

# Nitrogen and oxygen generators



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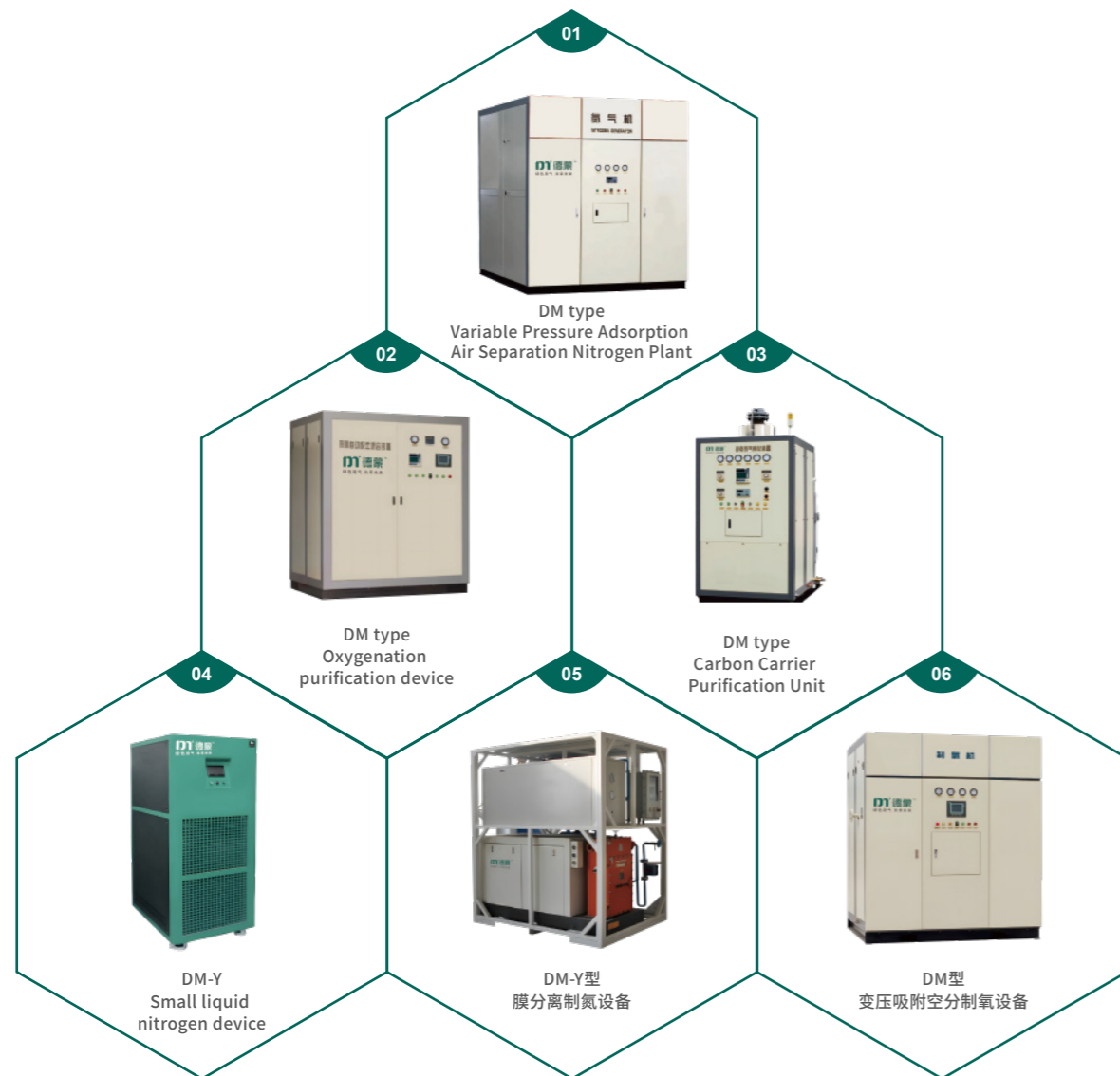
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Dream(Shanghai) Compressor Co.,Ltd.



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## ABOUT DREAM

 **45000** m<sup>2</sup>  
factory area

 **100+** 项  
Invention patents and honors

 **20+**  
Regional branches/subsidiaries

Dream (Shanghai) Compressor Co., Ltd. which established in Shanghai in 2011. It is a company specialized in design, manufacturing and marketing of air compressors, is A high-tech enterprise that sells and provides system solutions.

It has won honors such as Shanghai Brand Cultivation Demonstration Enterprise, special new enterprise, energy-saving equipment contribution enterprise, high-tech achievement transformation project, etc. The products are widely used in new energy, chemical industry & chemistry, Electronics, textiles, brewing mill, laser cutting, medicine & food and other fields.

Based on concepts of stable, energy-saving, clean, efficiency, simple operation & maintenance, DREAM insists on developing based on market demand and innovation. The company invests 10%-15% of its profits every year into R&D and the upgrading & optimization of products. Innovation is main driver for DREAM grow up. As manufacturer supplier of Air compressor system solutions, Our service cover client requirement analysis, site investigation, technical solution design, and project cost analysis, non-standard solution customization, solution demonstration and promotion. we provide exclusive compressed gas solutions based on project needs.

After development for 14+ years, Dream has always adhered to the enterprise spirit of "One heart One Dream, striving for excellence", constantly innovating and pursuing excellence. Dream people continue to explore and innovate to meet customer needs and provide users with better products and service. Based in China, Dream's products has exported to worldwide countries successfully, mainly market as South Asia, South East Asia, Europe, Africa, South America, North America, and CIS countries, footprints all over the world. Its excellent product performance and efficient service concept continue to create value for users.

Dream will be always your trust partner. We believe that you will experience our high-quality products and professional services, by working with us. Welcome to pursue dream and create better future with DREAM together!

## DREAM CULTURE



### Vision

To be a highly competitive manufacturer supplier for air compressor system solutions



### Mission

Give users more worry free Sustainably save energy and gas



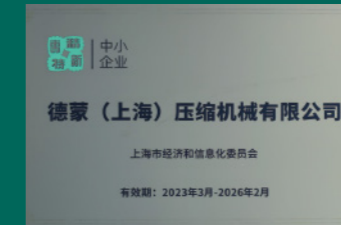
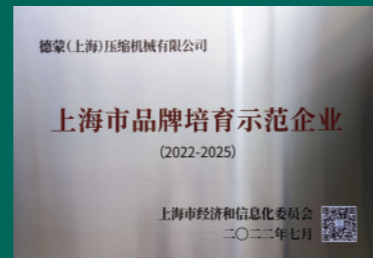
### Value

Concentric shared dream professional focused co-created shared



### Enterprise honor

- High-tech enterprise
- Specialized in special new enterprises
- Energy-saving technology and equipment contributing enterprises
- Shanghai brand cultivation model enterprise
- CE Certificates
- EMC Certificates
- TUV Rheinland Class 0 Oil Free Certificates
- Germany TUV product safety certification
- GCCA product quality and safety certification
- ISO 9001,14001,45001



**20+**  
City subsidiary

**34** Provincial sales  
service network

Adhering to the business philosophy of "market-oriented, customer-centric, technical support and service guarantee", Dream is committed to providing customers with high quality products and industry-leading services. With Shanghai as the center and 20 service outlets nationwide as the auxiliary, Dream covers 34 provinces and autonomous regions of China's sales and service network, dedicated to provide customers with better service.

### Global service

Dream is committed to providing quality products and services on a global scale, and has conducted overseas operations in many countries and regions, including Southeast Asia, Europe, and the Americas, and has established strong partnerships in overseas markets. Our overseas agents have rich experience in cross-cultural communication and international vision, and are able to better understand and meet the needs of local customers and markets. In the future, we will continue to strengthen the development of overseas business, expand more overseas markets, and let China intelligent manufacturing shine on the international stage.



