



Innovating the Future: Sustainable Headlamp Assembly Process

Utilizing Branson Laser Technology

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Solving

the Unsolvable

At Branson, a brand of Emerson we believe in innovation built *for* customers and *with* customers – so we can push the limits of what we can do together. And go boldly.

Portfolio

We offer the most comprehensive, integrated automated plastic joining technologies across both hardware and software for the broadest range of industries.

Execution

Branson have 80 years of experience and expertise in creating innovations that drive performance.

Culture

Our passion is putting our expertise to work for our customers and solving their problems together.

Imagine a Manufacturing Technology so Advanced...

It could simultaneously make automotive headlight assembly:

- More efficient.
- More sustainable.
- AND more cost-effective.

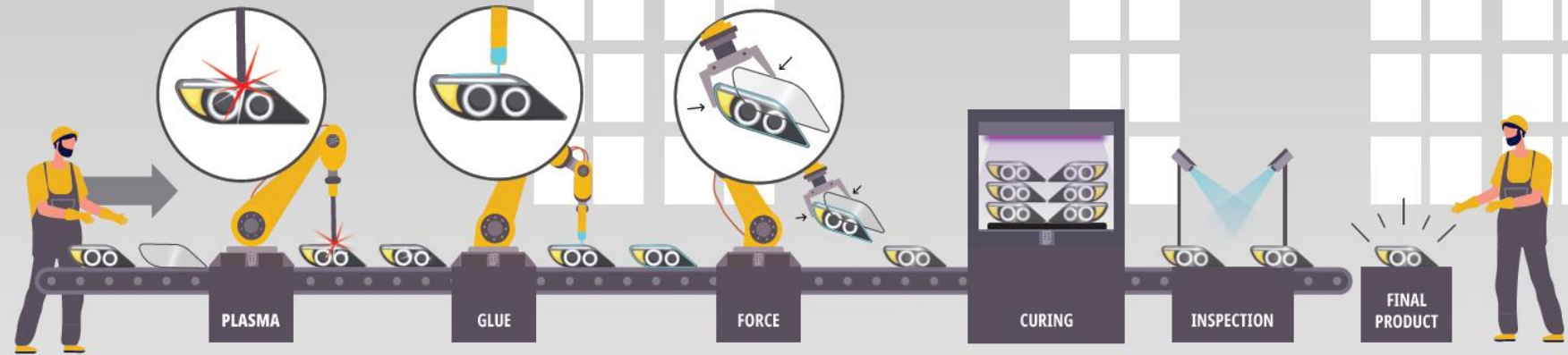
With STTlr+™ Laser Welding technology from Branson, that technology is here.

Shifting Away from Adhesive Bonding

A revolutionary alternative to adhesive bonding, Simultaneous Through-Transmission Infrared (STTIr+) laser welding technology from Branson leverages mono-material design for:

- Significant cost savings
- Weight reduction
- Efficiency advantages

Glue Line



- Greater sustainability
- Eliminated consumables
- Reduced shop footprint
- Lower capital expenditures
- Increased design freedom
- Reduced labor
- Enhanced productivity

