

## AADCO 737-Series Pure Air Generators



The AADCO 737-series Pure Air Generators have gained universal acceptance as the instruments of choice where there is a requirement for a reliable, absolute source of zero air. Hundreds of these units are now distributed throughout the world, providing zero air for calibration purposes or relieving users from the tedious problems associated with stored air cylinders. Users include most federal and state air monitoring boards, foreign air monitoring networks, many federal analytical laboratories and a considerable number of industrial laboratories. Their ruggedness and compactness permit their use for in-plant process applications as well. In addition to serving as a source for zero air they provide clean, dry air for valving, solenoids and other process equipment. The life span of process instrumentation is greatly prolonged and maintenance is minimized through use of clean, dry air.

### **OUTPUT PURITY**

The air product from the 737-series Pure Air Generators will easily satisfy the most demanding requirement for purity. AADCO's purity specifications: < 1 ppb ozone, methane, hydrocarbons, NO/NO<sub>x</sub>, H<sub>2</sub>S, SO<sub>2</sub>, COS, CO, CO<sub>2</sub>, SF<sub>6</sub> and fluorocarbons. All particulates are removed from the source air and never appear in the air product. It is typical for air monitoring equipment, calibrated to zero with cylinder air which is labeled as zero air, to indicate a greater deflection through zero when connected to a 737-series Pure Air Generator, clearly demonstrating the greater purity over cylinder air. In addition, the dewpoint of the air product from any 737-series Pure Air Generator will not exceed -60 F, making this the ideal air source. Equally important, the oxygen concentration is a constant 21%, as found in the ambient environment. This, again, is in contrast with zero air cylinders where a 6-8% variation in the oxygen concentration is not unusual. This variation has a profound effect when calibration of ozone generators and ozone monitors or total hydrocarbon analyzers is attempted. This oxygen variation effect becomes even more pronounced when multiple instruments and locations are involved.

### **CONSISTENT ZERO AIR**

The specified purity described above remains absolutely constant from day-to-day, month-to-month and year-to-year. This consistent purity is available from one AADCO pure air generator to the next, anywhere in the world, assuring more positive collaboration between widely separated laboratories which had previously depended upon locally obtained cylinders of zero air. The stable, reproducible output permits precise zero calibration of all ambient air monitoring instruments, regardless of location. It also allows those researchers pursuing environmental impact studies to reliably determine the natural ambient background of any environment. Analysts concerned with the analysis of air from environmental chambers, ambient air, the contents of air cylinders, physiological respirations, etc. are now able to practice vacancy chromatography, differential response chromatography or direct analysis by using the pure air generator output as reference air. Laboratory use of a pure air generator, such as using air as an aid for such activities as evaporation, concentration and derivitization, can avoid side reactions and sample contamination with pure, dry air instead of air from questionable sources such as air cylinders or laboratory stopcocks.

### **SAFE ELIMINATION OF AIR CYLINDERS**

In addition to generating consistently clean air, the AADCO pure air generators have effectively eliminated air cylinders and their associated regulators from a great number of laboratories. They now offer an element of safety and convenience for laboratory personnel which has been unavailable until now. All of the inconveniences associated with air cylinders are eliminated the handling of bulky cylinders, mismatched regulators, storage of unused

cylinders and the possible mislabeling of FULL and EMPTY, causing uncertainty over residual volume and pressure, demurrage, leaks, dangers of explosions, unavailability of air at critical times due to either poor cylinder deliveries, ordering delays, etc. With floor space at a premium in most laboratories, use of a pure air generator frees that space normally occupied by air cylinders and clean air is always available. These generators are also found in mobile laboratories and remote monitoring stations where zero air is required but cylinder deliveries and changeouts are difficult logistical problems. Some of the AADCO high output units have found application as dry spec, etc. Those applications and techniques which involve inordinate consumption of quality air, such as atomic absorption, some high pressure liquid chromatography instruments and flame photometers are best served by pure air generators. These units have proven to be more convenient and economical over the battery of air cylinders which are required to sustain these operations.

