

## 14000m<sup>3</sup>/h oxygen generator process flow and characteristics introduction



The 2<sup>#</sup> 14000m<sup>3</sup>/h oxygen generator in Angang Oxygen Plant was installed on April 1, 2001 and is expected to be put into operation at the end of August. This set of equipment is completed by China Air Separation Equipment Company. The air cooling system, molecular sieve system and air fractionation system are designed and manufactured by Sichuan Air Separation Equipment Company. The DH-90 turbo air compressor is produced by Shenyang Blower Factory, and the oxygen turbo compressor is produced by Hangzhou Oxygen Concentrator Factory; 5000 m<sup>3</sup>/h nitrogen compressor and 15000 m<sup>3</sup>/h nitrogen compressor are produced by American Ingersoll-Rand (INGERSOLL-RAND) company; two plunger type medium pressure liquid argon pumps and two centrifugal The type circulating liquid argon pump is produced by French

company CRYOSTAR ; in addition, it also includes six liquid combined storage tanks with a total of 675m<sup>3</sup> designed by China Air Separation Equipment Company. The instrument control system adopts the latest distributed control system TPS of Honeywell ( HONEYWELL ) , equipped with three operating stations ( GUS ) and three remote monitoring stations (ie PCmachine). The station area project is designed by Wuhan Iron and Steel Design and Research Institute. The circulating water pump room is controlled by PLC . Two 400m<sup>3</sup> oxygen spherical tanks and one 200m<sup>3</sup> argon balloon tank have been added to the spherical tank area .

1. Characteristics of 2 # 14000m<sup>3</sup> /h oxygen generator air separation unit

2 # 14000m<sup>3</sup> /h oxygen generator adopts the process flow of full low pressure molecular sieve adsorption, pressurized turbo expander refrigeration, full rectification without hydrogen to produce argon, oxygen external compression, and argon internal compression. The whole process is advanced, the technology is mature, the operation is reliable, the operation is convenient, safe and low consumption.

1. The pre-cooling system cancels the chiller, and uses nitrogen to enter the water cooling tower to reduce the temperature of the cooling water. Reliable anti-liquid flooding measures are adopted in the structure of the air cooling tower.

2. Argon products are transported by means of liquid compression and then vaporization.

3. The liquid recharge fractionation tower measures are considered in the design to shorten the start-up time.

4. The device has variable operating conditions and variable load capacity, and the variable load range is 80% -110%.

5. A liquid oxygen self-circulation system is set up in the system, and the channel of the main condensing evaporator adopts a special structure to prevent the accumulation of acetylene in the liquid oxygen and ensure the safety of the main condensing evaporator and the system.

6. The upper column, crude argon column and refined argon column adopt structured packing.

7. The pressure nitrogen with a flow rate of  $600\text{Nm}^3/\text{h}$  drawn from the lower column of the fractionation tower is used as the sealing gas of the oxygen turbine compressor.

8. Use the spare expander and medium pressure nitrogen in the pipe network to produce cryogenic liquid.

2. Main technical parameters of 2 #  $14000\text{m}^3/\text{h}$  oxygen generator air separation unit

Compressed air (air parameters of the air compressor system):

Outlet flow  $75500\text{Nm}^3/\text{h}$  (  $0^\circ\text{C}$  ,  $101.325\text{Kpa}$  , dry air)

Outlet pressure  $0.62\text{Mpa}$

# Spire Doc.

Free version converting word documents to PDF files, you can only get the first 3 page of PDF file.

Upgrade to Commercial Edition of Spire.Doc <<http://www.e-iceblue.com/Introduce/word-for-net-introduce.html>>.