and an oxygen enriched permeate stream, which is vented from the system. The combination of these technologies produces a continuous on demand supply of pure nitrogen.



This Technology Features Advanced HiFluxx Fiber!

Gas Generator Benefits

The NitroVap generators are complete systems with state-of-the-art, highly reliable components engineered for easy installation, operation, and long term performance. **The Parker Balston NitroVap-1LV and NitroVap-2LV** eliminate all the inconveniences and cost of LN2 dewar and nitrogen cylinder gas supplies and dependence on outside vendors. Uncontrollable price increases, dewar ice and condensation, contract negotiations, long term commitments, and tank rentals are no longer a concern. With a NitroVap generator, you control your gas supply.

Ease of Use

Since NitroVap generators incorporate unique membrane separation technology, nitrogen delivery is immediate to the sample concentrator. "Lock-it-and-leave-it" operation of the sample concentrator is maintained without downtime and without "running out of gas" mid blow-down.

NitroVap Gas Generators

Principal Specifications - NitroVap Generators

Nitrogen Purity	Up to 95%
Nitrogen Dewpoint	Down to -20°F (-29°C) atmospheric
Maximum Nitrogen Flow Rate	NitroVap-1LV: 200 slpm NitroVap-2LV: 350 slpm
Electrical Requirements	None
Compressed Air Inlet Pressure	60-150 psig (100 psig suggested)
Nitrogen Outlet Pressure	0 to 125 psig (0 to 8.5 barg) (user controlled)
Dimensions	10.63" w x 14.1" d x 16.5" h (26.92cm x 35.81cm x 41.91cm)
Inlet Port/Outlet Port	1/4" NPT (female)
Shipping Weight	53 lbs/24 kg

Use with These and Other Blowdown Evaporators

TurboVap from Calper-Zymark

N-Evap from Organomation

RapidVap from LabConco

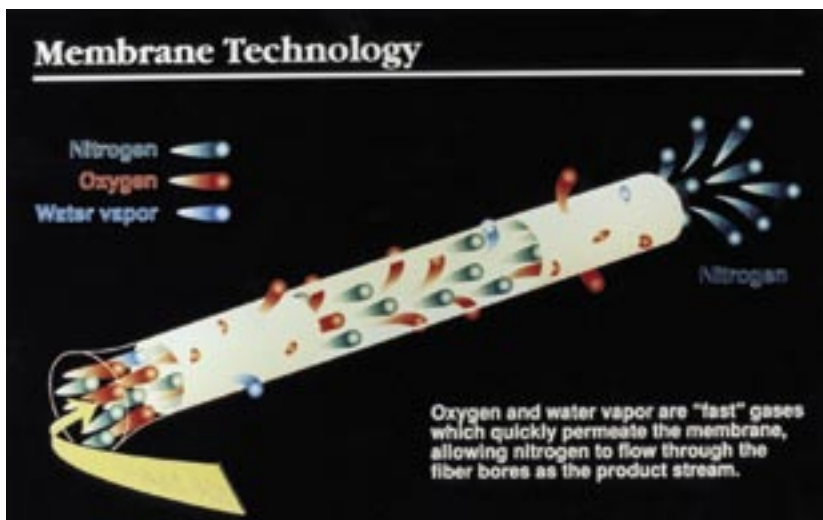
Reacti-Vap from Pierce Biotechnology

Duo-Vap from Jones Chromatography

DryVap from Horizon Technology

Ordering Information for assistance, call 800-343-4048, 8 to 5 Eastern Time

Model	Description
NitroVap-1LV and NitroVap-2LV	NitroVap Nitrogen Generators
MKNITROVAP	Maintenance Kit (Includes 1 each filter cartridge, and 1 each membrane cartridge)
NITROVAP-PM	Preventative Maintenance Contract
NITROVAP-DN2	Extended Support with 24 Month Warranty



NitroFlow Lab Self Contained LC/MS Membrane Nitrogen Generator

- ▲ Flow capacity to 30 LPM
- ▲ Less expensive and more convenient than nitrogen cylinders and dewars
- ▲ Ideal for all derivatives of ESI and APCi modes
- ▲ Includes state-of-the-art, oil-less compressors
- ▲ Unlike PSA and Hosmer technologies, membrane will not suppress corona needle discharge
- ▲ Special sound insulation design ensures quiet operation

Includes
2 Year Compressor
Warranty



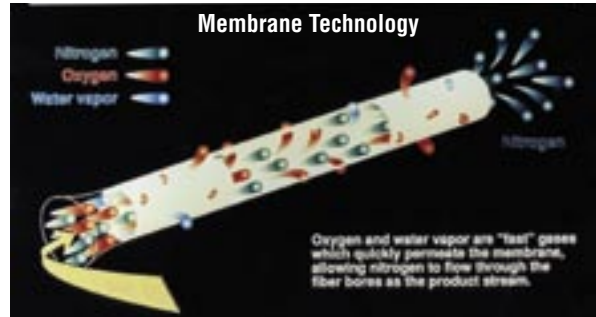
NitroFlow Lab

The Parker Balston® LC/MS NitroFlow Lab is a self-contained membrane nitrogen generator that produces LC/MS grade nitrogen with output pressure to 116 psig. Nitrogen is produced by utilizing a combination of compressors, carefully matched with filtration, and membrane separation technology components.

