

Hydrogen production testing solutions

As the biggest professional machinery manufacturer in Bosch China, the business scope of Bosch Manufacturing Solutions covers all kinds of assembly and testing equipment, flexible and innovative software solutions and related services. It is committed to providing Bosch worldwide plants and customers with special machinery and professional manufacturing solutions that meet European quality standards.

In the field of hydrogen energy, Bosch Manufacturing Solutions division and its partners cooperate deeply with complementary advantages, work together to provide customers with tailored intelligent assembly and testing equipment in hydrogen production and fuel cell field, aim to support Bosch and local hydrogen energy enterprises maximizing their value.



H₂

PEM Electrolyser testing



Test Bench Functions

- 1 PEM electrolyser polarization curve testing
- 2 PEM electrolyser hydrogen production performance testing
- 3 PEM electrolyser power consumption testing
- 4 PEM electrolyser startup/shutdown testing
- 5 PEM electrolyser efficiency testing
- 6 PEM electrolyser water consumption testing
- 7 PEM electrolyser power variation performance testing
- 8 PEM electrolyser hydrogen production change testing



Items	Parameters	Unit	EST-50	EST-300	EST-1500	Remark	
Available power range up to [standard]		kW	50	200	1500		
Gas flow	Cathode gas [H ₂]	Nm ³ /h	0.25~18	1~72	22~300		
		NL/min	4.2~300	16.7~1200	367~5000		
	Anode gas [O ₂]	Nm ³ /h	0.12~9	0.5~36	11~150		
		NL/min	2~150	8.3~600	183~2500		
Gas Pressure	Gas back pressure	bar(a)	0~50				
	Anode & Cathode pre-pressurization gas [N ₂]	bar(a)	Max. 50				
Gas composition	H ₂ concentration in O ₂	%Vol	0~2			optional range	
	O ₂ concentration in H ₂	%Vol	0~2			optional range	
	N ₂ concentration in O ₂	%Vol	0~100			optional	
	N ₂ concentration in H ₂	%Vol	0~100			optional	
Anode Water Circulation System	Cooling power	kW	15	60	450		
	Coolant flow	L/min	50	300	2300		
	Coolant inlet temperature	°C	RT~95				
Conductivity Measurement	Conductivity Measurement Position	/	DI water supply, Inlet of stack, Separator in Anode and Cathode				
	Coolant conductivity	µS/cm	0.05~20				
	Coolant conductivity accuracy		0.5%RD				
Electric source	Power up to	kW	50	300	1500	higher power range optional	
	Voltage up to	V	80	80	800	higher voltage range optional	
	Current up to	A	5000	5000	5000	higher current range optional	
CVM	Channels	/	50	150	300	more channels optional	
	Voltage	V	-3~+3				
	Sampling	Hz	100				
Safety Configuration	Nitrogen Purge		Safety Function				
	Safety PLC	/	Independent Pilz safety PLC				
	Hydrogen sensor	/	2 sets (1 sets in test chamber and technical chamber each)				
	Oxygen sensor	/	2 sets (1 sets in test chamber and technical chamber each)				
	Smoke detector	/	2 sets (1 sets in test chamber and technical chamber each)				
	Test bench ventilation	/	EX-proof exhaust fan, with 1 set of flow sensor and 2 sets of flow switch				
Equipment Dimension	Width x Depth x Height	mm	1600 x 4600 x 2200	2600 x 6500 x 2500	3000 x 8000 x 2500		
Options	<ul style="list-style-type: none"> Additional extended interfaces (thermocouples; analog; digital; CAN, etc.) EIS system ASmart power consumption metering 			<ul style="list-style-type: none"> Test chamber explosion proof HD camera Qualified third-party HAZOP assessment Cathode DI water loop 			

