

Pure Water Hydrogen Generator Instruction

Shandong China Coal Industrial&Mining Supplies Group Co.,Ltd

Pure Water Hydrogen Generator

Attention:

1. Please read the manual carefully before using this instrument.
2. During use the SPE series pure water hydrogen generator, Do not put in the alkali liquid(KOH nor NaOH), only use pure water.
3. Customer should test if has gas leakage after using some time. Do not work full capacity for long time. Advise use less than half of maximum flow rate capacity.

SPE-300 advise use less than 180ml/min.

SPE-600 advise use less than 360ml/min

4. Must use qualified water, deionized water or redistilled water.

water electric resistivity >2 megohm.cm or

electric conductivity <0.5 us/cm

Forbidden to use tap water.

5. If a new machine put aside for long time(not use before), when firstly time use. Please add pure water into water tank for whole one day. On the second day power on to normal use. But still advise not put aside more than one year.

SPE series of pure water hydrogen generator prohibit using the alkali liquid(KOH nor NaOH). SPE/PEM technology is world advance technology to make pure hydrogen gases.

We use imported USA "DuPont" brand proten exchange membrane and 100% Titanium as electrodes which guarantee high quality. Our machine is small size, high conversion efficiency and continously gas generation. Only consumes pure water and little electricity, to produce pure hydrogen gas. The safest way to make H₂. It is idea

for breathing and making rich hydrogen water.

1. Installation and Use of the Instrument

1) Firstly, take out instrument from the package, check out the equipment outlook and spare parts if have any damage during the transportation.

2) Open water tank cover(on the top of the machine) add pure water or deionized water, keep water level(in front of machine has water level display) between 1600ml to 2000ml. In the future, customer also need to notice water level, keep water level between 1600ml to 2000ml. Normally once 3 to 5 days, need to add new water.

3) First time use, before power on, please pull out “water drain tube”(at back of machine, a silicone tube), drain some water to make sure inside pipe unimpeded.

4) In front of panel, there has “ H2 Flow Adjustor”, make sure the adjustor in “close” condition (clockwise direction to the end will close).Forbidden to close the “H2 flow adjustor” very firmly and strongly. Otherwise the adjustor inside needle will lost effect.

5) Power on, “H2 Generation On” green light is on. LCD panel shows hydrogen output flow rate about “300”, machine will work for 5minutes. Display will be less than “010”. Acceptance check is finished. This indicate machine in good condition. Could be normal used.

6) Connect breathing tube with “H2 OUTPUT” port ,make sure connection no leakage.

7) Slowly rotate “H2 Flow Adjustor” in anticlockwise(anticlockwise direction will gradually larger H2 output flow, clockwise direction will gradually smaller H2 otuput flow), meanwhile customer notice flow rate display, stable at your needed flow rate.

Do not work full capacity for long time. Advise use less than half of maximum flow rate capacity.

SPE-300 advise use less than 150ml/min.

SPE-600 advise use less than 300ml/min

Customer uses for breathing, advise breathe half an hour each time. Two times each day. Breathing hydrogen flow rate at 100--120ml/min.

Required using time and flow rate limitation below:

H2 flow: <100ml/min, could continously using.

H2 flow: 100--150ml/min, use one hour, stop one hour.

H2 flow: 150--220ml/min, use one hour, stop two hours.

H2 flow: >220ml/min, not advise such use. If occasionally use like this

Use less 0.5hour, stoo two hours.

8) Flow rate is set well. Customer could breath. When finished using, power off. Future use, customer no need to adjust flow rate any longer. Power on machine, flow rate will display 300 at first, and gradually will automatically become last time setting flow. So once set well, customer only need power on/off to use.

9) Instrument comes with a drying tube. Customer no need to

replace nor open. Especially when machine is working, could not open the desiccant cap.

10) The pure water will be less pure or turbid when instrument is used for some time. At this time, replace pure water is important.

Remark: change whole water in the water tank after 3 months operation.

Method below: drain off the water through the “water drain port” (at back of equipment). The detail is pulling out the silicone tube behind the generator and taking out the nylon cover. Water will come out automatically. Add new water, drain again. Repeat 3--4 times. Finally add new water to use.

