

LASER BLANKING REALITY



We're redefining the
stamping industry
by *Blanking at the
Speed of Light™*

LASERCOIL
TECHNOLOGIES LLC

COIL PROCESSING EXPERTISE

Research and development of the LaserCoil approach to laser blanking was initiated in 2008 by the Automatic Feed Company (AFCO). Founded in 1949, AFCO has extensive experience in developing traditional blanking and cut-to-length lines, providing the company with the insight into innovative processes that meet future blanking needs.

LaserCoil patent filings began in 2009 and after the completion of successful pilot programs, LaserCoil Technologies LLC was formed in 2011, and staffed by former AFCO employees to take the technology to market. This depth of experience provides LaserCoil the right qualifications to deliver effective and unique press feeding technology along with the advantage of being a related party to Automatic Feed Company.

PRODUCTIVITY IN ACTION

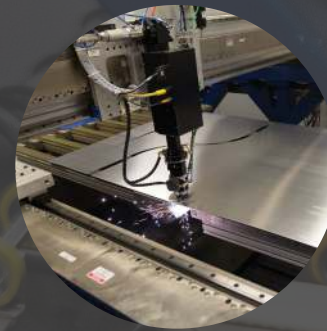
A LaserCoil production solution is the most advanced combination of coil-fed automation and high-speed laser cutting for surface-sensitive metal blanking. LaserCoil machines can produce parts at higher speeds than traditionally demonstrated with laser cutting tables, achieving yield rates into the 100,000 piece range. This provides opportunity to consider laser blanking over traditional stamping processes. The LaserCoil approach also eliminates the need for dies, achieving greater flexibility and quicker changeover. The systems can process a wide variety of coil material in aluminum, mild steel, the new high-strength steels, and other materials as well as structural components in thicknesses from 0.5 to 3.5mm and up to 2.1m wide coil at any length.





INTEGRATION AGILITY

With roots in traditional automotive blanking and cut-to-length line equipment manufacturing, LaserCoil Technologies understands that any viable laser approach to high-volume blanking requires that the system be able to integrate into existing lines. Whether you need a completely new line or are interested in retrofitting a line with a LaserCoil station, the LaserCoil team can propose a cost-effective solution.



HIGH-SPEED GANTRY

Maintaining production rates on advancing coil while meeting infinite part configurations for coil widths of up to 2.1 meters required some unique thinking. This drove LaserCoil's approach in designing a hyper-speed, linear induction motor-driven three-axis gantry. It's fast, agile and stable during high-speed, complex motion paths. Furthermore, its modular design allows the addition of coordinated cutting stations.



DYNAMIC CONVEYORS

Supporting the coil, transporting the finished blanks and shedding scrap presents a monumental challenge when considering the use of a laser for coil-fed blanking. LaserCoil's solution? An approach using individually indexed, dynamic conveyor lanes. This provides the web support when and where it's needed while dynamically leaving an open pathway underneath the strip during cutting. Furthermore, this process allows scrap to naturally shed via gravity.



MULTIPLE HEADS

From an economical standpoint, part yield is paramount. While LaserCoil systems reach impressive production rates with a single cutting head, the systems are designed to incorporate multiple, modular cutting heads. This allows the workload to be distributed, increasing production to rates comparable to conventional blanking.



BETTER EDGE QUALITY

Through a combination of proprietary optics, advanced cutting software algorithms and highly optimized fiber laser technology, LaserCoil blanking systems deliver superior edge quality. This process doesn't produce dross or heat affected zones, and has virtually no burr. This high level of quality improves forming as it's more resistant to tearing and allows laser welding directly to the cut edge.

A BLANKING SOLUTION FOR TODAY'S DEMANDS

Lightweighting is a key technology focus for today's automakers, resulting in an increasing use of advanced high strength steels, which challenges traditional stamping processes. First off, cutting these materials typically requires increased force, impacting tooling as well as potentially requiring higher tonnage presses to achieve the same cut. This results in a higher cost of production and significantly higher maintenance costs for the tools as blades dull at an increased rate. Costs to maintain dual phase steels can be four times what was required for mild steels.

Secondly, as the hardness of the advanced strength steel material increases, the propensity of micro-fractures occurring along the cut line also increases. These micro-fractures can develop into splits during the forming process.

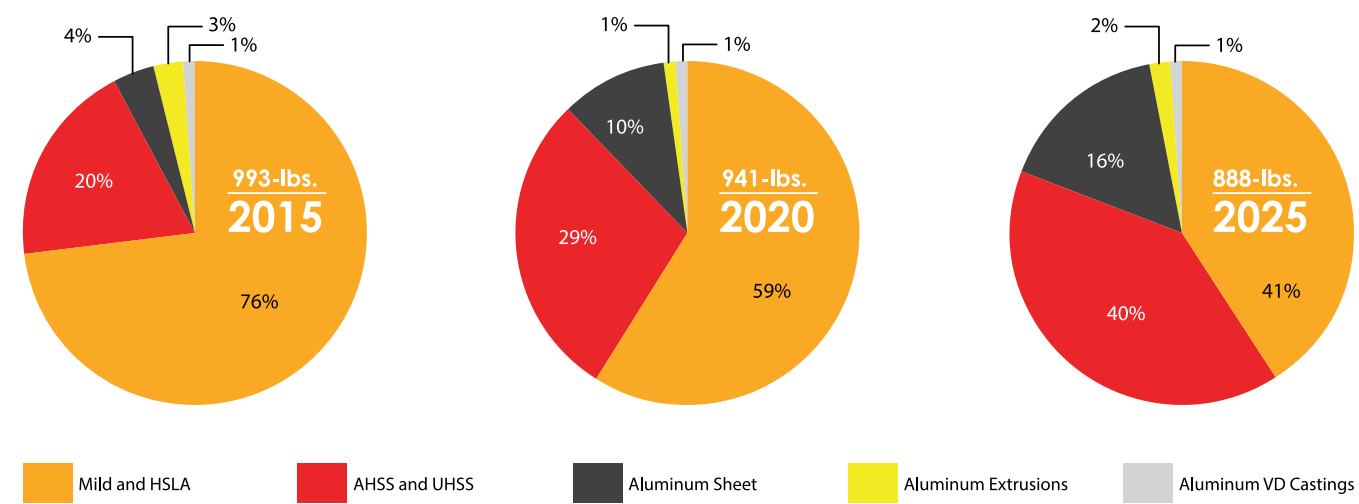
Lower Tooling Costs: As a cutting tool, lasers don't get worn down by material toughness or thickness, and tensile and yield strength have little impact on the cutting speed. Plus, the cost of laser consumables is far less expensive than the cost of maintaining dies and tooling.

Improved Quality: Replacing a mechanical shearing process with laser cutting reduces work hardening issues and micro-cracks to deliver a clean edge. Micro-fracturing is almost non-existent with a LaserCoil process. There are no formability issues in the edge and almost zero cross accumulation.

Flexibility: In addition to new materials challenges, today's automotive industry faces volume fluctuation and niche models. By eliminating the long lead times required for die production, laser cutting provides the flexibility for quick changeover.

Materials savings: Due to its software capabilities, laser cutting enables more flexibility in part nesting to maximize raw material usage and minimize scrap. This opens up great potential for cost savings.

North American Light Vehicle Material Mix for Body and Closures



Source: Ducker Worldwide

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mit uns **technisch überlegen**

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