



Analytical Gas Systems Products for TOC Analysis

Bulletin AGS-TOC-B

Parker Hannifin Corporation

The Global Leader in Motion and Control Technologies

We engineer success of our customers around the world, drawing upon nine core motion and control technologies. These technologies enable virtually every machine and process to operate accurately, efficiently and dependably.

As the global leader in motion and control, we partner with our distributors to increase our customers' productivity and profitability by delivering an unmatched breadth of engineered components and value-added services.

We continue to grow with our customers by creating application-focused products and system solutions. A key to our global expansion has been to follow our customers and establish operations, sales and service wherever they are needed. No single competitor matches Parker's global presence.



Corporate Headquarters
in Cleveland, Ohio.

Parker's Motion and Control Technologies

Aerospace	Hydraulics
Climate Control	Pneumatics
Electromechanical	Process Control
Filtration	Sealing & Shielding
Fluid & Gas Handling	

Legal Notifications



WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.






The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

Offer of Sale

The items described in this document are hereby offered for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. This offer and its acceptance are governed by the provisions stated in the "Offer of Sale".

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TOC Gas Generator

The Parker Balston® TOC Gas Generators produce carrier/ combustion gas, from an existing compressed air supply for TOC instruments, eliminating the need to purchase expensive, inconvenient, high pressure cylinders of air, nitrogen, or oxygen.

The generators utilize catalytic oxidation and pressure swing adsorption technologies to remove hydrocarbons to 0.05 ppm (measured as methane), CO₂ to 1 ppm, water vapor to 1 ppm, and CO to 1 ppm.

Parker Balston TOC Gas Generators eliminate all the inconveniences and costs of cylinder gas supplies and dependence on outside vendors.

Uncontrollable vendor price increases, contract negotiations, long term commitments and tank rentals are no longer a concern. The Parker Balston TOC Gas Generator offers long-term cost stability.

Parker Balston TOC Gas Generators are complete systems with carefully matched components engineered for easy installation, operation, and long term reliability. Installation consists of connecting a standard compressed air line to the inlet and connecting the outlet to the TOC gas supply line. Plug the generator into a standard electrical wall outlet and within minutes high purity carrier/ combustion gas is supplied!



Model TOC-1250



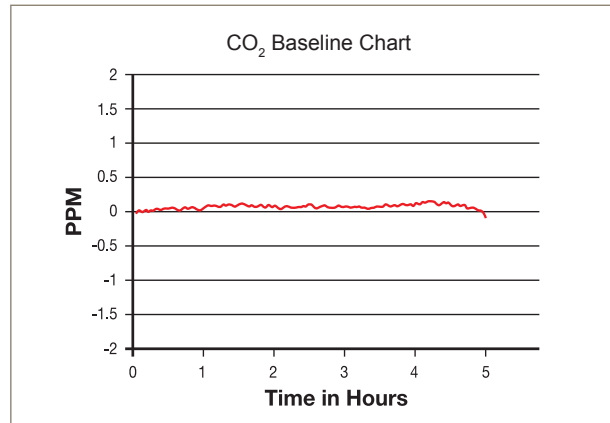
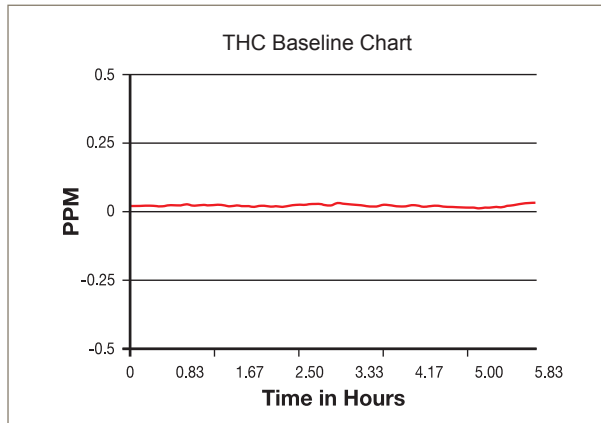
Model TOC-625



Features and Benefits

- Replaces high pressure oxygen or nitrogen gas cylinders with hydrocarbon-free, CO₂-free compressed gas for TOC Analyzers
- Ensures consistent, reliable, TOC operation and reduces instrument service and maintenance costs
- Compact design frees up valuable laboratory floor space
- Purity meets or exceeds all TOC manufacturer's gas purity requirements
- Operational display shows system status at a glance
- Requires minimal annual maintenance

Baseline Supplied by a Parker Balston TOC Gas Generator



Baselines of THC Analyzer (above) and CO₂ Content Analyzer (right) after 5 hours supplied by a Parker Balston® TOC Gas Generator.