Intake ambient air from the laboratory is filtered using an inlet suction breather filter to remove airborne organic and particulate impurities. This purified air is delivered to a long life low pressure air compressor which provides an air stream to hollow fiber membranes which subsequently separate the clean air into a concentrated nitrogen retentate and oxygen enriched permeate, which is then cycled through the system. Prior to exiting the system pure nitrogen retentate is delivered to a nitrogen amplification compressor to assure proper pressure, flow and purity to the LC/MS.

The Parker Balston LC/MS NitroFlow Lab will deliver a continuous or on demand supply of pure nitrogen making it the smart alternative to cylinders. Superior engineering with carefully matched filtration,

membrane separation and compression technologies have resulted in a system with the utmost reliability and longevity. Additional applications include: nebulizer gases, chemical and solvent evaporation, instrument supply and purge, evaporative light scattering equipment and sparging.



Principal Specifications	
Model	NitroFlow Lab
Nitrogen	Phthalate free with flow to 30 lpm
Maximum Outlet Pressure	116 psig (8 barg)
Hydrocarbon Content	< 2ppm (excluding methane)
Atmospheric Dewpoint	-58°F (-50°C)
Outlet Port	Female 1/4" NPT
Min/Max Ambient Temperature	50°F/95°F (10°C/35°C)
Electrical Requirements	120Vac/60Hz/30Amp
Dimensions	27.6"h x 12.2"w x 35.4"d (70.1cm x 31cm x 90cm)
Shipping Weight	204 lbs. (92.5 kg)

SOURCE LC/MS TriGas Generator Series Model LCMS-5000NA

- ▲ Generates pure nitrogen, zero air and source exhaust air from compressed air
- ▲ Eliminates costly and inconvenient nitrogen gas and zero air gas cylinders
- ▲ Prevents running out of gases during LC/MS instrument operation
- ▲ Preserves valuable laboratory space and maximizes LC/MS instrument uptime
- ▲ Reliable scroll compressor, quiet 49 dB(A) operation at a safe, low pressure
- ▲ Gas purity to 99.999% and no Phthalates
- ▲ Turnkey system that eliminates stainless steel regulators and gas distribution panels

Supplies up to 2 LC-Mass Specs

3 Year Compressor Warranty



Model LCMS-5000NA

The Parker Balston SOURCE LCMS-5000NA TriGas Generator is a completely engineered system designed to deliver pure nitrogen for curtain gas, pure zero grade air as gas-1/gas-2 source gases and dry -40°F dew point air as source exhaust. The system is designed to produce gases which meet and exceed the requirements of any LC/MS requiring three independent gases. The system consists of six functional technologies: Coalescing pre-filtration with timed solenoid drains, self regenerating compressed air dehydration membranes, a proprietary heated catalysis module, elegant self-regenerating nitrogen retentate membranes, high capacity - high sensitivity carbon absorption modules and carefully matched final filtration membrane media. These technologies are integrated to a reliable scroll compressor.

The Parker Balston SOURCE LCMS-5000NA TriGas Generator will provide enough gas for a single LC/MS instrument on a continual basis and will completely eliminate dependence, expense and hassle with using high pressure nitrogen and zero air cylinders.

The generator can be connected easily, be located in the lab, and features independent stainless steel output gas ports carefully matched to the instrument. Gas distribution, pressure and flow control are integral to each TriGas generator and therefore requirements for secondary gas pressure or gas management systems are eliminated.

There is no longer any need to use valuable laboratory floor space to store excess cylinder reserves to protect from running out of gas, late or missed cylinder deliveries, transportation interruptions or periods of tight supply. With a **Parker Balston SOURCE LCMS-5000NA TriGas Generator**, you control all your LC/MS gas supplies.

SOURCE LC/MS TriGas Generator Series Model LCMS-5000NA

- ▲ Supplies pure nitrogen, zero grade air and source exhaust air
- ▲ Produced and manufactured by an ISO 9001 registered organization
- ▲ Operates continuously 24 hours a day, 7 days a week
- ▲ Minimal annual maintenance
- ▲ Easy installation and whisper quiet operation
- ▲ Floor standing on movable casters
- ▲ Listed to U.S. & Canadian safety standards
- ▲ Carries CE Marking/Compliant to WEEE standard

Principal Specifications	
Model	LCMS-5000NA
Curtain gas (nitrogen)	to 10 lpm and 80 psi
Source gas (uhp zero grade air)	to 23 lpm and 110 psi
Exhaust gas (dry air)	to 8 lpm and 60 psi
Compressor included	Yes - Scroll
Pressure dewpoint	-40°F
Hydrocarbons	<0.05 ppm measured as methane
Particles > 0.01 micron	None
Phthalates	None
Suspended Liquids	None
Outlets	1/4" tube - stainless steel - 3 each
Dimensions	45"L x 45"W x 43"H
Pressure gauges	3 each
Electrical requirements 230vac, 60Hz, 30 amp	120vac, 60Hz, 15 amp and
Noise level	< 49 dB(A)
Weight	564 lbs. (256 kgs)

