

**Pressure Swing Adsorption (PSA) and
Vacuum Pressure Swing Adsorption (VPSA)
Oxygen Systems**

Company Overview

Leader in On-Site Oxygen Generation

Founded in 1987 in Buffalo, NY, AirSep Corporation offers innovative, cost-effective, non-cryogenic oxygen supply solutions as an alternative to cylinder or liquid systems. A division of CAIRE Inc., AirSep has earned a strong brand reputation over the past three decades as a manufacturer of high-quality, built-to-last oxygen systems accompanied by unparalleled service and support to ensure your systems operate at peak performance with little to no downtime.

The benefits of a broad portfolio offering customizable equipment to meet your needs:

- Extensive selection of PSA and VPSA Oxygen Systems that serve a diverse range of applications and industries
- Lowered costs and increased business efficiencies through elimination of dependence on gas companies, long-term gas contracts and price increases
- Reliably and safely produce unlimited high concentrated oxygen, 24/7
- Oxygen generation technical expertise and support with service parts and accessories
- 1-year warranty on workmanship





Our Services

Best-in-Class for Service

We champion the knowledge of PSA and VPSA gas generation technologies. Our experts collaborate closely with distributors and customers on setting up oxygen equipment and supporting educational opportunities and maintenance needs.

Our comprehensive service and support throughout installation and post installation have built our trusted brand that supports global aid initiatives and commercial enterprise.

AirSep's portfolio of solutions is designed and built with the customer in mind. Usability and practical maintenance for you and your team is at the foundation of why we are a leader and innovator in gas generation.



Training

AirSep offers free training on troubleshooting and installation of the oxygen systems. An AirSep sales representative can schedule training classes to fit your schedule.

For more information, visit: <https://www.caireinc.com/commercial/resources/training> or email cpd@caireinc.com.



Technical Support

AirSep's technical support team troubleshoots problems out in the field, handles Returned Material Authorizations (RMAs) and performs repairs and retrofits.



Remote Monitoring

AirSep makes it easy to monitor operational activities on the oxygen generators. The control panel on AS Series units features diagnostic capabilities and Ethernet access to monitor remotely the process parameters by access via a web gate.

With a combined more than 130 years of experience, the AirSep leadership and sales team serves a network of 80 Distributors in over 142 Countries.

