

DEVELOPMENT OF MOLB TYPE SOFC

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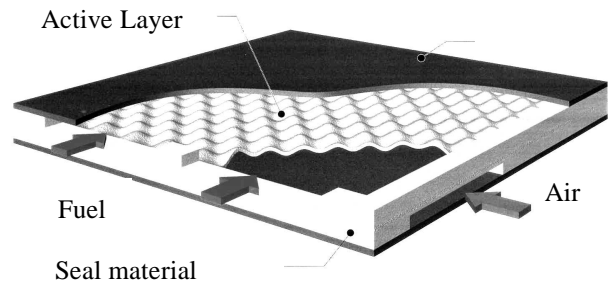


Fig.1 Structure of MOLB type SOFC.

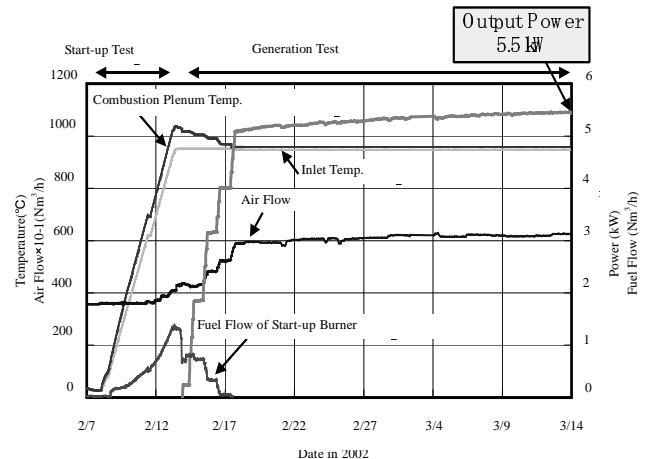


Fig.2 Several-kW class module automatic operating test

MOLB (Mono-block Layer Built) type SOFC has many advantages such as high density of electric power generation, small space requirement, suitability for mass production, etc. Chubu Electric Power Company, Inc. (CEPCO) and Mitsubishi Heavy Industries, Ltd. (MHI) have jointly developed and evaluated MOLB type SOFC since 1990.

In 1992, a maximum power output of 1.32kW was recorded on 3 stacks of 40 cells sized 150mm x 150mm. In 1996, 5.1kW was obtained on 2 stacks of 40 cells sized 200mm x 200mm.

In our latest developments, several-10kW class module was manufactured and tested from 2000 to 2001. The successful tests resulted in a maximum output of 15 kW in a total operating period of 7,500 hours, with the fuel of reformed city gas, and also with the direct internal reforming process. Based on these operational results, an automatic operation control system was developed and the module components were improved.

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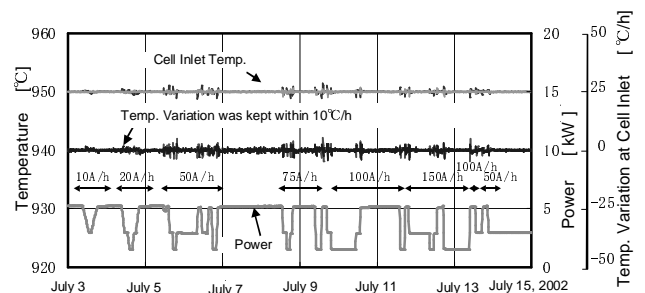


Fig.3 Automatic load change test