

**PIONEER**

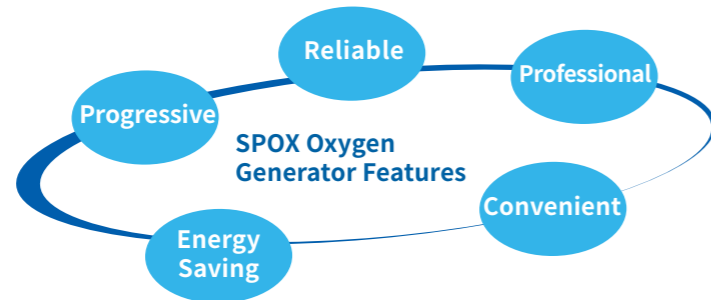
**SPOX**

Oxygen Generator

Optimal  
Solution  
to VPSA  
Oxygen Plant

### Origin of SPOX Oxygen Generator

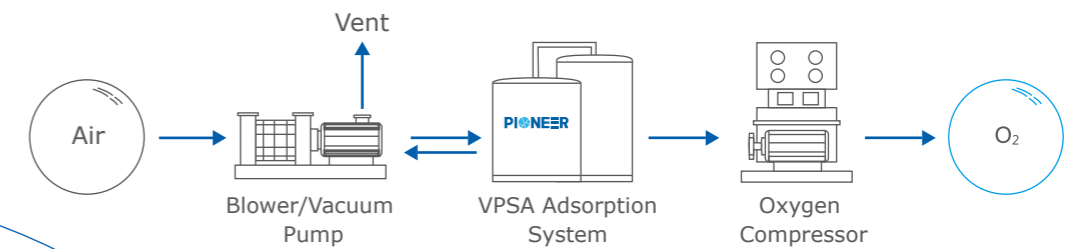
In recent years, there has been a growing demand for small and medium-sized oxygen plant with rapid development of the national economy. PKU PIONEER, seizing the market opportunity with its advanced technology and rich engineering experience of nearly 200 sets of oxygen plant, customized the new skid-mounted VPSA oxygen plant for users in need of small and medium oxygen generation system through its continuous innovative research and development—the SPOX oxygen generator, which has remarkable advantages on the stability, simplicity, efficiency and energy conservation.



### Technical Principle

**Adsorption process:** the pressurized ambient air is passed through the adsorption vessel, where the impurity gases (i.e. predominantly nitrogen) are preferentially adsorbed by the molecular sieve. Oxygen is enriched at the top of the adsorption vessel, then enters an oxygen buffer tank to supply oxygen to the downstream.

**Desorption process:** after the molecular sieve is saturated by adsorption, the valves are switched to allow the blower to reverse and vacuumize, thus restoring the adsorption capacity of the molecular sieve. In this stage, oxygen is continuously supplied to the downstream from the oxygen buffer tank.



### Technical Advantages

#### Advanced single-vessel process

Compared with the traditional double-vessel process, the world-leading single-vessel process requires less equipment but brings more stable performance with easier operation and maintenance.

#### High-efficiency lithium-based molecular sieve

With a lithium ion exchange rate of over 99%, the third-generation lithium-based molecular sieve PU-8 has advantages like high N<sub>2</sub> & O<sub>2</sub> selectivity, large bulk density, uniform particles, long service life, etc. The molecular sieve bed stability is effectively guaranteed with our proprietary automatic filling technology.

#### Special valves for oxygen generation

Special valves for oxygen plant are more suitable for VPSA oxygen generation process. With good sealing, fast switching speed, stable performance and other characteristics, the valves offer outstanding low failure rate and simple maintenance.

#### Modular integrated design

Compared with the conventional double-vessel process, the generator is more compact and the plot area can be reduced by more than 20%.

#### Low operation cost

The power consumption is as low as 0.35kWh/Nm<sup>3</sup> and the annual maintenance cost is 30% lower than that of a common PSA oxygen generator. The annual comprehensive operation cost is also reduced by more than 50%, compared with the cost of other common PSA oxygen generators or purchasing liquid oxygen.



SPOX

### About PKU PIONEER

Founded in 1999 and affiliated to Peking University, PKU PIONEER is mainly engaged in research and development of PSA gas separation technology, design and manufacture of complete sets of equipment, and production of highly efficient adsorbents and catalysts. Based on the industrial gas field and oriented to environmental protection, we've been devoting ourselves to the research of gas separation technology since the establishment, continuously providing advanced technologies and high-quality products for gas separation. After more than a decade of development, a perfect-quality inspection system and a pre-sale and after-sale service system have been formed.

PKU PIONEER has won the second prize of National Award for Technological Invention awarded by the State Council and the first prize of Science and Technology Progress Award awarded by the Ministry of Education. Our VPSA gas separation technology ranks at the world's leading level.

### SPOX Oxygen Generator Models & Parameters

No.	Model	Capacity (Nm <sup>3</sup> /h)	Purity(%)
1	SPOX-50	40~52	90~93
2	SPOX-80	60~85	90~93
3	SPOX-100	80~105	90~93
4	SPOX-120	100~125	90~93
5	SPOX-150	120~155	90~93
6	SPOX-200	160~210	90~93
7	SPOX-250	200~260	90~93
8	SPOX-300	240~310	90~93
9	SPOX-320	250~330	90~93
10	SPOX-400	320~415	90~93
11	SPOX-450	360~470	90~93

### Application Fields

SPOX oxygen generator is widely used in water treatment, flue gas ozone denitrification, kiln combustion supporting, pulp bleaching, aquaculture and other fields...