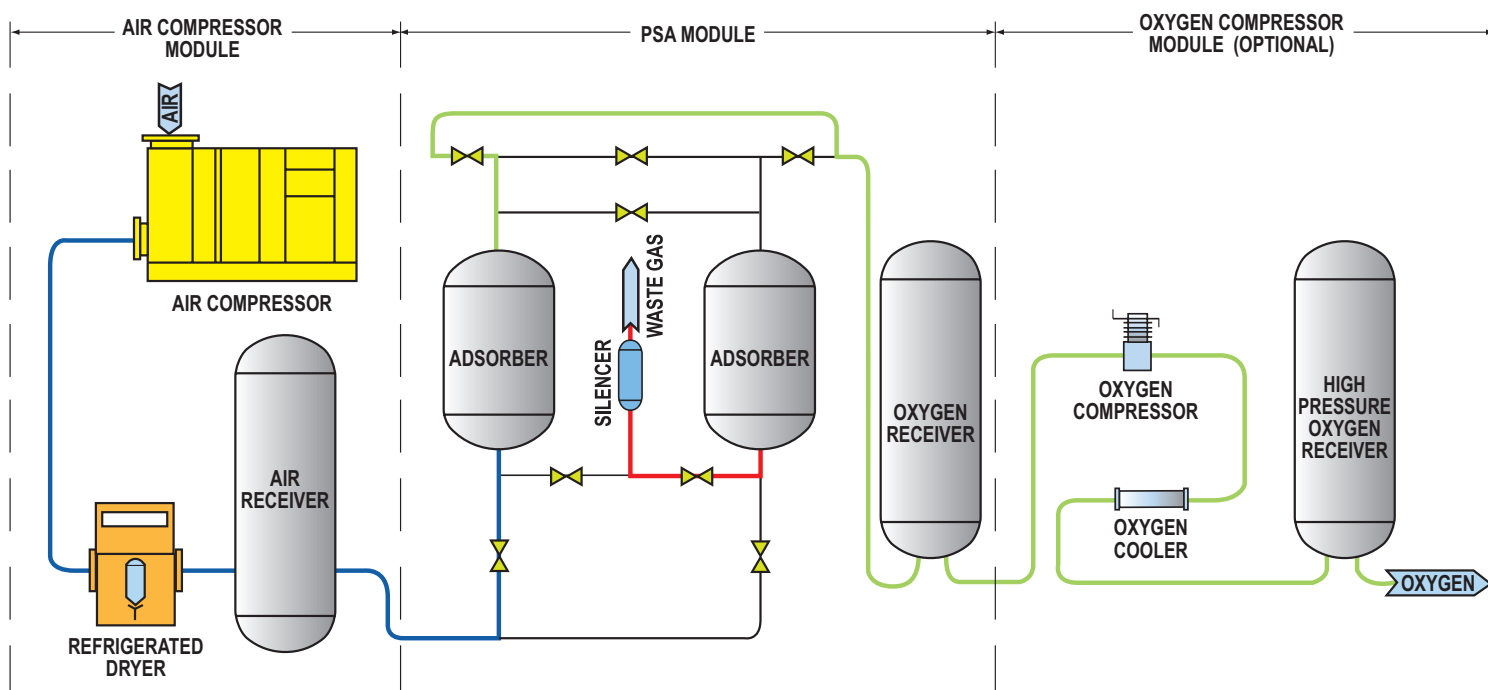
Our Technology

Pressure Swing Adsorption (PSA)

A pioneer in the field of PSA technology, AirSep's expertise in this state-of-the-art process is relied upon by many commercial and industrial applications that depend upon reliable gas separation for the production of concentrated oxygen gas.

The PSA Process:

- Compressed air flows through a filter assembly before air enters the adsorber vessels.
- Condensed water, water vapors, oil and other foreign objects are removed from the feed air by appropriate filters.
- Oxygen is separated from other gases by the adsorber vessels using molecular sieve (an inert ceramic material).
- Under pressure, molecular sieve attracts (adsorbs) nitrogen physically from the air, allowing oxygen to exit the adsorbers as a product gas. The process valves on the generator then direct the oxygen to the oxygen receiver for storage until needed by the application.
- While one adsorber produces oxygen, the other depressurizes to exhaust the waste gases it adsorbed (collected) during the oxygen production cycle. The entire oxygen generating process is completely regenerative, making it reliable, requiring little to no maintenance. The molecular sieve does not normally require replacement.

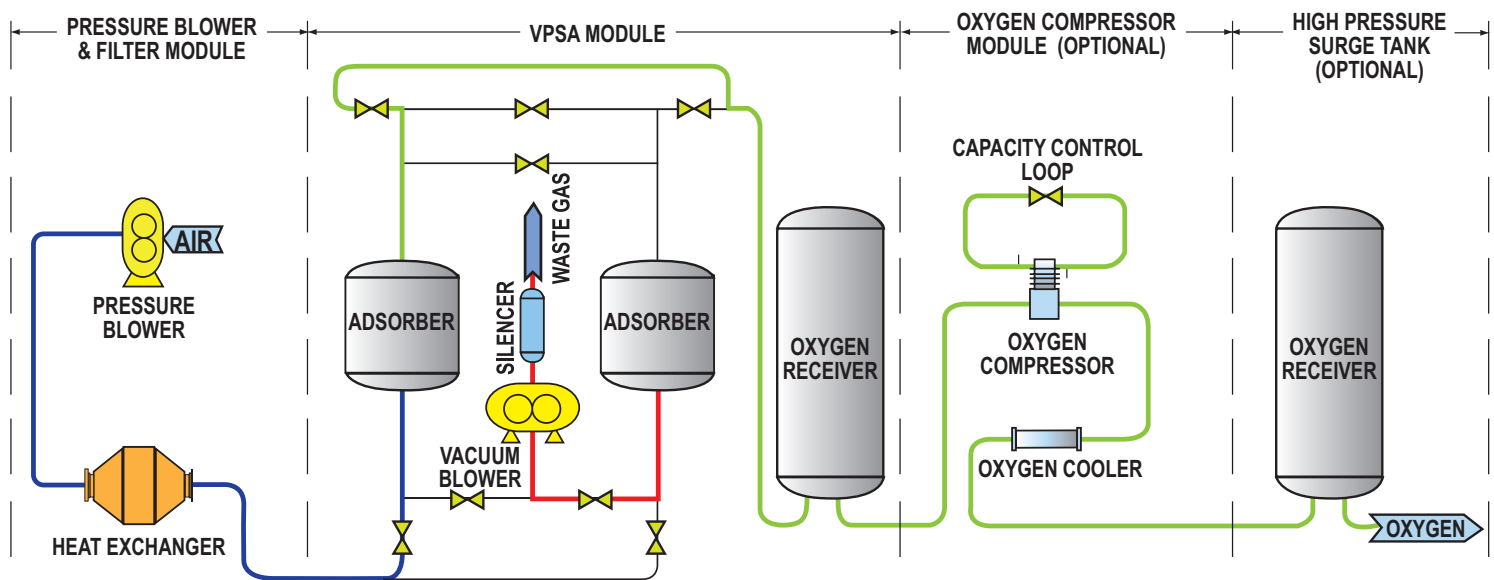




Vacuum Pressure Swing Adsorption (VPSA)

An alternative to PSA technology, VPSA offers particular advantages for those applications that require solutions in remote locations, and high altitude and humid environments. Proprietary technology ensures concentrated oxygen can be delivered under cost, using less energy and requiring less maintenance than you ever dreamed possible.