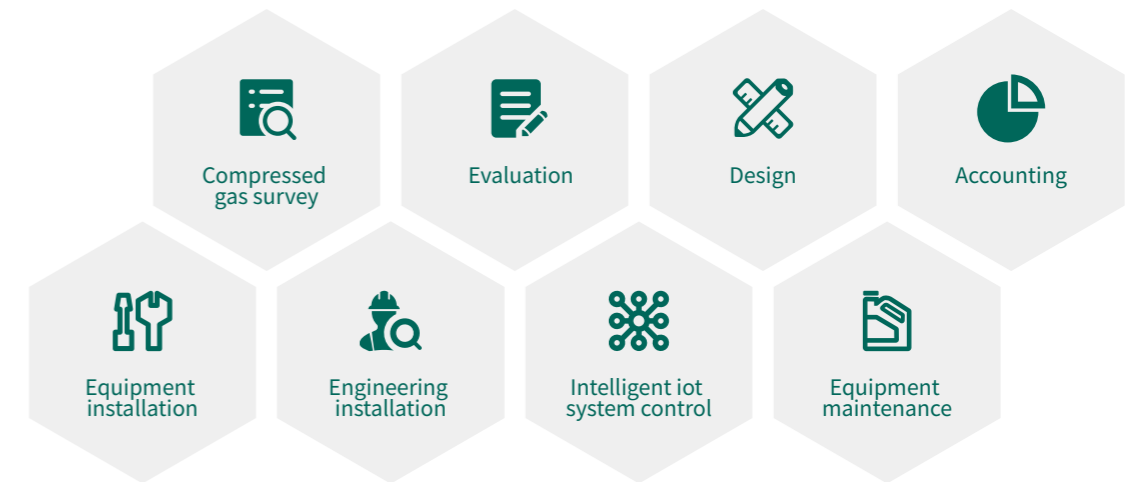
## Dream Intelligent Manufacturing Six core competencies



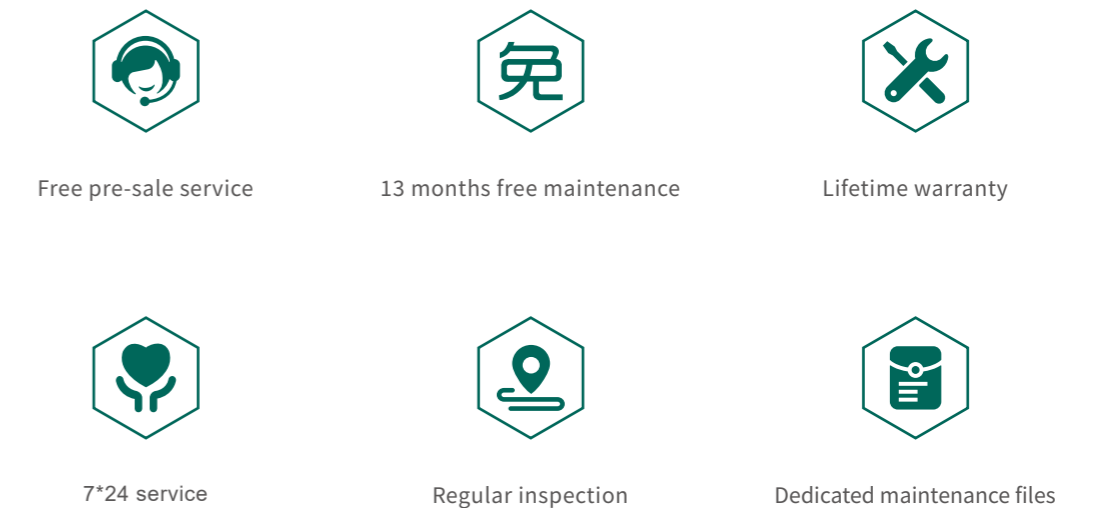
## | Full process cycle and service

We provide the whole process cycle service for customers to build gas stations or upgrade, covering compressed gas system research, evaluation, design, edge calculation, equipment installation, engineering installation, intelligent iot system control, equipment maintenance and so on.

## | Service process



## | Performance pledge





Main technical indicators:  
 Nitrogen flow rate: 3-3000Nm<sup>3</sup>/h  
 Nitrogen purity: 95-99.999 per cent  
 Nitrogen pressure: 0.1-0.8Mpa (adjustable)  
 Dew point: -40~60°C(under normal pressure)

## DM type Variable Pressure Adsorption Air Separation Nitrogen Plant

1. Advanced unequal pressure equalisation process to increase carbon molecular sieve utilisation and directly reduce compressed air consumption.
2. Advanced internal components, uniform airflow distribution, reduce airflow adjustment shock.
3. Demont cooperates with famous molecular sieve manufacturers at home and abroad, and can select the most energy-saving products according to the user's working conditions.
4. the most reliable air source treatment to ensure the adsorption efficiency and service life of molecular sieve.
5. Stretching and twisting filling technology makes the filling of carbon molecular sieve more even and dense, and the friction coefficient is reduced to the lowest point, which improves the reliability of the whole machine in long-term operation.
6. It adopts Siemens PLC automatic programme control, and can be adjusted according to the purity of nitrogen, and the interface can be reserved for remote joint control with computer.
7. The valve is a reliable guarantee for the stable operation of the equipment, with fast opening and closing speed, low gas consumption, simple structure, good sealing performance, easy installation and maintenance, and high seat life. Valve seat life is high.
8. Adopting advanced cylinder automatic compression technology, when the lack of carbon molecular sieve in the adsorption tower, an alarm signal is issued to remind the user to deal with in time, to prevent the carbon molecular sieve from pulverisation, and to prevent the adsorption tower from being used as a storage tank. To prevent the carbon molecular sieve from pulverisation and prolong the service life.
9. Unqualified nitrogen automatic venting device (optional).
10. Selection of famous brand components, quality assurance of the user's products to ensure that the nitrogen yield, purity, pressure and long-term stability.

## Working Principle

When the air pressure rises, the carbon molecular sieve will adsorb a large amount of oxygen, carbon dioxide and moisture. When the pressure drops to atmospheric pressure, the adsorption of oxygen, carbon dioxide and moisture by carbon molecular sieve is very small.

Variable pressure adsorption equipment mainly consists of A and B two adsorption towers equipped with carbon molecular sieve and control system. When compressed air (pressure is generally 0.8Mpa) from the bottom to the top through the A tower, oxygen, carbon dioxide and moisture are adsorbed by the carbon molecules, while nitrogen is passed through and out from the top of the tower when the molecular sieve adsorption in the A tower is saturated, it will be switched to the B tower to carry out the above adsorption process and at the same time regenerate the molecular sieve in the A tower. The so-called regeneration, that is, the adsorption tower gas is emptied to the atmosphere so that pressure

Regeneration is the process in which the gas in the adsorption tower is emptied into the atmosphere so that the pressure is rapidly reduced to atmospheric pressure and the adsorbed oxygen, carbon dioxide and moisture are released from the molecular sieve.

This series of unit has the advantages of compact equipment, small footprint, fully automatic operation, reliable operation, quick start and stop, low operating cost, room temperature production and low maintenance. Nitrogen purity and nitrogen output can be adjusted appropriately, without environmental pollution, it is a kind of efficient on-site nitrogen production device.



## Oxygen applications and uses



### Electronics Industry:

Nitrogen protection for the production of semiconductors and electronic components



### Heat Treatment:

Bright annealing, protective heating, sintering of metallurgical and magnetic materials, etc.





