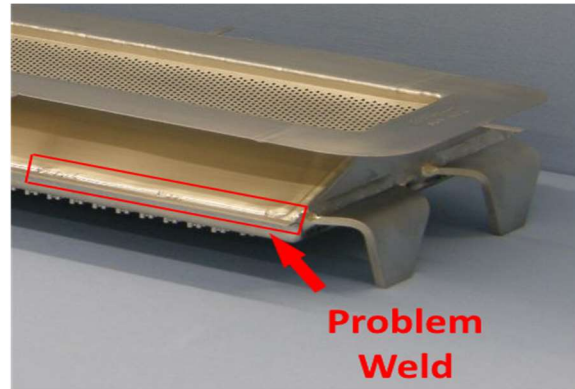


Vacuum Box Testing of Fiberglass Bushing Plates

Fiberglass bushing plates are precision components used in the manufacture of glass fiber, where molten glass at temperatures exceeding 1550°C (2822°F) is extruded through hundreds to thousands of small nozzle tips to form continuous glass filaments. These bushings are fabricated from platinum-rhodium alloys - among the most expensive engineering materials in use today - due to their exceptional resistance to thermal degradation and chemical compatibility with molten glass.



Several weld inspection methods are effective for evaluating certain welds on a fiberglass bushing plate. One common approach is to plug all of the nozzle holes and pressurize the entire component - however, with **hundreds to thousands of individual nozzle tips**, this process is extremely labor-intensive and still offers no guarantee of retaining adequate pressure. For the weld running along the length of the bushing plate, conventional methods face an additional challenge: the weld is inaccessible from the back side, making a reliable examination impossible without the ability to reach the reverse face.



A failed weld does not simply mean a maintenance issue - it means the loss of a component that can cost **tens of thousands of dollars to replace**, unplanned production downtime, and potential contamination of the glass fiber product.

Due to the challenges in testing this particular weld, vacuum box testing can be extremely effective. For this situation, a custom vacuum box can be made. While the backside of the weld is not visually accessible, there is still an **atmospheric area** which can pull air through any leak in the weld. This method is non-destructive, repeatable, and easily utilized by technicians to help protect a significant materials investment and ensuring the consistent production of high-quality glass fiber.

