Multiplelabs
Turnkey Laboratories Solutions

Analytical®
Technologies Limited

GasGen-3000 Series

Combine Gas Generator for Nitrogen, Hydrogen & Air

EPCC / PRODUCTS / APPLICATION / SOFTWARE / ACCESSORIES / CONSUMABLES / SERVICES

Analytical Technologies Limited

An ISO 9001 Certified Company

www.analyticalgroup.net

HYDRON GENERATOR HG (7, 16, 25 L)

CHARACTERISTIC OF HG 7, 16, 25 L

Produced hydrogen corresponds to requirements. Besides this HG-HP can be used as the source of gas carrier due to extra gas purification, especially when helium is not available to user, for example during work with thermal conductivity detector (TCD). High thermal conductivity of hydrogen allows TCD to work with better sensitivity in comparison with helium.

Microprocessor controlling of operational modes make hydrogen generator a standalone device, and also allows it to control general and technical parameters of generator including pressure, consumption, level of water poured into the tank, electrolyzer current, leakproofness of gas mains. All the main of generator are made of inert materials.

BOTH TYPES OF GENERATOR PROVIDE:

- Multiprocessor controlling
- Multistage system of gas purification
- Reduction of heart release and increasing of reliability by means of using power supply of electolyzer with high efficiency.
- Automatic transfusion that ensures avoiding pressure failures
- Protection from hydrogen excess pressure and excess of electolyzer current
- Increase of electrolyzer services period by means of regulating hydrogen productivity
- Temperature control of oxygen afterburner
- Prevention of ingress of moisture into user's pipes by means of using hydrogen indication.

There are main parameters on LCD display of HG and HG-HP: outlet pressure, present pressure, electrolyzer current and afterburner temperature, hydrogen consumption.

CONTROL AND MAINTENANCE

Control and input of parameters is fulfilled through 4-button keyboard. Generators are filled by bidistilled or especially pure water with refilling during its work, without switching off the device, at that hydrogen generators ensure long continuous work. Hydrogen generators allow to reduce greatly or completely eliminate in the majority of cases the use of bottled gas for chromatograph provision.

Electric power from single phase network AC power with voltage from 187 to 240v, frequency (50±1) Hz, work mode – continuous.

ERGENCY SITUATIONS DURING WORK OF GENERATOR

Integrated control system measures the pressure and flow rate of hydrogen. In an emergency (like a line break), a lock is triggered adn delivery of hydrogen to user line. In case water level is insufficient, the system will inform about it.

There is no hydrogen reverse in generators that can be possibly momentary fill the laboratory or chromatograph, and its productivity will allow to create an explosive concentration of gas in the room, and that increases its safety.

TECHNICAL CHARACTERISTICS

Parameter	HG-7	HG-16	HG-HP-7	HG-HP-16	HG-25
Productivity, l/hour	0-7.5	0-16	0-7.5	0-16	0-25
Maximal outlet pressure, atm	4*	4*	4*	4*	4*
Pressure stability of hydrogen, no less, atm	0.0025	0.0025	0.0025	0.0025	0.0025
Watering of hydrogen, no more than, ppm	5	5	5	5	5
Hydrogen purity, %	99.995	99.995	99.995	99.995	99.995
Pre-mode time, min	30	30	30	30	30
Water consumption, g/l H22	1.0	1.0	1.0	1.0	1.0
Tank volume O2, L	1.0	1.0	1.0	1.0	1.0
Water volume added to the tank O2 if alarm went off no more than, l	0.65	0.65	0.65	0.65	0.65
Afterburner O2	-	-	+	+	-
Power consumption, no more than, VA	130	170	140	175	300
Overall dimensions (w*D*H), no more than,mm	200*450*500	200*450*500	200*450*500	200*450*500	200*450*500
Mass, no more than, kg	14	15	14	15	17

HYDROGEN GENERATOR HG-75

Hydrogen generators are used for supply of flame chromatographic detectors. Produced hydrogen corresponds the requirements.

Microprocessor control of generator work modes makes it a standalone device, and it also allows to control basic and technical generator parameters, including pressure, consumption, level of water poured in the tanks, electrolyzer current, leakproofness of gas mains. All mains of generator are made of inert maerials.

BOTH TYPES OF GENERATOR PROVIDE:

- Gas purification system
- Microprocessor control
- Decrease of heat release and reliability by means of using electrolyzer power supply with high efficiency coefficient
- Protection from hydrogen pressure excess and electrolyzer current excess
- Increase of service life by means of hydrogen productivity regulating
- Prevention of moisture ingress to the user's pipes by using control and level water indication.