### Food industry

Equipped with sterilisation filters, it can be used for nitrogen-filled packaging, grain storage, vegetable and fruit preservation, Wine encapsulation and protection



### Chemical Industry:

Nitrogen coverage, replacement, cleaning, pressure transport, stirring of chemical reactions, protection of chemical fibre production, etc.



### Pharmaceutical industry

Nitrogen-filled storage of Chinese and Western medicines, Nitrogen-filled medicine toggle transfer, etc.



### Charcoal burning industry

Underground explosion protection and paraffin fire fighting



### Oil and gas industry

Petroleum refining, vessel and pipeline nitrogen purging and leak detection, nitrogen injection for oil recovery.



### Cable industry

Cross-linked cable production and protective gas

Note: Other types of metallurgical industry, rubber industry, aerospace industry, etc.

## DM-97 Nitrogen purity 97%

Model Specification	Air production (NM <sup>3</sup> )	Air consumption	Inlet Nominal diameter	Nominal outlet diameter
DM97-10	10	0.38	25	15
DM97-15	15	0.57	25	15
DM97-20	20	0.75	25	15
DM97-25	25	0.94	25	15
DM97-30	30	1.13	25	15
DM97-40	40	1.51	32	20
DM97-50	50	1.88	32	20
DM97-60	60	2.26	32	20
DM97-70	70	2.64	40	20
DM97-80	80	3.00	40	20
DM97-100	100	3.77	40	25
DM97-120	120	4.52	50	25
DM97-150	150	5.65	50	32
DM97-180	180	6.75	50	32
DM97-200	200	7.53	50	32
DM97-250	250	9.42	50	40
DM97-300	300	11.30	50	40
DM97-350	350	13.20	65	40
DM97-400	400	15.07	65	50
DM97-450	450	16.95	65	50
DM97-500	500	18.80	80	50
DM97-600	600	22.60	80	50
DM97-800	800	30.10	80	65
DM97-1000	1000	37.70	100	65
DM97-1200	1200	45.20	100	80
DM97-1500	1500	56.50	125	80
DM97-2000	2000	75.30	150	100

## DM-99 Nitrogen purity 99%

Model Specification	Air production (NM <sup>3</sup> )	Air consumption	Inlet Nominal diameter	Nominal outlet diameter
DM99-10	10	0.45	25	15
DM99-15	15	0.67	25	15
DM99-20	20	0.89	25	15
DM99-25	25	1.12	25	15
DM99-30	30	1.34	25	15
DM99-40	40	1.79	25	20
DM99-50	50	2.23	32	20
DM99-60	60	2.68	40	20
DM99-70	70	3.13	40	20
DM99-80	80	3.57	40	20
DM99-100	100	4.47	40	25
DM99-120	120	5.36	40	25
DM99-150	150	6.70	50	32
DM99-180	180	8.04	50	32
DM99-200	200	8.93	50	32
DM99-250	250	11.17	50	40
DM99-300	300	13.40	65	40
DM99-350	350	15.63	65	40
DM99-400	400	17.87	65	50
DM99-450	450	20.10	80	50
DM99-500	500	22.33	80	50
DM99-600	600	26.80	80	50
DM99-800	800	35.73	100	65
DM99-1000	1000	44.67	100	65
DM99-1200	1200	53.60	125	80
DM99-1500	1500	67.00	125	80
DM99-2000	2000	89.33	150	100

The above data is based on an ambient temperature of 20°C, 0 metre elevation and 80% relative humidity.

## DM-99.5 Nitrogen purity99.5%

Model Specification	Air production (NM <sup>3</sup> )	Air consumption	Inlet Nominal diameter	Nominal outlet diameter
DM99.5-5	5	0.24	25	15
DM99.5-10	10	0.48	25	15
DM99.5-15	15	0.73	25	15
DM99.5-20	20	0.97	25	15
DM99.5-25	25	1.21	25	15
DM99.5-30	30	1.45	25	15
DM99.5-40	40	1.93	25	20
DM99.5-50	50	2.42	32	20
DM99.5-60	60	2.90	40	20
DM99.5-70	70	3.38	40	20
DM99.5-80	80	3.87	40	20
DM99.5-100	100	4.83	40	25
DM99.5-120	120	5.80	40	25
DM99.5-150	150	7.25	50	32
DM99.5-180	180	8.70	50	32
DM99.5-200	200	9.67	50	32
DM99.5-250	250	12.08	50	40
DM99.5-300	300	14.50	65	40
DM99.5-350	350	16.92	65	40
DM99.5-400	400	19.33	65	50
DM99.5-450	450	21.75	80	50
DM99.5-500	500	24.17	80	50
DM99.5-600	600	29.00	80	50
DM99.5-800	800	38.67	100	65
DM99.5-1000	1000	48.33	100	65
DM99.5-1200	1200	58.00	125	80
DM99.5-1500	1500	72.50	125	80
DM99.5-2000	2000	96.67	150	100

## DM-99.9 Nitrogen purity99.9%

Model Specification	Air production (NM <sup>3</sup> )	Air consumption	Inlet Nominal diameter	Nominal outlet diameter
DM99.9-5	5	0.33	25	15
DM99.9-10	10	0.65	25	15
DM99.9-15	15	0.98	25	15
DM99.9-20	20	1.30	25	15
DM99.9-25	25	1.63	32	15
DM99.9-30	30	1.95	32	20
DM99.9-40	40	2.60	40	20
DM99.9-50	50	3.25	40	20
DM99.9-60	60	3.90	40	20
DM99.9-70	70	4.55	50	20
DM99.9-80	80	5.20	50	20
DM99.9-100	100	6.50	50	25
DM99.9-120	120	7.80	50	25
DM99.9-150	150	9.78	50	32
DM99.9-180	180	11.70	65	32
DM99.9-200	200	13.00	65	32
DM99.9-250	250	16.25	65	40
DM99.9-300	300	19.50	80	40
DM99.9-350	350	22.75	80	40
DM99.9-400	400	26.00	80	50
DM99.9-450	450	29.25	100	50
DM99.9-500	500	32.50	100	50
DM99.9-600	600	39.00	100	50
DM99.9-800	800	52.00	125	65
DM99.9-1000	1000	65.00	125	65
DM99.9-1200	1200	78.00	150	80
DM99.9-1500	1500	97.50	150	80
DM99.9-2000	2000	130.00	200	100

