



Analytical Gas Systems Products for Chromatography

Bulletin AGS-Chromatography-A

aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding

Parker Hannifin Corporation

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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	

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FID Gas Stations

Parker Balston's FID-1000NA, FID-2500NA, and FID-3500NA Gas Stations provide both hydrogen gas and zero grade air to FID detectors on Gas Chromatographs. These systems are specifically designed to provide fuel gas and support air to 10-11 Flame Ionization Detectors, Flame Photometric Detectors or Total Hydrocarbon Analyzers.

Hydrogen gas is produced from deionized water using a Proton Exchange Membrane Cell. The hydrogen generator compartment utilizes the principle of electrolytic dissociation of water and hydrogen proton conduction through the membrane. The hydrogen supply produces up to 500 cc/min of 99.9995% pure hydrogen with pressures to 60 psig.

Zero air is produced by purifying on-site compressed air to a total hydrocarbon concentration of < 0.1 ppm (measured as methane). The zero air compartment produces up to 3500 cc/min of Zero Grade Air.

The FID Gas Stations are state-of-the-art systems with highly reliable components engineered for easy installation, operation, and long term performance.

The Parker Balston® FID-1000NA, FID-2500NA, FID-3500NA eliminate all the inconveniences and cost of zero air and hydrogen cylinder gas supplies and dependence on outside vendors. Uncontrollable price increases, contract negotiations, long term commitments, and tank rentals are no longer a concern. With an FID Gas Station, you control your gas supply.

All Parker Balston gas generators exceed NFPA 50A and OSHA 1910.103 regulations which outline the storage of hydrogen.

Produced and supported by an ISO 9001 registered organization, Parker Balston's hydrogen generators are the first built to meet the toughest laboratory standards in the world: CSA, UL, CE and IEC 1010.



FID Gas Station, Models FID-1000NA, FID-2500NA, and FID-3500NA



Features and Benefits

- Ideal for up to 10-11 FIDs
- Produces UHP zero air from house compressed air (<0.1 ppm THC) and 99.9995% pure hydrogen in one enclosure
- Eliminates inconvenient and dangerous zero air and hydrogen cylinders from the laboratory
- Increases the accuracy of analysis
- Reduces the cleaning requirement for the detector
- Recommended and used by many GC and column manufacturers
- Typical payback period of less than one year
- Automatic water fill
- Silent operation and minimal operator attention required

FID Gas Stations

Principal Specifications

FID Makeup Gas Generators	FID-1000NA	FID-2500NA	FID-3500NA
Hydrogen Purity	99.9995%	99.9995%	99.9995%
Zero Air Purity	< 0.1 ppm (total hydrocarbon as methane)	< 0.1 ppm (total hydrocarbon as methane)	< 0.05 ppm (total hydrocarbon as methane)
Maximum Hydrogen Flow Rate	90 cc/min	250 cc/min	500 cc/min
Maximum Zero Air Flow Rate	1000 cc/min	2500 cc/min	3500 cc/min
Electrical Requirements ⁽¹⁾	120VAC, 60Hz, 4 Amps	120VAC, 60Hz, 4 Amps	120VAC, 60Hz, 6.3 Amps
Hydrogen Outlet Pressure	60 psig	60 psig	60 psig
Zero Air Outlet Pressure	40-125 psig	40-125 psig	40-125 psig
Certifications	IEC 1010-1; CSA 1010; UL 3101; CE Mark	IEC 1010-1; CSA 1010; UL 3101; CE Mark	IEC 1010-1; CSA 1010; UL 3101; CE Mark
Dimensions	10.5"w x 17"d x 16.5"h (27cm x 43cm x 42cm)	10.5"w x 17"d x 16.5"h (27cm x 43cm x 42cm)	10.5"w x 17"d x 16.5"h (27cm x 43cm x 42cm)
Inlet Port	1/4" NPTF compressed air supply	1/4" NPTF compressed air supply	1/4" NPTF compressed air supply
Outlet Ports	1/8" Compression	1/8" Compression	1/8" Compression
Shipping Weight	53 lbs / 24 kg	53 lbs / 24 kg	60 lbs / 27 kg