TOC Gas Generator

Principal Specifications

TOC Gas Generator	Model TOC-625	Model TOC-1250
Max. TOC Gas Flow Rate (outlet) at 100 psig	625 cc/min	1200 cc/min
Outlet Hydrocarbon Concentration (as methane)	< 0.05 ppm	0.1 ppm
Outlet CO ₂ Concentration	< 1 ppm	< 1 ppm
Outlet CO Concentration	< 1 ppm	< 1 ppm
Dewpoint	< -100°F (-73°C)	< -100°F (-73°C)
Inlet and Outlet Port Connections	1/4" NPT (female)	1/4" NPT (female)
Min/Max Inlet Air Pressure	60 psig/125 psig	60 psig/125 psig
Max Inlet Air Temperature	78°F (25°C)	78°F (25°C)
Min Required Inlet Air Flow at 100 psig	2.0 lpm (2,000 cc/min)	2.5 lpm (2,500 cc/min)
Max Inlet Hydrocarbon Concentration (as methane)	100 ppm	100 ppm
Pressure Drop at Maximum Flow Rate	7 psig	7 psig
Electrical Requirements (1)	120VAC/60 Hz, 2.0 Amps.	120VAC/60 Hz, 2.0 Amps.
Dimensions	9"w x 12.5"h x 16"d (23 cm x 32 cm x 41 cm)	11"w x 17"h x 17"d (28 cm x 43 cm x 43 cm)
Shipping Weight	34 lbs. (15.42 kg)	48 lbs. (22 kg)

NOTES:

1 Refer to voltage appendix for electrical and plug configurations for outside North America.

Ordering Information

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

Description	Model Number	
TOC Gas Generator	TOC-625	TOC-1250
Maintenance Kit @ 12 months	MKTOC625-12	MK7840
Maintenance Kit @ 36 months	MKTOC625-36	76810
Installation Kit	IK76803	IK76803
Preventive Maintenance Plan	TOC-625-PM	TOC-1250-PM



Nitrogen Generator for TOC

The Parker Balston Models HPN2-1100 and UHPN2-1100 Nitrogen Generators can produce up to 1.1 lpm of ultra high purity nitrogen gas. These systems are completely engineered to transform standard compressed air into ultra high purity nitrogen, exceeding the specification of UHP cylinder gas.

Nitrogen is produced by utilizing a combination of state-of-the-art purification technologies and high efficiency filtration.

Pressure swing adsorption removes O₂, CO₂, and water vapor. A catalyst module is incorporated in the

UHPN2-1100 to oxidize hydrocarbons from the inlet air supply. The generators also have high efficiency coalescing prefilters and a 0.01 micron (absolute) membrane filter incorporated into their design.

The Parker Balston UHP Nitrogen Generators are engineered and packaged in a small cabinet to fit nearly any benchtop. The systems eliminate the need for costly, inconvenient high pressure nitrogen cylinders. The HPN2-1100 and UHPN2-1100 are ideal for TOC carrier gas and purge applications.



Model HPN2-1100



Features and Benefits

- Produces a continuous supply of high purity nitrogen gas from existing compressed air
- Eliminates the need for costly, dangerous, inconvenient nitrogen cylinders in the laboratory
- Ideal for all combustion, UV persulfate, and wet oxidation sampling techniques
- Compact design frees up valuable laboratory floor space
- Offers long term cost stability - uncontrollable vendor price increases, contract negotiations, long term commitments and tank rentals are no longer a concern
- Available with integrated compressor

Nitrogen Generator for TOC

Principal Specifications

Model	UHPN2-1100	UHPZN2-1100	UHPZN2-1100C
Max Nitrogen flow rate	1100 ml/min	1100 ml/min	1100 ml/min
Nitrogen Purity	99.9999%	99.9995%	99.9995%
CO Concentration	< 1 ppm	< 1 ppm	< 1 ppm
CO ₂ Concentration	< 1 ppm	< 1 ppm	< 1 ppm
O ₂ Concentration	< 1 ppm	N/A	N/A
H ₂ O Concentration	< 1 ppm	< 1 ppm	< 1 ppm
Hydrocarbon concentration	< 0.1 ppm	< 0.1 ppm	< 0.1 ppm
Argon Concentration (1)	0.9%	N/A	N/A
Min/Max Inlet Pressure	60 psig/125 psig (6 bar)	130 psig/145 psig (9 to 9.9 bar)	N/A N/A
Outlet Pressure	Up to 85 psig (6 bar)	75 psig (5 bar)	75 psig (5 bar)
Integral Compressor	No	No	Yes
Recommended Inlet Temperature	78°F (25°C)	78°F (25°C)	78°F (25°C)
Ambient Operating Temperature	60°F-100°F (16°C-38°C)	60°F-100°F (16°C-38°C)	60°F-100°F (16°C-38°C)
Max Air Consumption	42 lpm (1.5 scfm)	42 lpm (1.5 scfm)	NA
Inlet Connection	1/4" NPT (female)	1/4" NPT (female)	N/A
Outlet Connection	1/8" NPT (female)	1/8" NPT (female)	1/8" NPT (female)
Electrical Requirements (2)	120 VAC/60 Hz	120 VAC/60 Hz	120 VAC/60 Hz
Power Consumption	700 Watts	720 Watts	1250 Watts
Dimensions	12" w x 16" d x 35" h (31cm x 41cm x 89cm)	34" w x 14" d x 26" h (869mm x 345mm x 667mm)	34" w x 14" d x 26" h (869mm x 345mm x 667mm)
Shipping Weight	110 lbs. (50 kg)	190 lbs. (86 kg)	212 lbs. (96 kg)

