PRAMA
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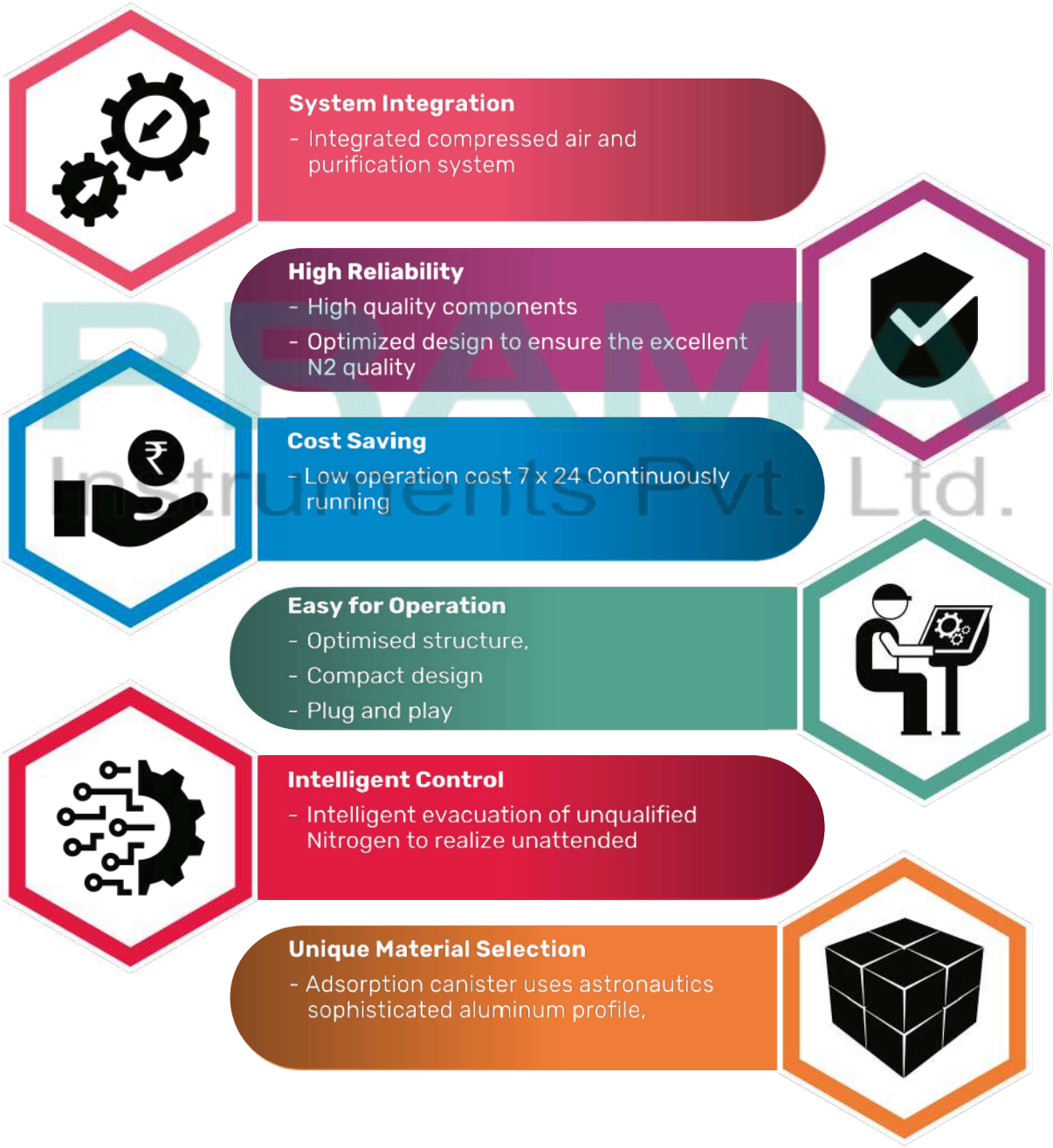
Lab Gas Generators

- High Reliability & Easy for Operation
- Compact Size
- Bast Quality & Better Performance
- Over 500+ Installation in India & Internationals



- Safe and convenient
- Compact structure.
- Take up very little laboratory space.
- Nitrogen generators supply ideal ultra pure nitrogen for GC (Gas Chromatography), LC/MS (Liquid Chromatograph / and Thermal Analyzer.
- Continuously generate ultra pure nitrogen through Pressure Swing Adsorption (PSA) technology.
- No longer need to use inconvenient and dangerous high pressure nitrogen cylinders in laboratory.

