ULTRA HIGH PURE
GAS GENERATOR

PCi™ Analytics

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- Zero Air Gas Generator
- Nitrogen Gas Generator
- Zero Air - Nitrogen Gas Generator
- Hydrogen Gas Generator

Gas Generator

SCES 047

ISO 9001:2000

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Model : ZAG-02

Zero Air Generator for GC

Zero Air Generator produces a continuous flow of high purity Zero Air at selected pressure. The modular pressure swing adsorption (PSA) unit operates with alternating pressure increase and decrease. Untreated air flows under pressure through the reaction towers containing molecular sieve adsorber. Moisture, CO, CO2, THC and other unwanted components in the air are adsorbed, leaving Zero Air 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. The residual impurity content of Zero Air Gas can be reduced to practically any value required for the user's application.

The Zero Air Generators are suitable for use in laboratories and industrial environments.

Zero Air Generator for TOC Analyzer

Zero Air Generator for TOC Analyzer produces a continuous flow of high purity Zero Air at selected pressure. Compressor takes the air from atmosphere, the hot air is than passed through copper cooling coil. The cool air is than passed through furnace where hydrocarbons are cracked at high temperature (temp. range - 400°C to 500°C) in presence of catalyst. The furnace reaction at higher temperature breaks the hydrocarbon into CO_2 & H_2O.

Water is drained away through 5μ & 0.01μ filter. The modular pressure swing adsorption unit operates with alternating pressure increase and decrease. Untreated air flows under pressure through the reaction towers containing molecular sieve adsorber. Moisture, CO, CO_2, THC and other unwanted components in the air are adsorbed, leaving Zero Air 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.

Model : ZAG-03

Technical Specification :

PRINCIPLE SPECIFICATIONS	ZAG-02 (for 2-5 GC's) (for Imported GC)	ZAG-03 (for TOC Analyser)
Moisture	< 2 ppm	< 0.5 ppm
Total Hydro Carbon	< 0.5 ppm	< 0.2 ppm
CO & CO2	< 2 ppm	< 0.2 ppm
Purity	GC/UHP grade	TOC/XL grade
Micro Particulates	< 0.01μ	< 0.01μ
Capacity of ZAG	4 LPM at 5kg/cm^2	1 LPM at 5kg/cm^2
Method of purification	Pressure Swing Adsorption (PSA)	Pressure Swing Adsorption (PSA) & HC Cracking furnace
Room temperature	5 °C - 25 °C	5 °C - 25 °C
Start up time	5 minutes	30 minutes
Electrical requirements for ZAG	230 V AC, 50 Hz, 1 ph 4 Amp	230 V AC, 50 Hz, 1 ph 5 Amp
Size of ZAG without compressor (in mm)	582H x 293W x 522D	735H x 382W x 556D
Net weight of ZAG without compressor	35 kg.	40 kg.