Ordering Information	
Source LC/MS Trigas Generator	LCMS-5000NA
Installation Kit	IKLCMS-5000
Preventative Maintenance Contract	SCLFTRIGAS-PM

SOURCE LC/MS TriGas Generator Series Model LCMS-5001NTNA

- ▲ Generates pure nitrogen, zero air and source exhaust air from compressed air
- ▲ Eliminates costly and inconvenient nitrogen gas and zero air gas cylinders
- ▲ Prevents running out of gases during LC/MS instrument operation
- ▲ Preserves valuable laboratory space and maximizes LC/MS instrument uptime
- ▲ Reliable, silent operation at a safe, low pressure
- ▲ Gas purity to 99.999% and no Phthalates
- ▲ Turnkey system that eliminates stainless steel regulators and gas distribution panels



Model LCMS-5001NTNA

The Parker Balston SOURCE LCMS TriGas Generator is a completely engineered system designed to transform ordinary compressed air into pure nitrogen for curtain gas, pure zero grade air as gas-1/gas-2 source gases and dry -40°F dew point air as source exhaust. The system is designed to produce gases which meet and exceed the requirements of any LC/MS requiring three independent gases. The system consists of six functional technologies: Coalescing pre-filtration with timed solenoid drains, self regenerating compressed air dehydration membranes, a proprietary heated catalysis module, elegant self-regenerating nitrogen retentate membranes, high capacity - high sensitivity carbon absorption modules and carefully matched final filtration membrane media.

The Parker Balston SOURCE LCMS TriGas Generator will provide enough gas for a single LC/MS instrument on a continual basis and will completely eliminate dependence, expense and hassle with using high pressure nitrogen and zero air cylinders.

The generator can connect easily to an existing compressed air supply line and features independent stainless steel output gas ports carefully matched to the instrument. Gas distribution, pressure and flow control are integral to each TriGas generator and therefore requirements for secondary gas pressure or gas management systems are eliminated.

There is no longer any need to use valuable laboratory floor space to store excess cylinder reserves to protect from running out of gas, late or missed cylinder deliveries, transportation interruptions or periods of tight supply. With a Parker Balston SOURCE LCMS TriGas Generator, you control all your LC/MS gas supplies.

SOURCE LC/MS TriGas Generator Series Model LCMS-5001NTNA

- ▲ Supplies pure nitrogen, zero grade air and source exhaust air
- ▲ Produced and manufactured by an ISO 9001 registered organization
- ▲ Operates continuously 24 hours a day, 7 days a week
- ▲ Minimal annual maintenance
- ▲ Easy installation and silent operation
- ▲ Floor standing
- ▲ Listed to U.S. & Canadian safety standards
- ▲ Carries CE Marking/Compliant to WEEE standard

Principal Specifications

Model	LCMS-5001NTNA
Curtain gas (nitrogen)	to 10 lpm and 80 psi
Source gas (uhp zero grade air)	to 23 lpm and 110 psi
Exhaust gas (dry air)	to 8 lpm and 60 psi
Air pressure required	85-145 psi (> 100 psi suggested)
Pressure dewpoint	-40°F
Hydrocarbons	<0.05 ppm measured as methane
Particles > 0.01 micron	None
Phthalates	None
Suspended Liquids	None
Inlet	3/8" tube (presto)
Outlets	1/4" tube - stainless steel - 3 each
Dimensions	16"L x 23"W x 41"H
Pressure gauges	3 each
Electrical requirements	120vac, 60Hz, 15 amp
Noise	Silent operation
Weight	110 lbs. (50 kgs)

Ordering Information

Source LC/MS Trigas Generator	LCMS-5001NTNA
Installation Kit	IKLCMS-5000
Preventative Maintenance Contract	LFTRIGAS-PM
Extended Support with 24 Month Warranty	LCMS-5001NT-DN2

SOURCE LC/MS TriGas Generator Series Model LCMS-5001TNA

- ▲ Generates pure nitrogen, zero air and source exhaust air from compressed air
- ▲ Eliminates costly and inconvenient nitrogen gas and zero air gas cylinders
- ▲ Prevents running out of gases during LC/MS instrument operation
- ▲ Preserves valuable laboratory space and maximizes LC/MS instrument uptime
- ▲ Reliable, silent operation at a safe, low pressure
- ▲ Gas purity to 99.999% and no Phthalates
- ▲ Turnkey system that eliminates stainless steel regulators and gas distribution panels



Model LCMS-5001TNA

The Parker Balston SOURCE LCMS TriGas Generator is a completely engineered system designed to transform ordinary compressed air into pure nitrogen for curtain gas, pure zero grade air as gas-1/gas-2 source gases and dry -40°F dew point air as source exhaust. The system is designed to produce gases which meet and exceed the requirements of any LC/MS requiring three independent gases. The system consists of six functional technologies: Coalescing pre-filtration with timed solenoid drains, self regenerating compressed air dehydration membranes, a proprietary heated catalysis module, elegant self-regenerating nitrogen retentate membranes, high capacity - high sensitivity carbon absorption modules and carefully matched final filtration membrane media.

