

# Zhejiang Fenergy Technology Co.,Ltd.

## Fuel cell stack test service project



## Project introduction

### 1. Test instrument:

The test items of the stack include walk-in environmental chamber, constant temperature and humidity test chamber, vibration test bench and other instruments.

### 2. Test content:

The fuel cell stack laboratory has several sets of stack test systems, which can meet the test requirements of single cell, short stack and whole stack with full power coverage of 0-200kW. Perfect test service system, standard test flow and strict data collection and analysis can provide professional and effective evaluation and suggestions for the whole life cycle test of stack products.

The stack test equipment includes single battery test bench, 2kW/6kW/50kW/150kW/200kW stack test system, walk-in environment chamber, constant temperature and humidity chamber, vibration/impact test bench, airtight test bench, waterproof test bench, etc. There are more than 10 professional test engineers. It can meet the requirements of sensitivity test, compression verification, vibration shock, cold shock, cold start, durability test, etc. in the development and design stage of the stack. In the product engineering stage, the activation characteristics, polarization characteristic curve, rated output power, peak output power and cold start performance of the stack are tested. It can meet the test requirements of fuel cell stack in different working conditions and simulation functions.

### 3. Test laboratory situation:

The laboratory will reserve enough space for equipment upgrading, and several sets of test systems with different functions will be added later to meet the development of hydrogen fuel cell industry and the corresponding customer needs.

### 4. Applicable standards:

GB/T 33978-2011, GB/T29838-2013, GB/T24554-2009, GB/T38914-2020, GB/T33978-2017, GB/T36288-2018, GB/T4208-2017, GB/T29838-2013

## Test item

List of fuel cell stack detection capabilities			
Serial number	Test item	Executive standard	Remarks
1	Routine inspection of stack	GB/T 33978-2011	
2	Air tightness test of stack	According to customer requirements	
3	Reactor activation test	According to customer requirements	Power range:1-180kW
4	Reactor operation experiment	GB/T29838-2013	
5	Rated power test	GB/T24554-2009	
6	Peak power test	GB/T24554-2009	
7	Dynamic response test	GB/T24554-2009	
8	Stability characteristic test	GB/T24554-2009	
9	Sensitivity test of stack compressibility	According to customer requirements	
10	Sensitivity test of stack metering ratio	According to customer requirements	
11	Temperature sensitivity test of stack	According to customer requirements	
12	Humidity sensitivity test of stack	According to customer requirements	
13	Pressure sensitivity test of stack	According to customer requirements	
14	Endurance test of stack	GB/T38914-2020	
15	High and low temperature storage test of stack	GB/T33978-2017	
16	Vibration test of stack/system	GB/T33978-2017	Thrust 3.2 tons, X, Y and Z directions: table top 1000*1000mm; The maximum sample mass is 150kg.
17	Shock resistance test of stack/system	GB/T36288-2018	
18	Waterproof detection of electric pile	GB/T4208-2017	
19	Allowable working pressure test of stack	GB/T29838-2013	
20	Pressure test of reactor cooling system	GB/T29838-2013	
21	Pressure difference test of stack	GB/T29838-2013	
22	Stack overvoltage test	GB/T29838-2013	
23	Stack insulation test (static)	GB/T33978-2017	
24	EIS test of high frequency impedance of stack	According to customer requirements	
25	Anti-polarity test	According to customer requirements	