

Containerized Medical PSA Oxygen Generation System

1. PSA Oxygen Generator System Descriptions



Selon les principes PSA, les générateurs d'oxygène PSA génèrent 93% ± 3% d'oxygène gazeux de pureté directement à partir de l'air comprimé. Comparé à l'oxygène liquide en vrac traditionnel et aux bouteilles d'oxygène, le générateur d'oxygène PSA sur site peut réduire les coûts à 50 pourcentages. Ils peuvent produire de l'oxygène par votre volonté, dépassant les limites de la distance, de l'emplacement et du transport.

L'air comprimé est purifié à travers le dessiccateur d'air et les filtres jusqu'à un certain niveau pour que le générateur principal fonctionne. Le tampon d'air est incorporé pour une alimentation régulière en air comprimé afin de réduire les fluctuations de la source d'air comprimé. Le générateur produit de l'oxygène avec la technologie PSA (Pressure Swing Adsorption), qui est une méthode de génération d'oxygène éprouvée dans le temps. De l'oxygène de pureté souhaitée à 93% ± 3% est acheminé vers le réservoir tampon d'oxygène pour une alimentation régulière du gaz produit. L'oxygène dans le réservoir tampon est maintenu à une pression de 4 bars.

By PSA principles, PSA oxygen generators generate 93%±3% purity oxygen gas directly from compressed air. Compared with traditional Bulk liquid oxygen and cylinders oxygen, on-site PSA oxygen generator can reduce cost down to 50 percentages. They can produce oxygen by your will, overcoming the limits of distance, location and transportation.

Compressed air is purified through the air dryer and filters to a certain level for main generator to work with. Air buffer is incorporated for smooth supply of compressed air thus to reduce fluctuation of compressed air source. The generator produces oxygen with PSA (pressure swing adsorption) technology, which is a time proven oxygen generation method. Oxygen of desired purity at 93%±3% is delivered to oxygen buffer tank for smooth supply of product gas. Oxygen in buffer tank is maintained at 4bar pressure.

2. PSA Oxygen Generator Working Principles

Le système de générateur d'oxygène PSA à tamis moléculaire médical adopte la technologie internationale avancée d'adsorption modulée en pression (PSA) pour former un cycle rapide d'adsorption de pressurisation et de désorption de dépressurisation dans des conditions de température normale et de basse pression. Lorsque la capacité d'adsorption du tamis moléculaire pour l'azote dans l'air augmente pendant la pressurisation (et vice versa), l'oxygène et l'azote sont séparés de l'air pour générer de l'oxygène, l'air étant la matière première et le tamis moléculaire de la zéolite comme adsorbant.

The medical molecular sieve PSA oxygen generator system adopts the international advanced pressure swing adsorption (PSA) technology to form a rapid cycle of pressurization adsorption and depressurization desorption under the conditions of normal temperature and low pressure. When the adsorption capacity of molecular sieve for nitrogen in the air increases during pressurization (and vice versa), oxygen and nitrogen are separated from the air to generate oxygen, with air as the raw material and zeolite molecular sieve as the adsorbent.

3. Oxygen Generator System Features

- ☒ Tamis moléculaires très efficaces, rendant la génération d'oxygène plus efficace
 - ☒ Fonction de maintenance de concentration de démarrage unique
 - ☒ Silencieux importé des États-Unis, atteignant un bruit de fonctionnement inférieur à 80 dB (A)
 - ☒ Canada a importé des tuyaux de niveau médical avec la marque FAD
 - ☒ Interface à écran tactile LCD avec anglais et espagnol, rendant le réglage des paramètres de fonctionnement plus pratique
 - ☒ Processus de pipeline intégré, offrant une excellente étanchéité à l'air
 - ☒ Contrôle intelligent, permettant la transmission de données à distance
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- ✓ *Highly efficient molecular sieves, making oxygen generation more efficient*
 - ✓ *Unique startup concentration maintenance function*
 - ✓ *USA imported muffler, achieving an operating noise of less than 80dB(A)*
 - ✓ *Canada imported medical level pipes with FAD mark*
 - ✓ *LCD touch screen interface with both English and Spanish, making setting of operating parameters more convenient*
 - ✓ *Integrated pipeline process, providing excellent air tightness*
 - ✓ *Intelligent control, enabling remote data transmission*



4. Specifications of Oxygen Generation System

4.1 Oxygen Generator Specifications

Oxygen Generator		
Item	Specification	Remark
Oxygen Capacity	10Nm ³ /h	Normal/Standard Condition
Oxygen Purity	93%±3%	
Oxygen Delivery Pressure	4bar	
Power Consumption	60W	220V, 50Hz @1Phase
Dimensions (mm)	880*780*2,400	Including buffer tanks. Dimensions are approximate.
Weight (kg)	780	Weight is approximate.
Noise Level	≤85dB(A)	1 meter away
Compressed Air Specifications		
Air Flow Rate Required	≥2.0m ³ /min	Capacity Of The Clean & Dry Air after Pretreatment
Pressure	≥7bar	Gauge
Oil residual Content	≤0.008PPm	
Particles Size	≤0.01m	
Pressure Dew Point	+ 3°C	
Air Temperature	5-45 Deg. C	
Design Working Conditions		
Relative humidity	20%-100%	
Dust Content In The Air	≤20mg/m ³	
H ₂ S、 SO ₂ Content In The Air	≤5ppm	
CO ₂ Content In The Air	≤250ppm	
CnHm Content In The Air	≤20ppm	
Acidic Gases	Less Than Stimulus Content And Without Erosive Gases	Self-governed Room For Air Separation Plant And Far From Acidic Environment is Strongly Recommended

Note:

- Capacity of the oxygen generator is stated at 40 °C ambient air temperature. Variance ±5%.
- Nm³ = Normal Cubic Meter – reference conditions to 0 °C, 1013mbar
- Sm³ = Standard Cubic Meter – reference conditions to 15 °C, 981mbar

The air consumption is based on your nominal temperature and altitude.