The Parker Balston SOURCE LCMS TriGas Generator will provide enough gas for a single LC/MS instrument on a continual basis and will completely eliminate dependence, expense and hassle with using high pressure nitrogen and zero air cylinders.

The generator can connect easily to an existing compressed air supply line and features independent stainless steel output gas ports carefully matched to the instrument. Gas distribution, pressure and flow control are integral to each TriGas generator and therefore requirements for secondary gas pressure or gas management systems are eliminated.

There is no longer any need to use valuable laboratory floor space to store excess cylinder reserves to protect from running out of gas, late or missed cylinder deliveries, transportation interruptions or periods of tight supply. With a Parker Balston SOURCE LCMS TriGas Generator, you control all your LC/MS gas supplies.

SOURCE LC/MS TriGas Generator Series Model LCMS-5001TNA

- ▲ Supplies pure nitrogen, zero grade air and source exhaust air
- ▲ Produced and manufactured by an ISO 9001 registered organization
- ▲ Operates continuously 24 hours a day, 7 days a week
- ▲ Minimal annual maintenance
- ▲ Easy installation and silent operation
- ▲ Floor standing, includes internal economizer air receiver system
- ▲ Listed to U.S. & Canadian safety standards
- ▲ Carries CE Marking/Compliant to WEEE standard

Principal Specifications

Model	LCMS-5001TNA
Curtain gas (nitrogen)	to 10 lpm and 80 psi
Source gas (uhp zero grade air)	to 23 lpm and 110 psi
Exhaust gas (dry air)	to 8 lpm and 60 psi
Air pressure required	85-145 psi (>100 psi suggested)
Pressure dewpoint	-40°F
Hydrocarbons	<0.05 ppm measured as methane
Particles > 0.01 micron	None
Phthalates	None
Suspended Liquids	None
Inlet	3/8" tubing (presto)
Outlets	1/4" tube - stainless steel - 3 each
Dimensions	25"L x 20"W x 43"H
Pressure gauges	3 each
Electrical requirements	120vac, 60Hz, 15 amp
Noise	Silent operation
Weight	224 lbs (102 kgs)

Ordering Information

Source Trigas Generator	LCMS-5001TNA
Installation Kit	IKLCMS-5000
Preventative Maintenance Contract	LFTRIGAS-PM
Extended Support with 24 Month Warranty	LCMS-5001T-DN2

Low and Mid Flow Nitrogen Generators

- ▲ Recommended and used by all major LC/MS manufacturers
- ▲ Eliminates the need for costly, dangerous, inconvenient nitrogen cylinders in the laboratory
- ▲ Models N2-04, N2-14, N2-22, N2-35 require no electricity
- ▲ Compact design frees up valuable laboratory floor space
- ▲ Phthalate-free, no organic vapors
- ▲ Unlike PSA technology, membrane will not suppress corona needle discharge.



Model N2-14 Low Flow Membrane Nitrogen Generator

Parker Balston® Low Flow Nitrogen Generators include models N2-04, N2-14, N2-14A that produce up to 61 SLPM of compressed nitrogen, on-site. The Parker Balston® Mid-Flow Nitrogen Generators include models N2-22, N2-22ANA, N2-35, and N2-35ANA that produce 132 SLPM of compressed nitrogen, on-site. The purity level of the nitrogen stream is defined by the user, for the application, and may range from 95% to 99.5%.

Low Flow Model N2-14ANA and Mid Flow Models N2-22ANA and N2-35ANA Nitrogen Generators include an oxygen analyzer which monitors the oxygen concentration of the nitrogen stream. An audible alarm signals high or low oxygen concentrations. Parker Balston Nitrogen Generators are complete systems engineered to transform standard com-

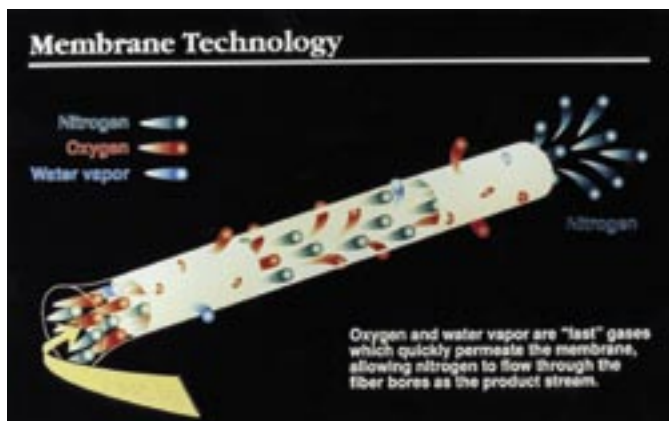
pressed air into nitrogen at safe, regulated pressures, on demand, without the need for operator attention. The systems eliminate the need for costly, dangerous dewars and cylinders in the laboratory.

Nitrogen is produced by utilizing a combination of filtration and membrane separation technologies. A high efficiency prefiltration system pretreats the compressed air to remove all contaminants down to 0.01 micron. Hollow fiber membranes subsequently separate the clean air into a concentrated nitrogen output stream and an oxygen enriched permeate stream, which is vented from the system. The combination of these technologies produces a continuous on demand supply of pure nitrogen.