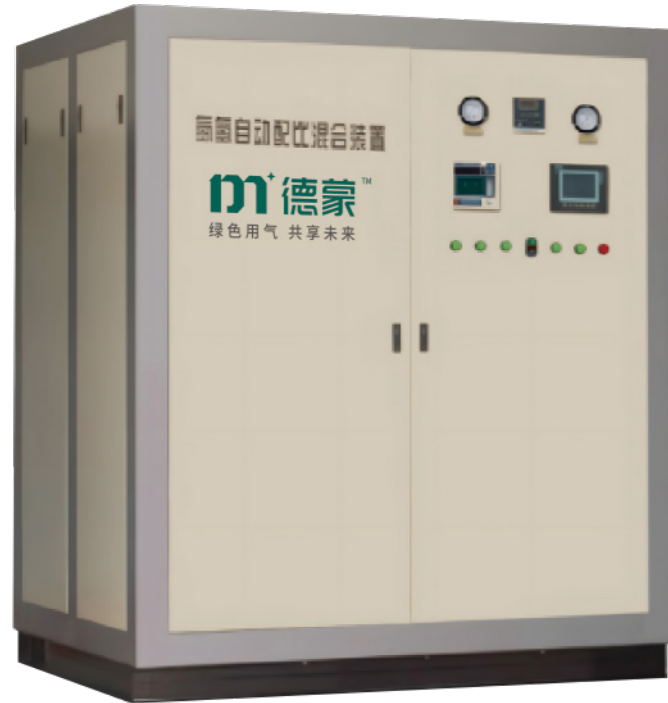
## DM-99.99型 Nitrogen purity99.99%

Model Specification	Air production (NM <sup>3</sup> )	Air consumption	Inlet Nominal diameter	Nominal outlet diameter
DM99.99-5	5	0.46	25	15
DM99.99-10	10	0.92	25	15
DM99.99-15	15	1.38	25	15
DM99.99-20	20	1.83	32	15
DM99.99-25	25	2.29	32	15
DM99.99-30	30	2.75	40	15
DM99.99-40	40	3.67	40	20
DM99.99-50	50	4.58	40	20
DM99.99-60	60	5.50	50	20
DM99.99-70	70	6.42	50	20
DM99.99-80	80	7.33	50	25
DM99.99-100	100	9.17	50	25
DM99.99-120	120	11.00	65	25
DM99.99-150	150	13.75	65	32
DM99.99-180	180	16.50	65	32
DM99.99-200	200	18.33	65	32
DM99.99-250	250	22.92	80	40
DM99.99-300	300	27.50	80	40
DM99.99-350	350	32.08	100	40
DM99.99-400	400	36.67	100	50
DM99.99-450	450	41.25	100	50
DM99.99-500	500	45.83	100	50
DM99.99-600	600	55.00	125	50
DM99.99-800	800	73.33	150	65
DM99.99-1000	1000	91.67	150	65
DM99.99-1200	1200	110.00	150	80
DM99.99-1500	1500	137.50	200	80
DM99.99-2000	2000	183.33	250	100

## DM-99.999型 Nitrogen purity99.999%

Model Specification	Air production (NM <sup>3</sup> )	Air consumption	Inlet Nominal diameter	Nominal outlet diameter
DM99.999-5	5	0.83	25	15
DM99.999-10	10	1.67	25	15
DM99.999-20	20	3.33	40	15
DM99.999-30	30	5.00	40	25
DM99.999-40	40	6.67	50	25
DM99.999-50	50	8.33	50	25
DM99.999-60	60	10.00	50	32
DM99.999-80	80	13.33	65	40
DM99.999-100	100	16.67	65	40
DM99.999-150	150	25.00	80	40
DM99.999-200	200	33.33	100	50
DM99.999-300	300	50.00	125	50





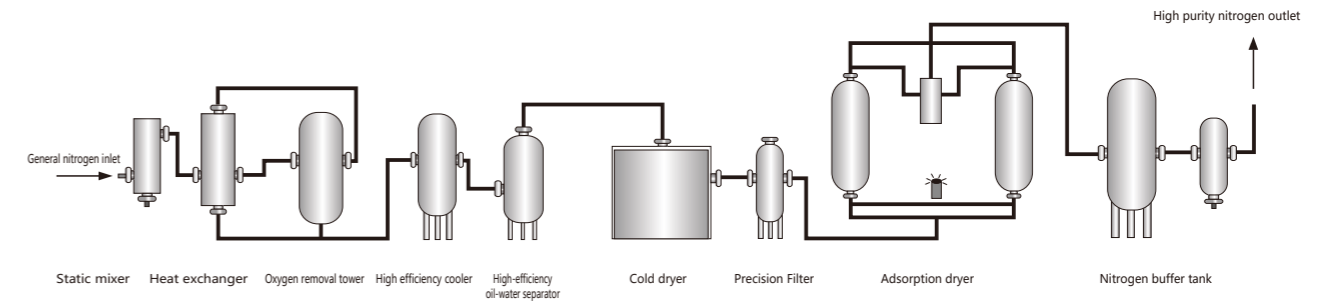
Main technical indicators:  
 Nitrogen flow rate:  
 10-2000Nm<sup>3</sup>/h  
 Nitrogen purity: ≥  
 99.999~99.997%  
 Nitrogen pressure: 0.1-0.7Mpa  
 ( adjustable )  
 Dew point: -60°C  
 Oxygen content: ≤3-10ppm  
 Hydrogen content: ≤1000ppm

## DM type Oxygenation purification device

This series of unit adopts catalytic deoxidation + adsorption drying method to remove impurities such as oxygen, water, carbon dioxide and dust from nitrogen to obtain high purity nitrogen. Nitrogen (99-99.9%) and hydrogen are mixed statically and then enter the heat exchanger to preheat the inlet gas by using the heat from the outlet of the deoxidation tower, and then enter the deoxidation tower equipped with high-efficiency hydrodeoxygenation catalyst, and the oxygen impurity in the nitrogen reacts with the hydrogen to produce water to be removed, and at the same time, a large amount of heat is released, and the exothermic heat is about 200°C when the reaction occurs with 1% of the oxygen content. Then it passes through the heat exchanger and enters the filter drier device to remove impurities such as water, carbon dioxide and dust particles, so as to obtain high purity nitrogen.

## Working Principle

This series of device is equipped with automatic fault alarm and shutdown function system: room temperature deoxygenation, no need for pre-treatment before use, no longer need to regenerate in use, good anti-poisoning performance for sulfide, chloride, ammonia, etc., life expectancy of more than 5 years: low water content in the product gas, the atmospheric dew point of -60 °C; generally pure gas containing hydrogen ≤ 1000ppm (automatic hydrogenation), the oxygen content of ≤ 3ppm.



### DM-99.999 Nitrogen purity99.999%

Model Specification	Normal Nitrogen Consumption (NM <sup>3</sup> )	Pure Nitrogen Output	Hydrogen consumption	Installed power	Cooling water
DM-60	66	60	0.7	1	0.5
DM-80	88	80	1.0	1.1	0.6
DM-100	110	100	1.2	1.1	0.8
DM-150	165	150	1.8	2.4	1.1
DM-200	220	200	2.4	3.4	1.5
DM-250	275	250	3.0	3.4	1.9
DM-300	330	300	3.7	3.4	2.3
DM-400	440	400	4.9	7.0	3.0
DM-500	550	500	6.1	7.0	3.8
DM-600	660	600	7.3	7.0	4.5
DM-800	880	800	9.7	10.5	6.0
DM-1000	1100	1000	12.2	13.8	7.5
DM-1200	1320	1200	14.6	13.8	9.0
DM-1500	1650	1500	18.3	21.0	11.3
DM-2000	2200	2000	24.3	27.5	15.0



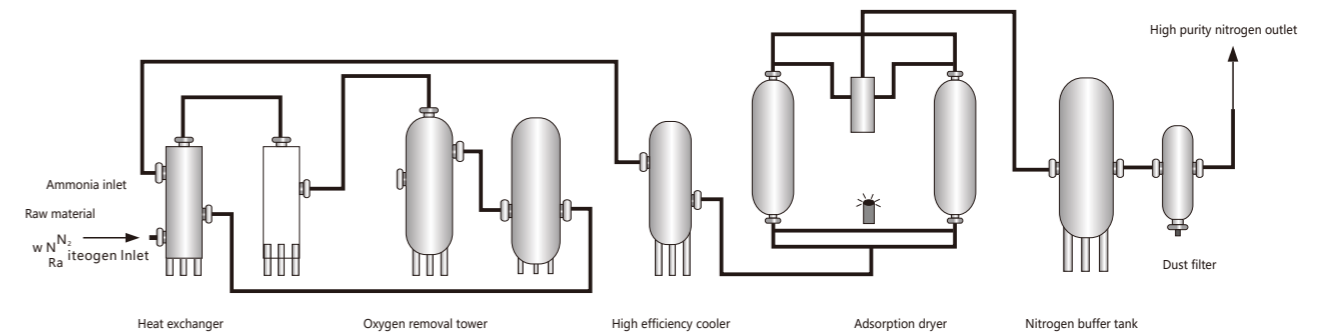
Main technical indicators:  
 Nitrogen flow rate:  
 10-2000Nm<sup>3</sup>/h  
 Nitrogen purity: ≥  
 99.999~99.9977%  
 Nitrogen pressure: 0.5-0.7Mpa  
 ( adjustable )  
 Dew point: ≤60°C  
 Oxygen content: 5 ppm  
 Hydrogen content: 0