NOTES

- 1 Purity specification for Nitrogen does not include Argon concentration.
- 2 Refer to voltage appendix for electrical and plug configurations for outside North America

Ordering Information

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

Description	Model Number
High Purity Nitrogen Generator	HPN2-1100
Ultra High Purity Nitrogen Generator	UHPN2-1100
Purity Indicator/Scrubber	72092
Optional Prefilter System	2002N-1B1-DX
Maintenance Kit	MK7692*, MK7694
Installation Kit for all Models	IK7694
Preventive Maintenance Plan	UHPN2-1100-PM
Extended Support with 24 Month Warranty	UHPN2-1100-DN2
1,100 ml/min Zero UHP Nitrogen Generator	UHPZN2-1100
1,100 ml/min Zero UHP Nitrogen Generator with Integral Compressor	UHPZN2-1100C

Maintenance Items	Model Number	Change Frequency
Filter Kit - Non Compressor Models	MKUHPZN2-FK	12 months
Filter Kit - Compressor Models	MKUHPZN2CL-FK	12 months
Compressor Kit 230V - All Models	MKN2-CK230L	4,000 hours or 12 months (which ever comes sooner)

*For Model HPN2-1100

Gas Receiving Tanks

The Parker Balston Gas Receiving tanks are highly recommended for supplying gas to pressure sensitive instrumentation, for the storage of compressed nitrogen from nitrogen generators, and for other instruments requiring an occasional high flow burst of compressed gas in excess of the normal capacity of a Parker Balston Gas Generator.

The Model 72-007 has a maximum pressure rating of 240 psig. At 240 psig, the 72-007 will hold approximately 1.7 scf (50 liters) of compressed gas.



Parker Balston
Model 72-007 Receiving Tank

Features and Benefits

- Aluminum construction eliminates corrosion and contamination
- Internal surface preparation eliminates particle shedding and vapor out-gassing
- Convenient mounting brackets for floor or wall placement
- Smoothes out gas pressure fluctuations

Principal Specifications

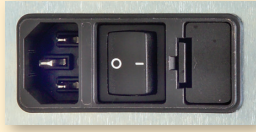
	Model 72-007
Material of Construction	3003 Aluminum
Capacity at Atmospheric Pressure	0.75 gallons (2.8 liters)
Max. Temperature	130°F (54°C)
Max. Pressure at Max. Temperature	240 psig
Inlet/Outlet Ports	1/8" NPT (female)
Dimensions	18" w x 5" h (45 cm x 12 cm)
Shipping Weight	4 lbs (1.8 kg)

Ordering Information

Description	Model Number
Gas Receiving Tank	72-007

Voltage Appendix

220vac / 50hz configuration for locations where final plug configuration is unknown

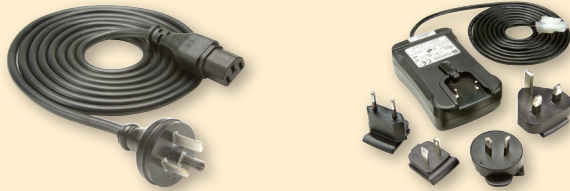


Order Part Number

FID-1000-220, FID-2500-220, FID-3500-220, GCGS-7890-220, H2PD-150-220, H2PD-300-220, 75-83-220, HPZA-3500-220, HPZA-7000-220, HPZA18000-220, HPZA30000-220, HPN2-1100-220, HPN2-2000-220, UHPN2-1100-220, 76-97-220, 76-98-220, 74-5041-220, UDA-300-220, LCMS-5000-220, LCMS-5001T-220, LCMS-5001NT-220, N2-14A, N2-22A, N2-35A, N2-45A, N2-80A, N2-135A, MGG-400-220, MGG-2500-220, TOC-625-220, TOC-1250-220

* Units will be supplied only with IEC connector as depicted, power cord to be customer supplied

220vac / 50hz plug configuration for Australia

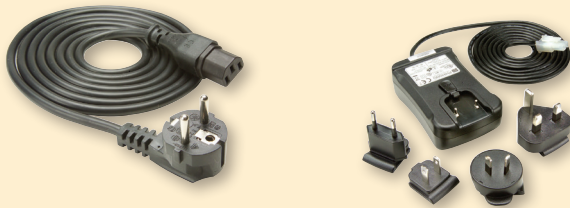


Order Part Number

FID-1000AU, FID-2500AU, FID-3500AU, GCGS-7890AU, H2PD-150AU, H2PD-300AU, 75-83AU, HPZA-3500AU, HPZA-7000AU, HPZA-18000AU, HPZA-30000AU, HPN2-1100AU, HPN2-2000AU, UHPN2-1100AU, 76-97AU, 76-98AU, 74-5041AU, UDA-300AU, LCMS-5000AU, LCMS-5001TAU, LCMS-5001NTAU, N2-14AAU, N2-22AAU, N2-35AAU, N2-45AAU, N2-80AAU, N2-135AAU, MGG-400AU, MGG-2500AU, TOC-625AU, TOC-1250AU

* Models 75-45AU, 75-52AU and 75-62AU will include universal fit plug and transformer kit.