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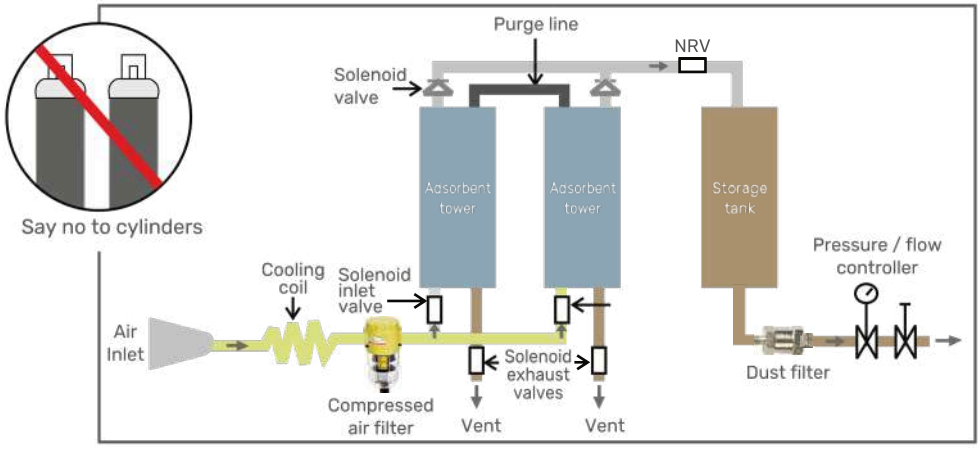
Nitrogen Gas Generator GC

- N2 purifier to remove O2 and all other unwanted impurities to produces nitrogen upto UHP grade.
- Automatic heatless air dryer time based operation.
- Surge receiver with pressure regulator & valve inbuilt.
- Nitrogen, air gas with regulator, gauge and toggle valve (inbuilt) SS tank.
- Air filters for moisture, dust and oil, must removal (set of 2 filters).

Silent Features:

- Deliver constant pressure & flow
- Fully Automatic Programmable System
- Easy Maintenance and space saving
- Effortless and easy operation
- Improves instrument performance
- Fully regenerative, durability with PSA (pressure swing adsorption) technology
- CAD Detector

Schematic Diagram of Gas Generator



Technical Specification

Model	Gas Output	Flow rate	Application	
PIPL - 02	Nitrogen Gas Generator	**Flow:** N2 = 200 ml/min **Purity:** 99.999% **Pressure:** 7 bar	For 2 GCs Gas Chromatographs	GC-FID, GC-FPD GC-NPD, GC-ECD GC-TCD, GC-ATD AT-AED, GC-ELSD THA, DSC Air, TGA, TOD, CO2 Analyzer Sample Prep Autosamplers ELSD Detector Particle sizing by Laser Diffraction TOC
PIPL - 05	Nitrogen Gas Generator	**Flow:** N2 = 500 ml/min **Purity:** 99.999% **Pressure:** 7 bar	For 5 GCs Gas Chromatographs	

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Nitrogen + Air Combination Gas Generator for GC

Nitrogen Generator uses PSA technology to separate N2 from the Air, whole PRAMA equipment is control by the programs. The Flow output & pressure of N2 are quite stable, The physical method to produce Nitrogen by PSA technology. The Nitrogen generator has advantages of no pollution, no corrosion. It could longer GC lifetime. It is very safety to use, longer life time, stable quality, and very easy to use. It could completely meet requirement for kinds of GC.