- The oxygen generating system uses low pressure air blowers as a feed gas to produce oxygen.
- The adsorber vessels use molecular sieve (an inert ceramic material) to separate air into oxygen.
- Molecular sieve (synthetic zeolite) attracts (adsorbs) nitrogen physically from air under pressure allowing oxygen to exit the adsorbers as a product gas. The process valves on the VPSA system then direct the oxygen to the oxygen receiver for storage until needed by the application.
- While one adsorber produces oxygen, the other depressurizes to exhaust the waste gases it adsorbed (collected) during the oxygen production cycle. The entire oxygen generating process is completely regenerative, making it reliable and maintenance-free. The molecular sieve does not normally require replacement.





AirSep Advantages

Setting the Standard on Oxygen Systems



Never Run Out of Oxygen
Reliably Produce Oxygen 24/7



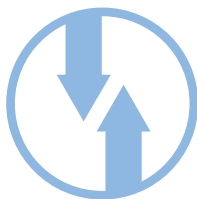
Simple and Safe to Use



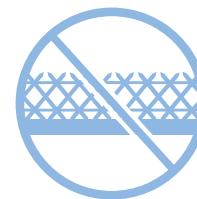
Low Cost and Quick Payback
Cost Savings of at Least 50
Percent



Eliminate Delivery and
Transport Safety Issues



Bring in Ambient Air,
Deliver Oxygen



No Expensive Concrete Pad or
Fence



Easy Installation and
Maintenance



Freedom from Gas Supply
Contracts



Energy-Efficient

Industry Leader in Quality

Reliable Continuous Operation

Manufacturing reliable oxygen equipment has been the foundation of AirSep's business. Our wide range of cutting-edge products offer impeccable quality and are ready to meet your current and future needs.

- AirSep's oxygen systems provide dependable continuous performance
- With minimal maintenance, AirSep's oxygen systems are the workhorses of your business
- After-sales service and support minimizes system downtime
- Highest quality parts and components used in production
- Designed for up to 20 years of on-going operation



Striving for Zero
Defects During Quality
Testing



Performing Regular
Quality Control Checks
and Inspections
Throughout Production



Using Top Quality
Materials and
Parts



Intense Focus
on Support and
Continuous
Improvement

Our Clients

Serving Customers to Create Impact

Coca-Cola Company

IBM

Olay

Monro Muffler Brake & Service

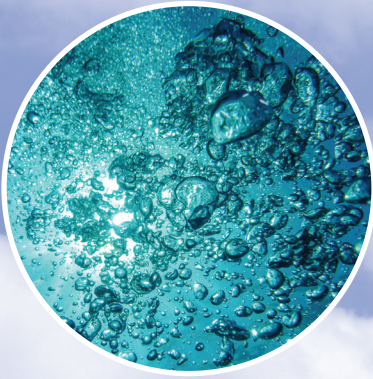
Merck

SeaWorld Entertainment

Procter & Gamble Company

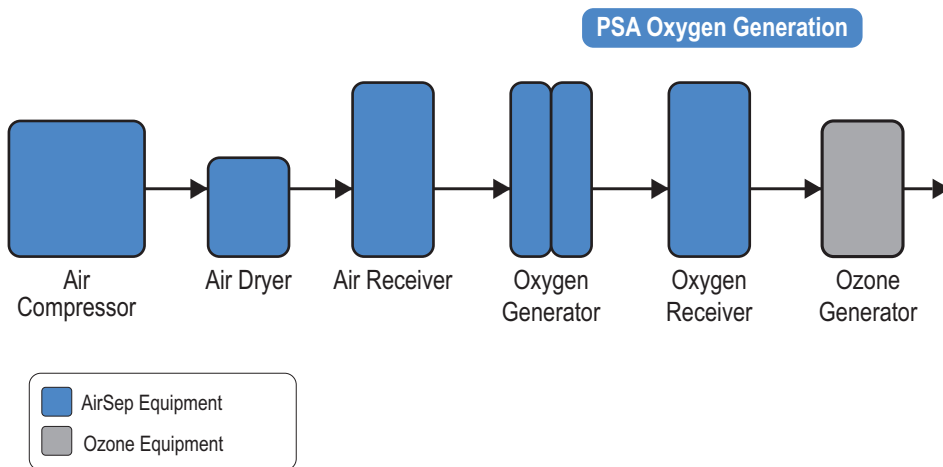
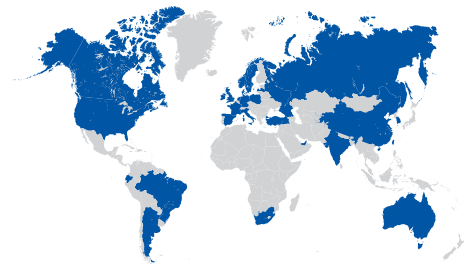
Royal Caribbean International

