

产品质量证明书

Product Quality Certificate

产品： 氢燃料电池堆（400W） Product: Hydrogen Fuel Cell Stack (400W)		产品序列号 Serial Number	SZFC-400	
		执行标准 Standard	企业标准 Enterprise Standard	
主要技术指标 Main technical indicators				
检验标准 Quality Inspection Standard				
参数/型号 Parameter/Model				
输出性能 Output performance	额定功率 Rated power	400W		
	操作电压 Operating voltage	24-37V	25.5V (453W)	
	操作电流 Operating current	0-18A	18A	
	效率 Efficiency	≥44%		
燃料 Fuel	氢气纯度 Hydrogen purity	≥99.99% (CO<1PPM)		
	氢气压力 Hydrogen pressure	0.05Mpa		
	氢气耗量 Hydrogen consumption	5.9L/min		
环境特性 environmental characteristics	工作环境温度 Operating temperature	0~35℃		
	工作环境湿度 Operating humidity	10%~95%(No mist)		
	储存环境温度 Storage temperature	-10~70℃		
	噪声 Noise	≤80dB		
物理参数 Physical Parameters	裸堆尺寸（毫米） Fuel cell stack size (millimeters)	200*105*115	重量（克） Weight (g)	1965
	控制器（毫米） The Controller (millimeters)	150*97*40		

400W 氢燃料电池堆使用说明书

400W Hydrogen Fuel Cell Stack User's Manual

1. 管路连接:将氢气连接→减压阀→连接燃料电池电堆进气阀。逐步调节氢气减压阀。调到0.05MPa。

Pipeline Connection: Connect hydrogen gas to → the pressure reducing valve → connect with the fuel cell stack intake valve. Gradually adjust the hydrogen pressure reducing valve to 0.05MPa.

2. 启动:

- (1) 打开控制器外接电源，外接电源 13V。
- (2) 按下控制盒 ON/OFF 按钮，控制器正常运行。
- (3) 氢气进入燃料电池堆，燃料电池系统就开始运转，风扇开始转动。

Start-up:

- (1) Turn on the external power supply of the controller. The external power supply is 13V.
- (2) Press the ON/OFF button on the control box to initiate normal operation.
- (3) The fuel cell system starts to operate after hydrogen enters the fuel cell stack, and the fan starts to spin.

3. 燃料电池启动后，可以根据需要在额定功率范围内逐步增加负载，设置电流值分别为：3A、6A、9A、12A、15A、18A，每个电流值下维持 10S 左右建议最大电流值设定不超过18A。

After starting the fuel cell, the load can be gradually increased within the rated power range as needed using a constant current method. Set current values as follows: 3A, 6A, 9A, 12A, 15A, and 18A, maintaining each current value for approximately 10 seconds. It is recommended not to exceed a maximum current setting of 18A.

4. 燃料电池在不同的运行电压下，输出功率不同，可参考尾页放电曲线图。

The output power of the fuel cell differs at different operating voltages. Please refer to the discharge curve graph on the last page.

5. 关闭氢燃料电池:

关闭燃料电池时，关闭负载（关闭负载有条件的情况下，逐步缩小电流值，如当前电流设定为 18A，设定 15A、12A、9A、6A、3A、0A，起到保护燃料电池寿命作用），氢气阀门关闭，关闭控制盒外接电源，风扇会全速转动，直至电池中的氢气耗完。

Shut down the hydrogen fuel cell:

When shutting down the fuel cell, deactivate the load (if conditions allow) by gradually reducing the current set point. For example, if the current is currently set to 18A, step it down to 15A, 12A, 9A, 6A, 3A, and eventually 0A. This gradual reduction helps protect the fuel cell's lifespan. Next, close the hydrogen valve, disconnect the external power source from the control box, and the fan will operate at full speed until all the hydrogen in the cell is depleted.

6. 控制保护:

控制盒指示灯绿灯常亮，燃料电池正常工作，指示灯绿灯闪烁，电池运行故障（高温或者运行电压低于保护值）。氢燃料电池运行电压不要低于 20V，电压低于 20V 控制板会保护，电堆降载直至停止工作。重新正常工作，需重新按 ON/OFF 按钮。如此操作无法解决报警工作，请联系我司工作人员。

Control and Protection:

The control box indicator light is solid green, indicating normal operation of the fuel cell. If the indicator light blinks green, it signifies a fault in the battery operation (either due to high temperature or the operating voltage falling below the protection threshold). The operating voltage of the hydrogen fuel cell should not fall below 20V. If the voltage drops below 20V, the control board will activate protection measures, and the stack will be unloaded until operation ceases. To resume normal operation, press the ON/OFF button again. If this action fails to resolve the alarm condition, please contact our staff for assistance

注意事项 Precautions

1. 当燃料电池运转时，一定要确保燃料电池中氢气的压力在 0.05MPa，同时一定要确保足够的氢气流量. 如果供氢系统中，氢气压力太高、太低或者流量不足都会对燃料电池造成损害。

When the fuel cell is in operation, it is essential to ensure that the pressure of hydrogen in the fuel cell is 0.05MPa, as well as sufficient hydrogen flow. Damages to the fuel cell can occur due to a much higher, lower hydrogen pressure or insufficient supply in the hydrogen supply system.

2. 氢燃料电池电堆氢气进口确保在上，电堆排气口向下，保持排水流畅（否则会损坏电堆）。

Please keep the hydrogen intake of the hydrogen fuel cell stack upward and the exhaust port of the stack downward to ensure smooth drainage (otherwise, the cell will be damaged).

3. 一定要先启动燃料电池，然后加负载。

Be sure to start the fuel cell first and then add the load.

4. 电堆所在运行环境温度不能过高，过高会影响电堆输出性能，或者高温控制盒会保护。

In the operating environment, the temperature surrounding the stack should not be excessively high, as excessive heat can adversely affect the performance of the cell stack. Alternatively, the high-temperature control box will activate to provide protection.

5. 使用完毕后最好使用自封袋进行保存。

It is recommended to use a self-sealing bag for storage after use.

申明与警示

Declaration and Warning

1. 在操作燃料电池电堆前请通读此说明书，并在操作过程中将本说明书放于手边。
Please read this manual carefully before operating the fuel cell stack, and keep this manual within reach during the operation.
2. 按照本说明书所列说明进行操作。
Operate according to the instructions listed in this manual.
3. 禁止对 400W 燃料电池电堆进行拆解或改装。对该电堆的任何修改都会构成重大的安全隐患。智达盛世（广州）氢能与环境科技有限公司不对任何由于未经允许的改装所造成的损伤负责。
It is forbidden to disassemble or modify the 400W fuel cell stack. Any modification to the stack will constitute a major safety hazard. SENZA Hydrogen Energy And Environmental Technology Co., Ltd. is not responsible for any damage caused by unauthorized modification.
4. 400W 燃料电池电堆在运行过程中需消耗氧气。为防止缺氧，仅可在良好的通风环境中运行。
The 400W fuel cell stack consumes oxygen during operation. A well-ventilated environment is required to prevent hypoxia during operation.
5. 由于氢气属无色、无臭的可燃气体，因此严禁在 400W 燃料电池电堆附近吸烟，并确保燃料电池电堆远离火源和热源。
Given that hydrogen is a colorless and odorless flammable gas, smoking is strictly prohibited near the 400W fuel cell stack, and the fuel cell stack should be kept away from fire sources and heat sources.
6. 确保 400W 燃料电池电堆远离儿童。
Ensure that the 400W fuel cell stack is kept away from children.

400W 氢燃料电池电堆

400W Hydrogen Fuel Cell Stack