Silent Features:

- It can replace the high pressure nitrogen cylinder to make the laboratory instrumented and ensure the safety.
- Automatic control of working process, simple operation and convenient daily maintenance.
- Digital display of nitrogen production is convenient for observing instrument working state and fault judgment.
- Long service life, continuous or intermittent use, stable gas production and no attenuation.
- Program controlled intelligent self diagnosis function and service prompt function, easy to maintain.
- Highly integrated modular structure design, saving laboratory space.
- The system has built-inpressure stabilizing unit of air storage tank and safety valve design with international standards.
- Movable design with caster, easy to facilitate move.

Machine Characters:

- Two CMS tower, with world top quality molecular sieve from Japan.
- Stainless steel gas tank inside to guarantee gas purity.
- Two levels pressure stable valves to guarantee very stable output pressure.
- Three levels gas purification system to guarantee very high output purity.
- Flow and pressure are both adjustable. Gas produced on demand.
- Continuously generate ultra-pure nitrogen through Pressure Swing Adsorption (PSA) technology.
- Compressor inside, no needing any external air source.
- Produce ultra pure nitrogen for GC (Gas Chromatography), LC/MS (Liquid Chromatograph / Mass Spectroscopy) and Thermal Analyzer.

Technical Specification

Model	Gas Output	Flow rate	Application	
PIPL - 05	Nitrogen + Air Combination Gas Generator	**Flow:** N2 = 500 ml/min **Air** = 5000 ml/min **Purity:** 99.999% **Pressure:** 7 bar	For 5 GCs Gas Chromatographs	GC-FID GC-FPD GC-NPD GC-ECD GC-TCD GC-ATD AT-AED GC-ELSD
PIPL - 02	Nitrogen + Air Combination Gas Generator	**Flow:** N2 = 200 ml/min **Air:** 2000 ml/min **Purity:** 99.999% **Pressure:** 7 bar	For 2 Gcs Gas Chromatographs	

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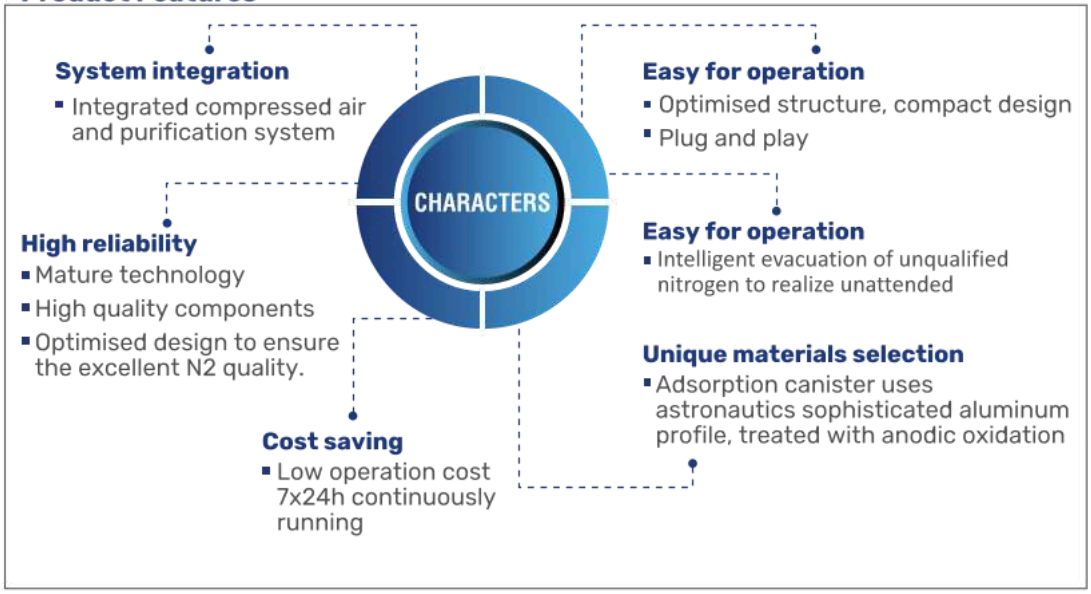
Nitrogen Gas Generator for LC-MS

