

PEFC Fuel cell evaluation system **ESPEC**

Reference → Fuel cell <http://www.espec.co.jp/english/products/market/new/fuelbattery.html>



- *Test bench with environmental test chamber
- *Standard test bench

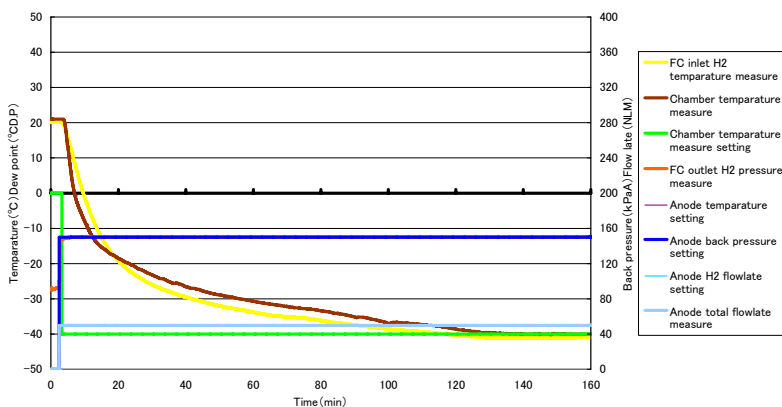
While the Fuel Cell is implemented into Automotive, Mobile Phone and Home applications, the evaluation under low temperature is getting ever important.

This Test System is to evaluate Polymer Electrolyte Fuel Cell (PEFC) at -30 deg.C(-40 deg.C option) with including Fuel, oxidant and Coolant at same low temperature for Start Up performance and characterization.

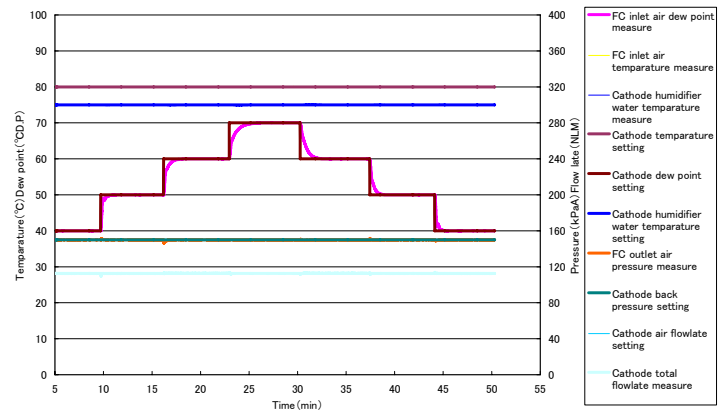
It is playing a big role on the performance evaluation of PEFC. By controlling temperature, dew point, pressure, back-pressure and flow of fuel and oxidant, it is possible to adjust Coolant temperature and flow depend upon power generation.

Data library

Anode performance:
Ambient temperature down to -40°C
(Flowrate:50NLM Back pressure:150kPaA)



Dew point change performance:Cathode



Specifications

Type		A Type	B Type	
Fuel supply part	Gas kind	H2・N2		
	First Stage Supply Pressure	300~600kPaA		
	Maximum flowing quantity	H2	50NL/min.	100NL/min.
		N2	15NL/min.	50NL/min.
	Minimum flowing quantity	H2	0.1NL/min.	0.5NL/min.
		N2	0.5NL/min.	1NL/min.
	Flow control	Flow range (all) FS±1%		
	Temperature range / Uniformity	-30~+120°C・±1°C <small>-40°C:Option</small>		
	Temperature Heat Up time	RT~+120°C 50 minutes		
	Temperature Pull Down time	RT~-30°C 120 minutes		
FC outlet pressure control	110~400kPaA			
Pressure control accuracy	>>±2kPa			
Oxidant supply	Gas kind	Air・N2		
	First Stage Supply Pressure	300~600kPaA		
	Maximum flowing quantity	Air	150NL/min.	250NL/min.
		N2	20NL/min.	50NL/min.
	Minimum flowing quantity	Air	0.1NL/min.	1NL/min.
		N2	0.5NL/min.	1NL/min.
	Flow control	Flow range (all) FS±1%		
	Temperature range / Uniformity	-30~+120°C・±1°C <small>-40°C:Option</small>		
	Temperature Heat Up time	RT~+120°C 50 minutes		
	Temperature Pull Down time	RT~-30°C 120 minutes		
FC outlet pressure control	120~400kPaA			
Pressure control accuracy	>>±2kPa			
Coolant unit	Coolant	Antifreeze		
	Temperature control range and accuracy	-30~+120°C・±1°C <small>40°C:Option</small>		
	Flow range	1~30L/min. (Less than -10°C: 1~15L/min.)		
	Flowing quantity control accuracy	±0.5L/min.		
	Coolant pressure range	120~350kPaA		
Humidifying unit	Humidifying	Bubbler method		
	Dew point control method	Dry gas and Saturation gas blend		
	Dew point control range	40~80°C※		
	Dew point control accuracy	±1°C		
Temperature & Humidity Chamber	Type	SML-2S		
	Temp. & Humidity Control System	Balanced Temp. & Humidity Control System (BTHC system)		
	Temperature range	-40~+180°C(Chamber alone) (with system synchronized)		
	Humidity range	20~98%rh		
	Temperature humidity uniformity	±1.5°C/±5%rh		
	Temperature change rate (without sample)	5°C/分 (without sample)		
Outside dimension	W3326×H2490×D2200 (Including Anti-explosion Vent)			
Weight (kg)	3000			

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