NOTES

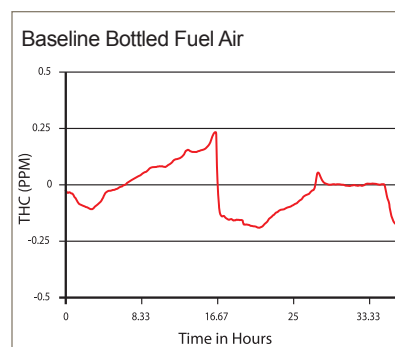
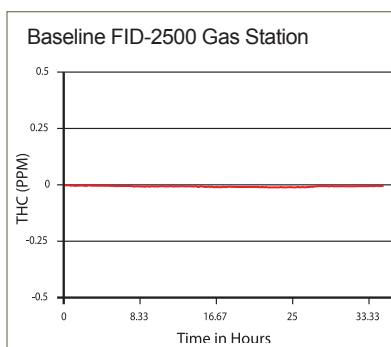
1 Refer to voltage appendix to select correct part number and plug for Japan and 220VAC/50hz configurations.

Ordering Information

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

Description	Model Number
FID Gas Station	FID-1000NA, FID-2500NA, FID-3500NA
Installation Service	FID-1000-INST, FID-2500-INST, FID-3500-INST
Annual Maintenance Kit	MKFID1000
Annual Maintenance Kit	MKFID3500
Preventive Maintenance Plan	FID-1000-PM, FID-2500-PM, FID-3500-PM
Extended Support with 24 Month Warranty	FID-1000-DN2, FID-2500-DN2, FID-3500-DN2

The Chromatograms (at right) compare baselines produced by a Parker Balston Zero Air Generator and bottled fuel air. The baseline produced by the Parker Balston Generator is very flat, with no fluctuations or peaks, in comparison with the chromatogram of the bottled air fuel supply, which has many peaks ranging from .25 ppm to -.25 ppm.



GC Gas Station

Parker Balston's GCGS-7890NA GC Gas Station provides both hydrogen gas and zero grade air to FID detectors on gas chromatographs. These systems are specifically designed to provide carrier, fuel gas and support air for Flame Ionization Detectors, and capillary columns.

Hydrogen gas is produced from deionized water using a proton exchange membrane cell. The hydrogen generator compartment utilizes the principle of electrolytic dissociation of water and hydrogen proton conduction through the membrane. The hydrogen cell produces up to 500 cc/min of 99.99999+% pure hydrogen gas after passing through an (NM) no maintenance palladium membrane with pressures to 100 psig.

Zero air is produced by purifying on-site compressed air to a total hydrocarbon concentration of < 0.05 ppm (measured as methane). The zero air compartment produces up to 3500 cc/min of zero grade air.

The GC Gas Station is a state-of-the-art system with highly reliable components engineered for easy installation, operation, and long term performance.

The Parker Balston GCGS-7890NA will eliminate all the inconvenience and cost of helium, zero air, and hydrogen cylinder gas supplies and dependence on outside vendors. Uncontrollable price increases, contract negotiations, long term commitments, and tank rentals are no longer a concern. With a GC Gas Station, you control all your gas supplies.

All Parker Balston gas generators exceed NFPA 50A and OSHA 1910.103 regulations outlining the storage of hydrogen.

Produced and supported by an ISO 9001 registered organization, Parker Balston's gas generators are the first built to meet the toughest laboratory standards in the world: CSA, UL, CE and IEC 1010.



Model GCGS-7890NA GC Gas Station



Features and Benefits

- Produce UHP zero air from house compressed air (<0.05 ppm THC) and 99.99999+% pure hydrogen in one enclosure
- Eliminates costly and dangerous helium, zero air and hydrogen cylinders from the laboratory
- Speeds up separation, increases sample thru-put and extends column life
- Recommended and used by many GC and column manufacturers
- Payback period of less than one year

GC Gas Station

Principal Specifications

GC Gas Station	GCGS-7890 NA
Hydrogen Purity	99.99999+%
Zero Air Purity	< 0.05 ppm (total hydrocarbons as methane)
Maximum Hydrogen Flow Rate	500 cc/min
Maximum Zero Air Flow Rate	3500 cc/min
Electrical Requirements ⁽¹⁾	120 VAC, 60 Hz, 6.3 Amps
Hydrogen Outlet Pressure	100 psig
Zero Air Outlet Pressure	40-125 psig
Certifications	IEC 1010-1; CSA 1010; UL 3101; CE Mark
Dimensions	11" w x 27" d x 17" h (28cm x 69cm x 43cm)
Inlet Port	1/4" NPT (female tube) compressed air supply
Outlet Ports	1/8" Compression, Stainless
Shipping Weight	60 lbs/27 kg

