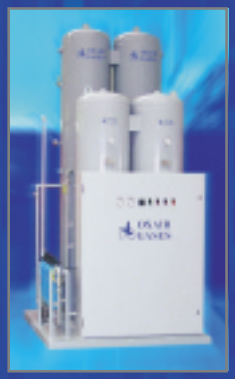
OXAIR GASES

ON-SITE OXYGEN PSA SYSTEMS



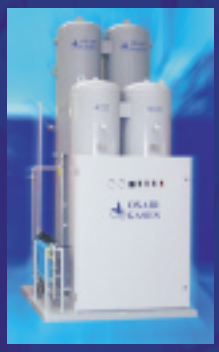
OXAIR GASES

This Plant generates 283 S m3/hr (10,000 SCFH) of Oxygen for injection into a gold leaching process to improve Gold Recoveries and reduce Cyanide consumptions.

Plants with capacities up to 700 Sm3/hr can be fabricated in our facility

These three OA-1500 units are used in a Water Treatment facility feeding Ozone generation units. Each unit produces 42.5 Sm3/hr (1500 scfh) of Oxygen

This cabinet style plant generates 15.6 Sm3/hr (550 scfh) Oxygen for an aquaculture facility to improve fish stocking densities, increase growth rates and reduce mortality rates



This OA-2000 unit is used in Mineral Leaching, and produces 56.6 Sm3/hr (2000 scfh) of Oxygen.

Oxygen generators are fabricated up to 113 Sm3/hr in this configuration

This small cabinet series OA-120 unit produces 3.4 Sm3/hr (120 scfh)is used in a brazing application for tap manufacture

PRESSURE SWING ADSORPTION (PSA) Oxygen

Air contains 21% Oxygen, 78% Nitrogen, 0.9% Argon and 0.1% other trace gases. Oxair Oxygen generation systems separate this oxygen from Compressed Air through a unique process called Pressure Swing Adsorption. (PSA).

The Pressure Swing Adsorption process for the generation of enriched oxygen gas from ambient air utilises the ability of a synthetic Zeolite Molecular Sieve to absorb mainly nitrogen. While nitrogen concentrates in the pore system of the Zeolite, Oxygen Gas is produced as a product.

Oxair Oxygen generation plant's use two vessels filled with Zeolite Molecular sieve as adsorbers. As Compressed Air passes up through one of the adsorbers, the molecular sieve selectively adsorbs the Nitrogen. This then allows the remaining Oxygen to pass on up through the adsorber and exit as a product gas.

When the adsorber becomes saturated with Nitrogen the inlet airflow is switched to the second adsorber. The first adsorber is regenerated by desorbing nitrogen through depressurisation and purging it with some of the product oxygen. The cycle is then repeated and the pressure is continually swinging between a higher level at adsorption (Production), and a lower level at desorption (Regeneration).

WHY OXAIR PSA OXYGEN

The main advantages of using Oxair PSA Oxygen to Customer requirements when compared to conventional cryogenic equipment.

STANDARD PSA GENERATORS

Oxair Oxygen Systems eliminate The expense, inconvenience and hazards of handling and storage problems associated with purchased high-pressure oxygen. Oxair offers a very wide range of models that are efficient and reliable. Systems are fully automatic and do not require any specialised operating personal or training.

Simply connect an air compressor or shop air supply to the generator and your oxygen distribution system to the oxygen receiver outlet. Once the power is connected, turn the unit on and set the delivery pressure The simple on/off switch supplies oxygen whenever you need it. System will go into standby mode when oxygen is no longer required.

OXAIR STANDARD DESIGN

The Oxair Oxygen PSA generator has as standard.

- 4 - Stage Filtration.
- PLC Controller.
- High Performance valves.
- Oxygen Pressure at 310 kPag (45 psig)
- Skid Mounting where practical.

CUSTOM DESIGN

Oxair can custom design plants and control systems. Oxair will give technical support on customer supplied separation processes.

The fabrication of the absorber vessels can be done locally. This only applies to the tonnage plant range under Oxair Supervision.

PRESSURE VESSEL FABRICATION

Oxair fabricate all pressure vessels in house to AS 1210. Oxair can also design and fabricate to other international codes such as ASME VIII and BS5500 pressure vessels

TURN KEY

Oxair can provide turn key plants if required with technical support, drawings and engineering. This includes installing the system into existing or new plant air systems with all the interconnecting piping electricals etc.

EASY INSTALLATION

Oxair PSA Systems are easily installed. The majority of our plants are pre-assembled skid-mounted units. This reduces site installation work to a minimum, usually between 1 to 5 days depending on system size.

Economical

- Generates Oxygen at less than half the cost of purchased oxygen
- Fast pay back
- Lower equipment & investment costs.

