

Development trend of air separation equipment market development status and market prospect analysis of air separation equipment industry in 2020

Air separation equipment is an equipment that takes air as raw material, turns air into liquid through compression circulation and deep freezing, and then gradually separates from liquid air through distillation to produce inert gases such as oxygen, nitrogen and argon. There are many forms and types of air separation equipment produced in China. There are devices for producing gaseous oxygen and nitrogen, as well as devices for producing liquid oxygen and nitrogen. But as far as the basic processes are concerned, there are mainly four kinds, namely high-pressure, medium pressure, high-low pressure and full low-pressure processes.

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Air separation plant is a large complex system, which is mainly composed of the following subsystems: power system, purification system, refrigeration system, heat exchange system, distillation system, product conveying system, liquid storage system and control system. It mainly refers to the feed air compressor. Air separation equipment separates air at low temperature to obtain oxygen, nitrogen and other products, which is essentially completed through energy conversion. The energy of the device is mainly input by

the feed air compressor. Accordingly, most of the total energy consumption required for air separation is the energy consumption of feed air compressor.

The production scale of China's air separation equipment has changed from the early stage, which can only produce 20m³ / h (oxygen) oxygen generator. It has developed to the capacity of producing 20000 m³ / h, 30000 m³ / h, 50000 m³ / h and 60000m³ / h large-scale air separation equipment, and has completed the scientific research stage and is about to manufacture 80000m³ / h ultra large-scale air separation equipment.

At present, there is still a gap between China and the world level in the overall localization of large-scale air separation equipment. In addition, the process of developing new application fields of air separation such as IGCC, the full extraction process of large-scale air separation rare gas, the process of preparing low-purity oxygen by mixing tower, the process of extracting ultra-high purity oxygen and nitrogen are also large-scale air separation. With the development of "Internet", the industrial 4.0 system is becoming more and more mature. Make full use of the Internet for remote monitoring and establish a remote monitoring system, Collect the operation data of large-scale air separation equipment in real time, enter the big data analysis, carry out automatic fault diagnosis, put forward optimization operation suggestions for users, find problems in time and improve the design scheme. Through joint research and development with fans, pumps, valves and other industries, an industrial chain of domestic air separation equipment is formed to further improve the localization rate of large and extra large air separation equipment. Among them, the localization rate of complete sets of air separation equipment with 60000m³ / h and below is increased from 50% ~ 70% to more than 80%, mainly due to the improvement of the efficiency and reliability of supporting air compressors and superchargers, Realize real localization.

At present, the world-famous air separation equipment manufacturing enterprises, such as air liquide, air chemical, Linde, plex and Messer, are developing in the competition; China's air separation equipment manufacturing industry has experienced a

high-speed development stage in recent years, and the overall level of equipment operation management has been further improved, gradually forming a "three pillars" situation with Hangzhou, Kaikong and Sichuan air as the core.

The gas separation equipment industry is closely related to industries with overcapacity such as steel, metallurgy and glass, and is greatly affected by the capacity removal policies of these industries. In 2018, the industrial output value and sales output value continued to rise, reaching 18.079 billion yuan and 17.591 billion yuan respectively. In 2018, the output of the industry's air separation equipment was 146 sets, equivalent to a total oxygen production capacity of about 2077200 m³ / h.

Since July 2018, China's large-scale air separation equipment and gas separation equipment industry has enjoyed booming production and sales, and large enterprise orders have continued. However, at the same time, there are still many problems in the air separation industry, such as a large number of small and medium-sized enterprises, uneven manufacturing level and product quality, management level and profitability to be improved, and the overall industrial chain needs to be further extended. Compared with multinational corporations, China's air separation equipment enterprises still have a certain gap in terms of industry, product structure, production scale, technology and management.

In recent years, China's air separation market has shown great potential, creating a large development space for air separation equipment and industrial gas industry. In addition to being widely used in traditional metallurgy, energy, petrochemical, modern coal chemical industry, automobile, energy-saving building and other fields, air separation equipment is also used in chip processing. Even for satellite launch, it is necessary to use the mixed combustion of oxygen and fuel provided by air separation equipment to promote rocket launch, which has promoted the development of air separation equipment industry. With the upgrading of upstream and downstream refining, coal chemical industry and steel production capacity, these three industries are expected to drive a total investment of about

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