Indication of generator main parameters of LCD display provided:

- Outlet pressure
- Electolyzer current
- Hydrogen consumption

Control and insertion of parameters is done by 4 button keypad. Hydrogen generator allow to reduce greatly or completely eliminate, in the majority of cases, the use of bottled gas for chromatograph provision.
There is no hydrogen reserve in generators that can be possibly momentary fill the laboratory or chromatograph, and its productivity will not allow to create an explosive concentration of gas in the room, that increase its safety.
Hydrogen generator HG-75-O2 optionally provides oxygen generation for welding. Generator can be equipped with a catalyc filter.
Electric power from single-phase network AC power with voltage from 187 to 242V, frequency (50±1) Hz, Work mode – continuous.

TECHNICAL CHARACTERISTICS:

Parameter	HG-75	HG-75-O2
Productivity H2, l/hour	0-75	0-75
Productivity O2, l/hour	-	37
Maximal outlet pressure, atm	2	2
Pressure stability of hydrogen, no less, atm	0.0025	0.0025
Watering of hydrogen, no more than, ppm	5	5
Hydrogen purity, %	99.995	99.995
Pre-mode time, min	30	30
Water consumption, g/l H2	1.0	1.0
Working time without adding water, hour	4	4
Ank volume O2, L	2.5	2.5
Water volume added to the tank O22 if alarm went off no more than O, L	1.4	1.4
Power consumption, no more than, VA	800	800
Overall dimension (W*D*H), no more than, mm	225*390*550	225*390*550
Mass, no more than, kg	25	26

NITROGEN GENERATOR

PURPOSE

Usage of Generator allows to obtain nitrogen with high purity in the laboratory, It is used for supply chromatograph during the analysis. Nitrogen produced by generator is characterized by high outlet pressure and low moisture content, which allows to use it as carrier-gas even together with ECD.

THE PRINCIPLE OF THE DEVICE

Compressed air form the internal source (Air compressor, built-in-air compressor, technological line with compressed air) is delivered to generator through coalescence filters, where pre-cleaning from dust and oil drops condensation is done. Extraction of nitrogen in the generator is done by air separation by means of short-cycle no-heat absorption on carbon molecular sieve by two-arm scheme with two alternately working absorbers. Simultaneously gas is purified from water vapor, carbon dioxide, oils, hydrogen and carbohydrates.

WORKING PROCESS

Primary blowing of absorbers, receiver and internal lines from oxygen, moisture and other impurities is done during first 8 minutes after switching the generator on. Warming up of the reactor and oxygen sensor is done at the same time together with control of oxygen concentration in nitrogen. Supply of nitrogen to user line starts only after concentration of oxygen in nitrogen reduces to the value less than 20 ppm. Further purification of nitrogen is done at working user line. Pressure at the generator outlet is stabilized by built-in mechanic pressure controller. Nitrogen flow values in user line and oxygen concentrations are detected by in-built sensors and are indicated on digital display.

EMERGENCY SITUATIONS DURING WORK OF GENERATOR

In emergencies like line break (significant depressurization of user line), reduction of inlet pressure lower than 4,5atm, increase of oxygen up to 100 ppm – are controlled accordingly by flow sensor, pressure sensor and oxygen sensor. Delivery of nitrogen to user line is stopped in such cases and indicator “ALARM” lights up together with sound signal. After eliminating the cause of generator shutdown primary 8-minutes device blowing is repeated. Supply of nitrogen to the user resume after oxygen concentration reduces to the values less than 20 ppm.

SPECIFICATION

CLASSIFICATION OF GENERATED NITROGEN	PNG-18
Vol. fraction of nitrogen, no less than, % vol. (including impurities of inert gases – argon, neon, helium)	99.999
Vol. fraction of oxygen, no more, ppm	5
Vol. fraction of water vapor, no more, ppm	7
Vol. fraction of hydrogen, no more, ppm	2
Vol. fraction of total carbon-containing compound in conversion to methane, no more, ppm	3
Maximum productivity by nitrogen, no less, l/hour	18 (300 МЛ/МNH)
Nominal outlet pressure of nitrogen, atm	4
Setting time of work mode, no more, min	45
Maximum inlet air pressure, atm	5
Compressed air consumption at nominal inlet pressure, no more, l/hour	300
Power consumption, no more, VA	100
Overall dimensions (W*D*H), no more, mm	210*500*460
Mass of generator, no more, kg	20

THERE ARE GENERATORS OF 18, 21, 60, 120, 200, 400 LITRES PER MINUTE.