NOTES

1 Refer to voltage appendix to select correct part number and plug for Japan and 220VAC/50hz configurations.

Ordering Information

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

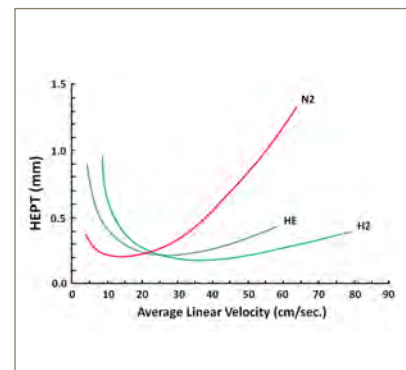
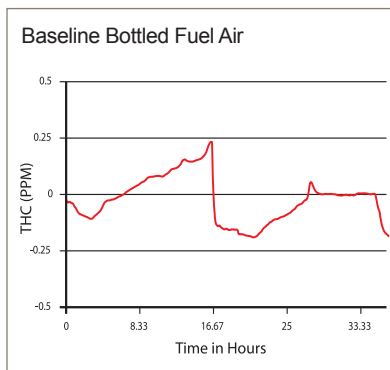
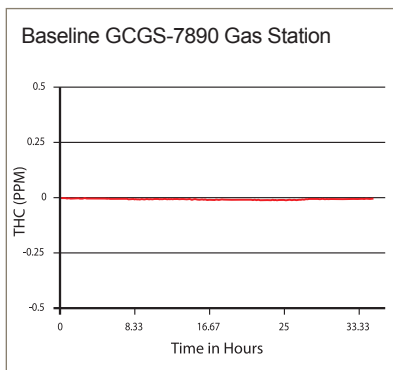
Description	Model Number
GC Gas Station	GCGS-7890NA
Installation Service	GCGS-7890-INST
Preventive Maintenance Plan	GCGS-7890-DN2
Extended Support with 24 Month Warranty	GCGS-7890-DN2
Maintenance Kit @ 12 Months	MKGCGS-7890-12
Maintenance Kit @ 36 Months	MKGCGS-7890-36

The Chromatograms (below) compare baselines produced by a Parker Balston GC Gas Station and bottled fuel air. The baseline produced by the Parker Balston Generator is very flat, with no fluctuations or peaks, in comparison with

the chromatogram of the bottled air fuel supply, which has many peaks ranging from .25 ppm to -.25 ppm.

The Van Deemter Curves (below) show a comparison of nitrogen, helium and

hydrogen carrier gases. A Parker Balston Gas Station will also allow the user to exploit the benefits of using hydrogen carrier gas instead of helium. Increased flow velocity can shorten analysis time by 50%.



FID Makeup Gas Generators

Parker Balston's MGG-400NA and MGG-2500NA, Makeup Gas Generators provide nitrogen gas and zero grade air to FID detectors on Gas Chromatographs. These systems are specifically designed to provide only nitrogen gas or both nitrogen and zero air to 5-6 Flame Ionization Detectors.

Zero grade nitrogen gas is produced by purifying on-site compressed air through the use of a heated catalyst technology mated with a hollow fiber membrane separator. The heated catalyst removes all heavy and light hydrocarbons while the hollow fiber membrane delivers nitrogen molecules to the generator's output. The nitrogen from the system is 99.9999+% pure in respect to hydrocarbons (suitable for FID Makeup Gas) and is 99+% pure in trace in respect to oxygen and water vapor.

Zero air is produced by purifying on-site compressed air to a total

hydrocarbon concentration of < 0.05 ppm (measured as methane). The zero air compartment produces up to 2500 cc/min of zero grade air.

The Makeup Gas Generators are manufactured with state-of-the-art, highly reliable components engineered for easy installation, operation and long term performance.

The Parker Balston® MGG-400NA and MGG-2500NA eliminate all the inconveniences and of cylinder gas supplies and dependence on outside vendors. Uncontrollable price increases, contract negotiations, long term commitments, and tank rentals are no longer a concern. With a Parker Balston Makeup Gas Generator, you control your gas supply.

Produced and supported by an ISO 9001 registered organization, Parker Balston's gas generators are the first built to meet the toughest laboratory standards in the world: CSA, UL, CE and IEC 1010.

