

## Ira Green

Manufacturing Fixtures with RIZE in Ira Green's Design Group  
Yielded ROI in <5 Months and Saves \$120,000 Annually

### CHALLENGES

IRA Green wanted to speed fixture production by reducing the tool room backlog, while maintaining headcount.

### SUMMARY

Ira Green manufactures 7 fixtures per day using RIZE™ ONE in the design office vs. the tool room to save \$120K annually, increase accuracy and realize an 80% time savings in setup and changeover.

### RESULTS

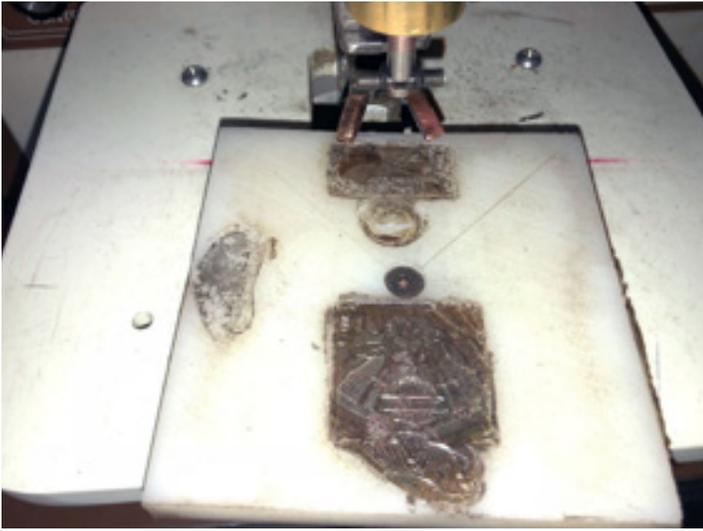
- ROI in <5 months
- \$120K savings per year
- 7X increase in fixture production
- 80% time savings on set up and changeover
- Improved production accuracy
- Transformed production process

Founded in 1943, IRA Green Inc. (IGI), headquartered in Providence, RI, USA, is a full-service manufacturer and distributor of nearly 40,000 unique uniform items and accoutrements that are earned and proudly displayed by military personnel worldwide.

IGI's tool shop is focused on manufacturing coining and blanking dies. They also produce small fixtures for welding and polishing made in Delrin, metal or wood.

## Long Lead Times, High Labor Costs

With high demand for IGI products, new fixtures are required every day. However, each job had to wait in a queue for several days before it could begin, resulting in bottlenecks and lead times of several days to weeks, from job request to fixture delivery. Moreover, each fixture required 8 hours of CNC programming and setup of pockets, or contour electrodes for tool steel and wire EDM flat pockets. IGI spent \$300 for every fixture.



## Fixturing in the Design Group with RIZE

IGI's Manufacturing Manager, Bill Yehle, justified that fixturing with RIZE 3D printed parts instead of tool room sawed and wired EDM and CAM of fixture nests would reduce the tool room backlog, while maintaining headcount. He proposed that manufacturing fixtures with a RIZE™ 3D printer would enable IGI to place the fixture work in the fast-response CAD group instead of the overburdened tool room.

"Implementing RIZE 3D printing as part of a strategic process shift has completely transformed our production process," said Bill. It has added tool room skills to higher skilled CAM and machine building tasks, so fixture design can be accomplished at the time of product design to parallel-path the design/manufacturing development process.

Prior to using RIZE, machine operators clamped the piece down on the machine, which required considerable trial and error to get the placement right. They also tried melting the mold into nylon to hold it in place, but this also required a time-consuming process of trial and error – "turning and burning," as Bill calls it, and did not meet IGI's accuracy requirements.