220vac / 50hz plug configuration for Europe

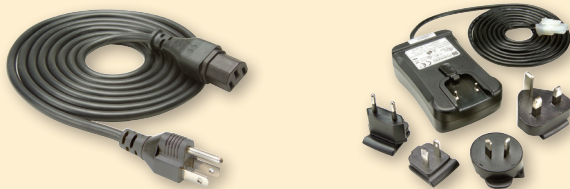


Order Part Number

FID-1000EU, FID-2500EU, FID-3500EU, GCGS-7890EU, H2PD-150EU, H2PD-300EU, 75-83EU, HPZA-3500EU, HPZA-7000EU, HPZA-18000EU, HPZA-30000EU, HPN2-1100EU, HPN2-2000EU, UHPN2-1100EU, 76-97EU, 76-98EU, 74-5041EU, UDA-300EU, LCMS-5000EU, LCMS-5001TEU, LCMS-5001NTEU, N2-14AEU, N2-22AEU, N2-35AEU, N2-45AEU, N2-80AEU, N2-135AEU, MGG-400EU, MGG-2500EU, TOC-625EU, TOC-1250EU

* Models 75-45EU, 75-52EU and 75-62EU will include universal fit plug and transformer kit.

100vac / 60hz plug configuration for Japan



Order Part Number

FID-1000JA-100, FID-2500JA-100, FID-3500JA-100, GCGS-7890JA-100, H2PD-150JA-100, H2PD-300JA-100, 75-83JA-100, HPZA-3500JA-100, HPZA-7000JA-100, HPZA-18000JA-100, HPZA-30000JA-100, HPN2-1100JA-100, HPN2-2000JA-100, UHPN2-1100JA-100, 76-97JA-100, 76-98JA-100, 74-5041JA-100, UDA-300JA-100, LCMS-5000JA-100, LCMS-5001TJA-100, LCMS-5001NTJA-100, N2-14AJA-100, N2-22AJA-100, N2-35AJA-100, N2-45AJA-100, N2-80AJA-100, N2-135AJA-100, MGG-400JA-100, MGG-2500JA-100, TOC-625JA-100, TOC-1250JA-100

* Models 75-45JA-100, 75-52JA-100 and 75-62JA-100 will include universal fit plug and transformer kit.

220vac / 50hz plug configuration for United Kingdom (some Asia)



Order Part Number

FID-1000UK, FID-2500UK, FID-3500UK, GCGS-7890UK, H2PD-150UK, H2PD-300UK, 75-83UK, HPZA-3500UK, HPZA-7000UK, HPZA-18000UK, HPZA-30000UK, HPN2-1100UK, HPN2-2000UK, UHPN2-1100UK, 76-97UK, 76-98UK, 74-5041UK, UDA-300UK, LCMS-5000UK, LCMS-5001TUK, LCMS-5001NTUK, N2-14AUK, N2-22AUK, N2-35AUK, N2-45AUK, N2-80AUK, N2-135AUK, MGG-400UK, MGG-2500UK, TOC-625UK, TOC-1250UK

* Models 75-45UK, 75-52UK and 75-62UK will include universal fit plug and transformer kit.

