Skid PSA Hydrogen Generator Process Purification 150 Nm3/Hr

Our Product Introduction

Basic Information

- Place of Origin: SUZHOU, CHINA
- Brand Name: SUMAIRUI GAS
- Certification: ISO9001, CE, BV, SGS, TUV, ASME, GOST,NB,NR ETC
- Model Number: OSH-100
- Minimum Order Quantity: 1 set
- Price: Negotiable
- Packaging Details: Exporting wooden case /Film packing
- Delivery Time: 30-45 days
- Payment Terms: L/C, T/T, Western Union, MoneyGram
- Supply Ability: 100 sets/months

Product Specification

- Material: Mild Steel
- Capacity: 100 Nm3/hr
- Purity: 99.99-99.999%
- Pressure: 10 Bar
- Dew Point: -60 ℃
- Towers: 4
- Operation Mode: Fully Automatic
- IP Grade: IP54
- Explosion-Proof: Customized
- Application: Green & New Field
- Control Method: PLC Control
- Cooling Method: Air Cooling
- Noise Level: ≤65dB
- Operating Humidity: ≤90%RH
- Operating Temperature: 5-45℃

Product Description

Sumairui PSA Hydrogen Generator 150 Nm3/hr Plant: Bright Annealing and High Pressure Separation

Pressure swing adsorption units use beds of solid adsorbent to separate impurities from hydrogen streams leading to high-purity high-pressure hydrogen and a low-pressure tail gas stream containing the impurities and some of the hydrogen. The beds are then regenerated by depressurizing and purging. Part of the hydrogen (up to 20%) may be lost in the tail gas.

The pressure swing adsorption (PSA) technology is based on a physical binding of gas molecules to adsorbent material. The respective force acting between the gas molecules and the adsorbent material depends on the gas component, type of adsorbent material, partial pressure of the gas component, and operating temperature. The separation effect is based on differences in binding forces to the adsorbent material. Highly volatile components with low polarity, such as hydrogen, are practically nonadsorbable as opposed to molecules such as nitrogen, carbon monoxide, carbon dioxide, hydrocarbon derivatives, and water vapor. Consequently, these impurities can be adsorbed from a hydrogen-containing stream, and high-purity hydrogen is recovered.

The pressure swing adsorption process works at basically constant temperature and uses the effect of alternating pressure and partial pressure to perform adsorption and desorption. Since heating or cooling is not required, short cycles within the range of minutes are achieved. The process consequently allows the economical removal of large amounts of impurities. Adsorption is carried out at high pressure (and hence high respective partial pressure) typically in the range of 10–40 bar until the equilibrium loading is reached. At this point in time, no further adsorption capacity is available, and the adsorbent material must be regenerated. This regeneration is accomplished by lowering the pressure to slightly above atmospheric pressure resulting in a respective decrease in equilibrium loading. As a result, the impurities on the adsorbent material are desorbed, and the adsorbent material is regenerated. The amount of impurities removed from a gas stream within one cycle corresponds to the difference of adsorption to desorption loading. After termination of regeneration, pressure is increased back to adsorption pressure level, and the process starts again from the beginning.

Pressure swing adsorption is generally the purification method of choice for steam reforming units because of its production of high-purity hydrogen and is also used for purification of refinery off-gases, where it competes with membrane systems. Many hydrogen plants that formerly used a wet scrubbing process (Fig. 15.4) for hydrogen purification are now using the pressure swing adsorption (PSA) (Fig. 15.5) for purification. The pressure swing adsorption process is a cyclic process that uses beds of solid adsorbent to remove impurities from the gas and generally produces higher-purity hydrogen (99.9% v/v purity compared with < 97% v/v purity). The purified hydrogen passes through the adsorbent beds with only a tiny fraction absorbed, and the beds are regenerated by depressurization followed by purging at low pressure.

Hydrogen gas application :

Stainless steel
Cold rolled sheets
Cooper production
Galvanization line
Oil refining line
Float Glass production
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TECHNICAL SPECIFICATIONS OF OSH

NO	Model	Capacity (Nm^3/hr)	Install Power (KW)	Outlet (mm)	Weight (KG)	Dimensions (L*W*H mm)
1	OSH10	10	1	DN15	300	Customized
2	OSH20	20		DN15	600	
3	OSH30	30		DN20	750	
4	OSH40	40		DN20	880	
5	OSH50	50		DN32	1050	
6	OSH60	60		DN32	1100	
7	OSH80	80		DN32	1200	
8	OSH100	100		DN40	1350	
9	OSH200	200		DN50	1600	
10	OSH300	300		DN65	1900	
11	OSH400	400		DN65	2200	
12	OSH500	500		DN80	2500	

Design reference:

- Designed working pressure 1.2 Mpa(g)
- PSA technology

Notes:

Following conditions will be customized :

※ Crude hydrogen less than 75%

※ Other working pressure or special requirements

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