Typical applications include: LC/MS, nebulizer gas, chemical and solvent evaporation, instrument purge and supply, evaporative light scattering detector use (ELSD), and sparging.



This Technology Features Advanced HiFluxx Fiber!



Low and Mid Flow Nitrogen Generators

Nitrogen Purity / Flow Chart

Flow measured in SLPM at indicated Operating Pressure, psig. Flows for Model N2-04 printed in black, flows for Models N2-14 and N2-14A in red.

	145		125		110		100		90		80		70		60	
99.5	–	11	–	10	–	9	–	8	–	7	–	6	–	5	–	4
99	6	18	5	16	5	15	4	13	4	11	3	10	3	8	2	7
98	11	29	10	25	9	25	8	20	7	18	6	16	5	13	4	11
97	15	40	13	34	13	33	10	27	9	25	8	21	7	18	6	15
96	20	50	17	43	16	42	13	34	12	31	10	26	9	22	7	19
95	24	60	21	52	20	51	17	42	15	37	13	32	11	28	9	24

Nitrogen Purity / Flow Chart

Flow measured in SLPM at indicated Operating Pressure, psig. Flows for Model N2-22, N2-22A printed in black, flows for Models N2-35, N2-35A in red.

	145		125		110		100		90		80		70		60	
99.5	19	29	16	25	14	22	13	20	12	18	10	16	9	13	17	11
99	29	44	25	37	22	33	20	30	18	27	15	23	13	20	11	17
98	44	66	38	57	34	51	30	46	27	41	24	36	20	30	17	26
97	59	83	50	74	45	65	40	57	36	52	31	46	26	40	23	35
96	73	109	63	94	56	84	50	75	45	67	39	59	32	50	27	42
95	88	131	177	114	69	102	61	90	55	81	48	71	41	60	35	52

Principal Specifications

Model	N2-04, N2-14, N2-14ANA, N2-22, N2-22ANA, N2-35 and N2-35ANA
Nitrogen Purity	95.0% - 99.5%
Atmospheric Dewpoint	-58°F (-50°C)
Suspended Liquids	None
Particles > 0.01µm	None
Commercially Sterile	Yes
Phthalate-free	Yes
Hydrocarbon-free	Yes
Min./Max. Operating Pressure	60/145 psig
Max. Press. Drop @ 99% N ₂ Purity, 125 psig	10 psig
Recommended Ambient Operating Temperature	68°F (20°C)
Max. Inlet Air Temperature	110°F (43°C)
Inlet/Outlet Ports	1/4" NPT
Electrical Requirements	None
	N2-04, N2-14, N2-22, N2-35
	N2-14ANA, N2-22ANA, N2-35ANA
Shipping Weight	120 VAC/60 Hz/25 Watts
	N2-04
	42.5 lbs (19 kg)
	N2-14
	75 lbs (34 kg)
	N2-14ANA, N2-22, N2-22ANA
	80 lbs (36 kg)
	N2-35, N2-35ANA
	90 lbs (41 kg)
Oxygen Analyzer	Included with Model N2-14ANA, N2-22ANA, N2-35ANA
Dimensions, N2-04	16.1" h x 10.7" w x 13.4" d (40.9cm x 27.2cm x 34cm)
Dimensions, N2-14, N2-14ANA, N2-22, N2-22ANA, N2-35, N2-35ANA	51.5" h x 18" w x 16.2" d (130.8cm x 45.7cm x 41.1cm)

Ordering Information for assistance, call 800-343-4048, 8 to 5 Eastern Standard Time

Description	Galvanic Cell	Annual Maintenance Kit	Installation Kit	Preventative Maintenance Contract	Extended Support with 24 Month Warranty
N2-04	N/A	MK7840	IK7572	MFZATOC -PM	N2-04-DN2
N2-14	N/A	MK7572C	IK7572	LFMEMN2-PM	N2-14-DN2
N2-14ANA	72695A	MK7572C	IK7572	LFMEMN202-PM	N2-14ANA-DN2
N2-22, N2-35	N/A	MK7572C	IK7572	LFMEMN2-PM	N2-22-DN2, N2-35-DN2
N2-22ANA, N2-35ANA	72695A	MK7572C	IK7572	LFMEMN202-PM	N2-22ANA-DN2, N2-35ANA-DN2

High Flow Nitrogen Generators

- ▲ Recommended and used by all major LC/MS manufacturers
- ▲ Eliminates the need for costly, dangerous, inconvenient nitrogen cylinders in the laboratory
- ▲ Models N2-45, N2-80, and N2-135 require no electricity
- ▲ Compact design frees up valuable laboratory floor space
- ▲ Phthalate-free, no organic vapors
- ▲ Unlike PSA technology, membrane will not suppress corona needle discharge.