Recommended Gas Generators for Analytical Instruments

Instrument	Gas Requirements	Gas Purity Requirements	Flow Rates	Generator Recommendation/Model
Atomic Absorption (AA) with Flame	Air for Oxidant Gas	Clean, Dry	1-7 SCFM	AA Gas Purifier (Model 73-100)
Atomic Thermal Desorber	Zero Air	Clean, Dry, Hydrocarbon-free	Up to 1600 ml/min.	Zero Air or TOC Gas Generator (HPZA-3500 or TOC-1250)
	Hydrogen for FID Fuel	Clean, Dry, High Purity	Up to 40 ml/min. per FID	Hydrogen Generator (H2PEM-100, H2PEM-165) (H2PEM-260, H2PEM-510)
Atmospheric Pressure Ionization (API-MS)	Air for Nebulizer Gas	Clean, Dry, Hydrocarbon-free	< 30 LPM	Zero Air Generator (HPZA-30000)
	Nitrogen for Curtain, Sheath, and Shield gas	99% or higher	< 20 LPM	Nitrogen Generator (N2-14, N2-22, N2-35, NitroFlowLab)
Autosamplers for Various Instruments	Air for Pneumatic Controls	Clean, Dry	< 1 SCFM	Membrane Air Dryer (64-02)
	Nitrogen for Sample Injector	Ultra High Purity	< 550 cc/min	UHP Nitrogen Generator (HPN2-1100) (UHPN2-1100)
CO ₂ Analyzers	Calibration Air	CO ₂ -free	0.5-1.0 SLPM	FT-IR Purge Gas Generator (75-45, 75-52)
Continuous Emissions Monitoring (CEM)	Calibration Air Dilution Air	Dry, CO ₂ , SO ₂ , NO _x , Hydrocarbon-free	10-15 SLPM	CEM Zero Air Generator (75-45-M744)
Emissions Analyzers	Zero Air	Hydrocarbon-free	2-15 SLPM	Zero Air Generator (HPZA-18000)
Fourier Transform Infrared Spectrometer (FT-IR)	Air for Sample Compartment, Optics, and/or Air-Bearing Components	Clean, Dry, CO ₂ -free	0.5-3 SCFM	FT-IR Purge Gas Generator (75-62, 75-52, 75-45) Lab Gas Generator (74-5041NA)
Gas Chromatograph (GC) GC-FID	Zero Air as Flame Support Air	Clean, Hydrocarbon-free	150-600 cc/min.	Zero Air Generator (HPZA-3500)
	Hydrogen as Flame Fuel Gas	Ultra High Purity	30-40 cc/min.	Hydrogen Generator (H2PEM-260)
	Hydrogen as Capillary Carrier Gas	Ultra High Purity	Varies	Hydrogen Generator (H2PD-300)
	Nitrogen as Packed Carrier Gas	Ultra High Purity, Zero Grade	Varies	UHP Nitrogen Generator (UHPN2-1100)
	Nitrogen as Make up Gas	Ultra High Purity, Zero Grade	<100 cc/min	UHP Nitrogen Generator (UHPN2-1100)
GC-FPD	Zero Air as Flame Support Air	Clean, Hydrocarbon-free	<200 cc/min	Zero Air Generator (HPZA-3500)
	Hydrogen as Flame Fuel Gas	Ultra High Purity	50-70 cc/min	Hydrogen Generator (H2PEM-260)
	Hydrogen as Capillary Carrier Gas	Ultra High Purity	Varies	Hydrogen Generator (H2-1200)
	Nitrogen as Packed Carrier Gas	Ultra High Purity	Varies	UHP Nitrogen Generator (UHPN2-1100)
GC-NPD	Zero Air to Rubidium/Thermonic Bead	Dry, Clean, Hydrocarbon-Free	60-200 cc/min.	Zero Air Generator (HPZA-3500)
	Hydrogen as Detector Support Gas	Ultra High Purity	<10 cc/min	Hydrogen Generator (H2PEM-100)
	Hydrogen as Capillary Carrier Gas	Ultra High Purity	Varies	Hydrogen Generator (Palladium) (H2PD-300)
	Nitrogen as Packed Carrier Gas	Ultra High Purity	Varies	UHP Nitrogen Generator (UHPN2-1100)
GC-ECD	Nitrogen as Carrier Gas	Ultra High Purity, Zero Grade	Varies	UHP Nitrogen Generator (UHPN2-1100)
	Nitrogen as Make up Gas	Ultra High Purity, Zero Grade	<100 cc/min	UHP Nitrogen Generator (UHPN2-1100)
GC-ELCD, HALL	Hydrogen as Reaction Gas	Ultra High Purity	70-200 cc/min	Hydrogen Generator (H2PD-300)

Recommended Gas Generators for Analytical Instruments

Instrument	Gas Requirements	Gas Purity Requirements	Flow Rates	Generator Recommendation/Model
GC-TCD	Hydrogen as Carrier & Reference Gas	Ultra High Purity	Varies	Hydrogen Generator (H2PD-300)
LC/MS	Nitrogen as a Curtain Gas	LC/MS Grade	3-30 lpm	Nitrogen Generator (N2-14, N2-14ANA, NitroFlowLab) (NitroFlow60, N2-35, N2-35ANA)
ICP Spectrometer	Nitrogen as Optic/Camera Purge	Ultra High Purity	<1-5 lpm	Nitrogen Generator (76-97NA, 76-98NA)
Nuclear Magnetic Resonance (NMR)	Air for Lifting, Spinning	Clean, Dry	<10 SCFM	Air Dryer (UDA-300NA) Lab Gas Generator (74-5041NA)
Ozone Generator	Supply Air	Clean, Dry	.3-20 SCFM	Air Dryer (64-01, 64-02, 64-10, UDA-300NA)
Protein Analyzer	Dry Air, Nitrogen	Clean, Dry	40 psig	Nitrogen Generator (N2-14, N2-22, NitroFlowLab, N2-35)
Solvent Evaporators (Sample Concentrators)	Nitrogen	Clean, Dry Nitrogen	Up to 5 SCFM	Nitrogen Generator (Nitrovap-1LV, Nitrovap-2LV)
Stack Gas Sampler	Dilution Air	Clean, Dry	<1.0 SCFM	CEM Zero Air Generator (75-45-M744)
Total Oxygen Demand (TOD)	Nitrogen Carrier Gas	Ultra High Purity	300 cc/min	Nitrogen Generator (UHPN2-1100)
Thermal Gravimetric Analyzer (TGA)	Nitrogen as Furnace Purge	Clean, Dry, Inert	<100 cc/min	Nitrogen Generator (UHPN2-1100)
Differential Scanning Calorimeter (DSC)	Air for Air Shield	Clean, Dry	<100 cc/min	Dry Air Generator (64-01, UDA-300)
Total Hydrocarbon Analyzer (THA)	Zero Air for FID	Clean, Hydrocarbon-Free	50-500 cc/min	Zero Air Generator (75-82S, 75-83NA)
	Hydrogen as Flame Fuel Gas	Ultra High Purity	5-50 cc/min	Hydrogen Generator (H2PEM-100)
Total Organic Carbon Analyzer (TOC)	Dry Air or Nitrogen for Carrier Gas or Combustion Gas	Clean, Dry, Hydrocarbon-Free	100-500 SLPM	TOC Gas Generator (TOC-625, TOC-1250)
		CO ₂ -Free Ultra High Purity	50-700 cc/min	UHP Nitrogen Generator (UHPN2-1100)