Laser Line



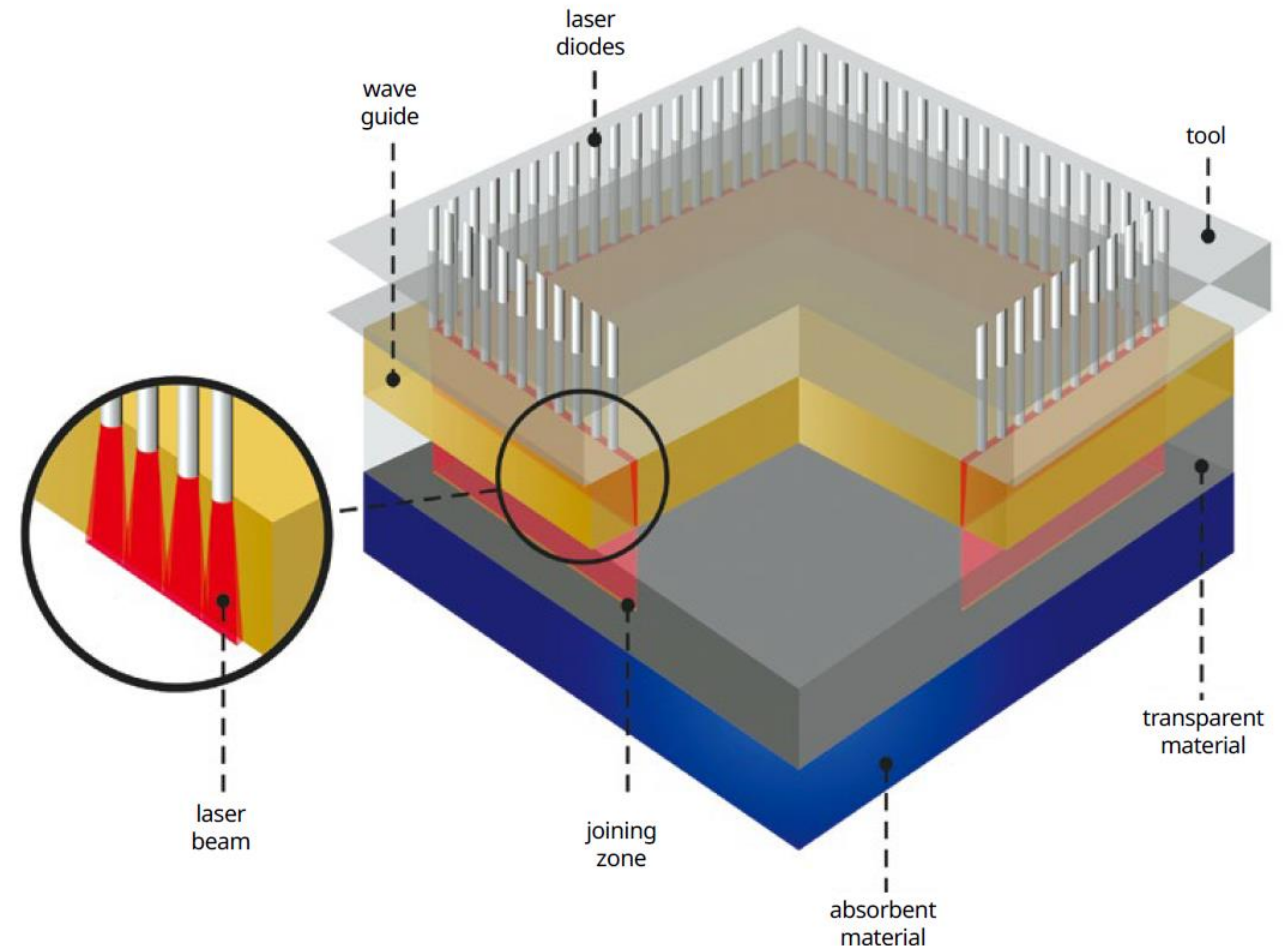
Powering Past Traditional Methods

With STTlr+, laser energy passes through one plastic component (transmissive) and is absorbed at the bond line by the second component (absorptive). This absorption heats and plasticizes the entire welding surface simultaneously, while the two parts are held together under precision-controlled pressure.

The result? **A strong, uniform weld, with less risk of rejects.**

- STTlr+ illuminates the entire weld line simultaneously. This allows for weld times of 0.5 to 5 seconds. The technology is scalable from micro to large parts without increasing the time.
- STTlr+ is less sensitive to part tolerances. Surfaces with scratches, particles or debris may be welded.
- STTlr+ is highly repeatable and stable, with common assembly yield rates greater than 99.5%.
- STTlr+ features an upgraded laser bank and modulation to improve precision and quality control.

How STTlr Laser Welding Works





Fueling New Possibilities in Automotive Lighting

Branson has been partnering with Covestro on laser welding automotive headlamps.

The Covestro approach is to reduce the total number of parts in a headlamp assembly in a mono-material concept. This unique, **mono-material approach** dramatically reduces part numbers and enables advanced STTlr+ laser welding to provide:

- Improved production **efficiency**
- Reduced **weight**
- Integrated **functionality**
- Expanded design **freedom**
- Greater **sustainability**



Scan for more information



Outpacing Adhesives at Every Turn

Adopting laser welding in place of adhesive bonding for headlamps unlocks **savings throughout the manufacturing process** with:

- **REDUCTION IN MANUFACTURING STEPS**
Elimination of adhesive-related cost, time and space
- **SIMPLIFIED RECYCLING**
Mono-material construction
- **REDUCED WASTE**
Welding and unwelding component reclamation
- **EASIER MANUFACTURING AND REPAIR**
Repair, reclamation and reuse of expensive internal components



Driving Toward the **Goals of Tomorrow**



Greater sustainability: Laser welding / unwelding favors a circular economy



Eliminated consumables: 60 tons of glue per project eliminated annually



Reduced shop footprint: 6x smaller footprint vs. gluing cell



Lower capital expenditures: Significant reduction in equipment needs



Increased design freedom: 60% reduction of joint area, no clearance for gluing nozzle/plasma torch



Reduced labor: Significantly fewer operators required vs. traditional methods



Enhanced productivity: 40-50% faster than gluing cell

Moving Past Gluing Limitations

From prototyping to small-scale production and machinery capability evaluation to full-size production machines, our joining solutions offer the ideal solution for your specific needs. We invite you to connect with Emerson to:

- **Schedule a detailed ROI assessment** based on your specific production volumes.
- **Learn about our prototyping capability and options.**

Our Team is here. Stop by and chat with us



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