Model N2-135 High Flow Membrane Nitrogen Generator

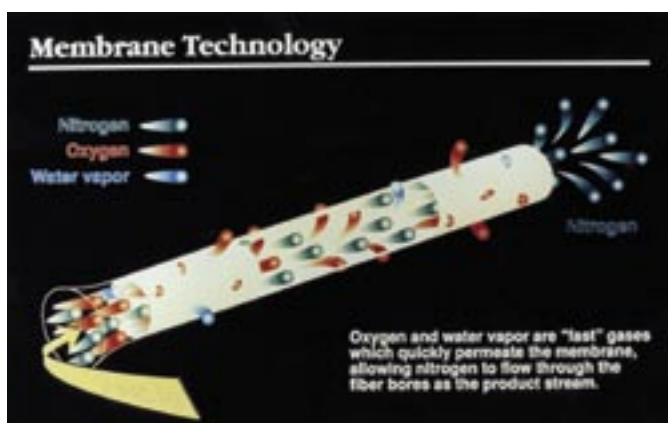
Parker Balston® High Flow Nitrogen Generators include models N2-45, N2-80, N2-135 that produce up to 467 SLPM of compressed nitrogen, on-site. The purity level of the nitrogen stream is defined by the user, for the application, and may range from 95% to 99.5%.

High Flow Model N2-45ANA, N2-80ANA, and N2-135ANA Nitrogen Generators include an oxygen analyzer which monitors the oxygen concentration of the nitrogen stream. An audible alarm signals high or low oxygen concentrations. Parker Balston Nitrogen Generators are complete systems engineered to transform standard compressed air into nitrogen at safe, regulated pressures, on demand, without the need for opera-

tor attention. The systems eliminate the need for costly, dangerous dewars and cylinders in the laboratory.

Nitrogen is produced by utilizing a combination of filtration and membrane separation technologies. A high efficiency prefiltration system pretreats the compressed air to remove all contaminants down to 0.01 micron. Hollow fiber membranes subsequently separate the clean air into a concentrated nitrogen output stream and an oxygen enriched permeate stream, which is vented from the system. The combination of these technologies produces a continuous on demand supply of pure nitrogen.

Typical applications include: LC/MS, nebulizer gas, chemical and solvent evaporation, instrument purge and supply, evaporative light scattering detector use (ELSD), and sparging.



High Flow Nitrogen Generators

Nitrogen Purity / Flow Chart

Flow LPM (liters per minute), at 68°F (25°C) inlet air temperature and operating pressure, PSIG.

Flows printed in black are for Models N2-45 and N2-45A

Flows printed in red are for Models N2-80 and N2-80A

Flows printed in green are for Models N2-135 and N2-135A

	145			125			110			100			90			80		
99.5	67	100	133	55	83	110	47	71	94	39	59	78	33	50	66	27	41	54
99	92	138	183	74	112	149	63	95	127	53	79	106	44	66	89	35	53	71
98	129	194	258	106	159	212	89	134	179	73	110	147	62	93	124	50	75	101
97	163	244	325	132	198	264	113	169	226	94	141	187	79	119	159	65	97	130
96	200	300	400	160	240	320	137	205	274	114	171	228	97	145	194	80	119	159
95	233	350	467	187	281	374	160	241	321	134	201	268	111	167	222	90	135	180

Principal Specifications

Model	N2-45, N2-80, N2-135, N2-45ANA, N2-80ANA, and N2-135ANA	
Nitrogen Purity	95.0% - 99.5%	
Atmospheric Dewpoint	-58°F (-50°C)	
Suspended Liquids	None	
Particles > 0.01µm	None	
Commercially Sterile	Yes	
Phthalate-free	Yes	
Hydrocarbon-free	Yes	
Min./Max. Operating Pressure	60/145 psig	
Max. Press. Drop @ 99% N ₂ Purity, 125 psig	10 psig	
Recommended Ambient Operating Temperature	72°F (22°C)	
Max. Inlet Air Temperature	110°F (43°C)	
Inlet/Outlet Ports	1/2" NPT	
Electrical Requirements	N2-45, N2-80, N2-135	None
	N2-45ANA, N2-80ANA, N2-135ANA	120 VAC/60 Hz/25 Watts
Shipping Weight	N2-45, N2-80, N2-135	250 lbs (114 kg)
	N2-45ANA, N2-80ANA, N2-135ANA	250 lbs (114 kg)
Oxygen Analyzer	Included with Model N2-45ANA, N2-80ANA, N2-135ANA	
Dimensions	67" h x 24" w x 20" d (140cm x 61cm x 50cm)	

Ordering Information for assistance, call 800-343-4048, 8 to 5 Eastern Time

Description	Galvanic Cell	Carbon Tower	Installation Kit	Preventative Maintenance Contract	Extended Support with 24 Month Warranty
N2-45	N/A	75344	IK75880	MFMEMN2-PM	N2-45-DN2
N2-45ANA	72695A	75344	IK75880	MFMEMN202-PM	N2-45ANA-DN2
N2-80	N/A	75344	IK75880	MFMEMN2-PM	N2-80-DN2
N2-80ANA	72695A	75344	IK75880	MFMEMN202-PM	N2-80ANA-DN2
N2-135	N/A	75344	IK75880	MFMEMN2-PM	N2-135-DN2
N2-135ANA	72695A	75344	IK75880	MFMEMN202-PM	N2-135ANA-DN2