Parker Balston also offers Gas Generators for these Applications



Products for LC/MS & Evaporation

(Request Bulletin AGS-LCMS)

- High purity nitrogen for LCMS instruments and solvent evaporation
- Tri-gas units available for instruments that require nitrogen, dry air and zero grade air
- Produce a continuous supply of high purity nitrogen from an existing compressed air supply
- Integrated compressor systems eliminate the need for house air
- Systems available to support one or dozens



Products for Chromatography

(Request Bulletin AGS-Chromatography)

- Hydrogen, Zero Air and UHP Nitrogen Generators for Gas Chromatography
- Combination systems available to provide multiple gasses from one unit
- Highest purities available from any supplier



Products for Spectroscopy

(Request Bulletin AGS-Spectroscopy)

- Remove water and CO₂ from compressed air
- Protect expensive optics from damage from water vapor
- Increase Signal to Noise Ratio and maximize instrument sensitivity
- Ultra dry air for NMR injecting, spinning and ejecting samples



Products for TOC Analysis

(Request Bulletin AGS-TOC)

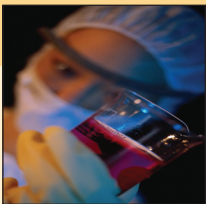
- Generate gasses for all combustion, UV persulfate and wet oxidation techniques
- Ensures consistent, reliable, instrument operation and reduces instrument service and maintenance costs



Products for Ultra Dry Air

(Request Bulletin AGS-UDA)

- Gas generators for dilution and calibration of Emissions Analyzers
- Exceed instrument manufacturer specifications
- Nitrogen and specialty blend gasses available



Analytical Gas Supplies

(Request Bulletin AGS SUPCAT)

- Installation kits, compressors, purifiers, flow-meters, regulators and all the materials needed to equip your lab
- High quality components, designed specifically for use with Parker gas generators, to deliver high purity gas to your instruments

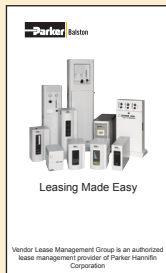
Gas Generator Services



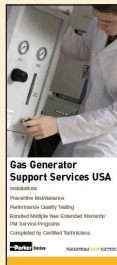
Parker Balston Extended Support Services extend the warranty term of gas generators to 24-months. There are two choices available for level of service: Depot and Express. All parts and labor are included, with “next business morning” delivery available.



Parker Balston “Balston Bucks” Loyalty Programs are offered to every customer who purchases gas generators. Services include special discounts and incentives on gas generator spare parts and consumables as well as special deals on buying your next gas generator. Customers can easily “opt-in” and opt-out” of our special e-mail alerts system which features newsletters, new product announcements and product reminders.



Parker Balston Leasing and Rental Services can provide simple cost effective ways to acquire your next gas generator. Our competitive rates typically provide a monthly payment less than current monthly cylinder gas expenditures. Leasing and rental programs help the customer avoid the need to use capital budget money.



Parker Balston Preventative Maintenance Contracts provide convenient direct in-lab maintenance service for your gas generator. A factory trained technician will service your gas generator, in your lab, with original Parker parts. Preventative maintenance saves time, money and will reduce the total cost of ownership of your gas generator.

Application Notes

Offer of Sale

The items described in this document and other documents and descriptions provided by Parker Hannifin Corporation, FNS Division, its subsidiaries and its authorized distributors ("Seller") are hereby offered for sale at prices to be established by Seller. This offer and its acceptance by any customer ("Buyer") shall be governed by all of the following Terms and Conditions. Buyer's order for any item described in its document, when communicated to Seller verbally, or in writing, shall constitute acceptance of this offer. All goods, services or work described will be referred to as "Products".

1. Terms and Conditions. Seller's willingness to offer Products, or accept an order for Products, to or from Buyer is subject to these Terms and Conditions or any newer version of the terms and conditions found on-line at www.parker.com/saleterms/. Seller objects to any contrary or additional terms or conditions of Buyer's order or any other document issued by Buyer.

2. Price Adjustments; Payments. Prices stated on Seller's quote or other documentation offered by Seller are valid for 30 days, and do not include any sales, use, or other taxes unless specifically stated. Unless otherwise specified by Seller, all prices are F.C.A. Seller's facility (INCOTERMS 2010). Payment is subject to credit approval and is due 30 days from the date of invoice or such other term as required by Seller's Credit Department, after which Buyer shall pay interest on any unpaid invoices at the rate of 1.5% per month or the maximum allowable rate under applicable law.

