

## 产品质量证明书

### Product Quality Certificate

产品： 氢燃料电池堆（500W） Product: Hydrogen Fuel Cell Stack (500W)		产品序列号 Serial Number	SZFC-500
主要技术指标 Main technical indicators			
检验标准 Quality Inspection Standard		实测结果 Test Results	
输出性能 Output Performance	功率 Power	500W	
	操作电压 Operating voltage	26V-45V	
	操作电流 Operating current	0A-18A	
	效率 Efficiency	>40%	
燃料 Fuel	氢气纯度 Hydrogen purity	≥99.99% (CO<1PPM)	
	氢气压力 Hydrogen pressure	0.035Mpa~0.05Mpa	
	氢气耗量 Hydrogen consumption	(18A) 6.7L/min	
工作环境 Working Environment	环境温度 Ambient temperature	0-35℃	
	环境湿度 Ambient humidity	10%-90%	
	储存环境 Storage Environment	0-60℃	
物理参数 Physical Parameter	片数 Number of Cells	48	
	电堆尺寸 Stack Dimensions	117*102*195mm	
	重量 Weight	2000g	

## 500W 氢燃料电池堆使用说明书

### 500W 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) 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) The controller is operating normally.
- (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 21A。

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 21A.

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:

氢燃料电池运行电压低于**24V**，控制板会启动保护，切断进气，对电池堆进行保护。关闭负载，关闭控制盒电源，重新开启控制盒电源可重新正常工作。氢燃料电池运行电压不要低于**24V**，长时间**24V**运行会对燃料电池损伤，最好以额定电压或高于额定电压运行。不建议长时间低于额定电压运行，低于额定电压运行会使电堆温度快速上升。控制程序设有高温保护，高于**65°C**会切断进气。

#### Control Protection:

When the operating voltage of the hydrogen fuel cell is lower than 24V, the control board will activate the protection function, and cut off the intake to protect the cell stack. Turn off the load and shut down the power supply of the control box. Restart the power supply of the control box to bring the cell stack back to normal operation. The operating voltage of the hydrogen fuel cell should not be lower than 24V. The fuel cell can be damaged if it's operated at 24V for a long time. It is recommended to operate at the rated voltage or at a voltage higher than the rated one. It is not recommended to operate below the rated voltage for a long time. The temperature of the stack can rise rapidly if it is operated below the rated voltage. The control program has a high temperature protection function, and the intake will be cut off when the temperature is higher than 65°C.

## 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。

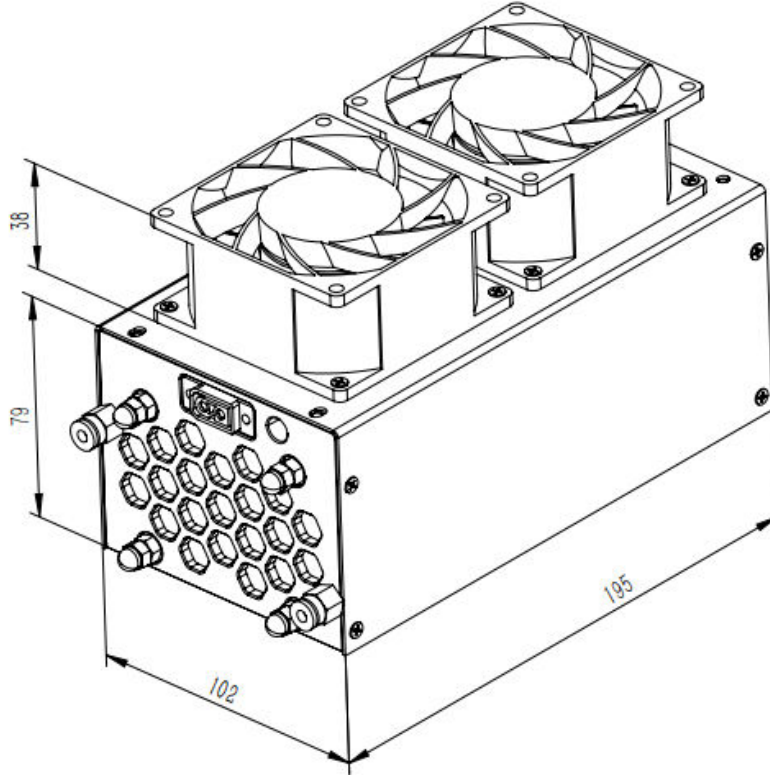
It is recommended to use a self-sealing bag for storage after use.

**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 500W 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）氢气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 500W fuel cell stack. Any modification to the stack will constitute a major safety hazard. SENZA Hydrogen And Environmental Technology Co., Ltd. is not responsible for any damage caused by unauthorized modification.
4. 500W 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 500W 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、无嗅的可燃气体，因此严禁在 500W 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 500W fuel cell stack, and the fuel cell stack should be kept away from fire sources and heat sources.
6. 确保 500W 燃料电池电堆远离儿童。  
Ensure that the 500W fuel cell stack is kept away from children.

## 500W 氢燃料电池电堆

## 500W Hydrogen Fuel Cell Stack



500W Hydrogen Fuel Cell Discharge Curve

