

Nitrogen Generators

Commercial nitrogen production (tank car quantities, cylinders, etc.) is usually conducted by cryogenic separation (liquefaction and rectification of air). Small scale preparation (for laboratory use) of high purity nitrogen is economically infeasible by this procedure.

AADCO nitrogen generators produce very pure nitrogen from pressurized air. This generation system relies upon an air source which is constantly increasing in pressure during the separation cycle, i.e., no static or falling pressure during the cycle. The absorbing medium is able to retain oxygen, water and trace gases selectively while permitting uninterrupted passage of nitrogen and argon. The AADCO nitrogen generator output is actually 99% nitrogen and 1% argon, both inert. The product purity is equivalent to Research Grade Nitrogen (the very best grade), having a minimum purity of 99.999 mole%. It is usually supplied only in small cylinders from the gas cylinder bottlers.

Installation

Once the nitrogen generator has been located in a laboratory environment (maximum ambient temperature does not exceed 85° F and the relative humidity 70%) the unit is ready for operation. The output can be connected to a single instrument or "tee'd" to several instruments provided the total flow does not exceed 300 cc/min. Where higher flows are required, several nitrogen generators can be manifolded.

Models

AADCO nitrogen generators are available in both bench and rack-mounted instruments, designed to meet laboratory needs or other low-volume nitrogen requirements. Performance, operation and components are identical for both units.

Safety

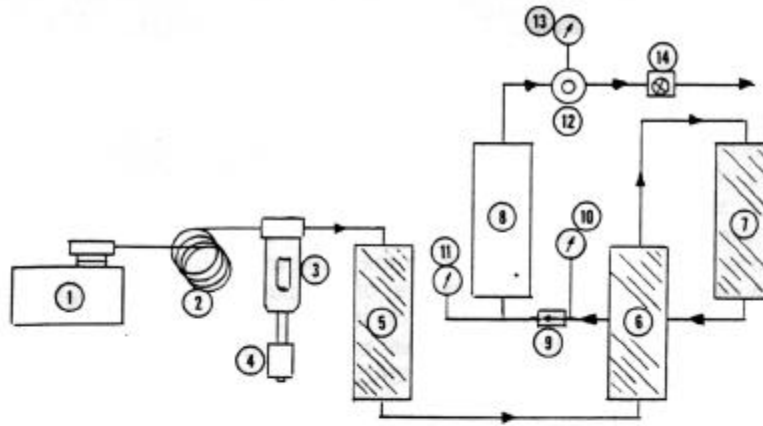
Of major significance are the OSHA regulations governing the siting and usage of high pressure cylinders. The AADCO Model 441-series nitrogen generators, with their low internal volume and low pressure, satisfy OSHA requirements and eliminate those problems associated with the storage and handling of high pressure cylinders. In addition, to avoid impure nitrogen entering the using equipment, each unit has a Power Safety Delay, with status indicating tamps, which is automatically activated in the event of a power outage. This necessitates operator interference before nitrogen generation is resumed. To prevent over consumption of nitrogen from the generator and to avoid exceeding the maximum rated capacity of the instrument, there is an internal limiting flow controller.

Operation

Within eight hours, upon completion of the installation and applying power to the generator, full internal pressure, of high purity nitrogen, as show on the nitrogen pressure gauge, will be reached. At this time the READY lamp will light, signifying the continuous availability of usable nitrogen. The operator then sets the output pressure at the using equipment. The flow is also regulated at the using equipment from I – 500 cc/min. The performance of the generator during operation is indicated automatically by various diagnostic lamps and internal pressure gauges.

Purity

Following the specified installation and operating procedures, the user can reliably anticipate the output purity to be less than 2.5 PPM Oxygen, 2.0 PPM Water, 0.5 PPM hydrocarbons, 2.0 Pm COS. This purity exceeds Research Grade, the highest gas cylinder purity available.



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| 1. Oil-less Compressor | 8. Storage Chamber |
| 2. Coiling Coil | 9. Check Valve |
| 3. Filter/Coalescer | 10. Gauge, Filling Pressure |
| 4. 3-Way Valve | 11. Gauge, Storage Chamber Pressure |
| 5. Adsorption Chamber | 12. Internal Output Pressure Regulator |
| 6. Adsorption Chamber | 13. Gauge, Available Nitrogen Pressure |
| 7. Adsorption Chamber | 14. Limiting Output Flow Controller |

SPECIFICATIONS

Model	441-1 (Bench)	441R-1 (Rack)
Capacity	300 cc/min	
Output Pressure	2-60 PSIG 4.0 Bar	
Power	Single Phase, 50/60 Hz, 600 VA 115 VAC or 230 VAC	
Dimensions	17"W x 14"H x 23"D 42.5cm W x 35cm H x 57.5cm D	19"W x 15 3/4"H x 23"D 47.5cm W x 39.4cm H x 57.5cm D
Weight	64 lb. 29.0 kg	68 lb. 30.8 kg
Shipping Weight	80 lb. 36.5 kg	88 lb. 40.0 kg
Output Connection	1/8" Swage	