### **COMPLETELY SELF-CONTAINED**

All AADCO 737-series Pure Air Generators are completely self-contained units, with their own oil-less air compressors and unique contaminant removal systems. They are offered in a range of output volumes from 1-Liter/minute to 100 Liters/minute. The small, 1-Liter/minute unit is completely self-contained within one cabinet, including compressor. Its compactness, less than two cubic feet, and light weight, less than thirty pounds, permit easy portability from one work area to another. Bench space requirements are minimal—12 inches wide by 18 inches deep. All connections are made externally to the unit and start-up is accomplished in less than 5 minutes. Every 737-Series Pure Air Generator contains a purification reactor, input and output pressure gauges for ease in monitoring the condition of the compressor systems and establishing output pressure for the receiving equipment, 9-inch rotameter calibrated for the full range of output for each pure air generator, completely variable output flow adjust valve and output pressure regulator. No pressure regulator systems need be supplied by the user. Output flow and output pressure are constant without the use of ballast tanks.

### **MODELS AVAILABLE**

AADCO offers a variety of models from which selection is made depending upon application, output volume and mounting requirements. Mounting options include either bench mounting or rack-mounting for all units, regardless of output volume. For those instruments producing volumes greater than 0-Liters/minute, larger components are entailed which necessitate a larger housing.

### **BENCH TOP UNITS**

Aadco manufactures units that house components capable of output volumes of 0-50 and 0-100 liters/minute; 0-20 and 0-30 Liters/minute and 0-1, 0-5 and 0-10 Liters/minute respectively. We manufacture the full family of bench-mounted pure air generators whose output volumes are described above. Dimensions of the instruments are: 21"H x 17 1/2"W x 25"D; 15"H x 17 1/2"W x 21"D; 15"H x 17 1/2"W x 18"D, respectively. All units contain a purification reactor, input and output pressure gauges, 9-inch rotameter, output flow adjust valve—all components sized to the output flow requirements of the particular instrument. All of these instruments function exactly alike, differing only in power requirements, component sizing and cabinet dimensions.

The 737-12 bench-mounted Pure Air Generator system, with maximum output volume of 0-30 Liters/min. @ 0-50 psi, is available complete with compressor. The upper unit contains the purification system, with methane reactor and heat status indicator systems. A cycling heat indicator lamp gives assurance of temperature maintenance of the methane reactor at its preset operating temperature. Should the indicator lamp be suspect, front panel test jacks permit monitoring with a VOM for further verification of heat status. All fuses are front panel mounted for rapid and easy accessibility- All electrical controls are also located on the generator front panel, including the power switch to the compressor, even though the compressor is located in a separate unit. Electrical connection between the two units is made through a twist-lock umbilical which can also be connected to any AC outlet without special adapters.

The lower unit houses the compressor, mounted on a special vibration-isolation support. High volume cooling fans sustain a compatible internal temperature for optimum operation. Air enters through a strategically placed open-



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ing in the top of the unit, passes through a baffle system to eliminate sound from the unit, across the compressor and out through several openings located on the rear floor of the unit. Should there be a failure of the air circulating fans, an automatic thermal switch cuts off electrical power to the compressor, avoiding overheating and possible damage. This same thermal safety is incorporated in all compressors which AADCO supplies with pure air systems or as replacements. The complete interior of the unit is covered with high density sound absorptive insulating material, including the baffle system. Placement of the generator and compressor units may be side-by-side or one above the other, as shown. The high temperature connecting air hose which runs between the two units is of sufficient length to permit either configuration.

### **RACK MOUNTED UNITS**

This purification unit is mounted immediately above the compressor unit, for all systems other than the 737 R-1 pure air generator. This one particular generator system, which has a maximum output volume of 1-Liter/minute, contains within a single cabinet both the compressor and purification systems, as with the 737-1 bench-mounted unit. All other rack-mounted systems require separate cabinets for the purification and compressor sections. The same attention to detail is paid to selection of components for the rack-mounted systems as with the bench-mounted units. Heat indicator lamp, test jacks and front panel fuses are also standard with these units affording ease of service and component accessibility to the operator. The rack-mounted compressor units sustain the same baffle system and high volume cooling as described for the bench-mounted systems. The same safety features prevail, including the thermal safety switch for the compressor in the event of failure of the cooling system. Soundproofing is also an available option, as are slides, selected for weight capacity, with extenders to fit any size cabinet. All front panels are a full 19-inches, with mounting slots.

Output volumes for these rack-mounted units range from 1-Liter/minute to 30-Liters/minute. Purchases may be made to include or exclude compressor or silencer housing. Consult the price list or the factory for full listing. Factory technical recommendations for applicability or appropriate size considerations is especially suggested, particularly for those who are considering their first system in order to ensure purchase of systems which will satisfy all of the requirements of the user.



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