High Flow Nitrogen Generators

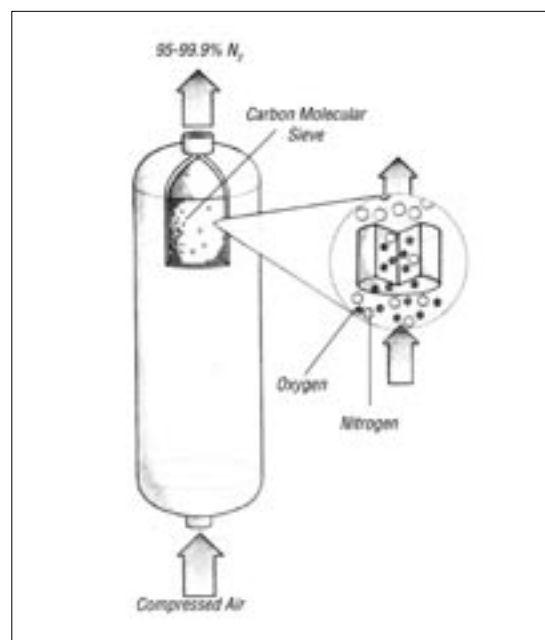
- ▲ Lower cost...eliminates the need for costly gas cylinders
- ▲ Complete package with prefilters, final filters, and receiving tank
- ▲ Compact - frees up valuable floor space
- ▲ Eliminates unexpected shutdowns due to a “bad” or empty cylinder
- ▲ Hassle-free, easy to install, easy to operate
- ▲ Safe and reliable



Parker Balston
Dual Bed Nitrogen Generators

Parker Balston® Monobed Nitrogen Generators produce up to 99.95% pure, compressed nitrogen at dewpoints to -70°F (-21°C) from nearly any compressed air supply. The generators are designed to continually transform standard compressed air into nitrogen at safe, regulated pressures without operator attention.

Parker Balston PSA Nitrogen Generators utilize a combination of filtration and pressure swing adsorption technologies. High efficiency prefiltration pretreats the compressed air to remove all contaminants down to 0.1 micron. Air entering the generator consists of 21% oxygen and 78% nitrogen. The gas separation process preferentially adsorbs oxygen over nitrogen using carbon molecular sieve (CMS). At high pressures the CMS has a greater affinity for oxygen, carbon dioxide, and water vapor than it does at low pressures. By raising and lowering the pressure within the CMS bed, all contaminants are captured and released, leaving the CMS unchanged. This process allows the nitrogen to pass through as a product gas at pressure. The depressurization phase of the CMS releases the absorbed oxygen and other contaminant gases to the atmosphere.



High Flow Nitrogen Generators

The Parker Balston PSA Nitrogen Generators completely eliminate the inconvenience and the high costs of nitrogen Dewars and cylinders. There is no need to depend on outside vendors for your nitrogen gas supplies. The hassles of changing dangerous, high pressure cylinders, and interruption of gas supplies are completely eliminated. **The Balston PSA Nitrogen Generators** offer long term cost stability eliminating uncontrollable vendor price increases, contract negotiations, long term commitments, and tank rentals. Once the generator is installed, a continuous nitrogen supply of consistent purity is available within minutes from start-up.

Installation consists of simply connecting a standard compressed air line to the inlet and connecting the outlet to a nitrogen line. Plug the electrical cord into a wall outlet, and the unit is ready for trouble-free operation. This system is designed to operate 24 hours per day, 7 days per week.

Once the system is operating, it requires little monitoring. The only maintenance involves changing the coalescing prefilter cartridges and final sterile air filter periodically. The PSA towers do not require any maintenance.

An oxygen monitor to measure the oxygen concentration of the nitrogen stream is available as an option. An audible alarm signals high or low oxygen concentrations (determined by the application). The oxygen analyzer is supplied with alarm relay outputs which may be used to signal a remote alarm, open a backup supply or the process stream, or close the process flow for protection of downstream equipment or processes.

Principal Specifications	
Model	AGS200, AGS400
Nominal Conditions	
Feed Pressure	140 psig
Temperature	80°F
Ambient Pressure	1 Atm.
Compressed Air Specifications	
Maximum Pressure	140 psig
Temperature Range	60°F - 105°F
Dewpoint	40°F pressure dewpoint or better
Residual Oil Content	Trace
Particles	<.01 micron
Ambient Conditions	
Temperature	45°F-90°F
Ambient Pressure	Atmospheric
Air Quality	Clean air without contaminants
Dimensions	28.5"L x 32.25"D x 76.25"H
Weight	520 lbs (AGS200), 738 lbs (AGS400)
Inlet	1/2" NPT
Outlet	1/2" NPT

Nitrogen Purity Flow Chart		
Models AGS200 and AGS400		
Model	Flow Rate (SCFH) 99.9%, 140 psig	Flow Rate (SCFH) 99.99%, 140 psig
AGS200	235	47
AGS400	470	94

High Flow Nitrogen Generators

- ▲ Lower cost...eliminates the need for costly gas cylinders
- ▲ Complete package with prefilters, carbon filter, and membrane filter
- ▲ Compact - frees up valuable floor space
- ▲ Eliminates unexpected shutdowns due to a "bad" or empty cylinder
- ▲ Hassle-free, easy to install, easy to operate
- ▲ Safe and reliable
- ▲ Expandable modular design

Parker Balston® High Flow Nitrosource Nitrogen Generators produce up to 99.5% pure, commercially sterile nitrogen at dewpoints to -58°F (-50°C) from a compressed air supply. All Membrane Nitrogen Generators include a 0.01 micron membrane filter which ensures the nitrogen is completely free of suspended impurities.

