

## ALTERNATE SEALING METHOD FOR PLANAR SOFC STACK

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Sealing is a fundamental problem in the commercialization of solid oxide fuel cells. Our new sealing method employed gaskets made from 1.6 mm diameter silver wire, which were fitted into machined channels, 1.5 mm in depth, on the interconnect plates. The channels were machined into 430 stainless steel plate along the edge of both surfaces and around alternate gas inlets (Figure 1). The interconnect plates were 6.35 mm thick, 150 mm long and 76.4 mm wide. A one-cell stack was assembled for pressure testing with a stainless steel sheet in place of the ceramic membrane. The gas connections to the stack were sealed with silver solder and compression was provided by 6 bolts (Figure 2). The apparatus was tested for gas leakage at 20 psi (137 kPa) by cycling from room temperature to 500°C. The results were used to optimize the design of the seals and the stack. The new design will be used for performance testing of fuel cells incorporating new concepts and materials for the ceramic membrane.

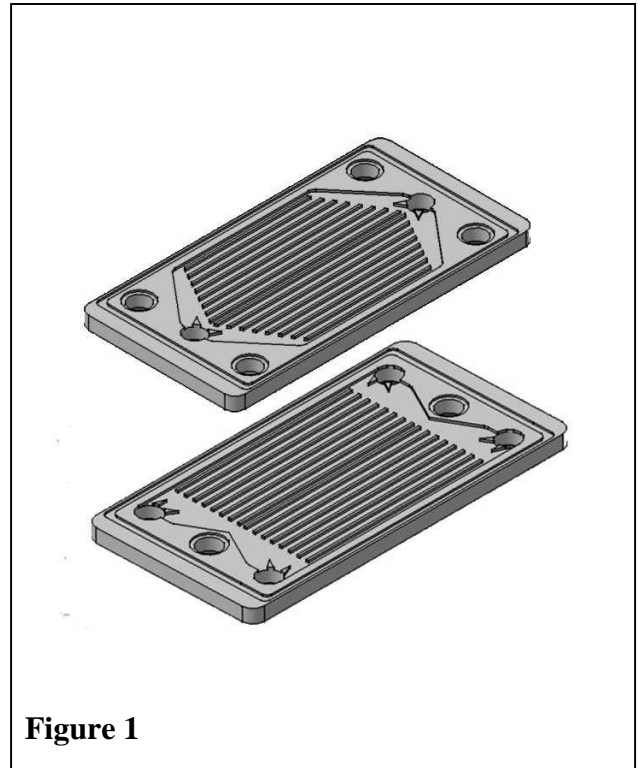


Figure 1

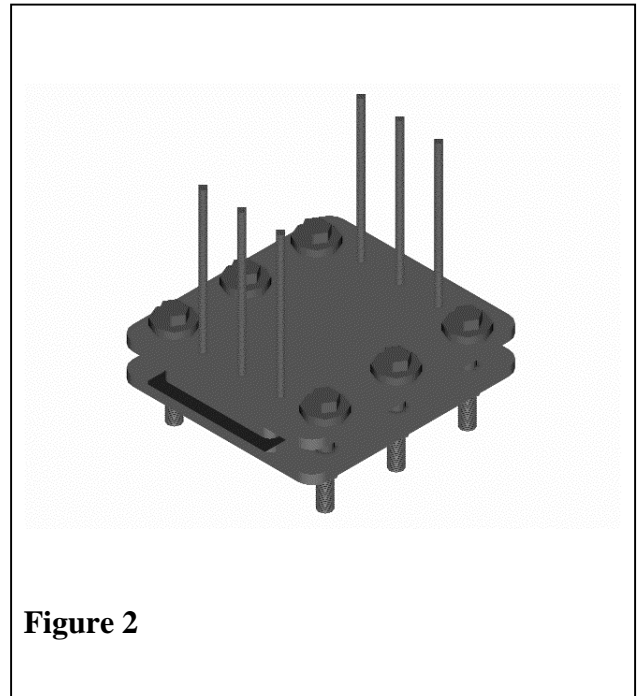


Figure 2