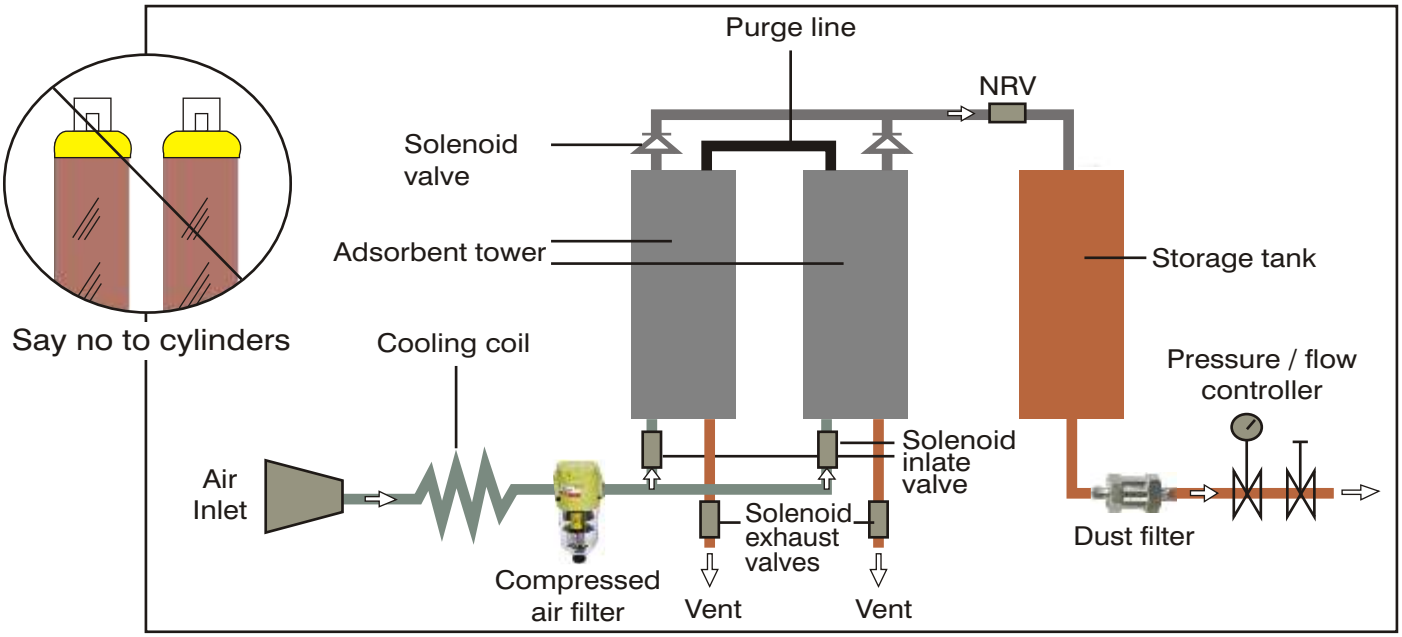
Note:
- Zero Air Generator (Model ZAG-01/1A/02) requires oil free compressed air line of 60 LPM at 6 kg/cm^2
- Oil free compressor can be provided by PCI.
- For model ZAG-03, PCI oil free compressor is recommended

Nitrogen Generator for GC

NG-02

NAG-02A

Schematic Diagram of Gas Generator



Applications:

- GC-FID, FPD, NPD, TCD, AED
- GC-MS, LC-MS-MS, ICP / NMR
- FTIR/IR, ELSD detector
- Purging, Ampule Filling
- Thermal Instruments, Turbo Evaporator (N2 Concentrator)
- All Analytical Instruments

Salient 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 technology

Note:

- Nitrogen Generator can be connected to existing dry/oil free instrument air line or plant nitrogen.
- Nitrogen Generator for different applications are also available for different flow rates from 1 LPM to 1000 LPM of different purity grades as per customer requirement.
- Oil free air compressor can be provided by PCI.
- We can supply only Nitrogen Generator as per customer specification with different flow rates in model NG-02 / 02 (M)

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Nitrogen Generator for LC-MS-MS

NG-02LS / Sciex Model

Nitrogen Generator for LC-MS/ Turbo-Evaporator/Sample Concentrator

NG-02L/NG02T

Technical Specification :

PRINCIPLE SPECIFICATIONS	For LC-MS (NG-02L)	For LC-MS-MS (NG-02LS (for Sciex model)	For Turbo Evaporator (NG-02T)
Moisture	5 ppm	5 ppm	100-200 ppm
Total Hydro Carbon	< 0.5 ppm	< 0.5 ppm	< 10 ppm
CO & CO2	< 2 ppm	< 2 ppm	< 10 ppm
Purity	99.9%	> 99.99%	>98%
Micro Particulates	< 0.01μ	< 0.01μ	< 0.01μ
Capacity of N_2 Generator	6 to 30 LPM at 100 psig (as per selection of model)	12 LPM at 100 psig (filtered zero air) 8 LPM at 60 psig (purified dry air) 4 LPM at 60 psig (pure nitrogen)	50 to 700 LPM at 60 psig (as per selection of model)
Method of purification	Pressure Swing Adsorption (PSA)	Pressure Swing Adsorption (PSA)	Pressure Swing Adsorption (PSA)
Room temperature	5 °C - 25 °C	5 °C - 25 °C	5 °C - 25 °C
Start up time	1 hrs / programmable timer	1 hrs/ programmable timer	1 hrs
Electrical requirements without Compressor	230 V AC, 50 Hz, 1 Ph, 2 Amp	230 V AC, 50 Hz, 1 Ph, 2 Amp	230 V AC, 50 Hz, 1 Ph, 2 Amp
Dimension of N2 Generators in mtr. (without compressor) (approx.)	1.5H x 0.8W x 0.8D (approx) (as per selection of model)	2H x 1W x 1D (approx) (as per selection of model)	2H x 1W x 1D (as per selection of model)
Net Weight (without compressor) (approx.)	100 kg - 200 kg (as per selection of model)	100 kg - 200 kg (as per selection of model)	100 kg - 300 kg (as per selection of model)