Operation

- At ambient temperature and Low pressures, therefore low stresses on materials)

Flexibility

- In product quality (purity)

Automatic

- Operation.
- Microprocessor for unattended operation

Simple

- Equipment to operate

Safe.

- Low pressure operation
- Eliminates hazardous handling and storage of liquid and purchased high-pressure oxygen cylinders
- Low medium specific energy requirement

Short

- Start-up times

Reliable

- Built for continuous operation

Energy Efficient

- Optimal process design
- Low operating cost.

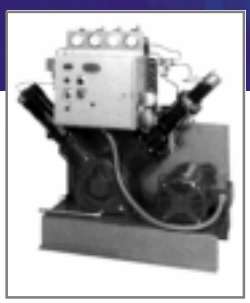
Low Maintenance

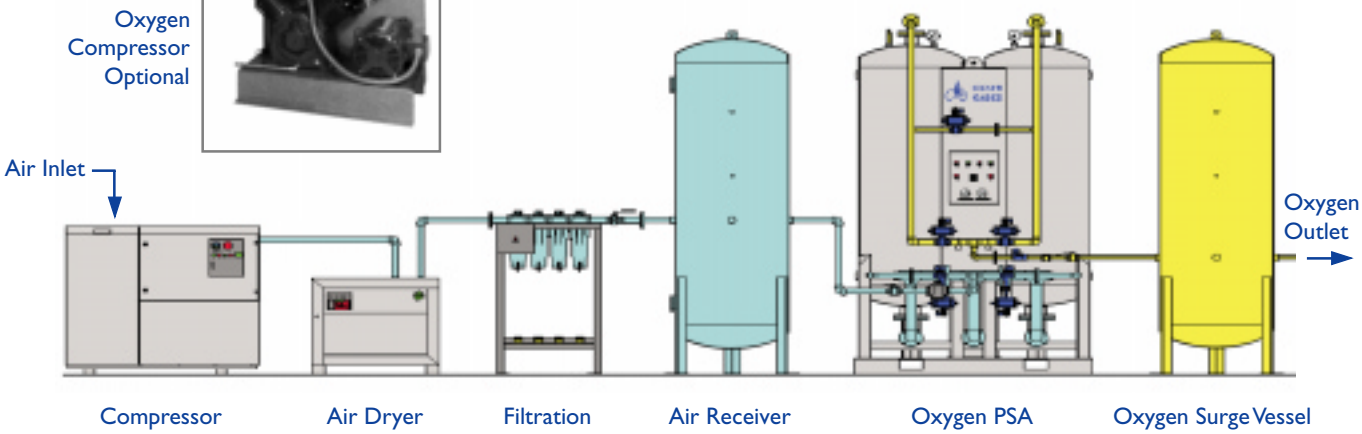
- Very low maintenance requirements.
- Regular maintenance limited mainly to normal feed air compressor
- Up keep and periodical replacement of Coalescing filter elements
- Filter automatic drains annually

Quality Assured

Oxair have registered and are committed to implementing a quality assurance plan to ISO 9001

STANDARD SYSTEM LAYOUT





OXAIR GASES

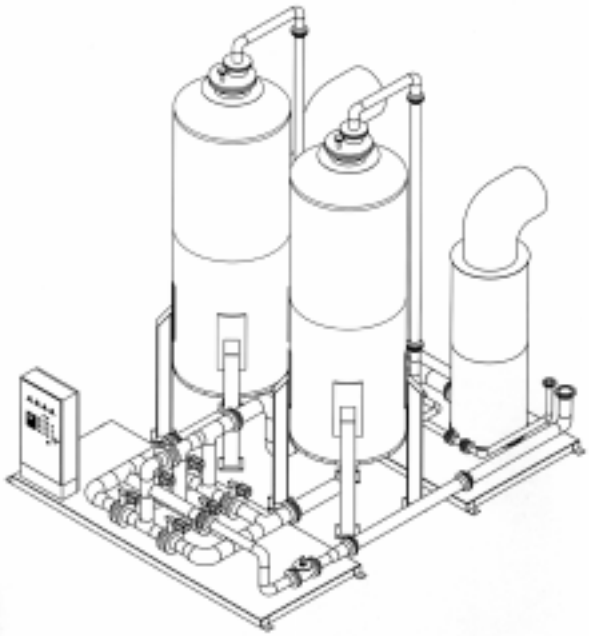
SUPPLYING DIVERSE APPLICATIONS

As a world provider of PSA Oxygen Systems Oxair supplies equipment from the simplest to the most sophisticated control systems for the petrochemical and Oxidisation Processes. Whether at an Aquaculture, Water Treatment facility or small brazing application The Oxair name symbolises Diversity and quality.