- Nitrogen Generator produces a continuous flow of high purity N2 at selected pressure
- The modular pressure swing adsorption (PSA) unit operates with alternating pressure of increase and decrease the function.
- Untreated air flows under pressure through the reaction towers containing carbon molecular sieves adsorber.
- O2, CO, Co , THC, Moisture and other unwanted components in the air are adsorbed, leaving Nitrogen Gas of required purity.
- During the desorption cycle, the trapped substances adsorbed are released again at low pressure and the adsorber is ready for next cycle.
- Flow range available from 10 LPM to 65 LPM and above.

Technical Specification

Model	Gas Output	Flow rate	Application	
PIPL.CMS1	Nitrogen Gas Generator	**Flow:** N2 + 6LPM-40LPM **Purity:** MS Grade **Pressure:** 7 bar	N2 Generator compatible with most of the LC-MS instrument	Suitable for most of theLC-MS instrument
PIPL-LCMS2	Nitrogen Gas Generator	**Flow:** N2 = 65LPM **Purity:** MS Grade **Pressure:** 7 bar	N2 Generator developed for LC-MS instruments with require higher flow rates	N2 supply for range of laboratory application including LC-MS

Product Features



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Nitrogen Gas Generator for LC-MS-MS

- Outlet Flow N2: 20LPM
- Outlet Pressure N2: 7bar (kg/cm²) 100 psi
- Purity: 99.9%
- Purity: UHP / LCMS Grade
- Micro Particulate: Nil
- Outlet Connection: 1/4" OD
- Method of Purification: Pressure Swing Adsorption Technologies
- PSA & Depressurisation
- Valves: PLC based Pneumatic 2 way
- Tank received attached backside of N2 generator
- With In-built Oil Free Air Compressor for above generator
- The Nitrogen gas generator should be based on pressure swing adsorption (PSA) technology with two columns should operate alternately in adsorption & desorption cycle to produce a continuous supply of Laboratory Grade Nitrogen 24 hour a day.

Technical Specification

Model	Gas Output	Flow rate	Application	
PIPL-LCMSMS1	Nitrogen Zero Air Curtain Dry Air Gas	**Nitrogen:** 4 LPM **Zero Air:** 12 LPM **Dry Air:** 8 LPM **Purity:** MS grade **Pressure:** 7 bar	Suitable for selected Sciex LC-MS instrument LC-MS	API/LCMS/APCI Electrospray LCMC/MS, TOF
PIPL-LCMSMS1	Nitrogen Zero Air Curtain Dry Air Gas	**Nitrogen:** 12 LPM **Air:** 24 LPM **Dry Air:** 14 LPM **Purity:** MS grade **Pressure:** 7 bar	Suitable for all Sciex LC-MS instruments	Air for nebulizer gas nitrogen for curtain and sheath shield gas
PIPL-LCMSMS3	Nitrogen Zero Air Curtain Dry Air Gas	**Nitrogen:** 24 LPM **Zero Air:** 48 LPM **Dry Air:** 32 LPM **Purity:** MS grade **Pressure:** 7 bar	Suitable for selected LC-MS-MS instruments with the requirement high flow	
PIPL-LCMSMS4	Nitrogen Zero Air Curtain Dry Air Gas	**Nitrogen:** 36 LPM **Dry Air:** 26 LPM **Purity:** MS grade **Pressure:** 7 bar	Nitrogen generator developed for Agilent MP-AES instruments	

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Zero Air Generator For GC & TOC