Coors Brewing Company

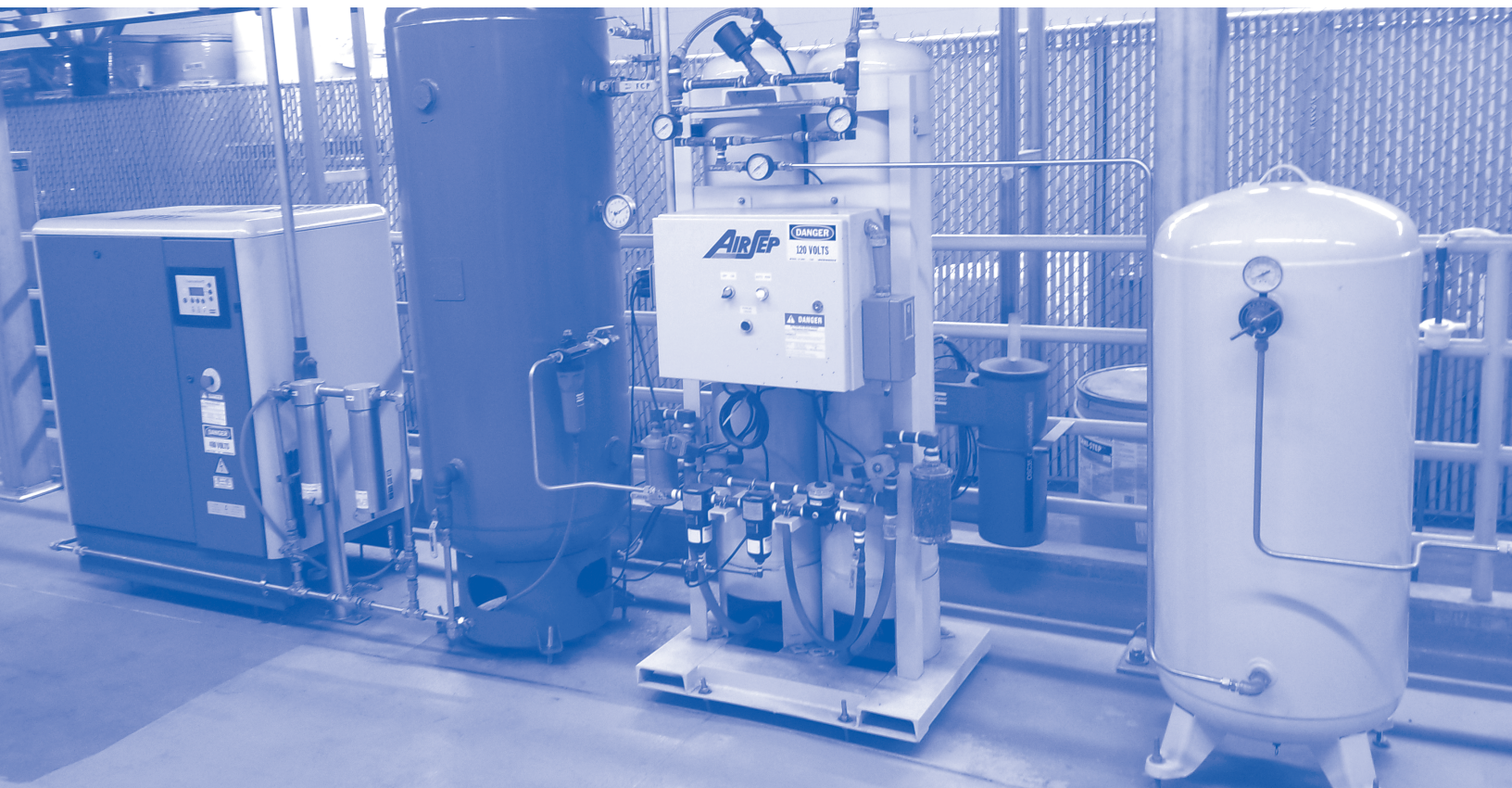


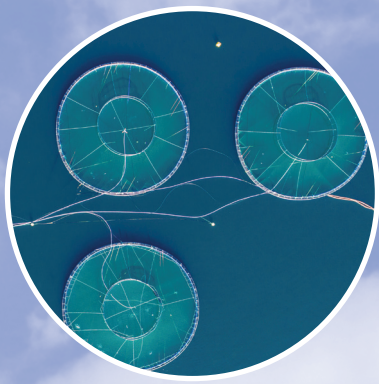
Ozone

Ozone is generated from the oxygen supplied by an AirSep PSA/VPSA Oxygen System and is used in various applications to purify water. Our products maximize the performance of the ozone generator and can be used in a wide range of air and water treatment applications.



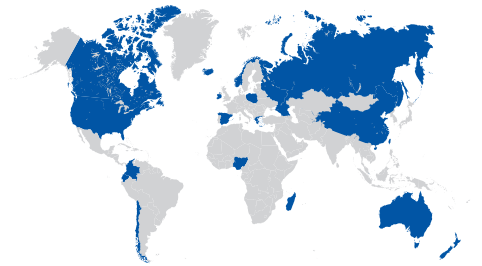
Installations in more
than 25 countries.