## DM type Carbon Carrier Purification Unit

Whether it is catalytic deoxygenation or chemical deoxygenation, hydrogen is needed, but some areas lack hydrogen sources, and the production environment does not allow or the users do not want to use the hydrogen production device specially set up for ammonia decomposition, therefore, we use the carbon-carrying purification device, which is used to oxidise (combustion) the residual oxygen in the ammonia (99.9%) with the carbon catalyst at a certain temperature to generate CO<sub>2</sub> and water, and then remove CO<sub>2</sub> and water through the purification device. The CO<sub>2</sub> and water are then removed by a purification unit, and the impurities in the nitrogen are removed by a fine filter, resulting in highly pure nitrogen (99.9995%), which is characterised by the requirement for the regular addition of carbon deoxidiser and the elimination of the need to use hydrogen.

## Working Principle

The system device has advanced technology, good stability, high purity of nitrogen; the device is equipped with automatic fault alarm and shutdown function; low water content, atmospheric dew point ≤ -60 °C; deoxidiser and heater are made of high-temperature-resistant material, which is safe and reliable.



## DM-99.999 Nitrogen Purity 99.999%

Model Specification	Normal Nitrogen Consumption (Nm <sup>3</sup> )	Pure Nitrogen Output	Catalyst consumption	Installed power	Cooling water
DM-10	11	10	5.0	3.4/1.3	0.1
DM-20	22	20	10.0	6.8/2.6	0.2
DM-30	33	30	15.0	10.2/3.9	0.2
DM-40	44	40	20.0	13.6/5.2	0.3
DM-50	55	50	25.0	17.0/6.5	0.4
DM-60	66	60	30.0	20.4/7.8	0.5
DM-80	88	80	40.0	27.2/10.4	0.6
DM-100	110	100	50.0	34.0/13.0	0.8
DM-150	165	150	75.0	51.0/19.5	1.1
DM-200	220	200	100.0	68.0/32.5	1.5
DM-250	275	250	125.0	85.0/32.5	1.9
DM-300	330	300	150.0	102/39	2.2
DM-400	440	400	200.0	136/52	3.0
DM-500	550	500	250.0	170/65	3.7
DM-600	660	600	300.0	240/78	4.4



## 场景应用

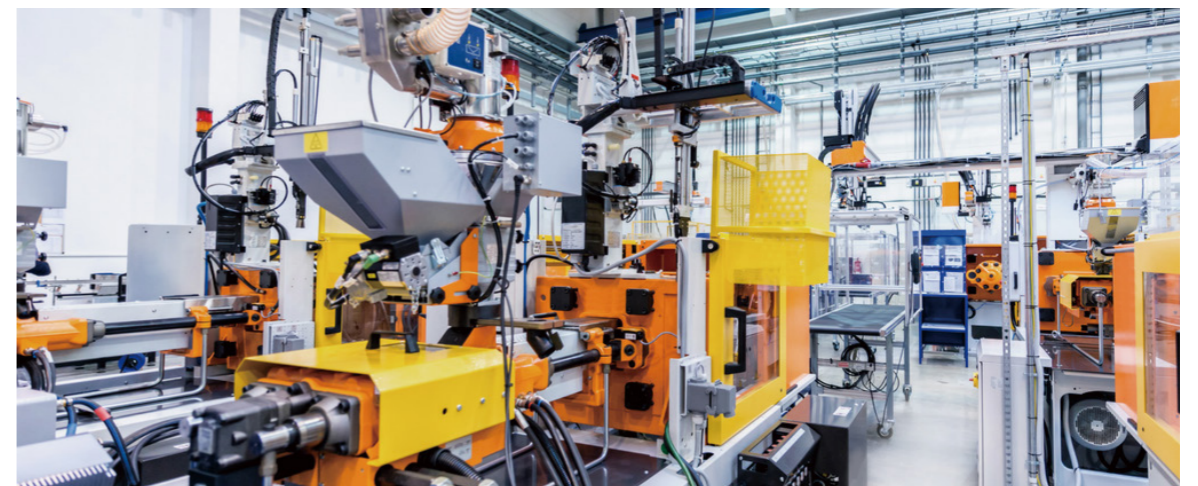
The machine has the features of simple process, room temperature production, high automation, convenient start and stop, less wearing parts, easy maintenance and low production cost.

Main technical indicators:  
 Liquid nitrogen purity:  
 4-80L/h  
 Nitrogen purity:  
 98-99.9995%



## DM-Y Small liquid nitrogen device

DM series liquid nitrogen device is based on the principle of pressure change adsorption, using high quality carbon molecular sieve as adsorbent to produce nitrogen from air under certain pressure. The purified and dried compressed air is adsorbed under pressure and desorbed under reduced pressure in the adsorber. Due to kinetic effect, the diffusion rate of oxygen in the micropores of the carbon molecular sieve is much larger than that of nitrogen, and when the adsorption has not reached equilibrium, nitrogen is enriched in the gas phase to form finished nitrogen. Then the pressure is reduced to atmospheric pressure and the adsorbent desorbs the adsorbed oxygen and other impurities to achieve regeneration. Generally, two adsorption towers are set up in the system, one tower adsorbs nitrogen, and the other tower desorbs and regenerates, which is automatically controlled by PLC programme, so that the two towers work alternately. The finished nitrogen gas then passes through the multi-refrigerator to produce liquid nitrogen. Multi-refrigerator is mainly based on deep-cooling multi-mixed mass technology, and the system includes: pre-cooling, main cooling and finned heat exchanger.

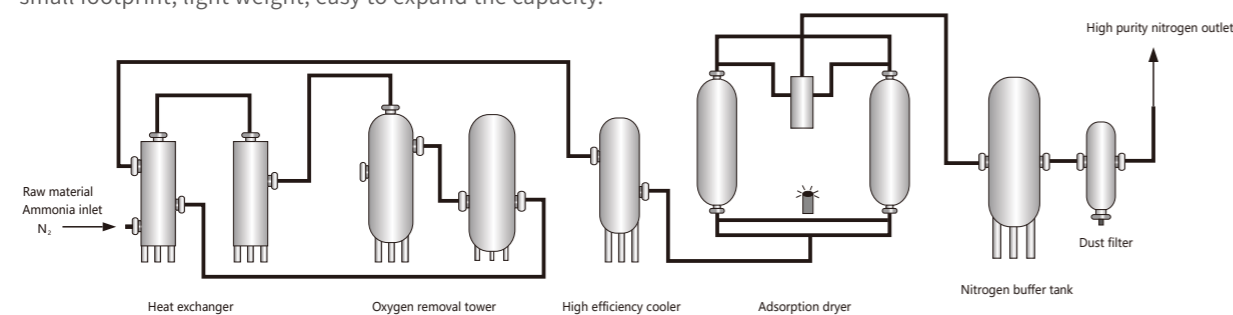




## DM type Membrane separation equipment for nitrogen production

Membrane Separation Nitrogen Generation Equipment Membrane separation technology is a kind of high and new technology developed in the middle of the twentieth century, and it has been developed rapidly in the world in the past 20 or 30 years, and the membrane separation technology is bringing great benefits for human beings. Usually all gases can permeate the polymer membrane, the process is that the gas molecules are first adsorbed and dissolved in the high-pressure surface of the membrane, and then diffuse in the membrane with the help of the concentration gradient, and finally resolved from the low pressure of the membrane, which results in the small molecules and the polarities of the stronger molecules (e.g. water vapour, water, water vapor).