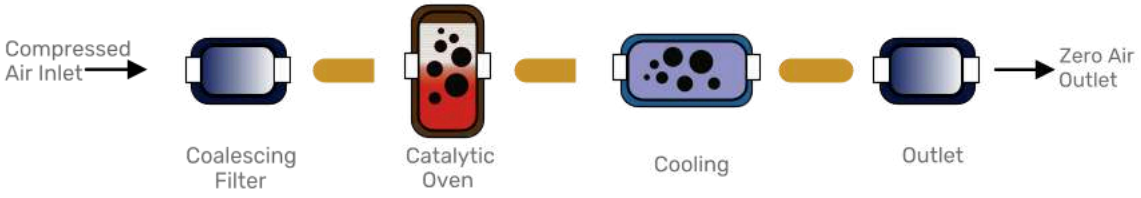
- Zero Air Generator for TOC Analyzer produces a continuous flow of high purity Zero Air at selected pressure.
- System has built in moisture separator with Air Filter & Desiccant Air Dryer
- The modular pressure swing adsorption (PSA) unit operates with the alternating pressure increase and decrease.
- Untreated Air Flows under pressure through the reaction towers containing molecular sieve adsorber
- Moisture, CO, CO, THC and other unwanted components in the air are adsorbed, leaving Zero Air Gas of required purity.
- The Zero Air Generators are suitable for use in the laboratories for Online TOC Analyzer

Silent Features:

- Deliver constant pressure & flow
- Fully Automatic Programmable System
- Easy Maintenance and space saving
- Effortless and easy operation
- Improves instrument performance
- CE & ISO 9001:2015 FDA Certified
- Fully regenerative, durability with PSA (pressure swing adsorption) technology

Applications:

- GC-FID, FPD, NPD, TCD, AED
- GC-MS, LC-MS-MS, ICP / NMR
- FTIR/IR, ELSD detector
- Purging, Ampule Filling
- Analytical Grade
- Turbo Evaporator
- TOC Analyzer
- TOC Online Analyzer



Technical Specification

Model	Gas Output	Flow rate	Application	
PIPL-05	Zero Air Gas Generator	**Flow:** Air = 5000ml/min **Purity:** 99.999% **Pressure:** 5-6 bar	For 5 GCs Gas Chromatographs	GC-FID,GC-FPD GC-NPD,GC-ECD GC-TCD,GC-ATD AT-AED,GC-ELSD THA, DSC Air, TGATOD, CO2 Analyzer Sample Prep Autosamplers ELSD Detector Particle sizing by Laser Diffraction TOC
PIPL-02	Zero Air Gas Generator	**Flow:** Air = 2000ml/min **Purity:** 99.999% **Pressure:** 5-6 bar	For 2 Gcs Gas Chromatographs	
PIPL-T	Zero Air Gas Generator	**Flow:** Air = 4000ml/min **Purity:** 99.999% **Pressure:** 5-6 bar	For TOC Analyzer Gas Chromatographs	

PRAMA
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N2 & H2 & Air Combination Gas Generator

PRAMA N2 & H2 & Air generators achieve the perfect combination of nitrogen, hydrogen and Air. Compact structure and easy operation make it the ideal gas generator. This product can be applied to various gas chromatography and analysis instruments at home and abroad. N2 & H2 & Air Generator has the characteristics of three-in-one, three-in-one, compact design and simple operation. It is an ideal laboratory instrument to replace traditional cylinder gas.

Applications:

- Petroleum
- Chemical
- Pesticide
- Fertilizer
- Tobacco Power Generation
- Drug Testing
- Wine Making
- Water Quality Testing
- Environmental Monitoring
- Disease Control Centres
- Universities
- Research Institutes
- Other Departments Monitoring
- Indoor Environmental Monitoring

Silent Features:

- Start the switch, safe and reliable.
- Adjusted automatically
- Anti-liquid device
- LED digital display
- Anti-impact anti-aging filter
- High purity of gas
- One-time addition of alkali,
- Automatic drainage
- Stainless steel gas storage tank
- Can be used for 24 hours in a row
- Preferable in gas chromatographs at home and abroad.
- It can replace traditional high pressure cylinders.
- Easy to operate
- Pressure stability
- Low noise and strong purification ability
- System three-stage filtration (no oil)
- Long service life and easy maintenance