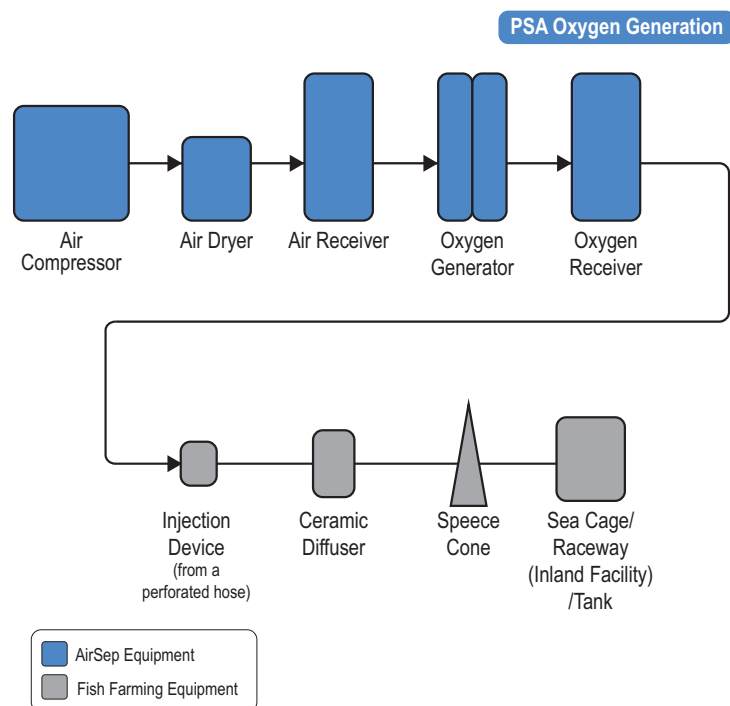


Aquaculture

Oxygen generation can positively impact aquaculture. By providing oxygen to fish farm water supplies, growers can increase rearing density by up to 300%, thus reducing the time to harvest by 20%. In addition, oxygen-filled water can reduce stress on the fish and improve disease resistance.



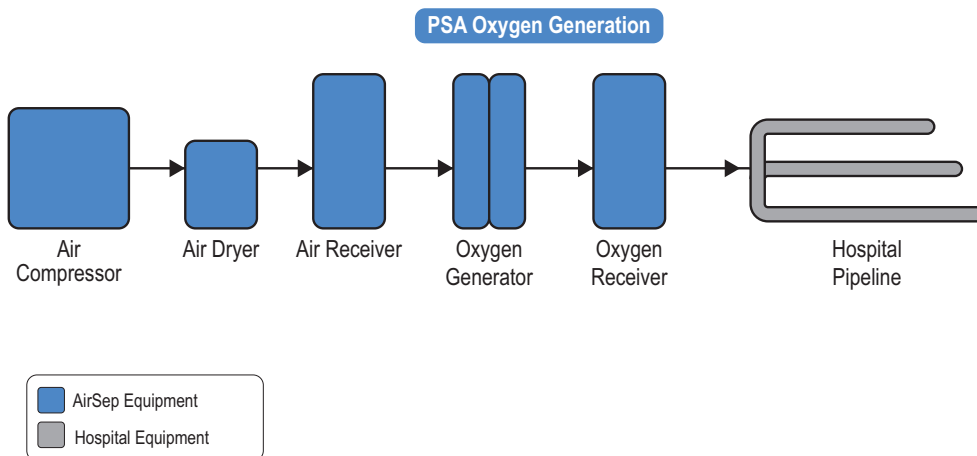
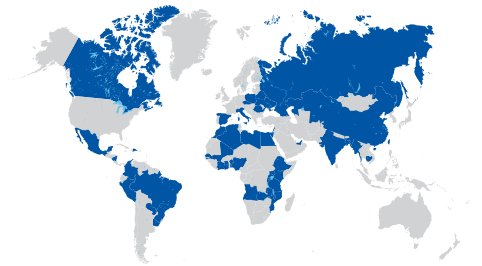
Installations in more
than 20 countries.





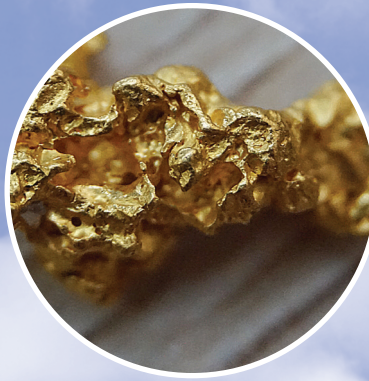
Medical

AirSep medical oxygen systems serve top-tier healthcare institutions, and have long been the equipment of choice for nonprofit government organizations providing aid to communities with limited to no regional oxygen supply. Our systems operate automatically to supply patient, surgical, and critical care units in medical facilities, military field hospitals, on-site emergency preparedness centers, and disaster response and recovery efforts.