The result is that small molecules and molecules with stronger polarity (such as water vapour, oxygen, carbon dioxide, etc.) pass through the membrane faster and are enriched in the permeation side of the membrane; while large molecules and molecules with weaker polarity (such as nitrogen, hydrogen, etc.) pass through the membrane slower, and are retained in the retention side of the membrane to be enriched, thus achieving the purpose of the separation of mixed gases. Membrane separation is the use of a variety of gases in the polymer membrane permeation rate difference, to carry out gas separation, the separation driving force for the gas in the membrane on both sides of the partial pressure difference, so the membrane method of gas separation, no phase change, do not need to regenerate, which has the advantages of simple equipment, operation and maintenance costs are low. A membrane separator (module) is made of thousands of hollow fibre separation membranes assembled in a shell, its structure is similar to the tube heat exchanger, which can provide the maximum surface area of the separation membrane in the smallest space, so the membrane separation system has the advantages of small footprint, light weight, easy to expand the capacity.



Model Specification	Air production (NM <sup>3</sup> )	Air consumption	Inlet Nominal diameter	Nominal outlet diameter	Air Purification System TONTITONTIT
DM95-50	50	2.12	32	25	HZ-3
DM95-60	60	2.55	32	25	HZ-3
DM95-70	70	2.98	32	25	HZ-3
DM95-80	80	3.40	40	25	HZ-6
DM95-100	100	4.25	40	25	HZ-6
DM95-120	120	5.10	40	32	HZ-5
DM95-150	150	6.38	50	32	HZ-10
DM95-180	180	7.65	50	40	HZ-10
DM95-200	200	8.20	50	40	HZ-12
DM95-250	250	10.64	50	40	HZ-16
DM95-300	300	12.77	65	40	HZ-16
DM95-350	350	14.59	65	40	HZ-20
DM95-400	400	17.00	65	50	HZ-20
DM95-450	450	19.15	65	50	HZ-25
DM95-500	500	20.40	80	50	HZ-25
DM95-600	600	24.50	80	50	HZ-40
DM95-800	800	32.60	100	65	HZ-40
DM95-1000	1000	40.80	100	54	HZ-50
DM95-1200	1200	48.90	100	80	HZ-50
DM95-1500	1500	61.20	125	80	HZ-80
DM95-2000	2000	81.60	150	100	HZ-100

Model Specification	Air production (NM <sup>3</sup> )	Air consumption	Inlet Nominal diameter	Nominal outlet diameter	Air Purification System TONTITONTIT
DM99-15	15	1.20	25	25	HZ-2
DM99-20	20	1.60	25	25	HZ-2
DM99-25	25	2.00	32	25	HZ-3
DM99-30	30	2.40	32	25	HZ-3
DM99-40	40	3.20	40	25	HZ-6
DM99-50	50	4.00	40	25	HZ-6
DM99-60	60	4.80	40	25	HZ-6
DM99-70	70	5.60	40	25	HZ-6
DM99-80	80	6.40	50	25	HZ-10
DM99-100	100	8.00	50	25	HZ-10
DM99-120	120	9.60	50	32	HZ-10
DM99-150	150	12.00	50	32	HZ-16
DM99-180	180	14.40	65	40	HZ-16
DM99-200	200	16.00	65	40	HZ-20
DM99-250	250	20.00	65	40	HZ-25
DM99-300	300	24.00	80	40	HZ-25
DM99-350	350	28.00	80	40	HZ-30
DM99-400	400	32.00	100	50	HZ-40
DM99-450	450	36.00	100	50	HZ-40
DM99-500	500	40.00	100	50	HZ-40
DM99-600	600	48.00	100	50	HZ-50
DM99-800	800	64.00	150	65	HZ-80
DM99-1200	1200	96.00	150	80	HZ-100
DM99-1500	1500	120.00	200	80	HZ-150
DM99-2000	2000	160.00	250	100	HZ-200





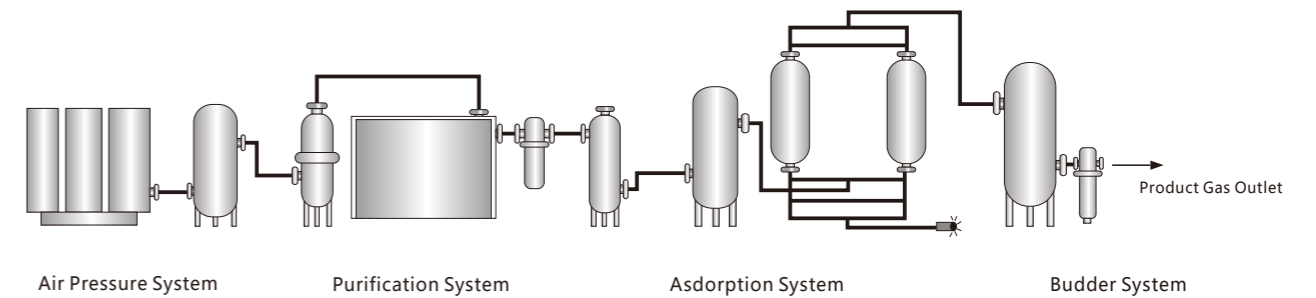
Main technical indicators:  
 Nitrogen flow rate:  
 3-400Nm<sup>3</sup>/h  
 Nitrogen purity: 90~93%  
 Nitrogen pressure:  
 0.1-0.5Mpa ( adjustable )  
 Dew point: -45~-60°C

## DM type Variable Pressure Adsorption Air Separation Oxygen Generation Equipment

- Electric Furnace Steelmaking: decarburisation, oxygen fuelled heating, foam deep slag, metallurgical control and post-heating.
- Wastewater treatment: oxygen-enriched aeration of activated sludge, pond oxygenation and ozone sterilisation.
- Glass melting: Oxygen fuelled solvation, cutting, increased glass production and extended furnace life.
- Pulp bleaching and papermaking: conversion of chlorine bleaching to oxygen-enriched bleaching, provision of cheap oxygen, sewage treatment.
- Non-ferrous metal smelting: smelting uranium, zinc, nickel, lead, etc. need to use oxygen-enriched, PSA method is gradually replacing the deep cooling method.
- Field cutting construction: field steel pipe cutting with oxygen-enriched, mobile or small oxygen generator can meet the requirements.
- Oxygen for petrochemical and chemical industry: Oxygen-enriched instead of air is used for oxidation reaction in petroleum and chemical industry, which can improve the reaction speed and the output of chemical products.
- Ore treatment: used in gold and other production processes, can improve the extraction rate of metals.
- Aquaculture: Oxygen-enriched aeration can increase the dissolved oxygen in the water and substantially increase the fish production; it can supply oxygen for the transport of live fish; intensive fish farming.
- For fermentation: oxygen-enriched instead of air; supplying oxygen for aerobic fermentation, which can substantially increase efficiency.
- For drinking water: ozone sterilisation.