4.2 Screw Air Compressor Specifications

Item	Specification	Remarks
Manufacturer	Atlas Copco	
Model	GA15-7.5	
Outlet Pressure	7.5bar	
Flow Capacity	2.75Nm ³ /min	
Motor Power (kW)	15	
Power Supply	380V, 50Hz @3Phase	
Size (mm)	1,225*695*1,475	L*W*H
Weight (KG)	474	
Cooling Type	Air Cooling	
Noise Level	65dB(A)	

4.3 Refrigerant Dryer Specifications

Item	Specification	Remarks
Manufacturer	Pneumatech, US	
Model	AD35	
Flow Capacity	3.5 Nm ³ /min	
Motor Power (kW)	1.17	
Power Supply	220V, 50Hz @1Phase	
Size (mm)	520*500*800	L*W*H
Weight (KG)	60	

4.4 Air Buffer Tank Specifications

Item	Model	Manufacturer	Remarks
Air Buffer Tank	1.0m ³ /1.0Mpa	customized	

4.5 Compressed Air Filtration Specifications

Item	Model	Capacity	Max Working Pressure	Particles size	Oil Content
General Filter	PF35FG	3.5m ³ /min	15bar	1µm	
Precision Filter A	PF35FS	3.5 m ³ /min	15bar	3µm	0.8ppm
Precision Filter B	PF35FC	3.5m ³ /min	15bar	0.01µm	0.08ppm
Bacteria Filters		1.5m ³ /min	16bar	0.01µm	

5.7 Oxygen Buffer Tank Specifications

Item	Model	Manufacturer	Remarks
Oxygen Buffer Tank	1.0m ³ /1.0Mpa	Customized	

5.8 Piston Oxygen Booster Specifications

Item	Specification	Remarks
Inlet Pressure	4bar	
Outlet Pressure	200bar	
Motor Power	7.5KW	
Size	1000*800*1000 (mm)	L*W*H
Weight	200KG	
Cooling Type	Water Cooling	

5.9 Customized Container Specifications

Item	Model	Quantity	Manufacturer
Customized Container with Venting System, Sound-Proof and Accessories	N/A	1	Customized
Interconnecting piping and fittings	GB, CS	1	Customized
Junction Box, Cable, Lighting and Accessories	Standard	1	Customized
Air Conditioner	N/A	1	Customized

5.10 HMI Oxygen Control Panel Specification

Item	Model	Manufacturer	Remarks
Oxygen Control Panel		Customized	With alarm system

Note: The control panel has color touch control panel offering following features:

- Continuous mode start & stop Button
- Can display operating and measurement values for purity.
- Can display operating and measurement values for outlet pressure.
- Can display operating and measurement values for operating hours.
- Can display operating and measurement values for sensor values.
- Can display operating and measurement values for display of trends.
- Have Alarm management with audit trail of raised alarms.
- Have facility for data export of all process values via Ethernet or USB, Access management.
- Have automatic service reminders for periodic maintenance due.
- Fully comply and meet with the requirements of the standards
- Back up online UPS system for monitoring and database

Oxygen Generation System Scope of Supply

6 Quotation

6.1 The Scope of Supply

NO	ITEM	QTY	MANUFACTURER
1	PSA Oxygen Generator	1	
2	Screw Air Compressor	1	Atlas Copco
3	Refrigerate Air Dryer	1	Pneumatech, USA
4	Compressed Air Filters	1	Pneumatech, USA
5	Air Buffer Tank	1	Customized
6	Oxygen Buffer Tank	1	Customized
7	Oxygen Filter	1	Apureda
8	Piston Oxygen Booster	1	Customized
9	Chiller	1	Customized (Option)
10	Customized Container	1	Customized
11	HMI Oxygen Control Panel	1	Customized
12	Cylinder Filling Station	1	Customized
13	Two Years Spare Parts (Optional)	1	Customized
14	Complete Set of All Technical Drawings.	1	Customized
15	Operational Manual and Technical Brochure in English	1	Customized

6.2 Two Years (16,000 Operation Hours) Spare Parts

Two Years (16,000 Hours) Spare Parts				
Air Compressor Spare Parts				
Filter Element Kit		4 pcs	4,000 hours	
Oil Separator Element		2 pcs	8,000 hours	
Lubricant Oil		4 barrels	4,000 hours	
Air/Oxygen Purification System Spare Parts				
General Filter		2 pcs	8,000 hours	
Precision Filter A		2 pcs	8,000 hours	
Precision Filter B		4 pcs	8,000 hours	
Bacteria Filters		2 pcs	8,000 hours	

The total price for the goods specified under the scope of supply is:

Item	Qty
Screw Air Compressor	1
Air Receiver Tank	/90 1
Refrigerant Air Dryer	1
Air Purification Filters	1
Air Buffer Tank	1
PSA Oxygen Generator	1
Oxygen Analyzer	1
Oxygen Flow Meter	1
Pressure Transmitter	1
Oxygen Buffer Tank	1
Oxygen Purification Filter	1
Piston Oxygen Booster	1
Cylinder Filling Station	1
HMI Control Panel	1
Customized Container	1
Oxygen Cylinder	20