Parker Balston High Flow Nitrosource Nitrogen Generators are one of the most efficient membrane systems available with higher recovery rates and lower operating costs than many other membrane systems.

The generators utilize proprietary membrane separation technology. The membrane divides the air into two separate streams: one is 95%-99.5% pure nitrogen, and the other is oxygen rich with carbon dioxide and other trace gases.

The generator separates air into its component gases by passing inexpensive, conventional compressed air through bundles of individual hollow fiber, semi-permeable membranes. Each fiber has a perfectly circular cross section and a uniform bore through its center. Because the fibers are so small, a great many can be packed into a limited space, providing an extremely large membrane surface area that can produce a relatively high volume product stream.

Compressed air is introduced to the center of the fibers at one end of the module and contacts the membrane as it flows through the fiber bores. While oxygen, water vapor and other trace gases permeate the membrane fiber and are discharged through a permeate port, the nitrogen is contained within the hollow fiber membrane, and flows through the outlet port of the module.

Water vapor also permeates through the membrane; therefore, the nitrogen product gas is very dry.



**Parker Balston N2-300
Nitrosource Nitrogen Generator**

Applications

High thru-put LC/MS contract labs
Sample concentrators
Nitrogen supply to analytical lab

Custom Systems Available

Flow rates to 2,265 lpm
Delivery pressures to customer's specifications
Skid mounted systems with compressor, receiving tank and controls are available

High Flow Nitrogen Generators

The Parker Balston Nitrosource Nitrogen Generators completely eliminate and inconvenient and the high costs of nitrogen Dewars and cylinders. There is no need to depend on outside vendors for nitrogen gas supplies. The hassles of changing dangerous, high pressure cylinders and interruption of gas supplies are completely eliminated. The Balston Systems offer long term cost stability by eliminating uncontrollable vendor price increases, contract negotiation, long term commitments and tank rentals. Once the generator is installed, a continuous nitrogen supply of consistent purity is available within minutes from start-up.

The Parker Balston Nitrosource Nitrogen Generators are complete systems ready to operate as delivered with carefully matched components engineered for easy installation, operation and long term reliability.

The generators are free-standing and housed in an attractive cabinet. Standard features include: high efficiency coalescing prefilters with automatic

drains, an activated carbon filter, and a 0.01 micron membrane final filter. Installation consists of simply connecting a standard compressed air line to the inlet and connecting the outlet to a nitrogen line.

There is no complicated operating procedure to learn or labor intensive monitoring involved. Simply select the purity your process requires, set the flow and pressure, and within minutes high purity, dry nitrogen is available for use!

Once the system is operating, it requires little monitoring. The only maintenance involves changing the coalescing filter

cartridges and activated carbon filter periodically. This is a simple ten minute procedure.

All models also include an oxygen monitor which offers LCD readouts and remote alarm or chart recorder capabilities. An audible alarm signals high or low oxygen concentrations (determined by the application). The oxygen monitor is supplied with alarm relay outputs which may be used to signal a remote alarm, open a backup supply or the process stream, or close the process flow.

Flow Rates (lpm) @ 100 psig, 68°F						
Model	99.5%	99%	98%	97%	96%	95%
N2-300	200	311	538	736	935	1133
N2-400	297	467	807	1104	1402	1699
N2-600	396	623	1076	1473	1869	2266

Principal Specifications - Nitrosource Series			
Model	N2-300	N2-400	N2-600
Atmospheric Dewpoint	-58°F (-50°C)	-58°F (-50°C)	-58°F (-50°C)
Commercially Sterile	Yes	Yes	Yes
Particles >0.01 micron	None	None	None
Suspended Liquids	None	None	None
Min/Min Operating Pressure (1)	60 psig/145 psig	60 psig/145 psig	60 psig/145 psig
Max Pressure Drop (at 95% N2, 125 psig)	15 psig	15 psig	15 psig
Recommended Ambient Operating Temperature	70°F (21°C)	70°F (21°C)	70°F (21°C)
Min/Max Inlet Air Temp.	50°F /104°F (10°F /40°F)	50°F /104°F (10°F /40°F)	50°F /104°F (10°F /40°F)
Recommended Inlet Air Temp.	70°F (21°C)	70°F (21°C)	70°F (21°C)
Electrical Requirements	90-250 VAC 50-60 Hz	90-250 VAC 50-60 Hz	90-250 VAC 50-60 Hz
Dimensions	29"W x 31"D x 76"H (74cm x 51cm x 193cm)	29"W x 42"D x 76"H (74cm x 79cm x 193cm)	29"W x 53"D x 76"H (74cm x 107cm x 193cm)
Shipping Weight	660 lbs.	870 lbs.	1,290 lbs.