## Working Principle

According to the principle of 'PSA' pressure change adsorption, the oxygen equipment is carefully developed, adopting high quality zeolite molecular sieve as the adsorbent, and separating the oxygen from the air directly at room temperature. After purifying and drying the pre-treated compressed air, the oxygen and nitrogen are separated under the action of pressure change adsorption. By the characteristic of selective adsorption of molecular sieve, nitrogen is adsorbed within the zeolite sub-molecular sieve, and oxygen is enriched in the gas phase and output as a product. The system is set up with two adsorption towers, one tower adsorbs and produces oxygen, one tower desorbs and regenerates, and the cycle alternates to produce oxygen continuously.



Model Specification	Air production (NM <sup>3</sup> )	Air consumption	Inlet Nominal diameter	Nominal outlet diameter
DM-3	3	0.60	25	25
DM-5	5	1.00	25	25
DM-10	10	2.00	32	25
DM-15	15	3.00	40	25
DM-20	20	4.00	40	25
DM-25	25	5.00	50	25
DM-30	30	6.00	50	25
DM-40	40	8.00	50	25
DM-50	50	10.00	65	25
DM-60	60	12.00	65	25
DM-80	80	16.00	80	25
DM-100	100	20.00	80	25
DM-120	120	24.00	100	32
DM-150	150	30.00	100	32
DM-200	200	40.00	125	40

## Application Fields:

Metallurgy	Electric Arc Furnace Steelmaking, Oxygen-Enriched Blast Furnace Ironmaking, Oxygen-Enriched Vertical Furnace Combustion Assistance
Non-ferrous Metallurgy	Lead Smelting, Copper Smelting, Zinc Smelting, Aluminum Smelting, Oxygen-Enriched Various Furnaces
Environmental Protection	Drinking Water Treatment, Wastewater Treatment, Paper Pulp Bleaching, Biochemical Treatment of Waste
Chemical Industry	Various Oxidation Reactions, Ozone Production, Coal Gasification
Medical Industry	Oxygen Bars, Oxygen Therapy, Sports and Health Care
Aquaculture	Sea and Freshwater Breeding
Other Industries	Fermentation, Cutting, Glass Furnace, Air Conditioning, Waste Incineration

## VPSA

The role of VPSA (Vacuum Pressure Swing Adsorption) oxygen blowing in open-hearth furnaces is to assist in combustion. Its purpose is to enhance the smelting process, shorten the smelting time, and increase the steel production capacity of the open-hearth furnace. Practice has proven that oxygen blowing in open-hearth furnaces can increase steel production by more than double and reduce fuel consumption by 33% to 50%. The use of oxygen in electric furnaces can accelerate the melting of furnace charge and the oxidation of impurities, which means that oxygen blowing in electric furnaces can both increase production capacity and improve the quality of specialized products. The oxygen consumption per ton of steel in electric furnaces varies depending on the type of steel being smelted, with carbon structural steel requiring 20-25 cubic meters of oxygen per ton and high-alloy steel requiring 25-30 cubic meters. The required oxygen concentration for this process is enriched oxygen at 90% to 94%. Enriched oxygen blasting in blast furnaces can significantly reduce coking and increase production. According to statistics, an increase in oxygen concentration by 1% can lead to a 4% to 6% increase in iron production, a 5% to 6% reduction in coking, and especially when the coal injection rate for coal-based ironmaking reaches 300kg per ton of iron, the corresponding oxygen requirement is 300 cubic meters per ton of iron. Introducing oxygen into the smelting process of non-ferrous metals allows sulfur to burn completely, maintaining the smelting temperature and increasing the melting speed. Taking copper as an example, enriched oxygen copper smelting can save 50% of energy, which means that copper production can be doubled with the same fuel consumption.

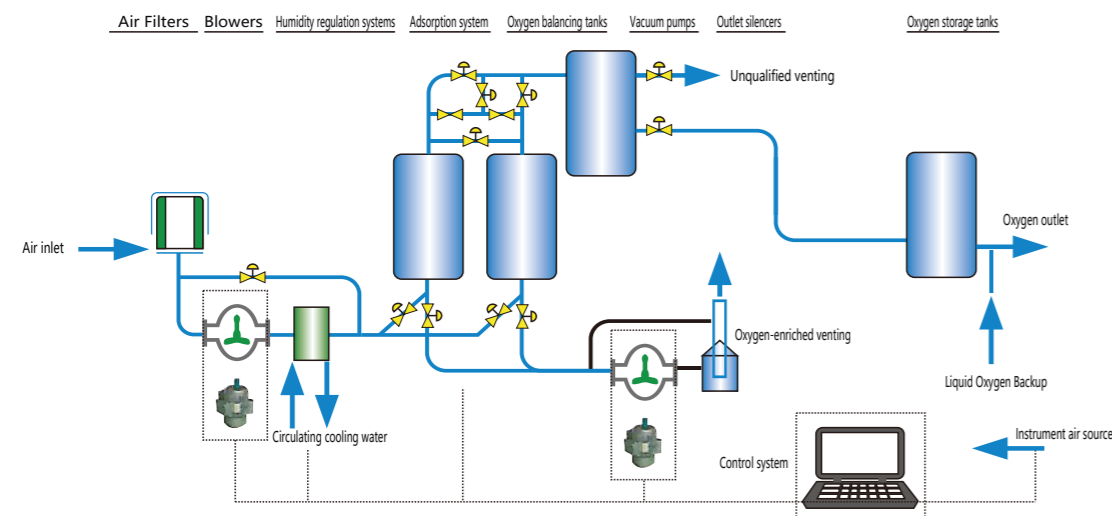
Project Category	Separation Principle	VPSA Oxygen Plant
Separation Principle	Air is liquefied and separated based on the boiling points of oxygen and nitrogen.	Oxygen is absorbed using a pressure swing adsorption (PSA) process, utilizing the different adsorption capacities of oxygen and nitrogen.
Process Characteristics	Deep cold air separation plants have a complex process flow, requiring compression, cooling, condensation, pre-treatment, expansion, liquidization, and separation, with operating temperatures ranging from -180°C to 0°C.	The process is simpler for VPSA oxygen plants, requiring only pressure swing adsorption, with operating temperatures at normal levels.
Main Features	Deep cold air separation plants have numerous moving parts and complex structures, requiring specialized instruments and control systems.	VPSA oxygen plants have fewer moving parts and simpler structures, requiring only basic instruments and control systems.
Operating Characteristics	Deep cold air separation plants have complex operations, requiring pre-cooling, no-effect charging, and multiple cycles for product separation.	VPSA oxygen plants have simpler operations, with monitoring and control implemented through PLC systems.
Application Scope	Application Scope Deep cold air separation plants are suitable for producing high-purity oxygen, nitrogen, and argon gas products, as well as oxygen-rich products.	VPSA oxygen plants are suitable for producing oxygen with a purity of 90-95%.
Maintenance Characteristics	Deep cold air separation plants require specialized maintenance and replacement of equipment, such as air compressors, gas separation towers, and vacuum pumps.	VPSA oxygen plants require regular maintenance of drum filters, vacuum pumps, and process control valves.
Civil Construction and Installation Characteristics	Deep cold air separation plants require specialized installation teams and long installation periods, with high installation costs.	VPSA oxygen plants have small external structures, occupy less space, and require regular installation, with shorter installation periods and lower installation costs.
Automation and Safety	Deep cold air separation plants have complex automation systems, utilizing high-speed transparent drum compressors. However, there is a risk of explosion due to high-pressure operation.	VPSA oxygen plants have fully automated systems, with no risk of explosion due to normal low-pressure operation.
Purity Adjustment	Purity adjustment is inconvenient, resulting in high oxygen production costs for deep cold air separation plants.	Purity adjustment is convenient, resulting in lower oxygen production costs for VPSA oxygen plants.
Oxygen Production Cost	Energy consumption: approximately 1.25 kWh/m <sup>3</sup> for deep cold air separation plants.	Energy consumption: less than 0.35 kWh/m <sup>3</sup> for VPSA oxygen plants.
Total Investment	Requires significant investment for deep cold air separation plants.	Requires lower investment for VPSA oxygen plants.