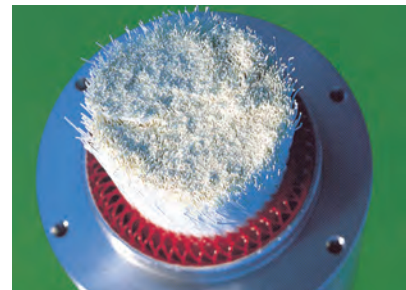
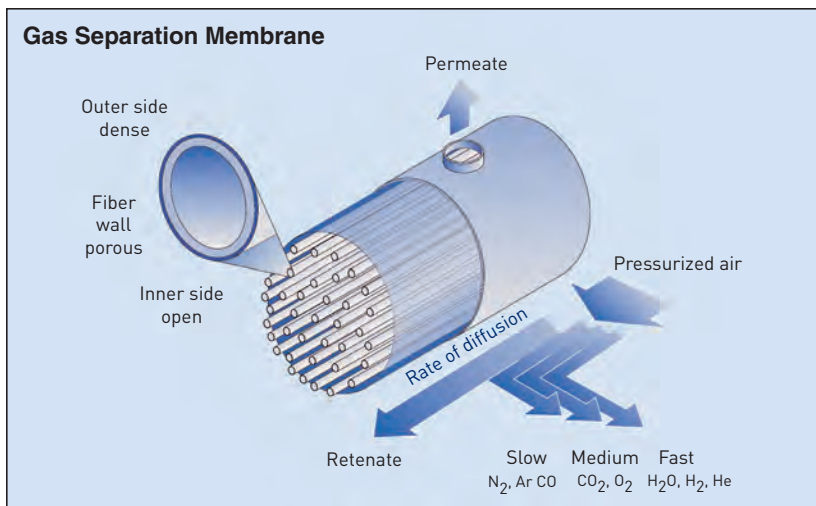


MGG-2500NA FID Makeup Gas Generator



Features and Benefits

- Ideal for up to 5-6 FIDs
- Produces makeup grade nitrogen with less than 0.05 ppm THC (measured as methane)
- Eliminates dangerous and costly helium or nitrogen cylinders from the laboratory
- Improves flame shape within the FID detector and maximizes sensitivity
- Recommended and used by many GC and column manufacturers
- Typical payback period of less than one year
- Silent operation and minimal operator attention required



This Technology Features Advanced HiFluxx Fiber

FID Makeup Gas Generators

Principal Specifications

MakeupGas Generators	MGG-400NA	MGG-2500NA
Nitrogen Purity	99.9999+% (with respect to hydrocarbons)	99.9999+% (with respect to hydrocarbons)
Nitrogen Purity	99+% (with respect to oxygen)	99+% (with respect to oxygen)
Zero Air Purity	< 0.05 ppm (total hydrocarbon as methane)	< 0.05 ppm (total hydrocarbon as methane)
Maximum Nitrogen Flow Rate	400 cc/min	400 cc/min
Maximum Zero Air Flow Rate		2500 cc/min
Electrical Requirements ⁽¹⁾	120VAC, 60Hz, 580 Watts	120VAC, 60Hz, 580 Watts
Nitrogen Outlet Pressure	60 - 120 psig	60 - 120 psig
Zero Air Outlet Pressure	60 - 120 psig	60 - 120 psig
Certifications	IEC 1010-1; CSA 1010; UL 3101; CE Mark	IEC 1010-1; CSA 1010; UL 3101; CE Mark
Dimensions	7"w x 26"d x 16.5"h (18cm x 66cm x 42cm)	7"w x 26"d x 16.5"h (18cm x 66cm x 42cm)
Inlet Port	1/4" NPT (female)	1/4" NPT (female)
Outlet Ports	1/4" NPT (female)	1/4" NPT (female)
Shipping Weight	60 lbs / 27 kg	60 lbs / 27 kg

NOTES

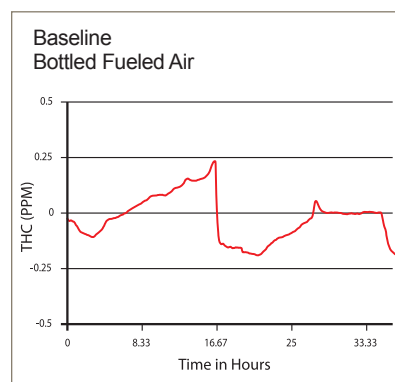
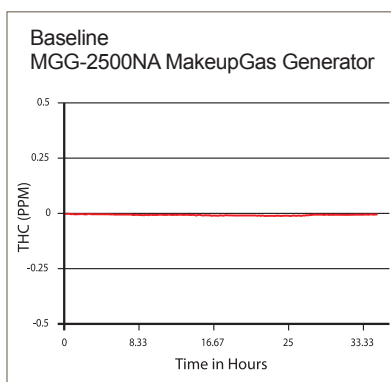
1 Refer to voltage appendix to select correct part number and plug for Japan and 220VAC/50hz configurations.

