

Litron's New Face on the Web

The new Litron website has launched!

Over the past few months, Litron's website has undergone a face lift. The new look and feel is designed to:

- Continue to serve our existing customers
- Be even more search engine friendly
- Serve as a resource to the laser community
- Cultivate new business leads

We invite you to take a look around the site, and let us know what you think. While you are there you can also sign up and receive our quarterly newsletters and other information electronically via our email blasts. Don't forget to bookmark the site and check back often.



Come visit us on the web at www.litron.com

Waves of Change..

What is Litron up to?

- ▶ Gloveboxes shipping this year will feature a new vacuum baking system that seamlessly connects the baking and welding history of a part and creates more flexible bake cycles.
- ▶ We've added two new YAG lasers to our Open Air production line: 62P and 124P
- ▶ Mike Chmura, head of the open air welding department, has completed the Six Sigma Green Belt Certification (*see Department Profile below*).
- ▶ We have a new marketing coordinator, Brendan Fullam, who will continue marketing our services through both online and "off-line" mediums.
- ▶ Chris Stefaniak is the newest member of the Hermetic Package Services Engineering Team. Chris is a graduate of Worcester Poly Tech specializing in Machine Tool Technology.

Department Profile:

Mike Chmura Obtains Six Sigma Green Belt Certification



Mike Chmura, Process Engineer

Mike Chmura, Process Engineer and head of the Open Air Welding Department, has been with Litron for over 7 years and, recently completed the Green Belt Six Sigma Certification process as part of Litron's continuing education and training program. Six Sigma teaches individuals and companies how to think about their production process in a more systematic manner to ultimately create an even more efficient workflow process.

With this new certification, Mike brings a higher level of validation services to Litron and its customers, ensuring that each and every job is completed to the highest standards. Mike is Litron's first Six Sigma certified employee, and we congratulate him on his hard work and continued growth.

Customer Spotlight:

Silicon Valley Taps Pioneer Valley for Hermetic Laser Welding

Why would Teledyne Cougar, based in the heart of high-tech Silicon Valley, choose Litron Inc. - 3,050 miles across the country - to provide laser welding services to hermetically seal microelectronic hybrid components destined for earth orbit?

"We had a source in Silicon Valley, but they didn't offer the customer service and reliability we needed," says David Connell, Process Engineering Manager at Teledyne Cougar in Sunnyvale, Calif. "We discovered Litron as they were advertising their services as a good laser shop. We did some samples, tested them, and qualified them. We were impressed with their professionalism and their service. They are now our only source for laser welding of our Class K sub-system hybrids."

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Teledyne Cougar designs, builds, and tests components and integrated assemblies in accordance with MIL-PRF-38534 and MIL-STD-883 for use in space, military, and high-end commercial applications. Customers include Raytheon, Lockheed, Boeing, General Dynamics, and other leading aerospace and defense firms. The former Cougar Components, acquired by Teledyne about 2 years ago, is now part of Teledyne's Electronics Group.

To qualify Litron, Connell designed a series of design guidelines in which demo units could be fabricated, sealed and then run through the entire gamut of required testing. Tests included temperature cycle, vibration, constant acceleration, extended bakes and cross-sectional analysis after the welding was completed.

At Teledyne Cougar, most technology is sealed in-house. But to meet the rigorous MIL-PRF-38534 standards for their larger sub-system hybrids, Teledyne is now using Litron's laser welding capabilities. The hybrid microcircuit packages are delivered to Litron with all the electronic components inserted. Connectors come out the back and DC pins out the side; soldered-in feed-throughs with RF connectors are bolted on, and the carriers are screwed into the floor of the package.

Litron's role is to laser weld the lid to the casing in conformity with the MIL-PRF requirements - to hermetically seal it without damaging any of the delicate internal components. The high-speed laser welding is performed inside a hermetic glovebox in Litron's ESD-certified, Class 10,000 clean room in Agawam, Mass.

The casings of the hybrid packages are made of 6061 aluminum alloy and the lids of 4047 aluminum alloy, which has a lower melting point than the casings. This allows the casing to stay relatively intact as the edges of the lid are melted, forming a triangular weld. Teledyne requires a 40 mil depth of penetration for every lot sealed at Litron.

Following the welding, leak tests must conform to MIL-STD-883G Method 1014.12 for seals to, as the standard reads, "determine the effectiveness (hermeticity) of the seal of microelectronic and semiconductor devices with designed internal cavities." These include fine (helium) and gross (perfluorocarbon) leak testing, and subjecting the welded components to different temperatures: 100 times at 150 degrees C to -65 degrees C to see if the welds hold up - and will survive the temperature extremes of earth's orbit.

Teledyne also performs its own tests, says Connell, where they try to break the seal. And since the parts are destined for a spacecraft, all the work must conform to MIL-PRF 38534. "It's pretty rigid set of requirements," says Connell. "We live by those rules. Because we are DSCC approved for MIL-PRF-38534 with a TRB option, every process, including laser welding is under strict controls."

"Litron's vertically integrated operations on hermetic aluminum housing provide the flexibility expected from a true partner," says Paul Kowal, Hermetic Manager at Litron. In addition to its hermetic welding lab and leak testing services, Litron offers a turnkey, one-stop shop, providing not only a full range of related services, but full accountability for each job.