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Nitrogen-Air Generator for GC

NAG-01/01A

Nitrogen-Air Generator for GC & TOC

NAG-01A + TOC

Technical Specification :

PRINCIPLE SPECIFICATIONS	N_2 SPECIFICATIONS OF NAG-01/NAG-01A	AIR SPECIFICATIONS OF NAG-01/NAG-01A
Moisture	< 2 ppm	< 2 ppm
Oxygen	< 5 ppm	—
Total Hydro Carbon (THC)	< 0.3 ppm	< 0.3 ppm
CO & CO_2	< 2 ppm	< 2 ppm
Purity	UHP / GC grade	UHP / GC grade
Micron particulates	< 0.01μ	< 0.01μ
Capacity of NAG-01	500ml/min at 5 kg/cm^2	4000ml/min at 5 kg/cm^2
Capacity of NAG-01A Capacity of NG-02/02M	200ml/min at 5 kg/cm^2 500ml/min to 10 LPM at 5kg/cm^2	1500ml/min at 5 kg/cm^2 —
Method of Purification	Pressure Swing Adsorption (PSA) & Depressurisation	Pressure Swing Adsorption (PSA) & Depressurisation
Room Temperature	5 °C - 25 °C	5 °C - 25 °C
Start up time	2 hr / programmable by timer	10 min
Electrical requirements for NAG-01 & NAG-01A	230 V AC, 50 Hz, 1 ph 5 Amp	230 V AC, 50 Hz, 1 ph, 5 Amp —
Size of Generator without compressor (in mm) (approx.)	736 H x 413 W x 590 D for NAG-01	—
Size of Generator without compressor (in mm) (approx.)	730H x 337 W x 580 D for NAG-01A	—
Net weight of generator (in kg) (without compressor) (approx.)	50 kg of NAG-01	—
Net weight of generator (in kg) (with compressor) (approx.)	60 kg of NAG-01A	—

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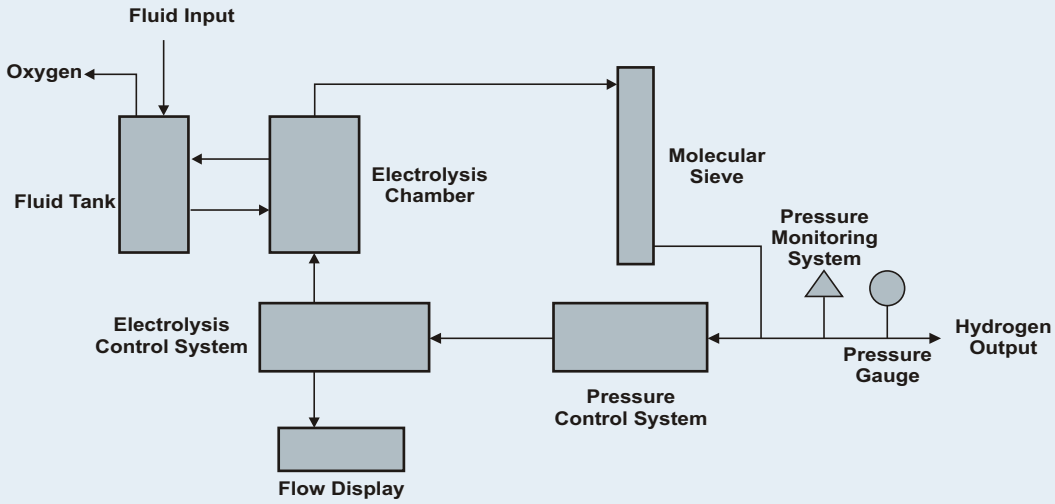
Hydrogen Gas Generator

Technical Specification :

	SGH-300	SGH-500	SGH-1000
Max Hydrogen Flowrate	300 ml/min	500 ml/min	1000 ml/min
Delivery Pressure	0-60 psig (0-0.4 Mpa)		
% purity	>99.999%		
Power Consumption	150W	180W	220W
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		

Flow Diagram of Hydrogen Generator



Working Principle

Hydrogen is produced in the SGH 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.

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