PURE AIR GENERATOR

Pneumatic Part of generator consist of seriously connected air compressor, drying filter, receiver, reactors, pressure regulator. Electronic part consists of power unit, control board, indication card, pressure sensors connected with each other by microcontroller. Pressure sensor, connected with receiver, detects moment of compressor switching on/off to develop required excess pressure in the receiver. At the increase of air flow over nominal generator productivity (partial depressurization) indicator “alarm“ lights up and short beeps begin at the same time.

Drying is done by the filter which is automatically regenerated during work of unit. Catalyst purification is done in reactor. Pressure regulator ensures stabilization of outlet pressure, its value is measured by electronic sensor and is displayed on digital board “PRESSURE”. Indicator “ALARM” turns on in case of outlet pressure stability failure (downturn of pressure lower than in technical passport), long beeps begin at the same time and compressor stop working. Such situation arises if depressurization of the system takes place: air generator-connection line-gas chromatograph.

Electric power of air generators is from single-phase network AC power with voltage from 187 to 242V, frequency (50±1) Hz, work mode – continuous.

TECHNICAL CHARACTERISTIC

NAME OF CHARACTERISTICS	VALUE
Productivity by air, brought to normal conditions, L/min, no less	1.2
Outlet air pressure, atm	3.5
Outlet pressure stability, no more, atm	0.05
Outlet concentration of hydrocarbon, ppm, no more	0.1
Water vapor concentration at 200C and 100kPa, ppm, no more 10	10
Power consumption, no more, VA	200
Overall dimensions	210*440*360
Mass of generator, no more, kg	11

Analytical®
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HPLC Servicing, Validation, Trainings and Preventive Maintenance :

HPLC Servicing :HPLC Servicing : We have team of service engineers who can attend to any make of HPLC promptly @the most affordable cost.

Trainings :We also take up preventive Maintenace to reduce downtime of HPLC's Trainings.

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Validations :Validations :We have protocols for carrying out periodic Validations as per GLP/GMP/USFDA norms.

Instruments :Instruments :We offer instruments/Renting Services Modules like pumps,detector etc. on Rent.

About Analytical Technologies

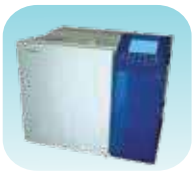
Analytical Technologies is synonymous for offering technologies for doing analysis and is the Fastest Growing Global Brand having presence in at least 96 countries across the global. Analytical Technologies Limited is an ISO:9001 Certified Company engaged in Designing, Manufaturing, Marketing & providing Services for the Analytical, Chromatography, Spectroscopy, Bio Technology, Bio Medical, Clinical Diagnostics, Material Science & General Laboratory Instrumentation. Analytical Technologies, India has across the Country operations with at least 4 Regional Offices, 6 Branch Offices & Service Centers. Distributors & Channel partners worldwide.

Our Products & Technologies

UV/VIS Spectro 2080+ Double Beam

Infra FTIR

Optima Gas Chromatograph 3007



Optima Gas Chromatograph 2979 Plus

Flash Chromatograph

Atomic Absorption Spectrophotometer

Liquid Partical Counter

Optical Emission Spectrophotometer

DSC/TGA

Semi Auto Bio Chemistry Analyzer

HEMA 2062 Hematology Analyzer

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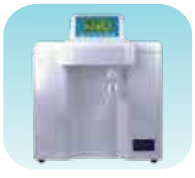
NOVA-2100 Chemistry Analyzer

PCR/Gradient PCR/ RTPCR

TOC Analyzer

Laser Particle Size Analyzer

Ion Chromatograph



Water purification system

Regulatory compliances

Corporate Social Responsibility

Analytical Foundation is a nonprofit organization (NGO) found for the purpose of:

1.Research & Innovation Scientist's awards/QC Professional Award : Quality life is possible by innovation only and the innovation is possible by research only, hence ANALYTICAL FOUNDATION is committed to identify such personallities for their contributions across various field of Science and Technology and awarding them yearly. To participate for award, send us your details of research / testing / publication at Info@analyticalfoundation.org

2. Improving quality of life by offering YOGA Training courses, Work shops/Seminars etc.

3. ANALYTICAL FOUNDATION aims to DETOXIFY human minds,souls and body by means of yoga, Meditation, Ayurveda, Health Care, Awards, Media, Events, Camps etc.

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