**Let’s talk about...**

**First-In-Class Laser Welding for Cylindrical Cell Batteries in High Volume Production**

Join thin dissimilar metal materials in EV battery modules safely, consistently and reliably.

**Challenge**
Our customer’s battery module design required the joining of thin metal materials such as 300-micron thick flex bus connector to a 400-micron thick cell terminal on a 10 mm² weld area with no tolerance for over penetration. The build-up of the battery module imposed very tight restrictions on part accessibility and tooling accuracies. The customer had a high-volume part mix that required 50 welds per second and only allowed for 1 failure per 10,000 cells. Laser welding was the only technique that satisfied these requirements.

**Solution**
The customer asked for a safe, consistent and reliable process.

**Safe**: precise heat control and 24/7 operation safety
- Design of the laser process that ensured precisely controlled absorption of laser energy for a high quality joint with no risk of over penetration into the cell chemistry
- Class 1 laser welding machines with safe, reliable, light-tight enclosures

**Consistent**: >99.99% yield
- Integration of laser systems with the right laser process metrics (power, speed, beam positioning, etc) to ensure process consistency
- Design and build of robust tooling/fixtures
- Compensation for variances incoming product
- Integration of real-time in-process monitors with quality assurance metrics

**Reliable**: station operation
- Mechanical design had to be flawless and robust
- Station analytics are closed loop for intelligent feedback and real-time adjustment

**Results**
ATS delivered a robust high-performance laser welding process integrated into an automation solution across 8 laser cells to meet the production challenges of the project.

If you would like to contact an expert, please click here.