Installations in more than 45 countries.

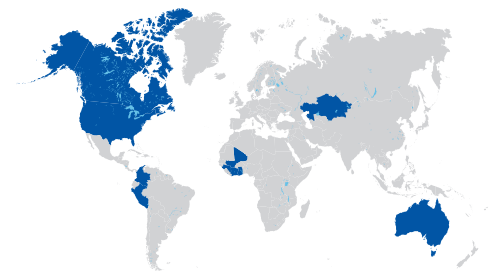
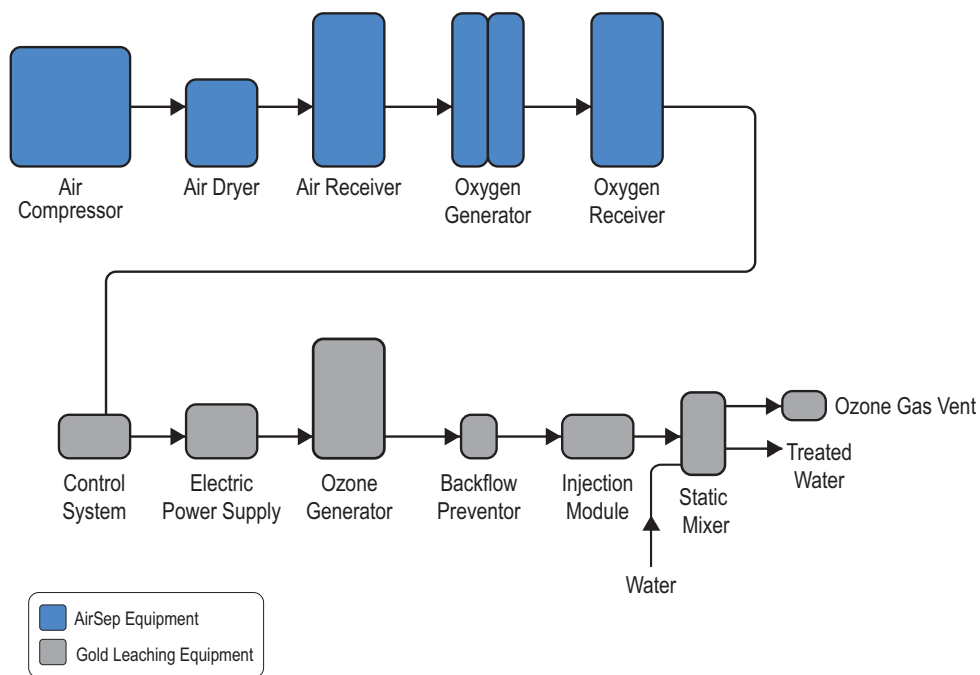




Mining

High levels of dissolved oxygen are important to the gold leaching process. Because mining sites are generally in remote areas, an AirSep oxygen system is the perfect cost-effective solution, as it creates its own oxygen on demand.

PSA Oxygen Generation



Installations in more
than 10 countries.



Product Portfolio

Diverse Oxygen Supply Solutions

Self-Contained Oxygen Generators

Off-the-shelf, convenient oxygen generation

AirSep's self-contained units come equipped with air compressors and most require no special installation. Simply connect the oxygen outlet to the oxygen distribution system and the power cord to a grounded electrical outlet.



Mini-Pack Oxygen Generators

Small, but mighty

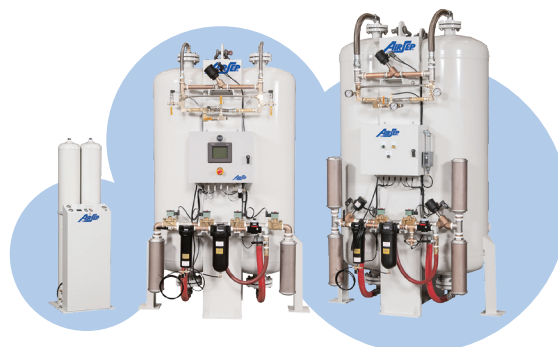
Our Mini Pack Generators offer a quick start-up and provide a significantly smaller footprint than comparable systems.



Standard Oxygen Generators

Dependable systems that can provide oxygen for practically any application

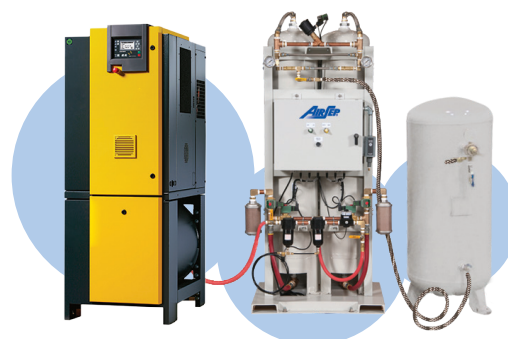
These generators produce from 8 to 5,500 cubic feet of oxygen per hour and still achieve oxygen concentration up to 95%.



