A MACHINE CONCEPTS CASE STUDY

Custom-Engineered Leveling System Produces Lightweight, High-Strength Automotive Components

THE CUSTOMER STORY

ABM Tool & Die Co., Ltd., has grown from a tool and die shop to a Tier 1 Automotive Parts Supplier of stamped and welded assemblies. It employs over 250 people in two, 100,000-square-foot manufacturing plants. As the company expanded internationally, so did its need for advanced manufacturing capabilities.

Armando Blagonic, founder of ABM Tool & Die (left) and current owners Terry Blagonic and Doriana Blagonic (right)

Addressing flexibility the Leveling System can be moved from press to press

THE CHALLENGE

ABM set out on a worldwide search to find a supplier with engineering and manufacturing expertise that could help them:

- Produce flat and stable parts from Dual-Phase steel and other high strength materials for the manufacture of car seat track assemblies and other automotive components.
- Integrate the new system with an existing stamping press. This would require a custom control system that would fully integrate all equipment to perform a seamless press production line.

Since ABM had little experience working with the high-strength materials required, they were looking for a knowledgeable partner as well as a supplier.

ABM's search brought them to Machine Concepts in Minster, Ohio, USA, a designer and builder of press room, shape correction leveling, coil processing and custom automation equipment.

"It did not take long to know our search was over," says Terry Blagonic, son of ABM founder Armando Blagonic.

"Machine Concepts engineering expertise, in-house manufacturing capabilities and knowledge on working with difficult high-strength materials, along with their willingness to educate us, set them apart from everyone else."

- Terry Blagonic, ABM owner

THE MACHINE CONCEPTS SOLUTION

To produce flat, stable parts from the high-strength materials, Machine Concepts designed and built a multi-stage leveling system. This system levels the material twice during the production process: once as a coil prior to the stamping press and a second time as a part after the stamping press.

KEY TECHNOLOGIES

The highly automated, push-button operating system designed and built by Machine Concepts is comprised of:

- A coil stand to pre-stage and load coils
- 25,000-pound traversing, single mandrel uncoiler with powered coil hold-down arm
- An **H2 cassette-style precision straightener** with hydraulic entry hammer flattener bar and cassette removal kart
- An alligator-style entry guided peeler table
- Loop system
- Two **G2 cassette-style precision straighteners** with part conveyor systems

Multistage Leveling System levels parts before and after stamping

THE RESULTS

The innovative system utilizes a custom control system, designed and built by Machine Concepts, that fully integrates the new coil processing equipment and multi-stage leveling system with ABM's pre-existing stamping press. ABM gained a seamless, push-button, high-performance press production line.

The new stamping line can process Dual-Phase steel and other high strength-materials from 0.070" to .250" thick at 24" wide and production speeds up to 150 parts per minute.

"Producing flat, stable parts was key to our requirements. While other leveling systems may achieve a 30-50% yield in the thickness of the material, our custom-engineered multi-stage leveling system can achieve up to 85% yield within the thickness of the material," says Terry Blagonic. "This produces a very stable and flat product even on high-strength material like Dual-Phase Steel. To date, the system has produced over 70 million parts for a number of automotive manufacturers and everyone is happy with the results."

- Terry Blagonic, ABM owner

FUTURE GROWTH

ABM sees huge growth potential in the use of high-strength materials and plans to extend its operations in the future with similar projects.

"Overall, we had the best of everything -- a locally built system designed by a knowledgeable and helpful engineering team backed by extensive in-house manufacturing capabilities and an excellent service department," says Doriana Blagonic, daughter of the ABM founder. "We are very pleased with Machine Concepts and the equipment. We will definitely work with them again in the future."