

# HOLTEC HIGHLIGHTS

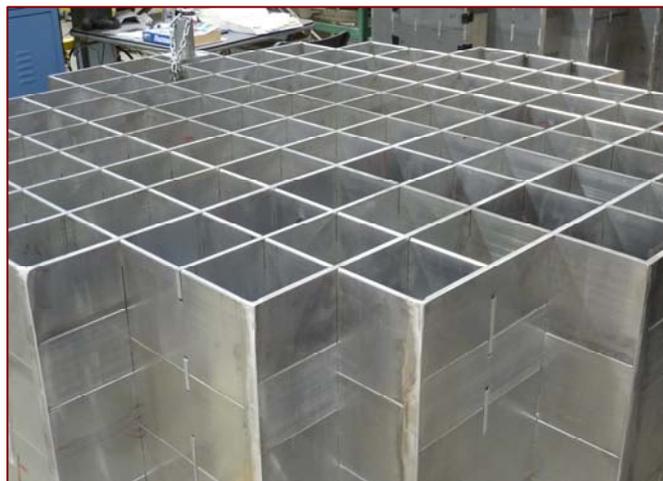
A Summary Report to Our Clients, Suppliers, and Company Personnel

## Holtec's Orrvilon Fabrication Facility Breaks New Ground in Friction Stir Welding of Metal Matrix Composites

We are pleased to announce the successful completion of our Friction Stir Welding (FSW) development program for joining Metamic-HT<sup>®</sup>; a nano-particle reinforced Metal Matrix Composite (MMC) that serves both as the neutron absorber and as the structural material of the fuel baskets in Holtec's latest model Multi-Purpose Canisters (MPC) and transportation casks. The successful demonstration and qualification of the joining process, the development of which began in earnest after the certification of Metamic-HT by the USNRC in 2009, now gives Orrvilon the option to utilize FSW instead of the previously planned Metal Inert Gas (MIG) welding process.

Trial runs on full-size panels have shown that FSW produces a sound joint configuration that is both visually and structurally superior to that obtained from conventional welding methods. Benefits of FSW include the virtual elimination of the heat affected zone and residual stresses, which reduces the overall joint distortion that is generally prevalent in other welding methods.

In perhaps the swiftest transfer from R&D to manufacturing, Orrvilon is on schedule to incorporate this superior joining technology in the manufacturing of Metamic-HT baskets within the next month. All procedure qualification and quality prerequisites required to introduce FSW in the manufacturing program are complete. The FSW fixtures are in the process of being fine-tuned and a provisional patent application describing the novel aspects of the joining technology has been filed.



Friction Stir Welding of an MPC Basket at Orrvilon  
(Non-Anodized)

Located in Orrville, Ohio, Orrvilon is Holtec's newest ISO-9000 certified fabrication facility with over 300,000 square feet of shop floor space, bringing Holtec's U.S. manufacturing capacity to 1,000,000 square feet (93,000 square meters). A noted supplier of complex aluminum shapes, Orrvilon specializes in the manufacture of extruded and fabricated components made of a wide variety of exotic alloys. Manufacturing of the Metamic-HT baskets and Metamic (Classic) tubes is presently a major part of Orrvilon's long term backlog.



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