Packaged Oxygen Systems

Customizable systems designed and configured to your specifications

Skid-mounted or containerized, packaged systems are ideal for locations where a compressed air supply is limited or unavailable. All components are configured in the AirSep factory for optimal plant operation.



Oxygen Generating Plants

Your complete, turnkey solution

AirSep oxygen plants with cylinder refilling capability can support small to large capacity demands—from a small number of cylinders to hundreds per day.



VPSA Oxygen Tonnage Plants

Custom-engineered VPSA oxygen systems designed for your specific site requirements

Capacities range from 2,000 SCFH (53 Nm³/hr) to 120,000 SCFH (3,155 Nm³/hr). Plants offer low energy consumption, on stream efficiency of 99%, easy operation, and long-term equipment life.



AirSep
Products are
Assembled
in the USA

Specifications

Standard Product Line

Delivering up to 95% Oxygen Concentration

	Flow				
	SCFH	Nm3/hr	SLPM	Lbs/hr	Kg/Hr
Onyx	10	0.28	5	0.83	0.38
Onyx Ultra	21	0.59	10	1.74	0.79
Topaz	12	0.34	6	0.99	0.45
Topaz Ultra	21	0.59	10	1.74	0.79
Regalia	21	0.59	10	1.74	0.79
Reliant	17	0.48	8	1.41	0.64
Centrox (Air Compressor/ Generator Modules)	32	0.91	15	2.65	1.20
ATF-8	8	0.23	3.8	0.66	0.30
ATF-12	12	0.34	5.7	0.99	0.45
ATF-15	15	0.42	7.1	1.24	0.56
ATF-23	23	0.65	10.8	1.90	0.86
ATF-25	25	0.71	12	2.07	0.94
ATF-32	32	0.91	15	2.65	1.20
AS-B	45 – 55	1.27 – 1.56	21 – 25	3.73 - 4.55	1.69 - 2.07
AS-B Mini	45 – 55	1.27 – 1.56	21 – 25	3.73 - 4.55	1.69 - 2.07
AS-D	80 – 90	2.27 – 2.55	37 – 42	6.62 - 7.45	3.00 -3.38
AS-D Mini	80 – 90	2.27 – 2.55	37 – 42	6.62 - 7.45	3.00 -3.38
AS-D+	80 – 100	2.27 – 2.83	37 – 47	6.62 - 8.28	3.00 -3.76
AS-E	160 – 195	4.53 – 5.52	75 – 92	13.25 - 16.14	6.01 - 7.32
AS-G	250 – 320	7.08 – 9.06	117 – 151	20.70 - 26.49	9.39 - 12.02
AS-J	450 – 600	12.74 – 16.99	212 – 283	37.26 - 49.67	16.90 - 22.54
AS-K	750 – 900	21.24 – 25.49	353 – 424	62.09 - 74.51	28.17 - 33.80
AS-L	1,000 – 1,300	28.32 – 36.81	471 – 613	82.79 - 107.63	37.56 - 48.83
AS-N	1,500 – 1,800	42.48 – 50.97	707 – 849	124.19 - 149.02	56.34 - 67.61
AS-P	2,000 – 2,300	56.63 – 65.13	943 – 1,085	165.58 - 190.42	75.12 - 86.39
AS-Q	2,500 – 2,800	70.79 – 79.29	1,179 – 1,321	206.98 - 231.81	93.90 - 105.17
AS-R	3,000 – 3,700	84.95 – 104.77	1,415 – 1,746	248.37 - 306.32	112.68 - 138.97
AS-W	4,000 – 4,600	113.27 – 130.26	1,887 – 2,170	331.16 - 380.83	150.24 - 172.78
AS-Z	5,000 – 5,500	141.59 – 155.74	2,359 – 2,595	413.95 - 455.35	187.80 - 206.58