3. Delivery Dates; Title and Risk; Shipment. All delivery dates are approximate and Seller shall not be responsible for any damages resulting from any delay. Regardless of the manner of shipment, title to any products and risk of loss or damage shall pass to Buyer upon placement of the products with the shipment carrier at Seller's facility. Unless otherwise stated, Seller may exercise its judgment in choosing the carrier and means of delivery. No deferment of shipment at Buyers' request beyond the respective dates indicated will be made except on terms that will indemnify, defend and hold Seller harmless against all loss and additional expense. Buyer shall be responsible for any additional shipping charges incurred by Seller due to Buyer's acts or omissions.

4. Warranty. Seller warrants that the Products sold hereunder shall be free from defects in material or workmanship for a period of 12 months from the date of shipment and covers in-factory repair and parts only. Warranty does not include on site labor, travel expenses, or other expense associated with field repair. Purchaser shall notify Seller of any breach of warranty within 30 days. Upon notification, Seller will, at its option, repair or replace the defective product, or refund its purchase price. Any action for breach of warranty or for failure to deliver must be commenced within 13 months of its accrual. **DISCLAIMER OF WARRANTY: THIS WARRANTY COMPRISES THE SOLE AND ENTIRE WARRANTY PERTAINING TO ITEMS PROVIDED HEREUNDER. SELLER DISCLAIMS ALL OTHER WARRANTIES, EXPRESS AND IMPLIED, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**

5. Claims; Commencement of Actions. Buyer shall promptly inspect all Products upon delivery. No claims for shortages will be allowed unless reported to the Seller within 10 days of delivery. No other claims against Seller will be allowed unless asserted in writing within 30 days after delivery. Buyer shall notify Seller of any alleged breach of warranty within 30 days after the date the defect is or should have been discovered by Buyer. Any action based upon breach of this agreement or upon any other claim arising out of this sale (other than an action by Seller for an amount due on any invoice) must be commenced within 12 months from the date of the breach without regard to the date breach is discovered. **If product is returned for refund, a 20% restock fee may apply.**

6. LIMITATION OF LIABILITY, UPON NOTIFICATION, SELLER WILL, AT ITS OPTION, REPAIR OR REPLACE A DEFECTIVE PRODUCT, OR REFUND THE PURCHASE PRICE. IN NO EVENT SHALL SELLER BE LIABLE TO BUYER FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF, OR AS THE RESULT OF, THE SALE, DELIVERY, NON-DELIVERY, SERVICING, USE OR LOSS OF USE OF THE PRODUCTS OR ANY PART THEREOF, OR FOR ANY CHARGES OR EXPENSES OF ANY NATURE INCURRED WITHOUT SELLER'S WRITTEN CONSENT, EVEN IF SELLER HAS BEEN NEGLIGENT, WHETHER IN CONTRACT, TORT OR OTHER LEGAL THEORY. IN NO EVENT SHALL SELLER'S LIABILITY UNDER ANY CLAIM MADE BY BUYER EXCEED THE PURCHASE PRICE OF THE PRODUCTS.

7. User Responsibility. The user, through its own analysis and testing, is solely responsible for making the final selection of the system and Product and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application and follow applicable industry standards and Product information. If Seller provides Product or system options, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the Products or systems.

8. Loss to Buyer's Property. Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer or any other items which become Buyer's property, will be considered obsolete and may be destroyed by Seller after two consecutive years have elapsed without Buyer ordering the items manufactured using such property. Seller shall not be responsible for any loss or damage to such property while it is in Seller's possession or control.

9. Special Tooling. A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture Products. Such special tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in apparatus belonging to Seller which is utilized in the manufacture of the Products, even if such apparatus has been specially converted or adapted for such manufacture and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller shall have the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.

10. Buyer's Obligation; Rights of Seller. To secure payment of all sums due or otherwise, Seller shall retain a security interest in the goods delivered and this agreement shall be deemed a Security Agreement under the Uniform Commercial Code. Buyer authorizes Seller as its attorney to execute and file on Buyer's behalf all documents Seller deems necessary to perfect its security interest.

11. Improper use and Indemnity. Buyer shall indemnify, defend, and hold Seller harmless from any claim, liability, damages, lawsuits, and costs (including attorney fees),

whether for personal injury, property damage, patent, trademark or copyright infringement or any other claim, brought by or incurred by Buyer, Buyer's employees, or any other person, arising out of: (a) improper selection, improper application or other misuse of Products purchased by Buyer from Seller; (b) any act or omission, negligent or otherwise, of Buyer; (c) Seller's use of patterns, plans, drawings, or specifications furnished by Buyer to manufacture Product; or (d) Buyer's failure to comply with these terms and conditions. Seller shall not indemnify Buyer under any circumstance except as otherwise provided.

12. Cancellations and Changes. Orders shall not be subject to cancellation or change by Buyer for any reason, except with Seller's written consent and upon terms that will indemnify, defend and hold Seller harmless against all direct, incidental and consequential loss or damage. Seller may change product features, specifications, designs and availability with notice to Buyer. Order cancellation fee of 15% may apply.