Oxygen flow rate: 20~3000Nm<sup>3</sup>/h  
 Oxygen purity: 25~93  
 Oxygen pressure: 0-25Mpa( adjustable)

## DM type VPSA Oxygen Generation Equipment

VPSA oxygen system is mainly composed of blower, vacuum pump, switching valve, adsorber and oxygen balance tank, etc. Raw air is pressurised by Roots blower into the adsorber filled with oxygen molecular sieve, in which water, carbon dioxide and nitrogen are adsorbed to produce oxygen. When adsorbed to a certain extent, the vacuum pump is used to evacuate it, and the adsorbed water, carbon dioxide, nitrogen and a small amount of other gas components are pumped out and discharged into the air, and the adsorbent is regenerated. The above process steps are automatically controlled by PLC and switching valve system.





## Energy Conservation

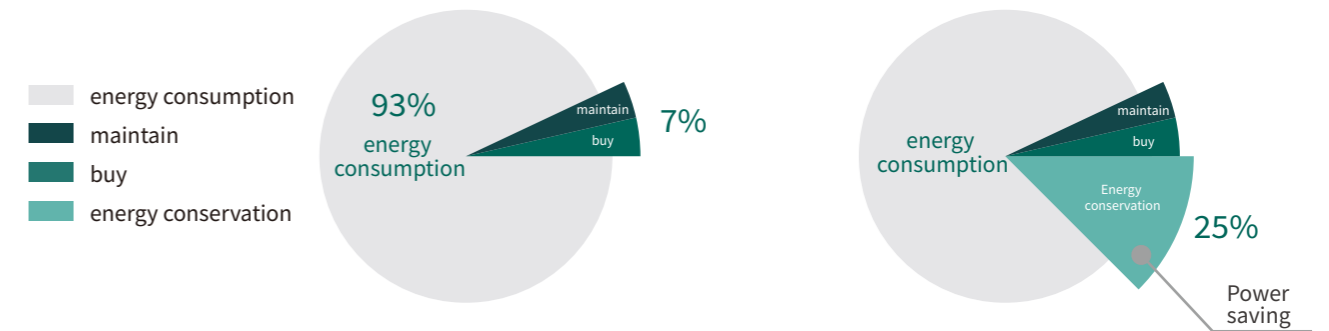
Air compressors are the "electric tigers" in industrial electricity consumption, with an average power consumption of 20%. We have made a series of efforts and research on how to use the same electricity to create more air to help users save energy, and have made important breakthroughs. The permanent magnet variable frequency screw machine developed by the company can save users about 25-35% of electricity while ensuring the original work efficiency.



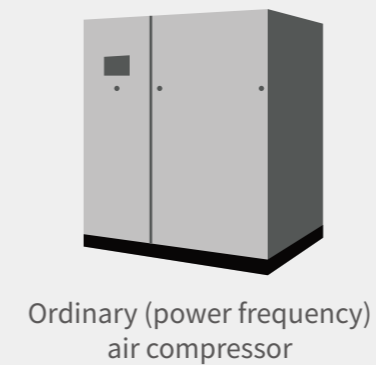
## Energy saving and cost reduction

When purchasing an air compressor, the traditional cost (i.e. purchase cost+maintenance cost) only accounts for 7% of the total cost, while energy consumption accounts for 93%. The two-stage compression direct connection/permanent magnet screw air compressor saves 25-30% energy compared to ordinary (power frequency) air compressors.

— taking 75KW as an example



- intelligent control
- Rust proof shell
- Efficient and energy-saving
- Constant current and stable voltage
- Easy to use and worry free
- reduce the noise



## Intelligent control technology

cloud intelligent control three functions and value



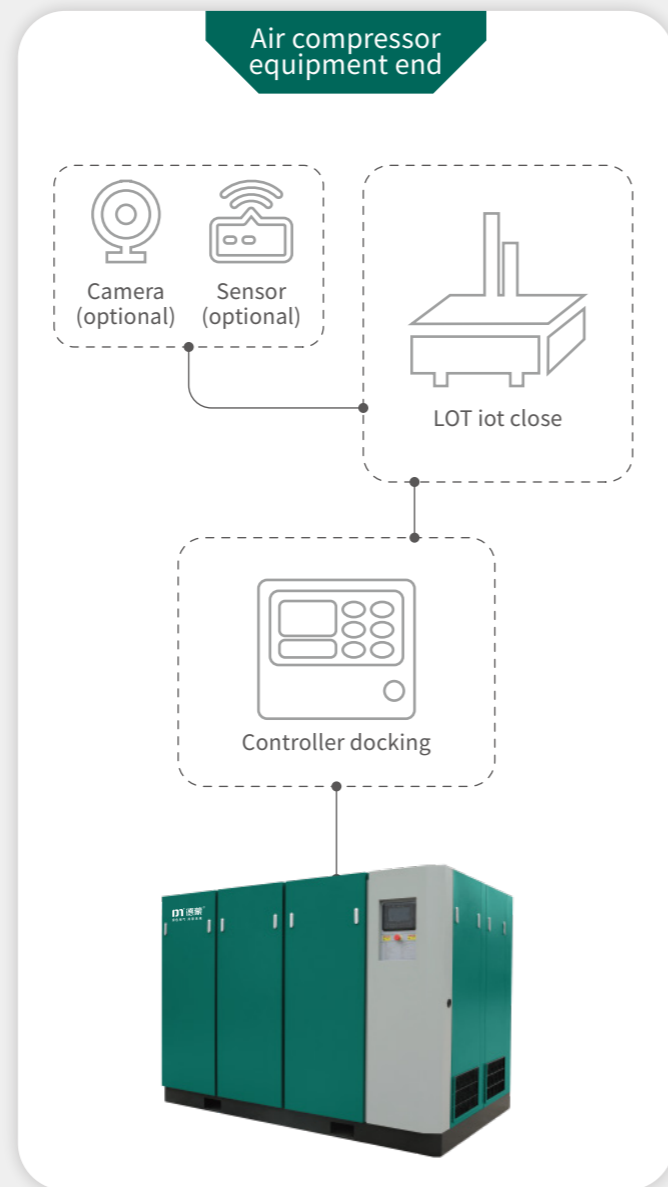
- Digital station intelligent control**
- reduce operation and maintenance costs by 10-30%
  - 3D virtual air compressor station
  - data Min monitoring
  - workshop diagnosis report
  - fault online prezi
  - maintenance cycle reminder



- Intelligent control Intelligent tuning**
- reduce manual labor time by 50%
  - automatic control of air compressor
  - AI algorithm autonomous tuning
  - dynamic decision-making of equipment priority
  - intelligent control of auxiliary equipment



- Whole station energy saving Whole station energy saving**
- save the power consumption of 5-30%
  - edge computing technology
  - narrow band constant voltage technology
  - multi-parameter and multi constraint control algorithm
  - big data visualization technology



### Digital station house

Station monitoring + control (computer) air compressor, cold dryer, suction dryer, water, fan, waste heat recovery machine, flow meter, electricity meter, etc Intelligent monitoring technology Based on the "Internet of Things"

### Intelligent monitoring technology

Based on the "Internet of Things" intelligent control technology, the product has the ability to transport parameters through cloud technology, and our users can achieve it through computers or mobile phone apps.