Technical Parameters

Model:	PIPL-NAH-300
Nitrogen Outflow:	0~300 ml/min
Air Outflow:	0-2000 ml/min
Hydrogen Outflow:	0~300 ml/min
H2, N2 Air output pressure:	5 kg/cm² (0-60 psig)
Air output pressure:	0-4 kg/cm² (0-60 psig)
H2/N2/Air purity:	99.999%
Moisture:	< 2 ppm
Oxygen:	< 3ppm
Voltage:	~220V±10% 50Hz
Power:	450W
Water tank:	H2 2.5 liters
Ambient temperature:	5°~40°
Dimension (mm):	500 × 440 × 380
Weight:	40 kgs
Hydrogen technology:	SPE / PEM
N2 & Air technology:	PSA (Pressure Swing Adsorption)
Water Quality Demand:	Deionized water or Double distilled water

Nitrogen Gas Generator for FTIR / ELSD / CAD

Features:

- Safe and convenient
- Compact structure. Take up very little laboratory space.
- Nitrogen generators supply ideal ultra pure nitrogen for ELSD, CAD Detector, FTIR, GC (Gas Chromatography), LC/MS (Liquid Chromatograph / Mass Spectroscopy) and Thermal Analyzer.
- Continuously generate ultra pure nitrogen through Pressure Swing Adsorption (PSA) technology. No longer need to use inconvenient and dangerous high pressure nitrogen cylinders in laboratory.

Why Choose Prama Nitrogen Generator Units:

- Warranty 2 years
- Extensive experience in manufacturing the PSA and membrane units
- All the PRAMA Group's facilities are CE, FDA, ISO 9001:2015 Certified
- Modular design for easy installation
- Systems designed for long-term reliability & availability of smallest physical footprint available
- Strategic alliance with dryer and compressor suppliers
- Extensive global service network PRAMA Group has a top-rated PSA & membrane technology when comparing nitrogen / air ratio
- We manufacture gas generators for many specialist applications including FT-IR. Our PG range of Purge Gas generators provide CO2 free gas which is ideal for FT-IR analysis
- Nitrogen generators which are suitable for ELSD and CAD applications

Technical Specification

Model	Gas Output	Flow rate	Application
PIPL-FTIR	Nitrogen Gas	**Flow:** 15 lpm **Purity:** 99.99% **Pressure:** 7 Bar	FTIR Instrument
PIPL -ELSD	Nitrogen Gas	**Flow:** 10 lpm **Purity:** 99.5% **Pressure:** 7 Bar	ELSD
PIPL -CAD	Nitrogen Gas	**Flow:** 10-30 lpm **Purity:** 99.9% **Pressure:** 7 Bar	CAD Detector

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Nitrogen Generator for N2 Evaporator / Turbovap/ SPE Processor

We PRAMA INSTRUMENTS, are the Manufacturer & Exporters of High-Quality PSA Nitrogen Gas plants from India. Our PSA Nitrogen Gas Plants are of high quality working on the renowned PSA Technology & pertaining industry standards. If you are looking for pure Nitrogen, you need is to select best PSA nitrogen gas generator. Nitrogen purity in the range of 99% to 99.9999% can be achieved through our nitrogen gas generators & Plants. Our PSA nitrogen gas generator produces raw nitrogen of 99% to 99.99% purity. Our Nitrogen Plant operates on PSA technology, consists of twin tower system filled with special grade of carbon molecular sieves (C.M.S.) at a time, one tower keeps in production cycle and other in regeneration cycle. When compressed air passed through C.M.S. bed, the molecules of oxygen, moisture& other unwanted gases are adsorbed on the surface of C.M.S. and the nitrogen which is not adsorbed by C.M.S comes out of the adsorption tower and is collected in a surge vessel.

Nitrogen Generator Model PIPL for Purging, in SPE processors, Pharma Applications, Nitrogen Concentrator, Turbovap Evaporator.