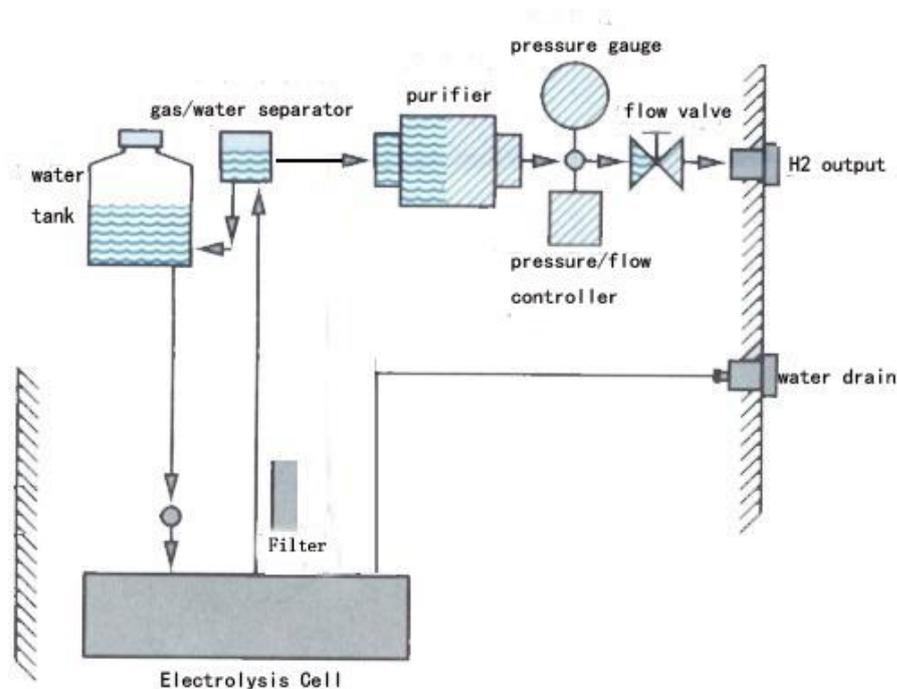
11) If customer already used machine, will not use for some time, even not use several months, please keep water tank has water. Future use, need drain out old water, wash several times, add new water to use(Item 10 methode)

2. Operating Principles

Our hydrogen generator adopts world most advanced hydrogen technology of solid polymer electrolyte which use titanium electrode and pure water as electrolyte. When power on. Water will be electrolysis into hydrogen. Cell will separate hydrogen. Pure hydrogen gas goes into gas/water separator, which will remove mostly vapour inside of hydrogen gas. Hydrogen will go through the dry tube in order to get higher purity hydrogen gas. SPE hydrogen generator adopts automatic tracking control system with high sensitivity. Flow and pressure are both quite stable.

Pressure stability is below 0.001Mpa to make sure produce high purity gases under stable pressure and safety condition.

Flow Chart:



3. Technical Parameter

- 1)、 Hydrogen purity: 99.999%
- 2)、 Hydrogen flow: SPE-300: 0-180ml/min
SPE-600: 0-360ml/min
- 3)、 H2 Output pressure: 0.2MPa
- 4)、 Input Pure Water : Deionized water (>2M) or redistilled water
- 5)、 Pressure stability: <0.001Mpa
- 6)、 Power: 220V±10% 50Hz--60Hz
- 7)、 Power consumption: SPE-300: <150W
SPE-600: <200W

8)、 Dimension: 300mm×270mm×400mm

9)、 Weight: SPE-300: 10kg SPE-600: 13kg

4. Notice

- 1、 Forbid operating near open flame.
- 2、 Good ventilation conditions.
- 3、 Forbid using bad quality water. Such as tap water, plain water which will destroy the electrolysis cell.
- 4、 Do not disassemble electrolysis cell.
- 5、 If need to transport machine, please drain out water.

5. Requirements for operational environments and conditions:

- a. Temperature : 4°C– 40°C ;
- b. Humidity : <85% ;
- c. Power supply : 220V±10% 50Hz--60Hz
- d. The generators should be put horizontally.
- e. There should be no obvious shaking and striking ;
- f. There should be no direct sunshine and open fire ;
- g. There should be no big dust , conducting particles , acid , alkali , and other corrosive gases ;
- h. Ventilation should be good ;
- i. Ground connection of power supply should be good .

6. Failure Causes and Elimination Method

Phenomenon	Reason	Solution
No working, power light is off	1. No power connect 2. Fuse damage	Power connect well Replace fuse

Display always over 300 (SPE-300 model)	Gas leakage in generator, or H2 connection pipe has leakage	1. Use soap water, Check the connect position to see if have bubbles. 2. Tighten leakage position.
H2 display obviously larger than before		
Big difference display with normal range	1. electrolysis cell degradation 2. abnormal power output	1. Replace or clean electrolysis cell 2. Adjust or change power
Have water in drying tube	Abnormal work in gas/water separator	Replace or clean gas/water separator
Consume water quickly	1. Water leakage in circle system 2. Cell high temperature	Water leakage remove. Replace or clean the degraded cell

7. After Sales Service

Our machine supply one year quality guarantee. After one year, only charge raw material fees and delivery fees.

If the following occurs, maintenance will not be free of charge:

- a. Users do not operate the generators according to the operational manual;
- b. Users disassemble parts by themselves, which are forbidden by the manufacturer to be disassembled.