Pressure					
psig	kPa	barg	Dimensions (W x D x H) (Nominal)	Weight	Oxygen Receiver Size (Gallons)
9	62	0.62	21.5 x 12.5 x 13.5 in (54.6 x 31.8 x 34.2 cm)	36 lb (16.3 kg)	N/A
20	138	1.37	16.5 x 14.5 x 27.5 in (41.9 x 36.8 x 69.9 cm)	58 lb (26.3 kg)	N/A
9	62	0.62	19 x 10 x 27 in (48 x 25 x 68 cm)	53 lb (24 kg) [Add 2 lb (0.9 kg) for 220 V ~ unit] [Add 20 lb (9 kg) for Stainless]	N/A
20	138	1.37	19 x 10 x 27 in (48 x 25 x 68 cm)	58 lb (26 kg) [Add 4 lb (0.9 kg) for 220 V ~ unit] [Add 20 lb (9 kg) for Stainless]	N/A
7	48	0.48	14.7 x 19.5 x 26.5 in (37 x 50 x 66 cm)	57 lb (26 kg)	N/A
50	345	3.5	22.5 x 24.5 x 36.25 in (57.2 x 62.3 x 92.1 cm)	175 lb (79 kg)	60
50	345	3.5	21 x 13 x 27 in (52 x 32 x 68 cm)/ 27 x 15 x 38 in (68 x 37 x 97 cm)	100 lb (45 kg)/ 160 lb (73 kg)	60
9	62	0.62	8 x 13 in (21 x 32 cm)	9.6 lb (4.4 kg)	N/A
9	62	0.62	8 x 13 in (21 x 32 cm)	9.8 lb (4.5 kg)	N/A
7	48	0.48	8 x 20 in (21 x 51 cm)	14.7 lb (6.7 kg)	N/A
7	48	0.48	8 x 20 in (21 x 51 cm)	14.7 lb (6.7 kg)	N/A
14	97	0.96	8 x 20 in (21 x 51 cm)	15 lb (6.8 kg)	N/A
14	97	0.96	8 x 20 in (21 x 51 cm)	15 lb (6.8 kg)	N/A
45 – 55	310 – 379	3.0 – 3.8	17 x 15 x 58 in (43 x 38 x 147 cm)	246 lb (112 kg)	60
45 – 55	310 – 379	3.0 – 3.8	27 x 15 x 68 in (69 x 38 x 173 cm)	363 lb (165 kg)	N/A
45 – 55	310 – 379	3.0 – 3.8	20 x 16 x 60 in (51 x 41 x 152 cm)	361 lb (164 kg)	60
45 – 55	310 – 379	3.0 – 3.8	20 x 16 x 60 in (51 x 41 x 152 cm) [Generator] 13 x 71 in (30 x 180 cm) [Receiver]	361 lb (164 kg) [Generator]; 80 lb (36 kg) [Receiver]	N/A
45 – 65	310 – 448	3.0 – 4.5	27 x 22 x 69 in (69 x 56 x 175 cm)	498 lb (226 kg)	60
45 – 65	310 – 448	3.0 – 4.5	33 x 27 x 68 in (84 x 69 x 173 cm)	721 lb (327 kg)	60
45 – 65	310 – 448	3.0 – 4.5	36 x 29 x 75 in (91 x 74 x 191 cm)	956 lb (434 kg)	120
45 – 65	310 – 448	3.0 – 4.5	42 x 34 x 78 in (107 x 86 x 198 cm)	1,771 lb (803 kg)	120
45 – 65	310 – 448	3.0 – 4.5	58 x 38 x 91 in (147 x 97 x 231 cm)	2,690 lb (1,220 kg)	290
45 – 65	310 – 448	3.0 – 4.5	62 x 40 x 100 in (158 x 102 x 254 cm)	3,400 lb (1,542 kg)	290/400
45 – 65	310 – 448	3.0 – 4.5	84 x 48 x 110 in (213 x 122 x 279 cm)	4,950 lb (2,245 kg)	400
45 – 65	310 – 448	3.0 – 4.5	85 x 64 x 111 in (216 x 163 x 282 cm)	6,250 lb (2,835 kg)	660
45 – 65	310 – 448	3.0 – 4.5	112 x 61 x 140 in (284 x 155 x 356 cm)	8,025 lb (3,640 kg)	660
45 – 65	310 – 448	3.0 – 4.5	114 x 73 x 157 in (290 x 185 x 399 cm)	12,906 lb (5,854 kg)	1,060
45 – 65	310 – 448	3.0 – 4.5	122 x 87 x 196 in (310 x 221 x 498 cm)	17,012 lb (7,717 kg)	1,550
45 – 65	310 – 448	3.0 – 4.5	114 x 88 x 197 in (290 x 224 x 500 cm)	20,002 lb (9,073 kg)	1,550

AnimERge

” For me, the support I found at AirSep was one of the deciding factors which made the company stand out from the others. When I contacted AirSep’s support staff, I received immediate and thorough information on the function of our new system. The information they provided allowed me to completely understand its operation better. Consequently, I feel more comfortable monitoring it on a day-to-day basis.

Rahimafrooz Batteries Limited

” The system has helped us save a lot of money, which we were spending on oxygen refilling. Every year liquid oxygen rates keep rising and 20% oxygen evaporates due to heat transmission loss. This system has made us self-sufficient on oxygen.

Assist International

AirSep has been an outstanding partner for building oxygen production plants for hospital installations in Africa. I worked directly with the AirSep team to coordinate construction, installation and commissioning of the AirSep systems, and both plants produce all the oxygen needed for the hospital and additional surrounding facilities.

Mango Materials

” AirSep oxygen generators were the best suited to our size and need, with competitive pricing and lead times. AirSep systems ensured a high oxygen concentration and desired flow, coupled with a small footprint that was suitable for our needs. With equipment that is simple to use and reliable, an oxygen generator is the safest way to generate the required high-concentration oxygen on-location.



AirSep Corporation

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