- N2 Purifier to remove 02 and all other unwanted impurities
- To produces Nitrogen upto HP grade.
- Automatic Heatless Air dryer time based operation Surge receiver with pressure regulator& valve inbuilt Nitrogen, Air gas with regulator, Gauge and toggle valve (inbuilt) SS tank
- Air filters for moisture, dust and oil, mist removal (set of filters)
- Compact size
- Capable of supplying multiple instruments
- 24/7 operation at optimum performance
- Lower maintenance requirement and ensures long life of the generator
- Completely silent in operation•
- Automatic drain system
- Automatic purging moisture system

The Nitrogen gas generator be based on pressure swing adsorption (PSA) technology with two columns of CMS molecular sieve absorber. The two columns operate alternately in adsorption & desorption cycle to produce a continuous supply of grade nitrogen 24 hours a day

Specifications	For Purging in Nitrogen Evaporator (ATN-P)
Flow rate capacity of N2 Generator	75-5000 lpm (for 25, 50, 100, 144 Sample Nitrogen Evaporator & SPE Processor) (5^3~100nm^2/hr)
Pressure	1~8 kg/cm^2 or 10 psig~ 100 psig (Settable)
Purity	>99% (as per requirement)
Gas Outlet	Nitrogen
N2 Outlet Connection	¼"
Total Hydro Carbon	< 10 ppm
CO & CO2	< 10 ppm
Micro Particulates	< 0.01 µm
Method of purification	PSA-Pressure Swing Adsorption
Room temperature	5°C - 45°C
Startup time	30 mins / programmable timer
Electrical requirement	230 V AC, 50 Hz, 1 Ph, 2 Amp

Membrane Nitrogen Gas Generator

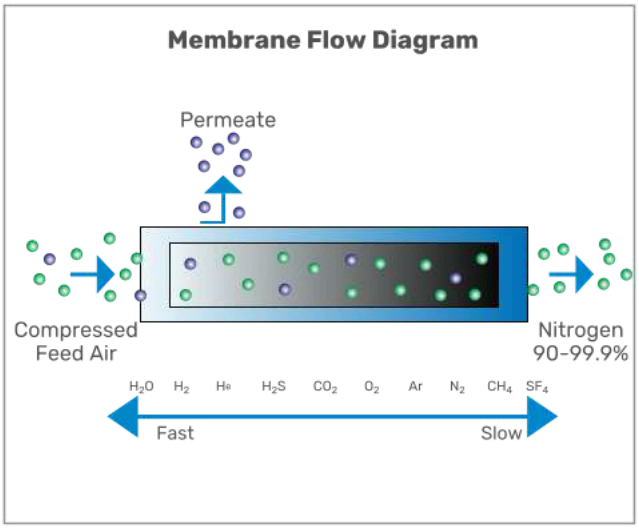
- Extensive experience in producing PSA and membrane units
- Modular design for easy installation
- Systems designed for long-term reliability
- Smallest physical footprint available
- Strategic alliance with dryer and compressor suppliers
- Extensive global service network

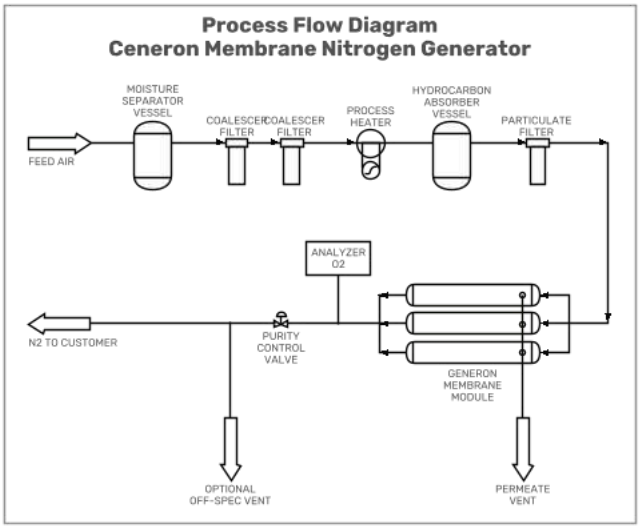
The prama Membrane module contains over one million fibers that selectively remove oxygen and water vapor from compressed air, which enters one end of the membrane module. The enriched nitrogen product flows continuously from the other end of the module where it can be used in production, blanketing, or captured for storage.

prama membranes combine the best available membrane materials with state-of-the-art fiber bundling and the optimum module fabrication methods to provide the most cost-effective solution for on-site gas separation production....and we have over 20 patents to prove it!