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*– Bill Yehle, Manufacturing Manager, Ira Green Inc.*

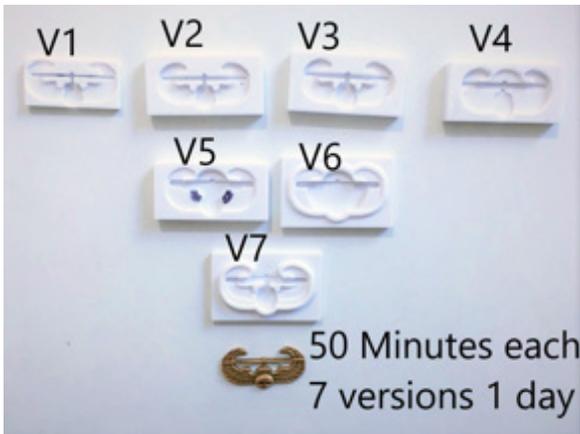
Precision is critical. The RIZE manufactured fixtures hold the piece while it is being nailed in the welder. The 3D printed fixtures ensure the precision and accuracy of the nail placement. This speeds the process because it eliminates the need for repeated manual adjustment of the fixtures. It also saves time from machine operators placing one nail at a time using traditional machining. Using RIZE fixtures, IGI has been able to standardize the center of the fixture for nailing the piece without requiring adjustment.

Since implementing RIZE 3D printing less than a year ago, IGI's design team has printed approximately 300 fixtures. They use their RIZE™ ONE 3D printer every day to reliably manufacture fixtures in 50 minutes at a cost of \$2.00 per part. This enables IGI's design team to produce 7 different versions of fixtures per day that can be used for welding and polishing. Using RIZE, IGI is able to standardize the molds and the nails, resulting in faster setup and changeover, repeatability and increased accuracy. Said Bill, "We have realized an 80% time savings in setup and changeover alone using RIZE and virtually eliminated errors."

Further, RIZE's unique ink marking capability enables IGI's designers to print work order numbers, line numbers and pictures of the piece on the fixtures for identification and instruction for part use and storage. These markings also serve as three points of verification for machine operators to prevent errors.

When IGI plans to fabricate steel fixtures to sustain heavier loads, they use their RIZE ONE 3D printer to print functional prototypes for steel molds. They iterate the prototypes until they get it right and then they turn to the

tool room for final steel fixture manufacturing. Previously, they iterated fixture designs 2 to 3 times in steel at a cost of \$300 and lead times of 2 days per iteration. RIZE enables IGI to produce 7 prototypes per day at \$2 each.



## Why RIZE

IGI had been thinking about implementing 3D printing for a while to improve their processes. Their only 3D printer, IGI selected RIZE ONE after seeing it demonstrated at an event and

in consultation with RIZE and [Dassault Systèmes](#) Authorized Reseller, [Caelynx](#). IGI was impressed with RIZE's best-in-class part strength and industrial material properties that enable fixtures to be drilled, polished and welded without welding flash and without increasing part temperature during welding.

Equally important to IGI's strategy of operating 3D printers in their design office is that RIZE 3D printers are so easy to use, they can be used by IGI's existing design staff. In fact, IGI's industrial designer, who had not used a 3D printer since he was a college student, said he was able to get up and running with RIZE ONE quickly and easily. Moreover, RIZE's process and materials can be safely operated and handled all day every day by IGI employees.

## Looking Ahead

IGI continually evolves their use of RIZE ONE for fabricating fixtures. They regularly iterate their fixtures to enable easier removal of the molds from nail and welding machines and to further enhance the standardization and repeatability of the production process for increased speed and accuracy.



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*– Bill Yehle, Manufacturing Manager, Ira Green Inc.*

Some of these enhancements include printing fixtures within fixtures - the base fixture is a standard size while the fixture insert is customized for the piece, threading the molds for screws and printing spacers that enable selected molds to fit securely on certain machines.

IGI is also considering using RIZE to manufacture service and spare parts on-demand for their machinery to reduce the time and cost of sourcing and ordering machined parts, especially when parts are obsolete or suppliers have gone out of business.

"The process we are using with RIZE gives us a unique competitive advantage," said Bill. "And we are looking to expand the use of RIZE technology to applications in other areas of the company."