Ordering Information

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

Model Number	Description
MGG-400NA, MGG-2500NA	MakeupGas Generator
MGGW-400NA, MGGW-2500NA	MakeupGas Generator (wall mount)
MGG-400-INST, MGG-2500-INST MGGW-400-INST, MGGW-2500-INST	Installation service
MKMG2500-12	Annual Maintenance Kit
MGG-400-PM, MGG-2500-PM, MGGW-400-PM, MGGW-2500-PM	Preventive Maintenance Plan
MGG-400-DN2, MGG-2500-DN2, MGGW-400-DN2, MGGW-2500-DN2	Extended Support with 24 Month Warranty

The Chromatograms (right) compare baselines produced by a Parker Balston MakeupGas Generator and bottled fuel air. The baseline produced by the Parker Balston Generator is very flat, with no fluctuations or peaks, in comparison with the chromatogram of the bottled air fuel supply, which has many peaks ranging from .25 ppm to -.25 ppm.



Voltage Appendix

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

Order Part Number

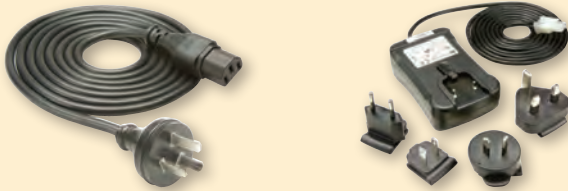


FID-1000-220, FID-2500-220, FID-3500-220, GCGS-7890-220, H2PD-150-220, H2PD-300-220, 75-83-220, HPZA-3500-220, HPZA-7000-220, HPZA18000-220, HPZA30000-220, HPN2-1100-220, HPN2-2000-220, UHPN2-1100-220, 76-97-220, 76-98-220, 74-5041-220, UDA-300-220, LCMS-5000-220, LCMS-5001T-220, LCMS-5001NT-220, N2-14A, 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

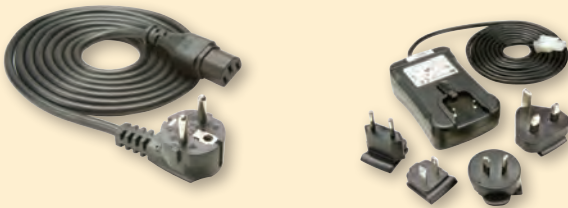


FID-1000AU, FID-2500AU, FID-3500AU, GCGS-7890AU, H2PD-150AU, H2PD-300AU, 75-83AU, HPZA-3500AU, HPZA-7000AU, HPZA-18000AU, HPZA-30000AU, HPN2-1100AU, HPN2-2000AU, UHPN2-1100AU, 76-97AU, 76-98AU, 74-5041AU, UDA-300AU, LCMS-5000AU, LCMS-5001TAU, LCMS-5001NTAU, N2-14AAU, N2-22AAU, N2-35AAU, N2-45AAU, N2-80AAU,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

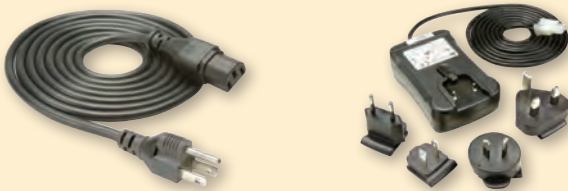


FID-1000EU, FID-2500EU, FID-3500EU, GCGS-7890EU, H2PD-150EU, H2PD-300EU, 75-83EU, HPZA-3500EU, HPZA-7000EU, HPZA-18000EU, HPZA-30000EU, HPN2-1100EU, HPN2-2000EU, UHPN2-1100EU, 76-97EU, 76-98EU, 74-5041EU, UDA-300EU, LCMS-5000EU, LCMS-5001TEU, LCMS-5001NTEU, N2-14AEU, N2-22AEU, N2-35AEU, N2-45AEU, N2-80AEU,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

Offer of Sale

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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.

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) appointments 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.

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