13. Limitation on Assignment. Buyer may not assign its rights or obligations under this agreement without the prior written consent of Seller.

14. Force Majeure. Seller does not assume the risk and shall not be liable for delay or failure to perform any of Seller's obligations by reason of circumstances beyond the reasonable control of Seller (hereinafter "Events of Force Majeure"). Events of Force Majeure shall include without limitation: accidents, strikes or labor disputes, acts of any government or government agency, acts of nature, delays or failures in delivery from carriers or suppliers, shortages of materials, or any other cause beyond Seller's reasonable control.

15. Waiver and Severability. Failure to enforce any provision of this agreement will not waive that provision nor will any such failure prejudice Seller's right to enforce that provision in the future. Invalidation of any provision of this agreement by legislation or other rule of law shall not invalidate any other provision herein. The remaining provisions of this agreement will remain in full force and effect.

16. Termination. Seller may terminate this agreement for any reason and at any time by giving Buyer thirty (30) days written notice of termination. Seller may immediately terminate this agreement, in writing, if Buyer: (a) commits a breach of any provision of this agreement (b) appoints a trustee, receiver or custodian for all or any part of Buyer's property (c) files a petition for relief in bankruptcy on its own behalf, or by a third party (d) makes an assignment for the benefit of creditors, or (e) dissolves or liquidates all or a majority of its assets.

17. Governing Law. This agreement and the sale and delivery of all Products hereunder shall be deemed to have taken place in and shall be governed and construed in accordance with the laws of the State of Ohio, as applicable to contracts executed and wholly performed therein and without regard to conflicts of laws principles. Buyer irrevocably agrees and consents to the exclusive jurisdiction and venue of the courts of Cuyahoga County, Ohio with respect to any dispute, controversy or claim arising out of or relating to this agreement.

18. Indemnity for Infringement of Intellectual Property Rights. Seller shall have no liability for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights except as provided in this Section. Seller will defend and indemnify Buyer against allegations of infringement of U.S. patents, U.S. trademarks, copyrights, trade dress and trade secrets ("Intellectual Property Rights"). Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on an allegation that a Product sold pursuant to this Agreement infringes the Intellectual Property Rights of a third party. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of such allegations of infringement, and Seller having sole control over the defense of any allegations or actions including all negotiations for settlement or compromise. If a Product is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller may, at its sole expense and option, procure for Buyer the right to continue using the Product, replace or modify the Product so as to make it noninfringing, or offer to accept return of the Product and return the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller shall have no liability for claims of infringement based on information provided by Buyer, or directed to Products delivered hereunder for which the designs are specified in whole or part by Buyer, or infringements resulting from the modification, combination or use in a system of any Product sold hereunder. The foregoing provisions of this Section shall constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for infringement of Intellectual Property Rights.

19. Entire Agreement. This agreement contains the entire agreement between the Buyer and Seller and constitutes the final, complete and exclusive expression of the terms of sale. All prior or contemporaneous written or oral agreements or negotiations with respect to the subject matter are herein merged.

20. Compliance with Law, U. K. Bribery Act and U.S. Foreign Corrupt Practices Act. Buyer agrees to comply with all applicable laws and regulations, including both those of the United Kingdom and the United States of America, and of the country or countries of the Territory in which Buyer may operate, including without limitation the U. K. Bribery Act, the U.S. Foreign Corrupt Practices Act ("FCPA") and the U.S. Anti-Kickback Act (the "Anti-Kickback Act"), and agrees to indemnify and hold harmless Seller from the consequences of any violation of such provisions by Buyer, its employees or agents. Buyer acknowledges that they are familiar with the provisions of the U. K. Bribery Act, the FCPA and the Anti-Kickback Act, and certifies that Buyer will adhere to the requirements thereof. In particular, Buyer represents and agrees that Buyer shall not make any payment or give anything of value, directly or indirectly to any governmental official, any foreign political party or official thereof, any candidate for foreign political office, or any commercial entity or person, for the purpose of influencing such person to purchase products or otherwise benefit the business of Seller.

Worldwide Filtration Manufacturing Locations

North America

Gas Separation & Filtration
Gas Separation and Filtration Division
Lancaster, NY
716 686 6400
www.parker.com/faf

Haverhill, MA
978 858 0505
www.parker.com/balston

Engine Filtration & Water Purification
Racor
Modesto, CA
209 521 7860
www.parker.com/racor

Holly Springs, MS
662 252 2656
www.parker.com/racor

Beaufort, SC
843 846 3200
www.parker.com/racor

Village Marine, Sea Recovery, Horizon Reverse Osmosis
Carson, CA
310 637 3400
www.parker.com/watermakers

Hydraulic Filtration
Hydraulic Filter
Metamora, OH
419 644 4311
www.parker.com/hydraulicfilter

Laval, QC Canada
450 629 9594
www.parkerfarr.com

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domnick hunter Process Filtration
Oxnard, CA
805 604 3400
www.parker.com/processfiltration

Madison, WI
608 824 0500
www.scilog.com

Phoenixville, PA
610 933 1600
www.parker.com/processfiltration

Aerospace Filtration
Velcon Filtration
Colorado Springs, CO
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