Typical System Configuration (PFD)

The process flow diagram below provides a basic system description of the Nitrogen Membrane Generator. A detailed P&ID will be provided for the exact project once all the system options have been established.





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Hydrogen Gas Generator

Working Principle :

- Hydrogen is produced in the PIPL Series Hydrogen Generators by the most advanced electrolytic membrane technology.
- The application of voltage across the electrolyte results in hydrolysis, breaking down the water molecule into hydrogen and oxygen gas, which are separated by the gas permeable membrane.
- Once separated, the hydrogen gas goes through a series of purification and moisture removal systems to achieve the desired level of purity while the oxygen gas is being discharged into the atmosphere.
- Electrolytic membrane technology has its advantages over alternative hydrogen generating techniques as it is clean, requires less maintenance and there is no need to store chemicals to maintain operation.
- Only pure double distilled water (initially some KOH), is required to provide trouble free long term operation.
- Membrane separation is also less time consuming as only water is needed for routine maintenance.

	PIPL -300	PIPL -500	PIPL -1000
Max Hydrogen Flow rate	300 ml/min	500 ml/min	1000 ml/min
Delivery Pressure	0-60 psig (0-4 kg/cm2 or bar)		
% purity	>99.999%		
Power Consumption	150 W	180 W	220 W
Power	198-242V (AC); 50Hz,1 Phase		
Min/max Temperature	5-40°C		
Max. Ambient Humidity	<85% RH		
Suitable Environment	non-corrosive and dust-free		
Dimensions	420 x 210 x 350mm (LxWxH)		
Weight	12 kg (approx)		
Fluid Tank Capacity	1.5 L		
Fluid Consumption	Weekly or when level falls below 0.6		

Note: *Higher capacity model also available like 2 LPM & 3 LPM*

Applications:

Instruments	Gas Requirement	Purity	Flow Rate	Generator Recommendation
Products for Gas Chromatography				
GC-FID	Hydrogen for fuel gas	UHP Hydrocarbon-free	30-50 cc/min	Hydrogen
	Hydrogen for capillary	UHP, Zero grade	up to 10 cc/min	Hydrogen
GC-FPD	Hydrogen for fuel gas	UHP	60-90 cc/min	Hydrogen
GC-NPD	Hydrogen for capillary gas	UHP	up to 50 cc/min	Hydrogen
GC-TCD	Hydrogen as carrier gas	UHP	up to 50 cc/min	Hydrogen
GC-ELCD	Hydrogen as reaction gas	UHP	70 to 200 cc/min	Hydrogen
Products for Analyzers				
THA	Hydrogen for fuel gas	UHP	5 to 50 cc/min	Hydrogen

Hydrogen Generators provide an onsite supply of hydrogen gas, eliminating the need of gas cylinders, which can be bulky and require special cylinder storage space. They provide ultra-high purity hydrogen gas. The ATH Series Hydrogen Generator have been used in a wide variety of applications such as general industrial, military, wastewater treatment and especially in laboratory gas chromatography. ATH Hydrogen Generators employs the most advance velum separation technology for the electrolytic production of hydrogen gas.

Easy to operate, safe and reliable, generating hydrogen through electrolyzing pure water, switching power on to produce gas.

High reliability, easy to maintain. Match with all kinds of GC.

Our Reputed Customer

PRAMA
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PRODUCT & PEOPLE YOU TRUST

Prama Instruments Pvt Ltd

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