Oxair Excels as a leading supplier of PSA Oxygen Systems Worldwide Offering the most cost-effective, most efficient and safest oxygen sources for today's diverse oxygen applications

APPLICATIONS

• Gold Leaching • Mineral leaching • Aquaculture • Brazing Applications • • Rough Cutting • Water Treatment • Furnace Enrichment • Glass blowing • Ozone Manufacturing • Medical • Pressure Oxidisation • Petrochemical • Autoclaves •



500 m3/hr Oxygen, Petrochemical Plant, New Zealand

Oxair Australia Pty Ltd
Standard Oxygen Generators

MODEL	SCFH	Sm3/hr	Oxygen Flowrate Nm3/hr	Contained Oxygen kg/hr @ 90%	Air (m3/min) (Dry)	Air (scfm) (Dry)	Receiver (min)
OA-15	15	0.42	0.38	0.51	0.12	4	120 L
OA-15-Comp.	15	0.42	0.38	0.51	Inc	Inc	Inc
OA-20	20	0.57	0.52	0.69	0.15	5	120 L
OA20-Comp.	20	0.57	0.52	0.69	Inc	Inc	120 L
OA-35	35	0.99	0.92	1.21	0.21	7	120 L
OA-45	45	1.27	1.18	1.55	0.31	11	120 L
OA-60	60	1.70	1.57	2.07	0.36	15	120 L
OA-80	80	2.27	2.10	2.76	0.50	18	120 L
OA-100	100	2.83	2.62	3.45	0.60	21	220 L
OA-120	120	3.40	3.15	4.14	0.70	25	220 L
OA-160	160	4.53	4.20	5.53	0.88	31	220 L
OA-200	200	5.66	5.24	6.91	1.01	38	250 L
OA-250	250	7.08	6.56	8.63	1.36	48	330 L
OA-275	275	7.79	7.21	9.50	1.50	53	350 L
OA-300	300	8.49	7.87	10.36	1.65	58	400 L
OA-350	350	9.91	9.18	12.09	2.10	75	450 L
OA-400	400	11.3	10.5	13.8	2.30	80	500 L
OA-450	450	12.7	11.8	15.5	2.40	85	550 L
OA-500	500	14.2	13.1	17.3	2.70	95	625 L
OA-550	550	15.6	14.4	19.0	3.00	105	700 L
OA-750	750	21.2	19.7	25.9	4.10	145	1000 L
OA-1000	1000	28.3	26.2	34.5	5.95	210	1250 L
OA-1100	1100	31.1	28.8	38.0	6.55	231	1250 L
OA-1250	1250	35.4	32.8	43.2	7.44	263	1500 L
OA-1500	1500	42.5	39.3	51.8	8.93	315	2000 L
OA-1750	1750	49.6	45.9	60.4	10.41	368	2250 L
OA-2000	2000	56.6	52.4	69.1	11.90	420	2500 L
OA-2500	2500	70.8	65.6	86.3	14.88	525	3000 L
OA-3000	3000	84.9	78.7	103.6	17.85	630	4000 L
OA-3500	3500	99.1	91.8	120.9	20.83	735	4500 L
OA-4000	4000	113.3	104.9	138.1	23.80	840	5000 L

A. Models larger than the OA 4000 are designed and built customer requirements
B. Gas is measured at 1 atmosphere and O oC
C. Standard Oxygen Pressure is 310 kPag (45psig)

TONNAGE
Oxygen Generators

Model	Tonnes of Oxygen Per Day	Sm3/hr	Nm3/hr	Air Required (scfm) (Dry)	Air & Oxygen Receivers (Litres)
OA4.0-MT	4.00	137.1	126.9	1016	6,000
OA4.5-MT	4.50	154.2	142.8	1143	6,750
OA5.0-MT	5.00	171.3	158.6	1271	7,500
OA5.5-MT	5.50	188.4	174.5	1398	8,250
OA6.0-MT	6.00	205.6	190.4	1525	9,000
OA6.5-MT	6.50	222.7	206.2	1652	9,750
OA7.0-MT	7.00	239.8	222.1	1779	10,500
OA7.5-MT	7.50	257.0	238.0	1906	11,250
OA8.0-MT	8.00	274.1	253.8	2033	12,000
OA8.5-MT	8.50	291.2	269.7	2160	12,750
OA9.0-MT	9.00	308.4	285.6	2287	13,500
OA9.5-MT	9.50	325.5	301.4	2414	14,250
OA10.0-MT	10.00	342.6	317.3	2541	15,000
OA11.0-MT	11.00	376.9	349.0	2795	16,500
OA12.0-MT	12.00	411.2	380.7	3049	18,000
OA13.0-MT	13.00	445.4	412.5	3303	19,500
OA14.0-MT	14.00	479.7	444.2	3557	21,000
OA15.0-MT	15.00	513.9	475.9	3812	22,500

Larger sizes available on request.

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