Case Study

Seamless traceability along the entire value chain

A success story from AMAG, coilDNA and LEIBINGER

Tuttlingen (Germany) / February 05, 2024 – In today's fast-paced world, ensuring complete traceability from raw material to finished product is of paramount importance. coilDNA, as a 100% subsidiary of AMAG Austria Metall AG, is a start-up in the field of digitalisation based in Linz/Austria. The business is based on a patented technology for marking and tracking continuously produced semi-finished products. These include coils and sheets, extruded or roll-formed profiles, as well as hoses or cables made of different materials such as steel, aluminium or plastic.

When it comes to marking the aluminium strips, sheets and plates produced in Ranshofen, AMAG uses LEIBINGER printers to meet the diverse requirements of its customers from different industries incl. aero-space, automotive, packaging, construction and mechanical engineering, electronics, sporting goods, radiators and heat exchangers. This is also the case with the coilDNA code - a constantly changing alphanumeric code which is applied over the entire length of the rolled products, often ranging from several 100 to 1000 metres, in the final phase of production.

When marking aluminium coils at AMAG Austria Metall AG, the flexible positioning of the print heads relative to the rolling strip on the different lines posed a challenge. Especially on the longitudinal slitting lines, up to 8 lanes had to be printed with different markings from above and from below.

Reliable, continuous marking with a smart code

The coilDNA code consists of 14 clear alphanumeric characters that are strung together in the code track – and which are never repeated. Each individual code element allows its exact position on the product to be determined. If data is assigned to these code elements, it can be retrieved in subsequent processing steps, regardless of how the semi-finished product was split. This enables seamless tracking of the material, its properties and manufacturing conditions over several stages of the value chain – and ideally all the way through to the end product.

The solution: LEIBINGER's specially developed interface software for high process speed

The need to print the constantly changing coilDNA code was solved by means of a specially developed interface software based on LEIBINGER's messaging protocol. Thanks to the printers' high data processing speed, the coilDNA

code can now be printed with re- producible results at process speeds of up to 500 m/min.

"The installation of the printers and related equipment during ongoing production – without interrupting it – presented the team with a special challenge, which was solved to our complete satisfaction and on schedule thanks to excellent project coordination", says Dr. Werner Aumayr, Head of AMAG IT.

The flexible positioning and easy manipulation of the LEIBINGER print heads on the line enable the printing of the rolled strips at almost any width position, even in several lanes if required. This means that the slit strips produced on the longitudinal slitting lines can be marked individually.

Excellent legibility of the dot-matrix font used is ensured even in this high speed range. Leopold Pöcksteiner, Managing Director of coilDNA, confirmed: “When it comes to printing the coilDNA code, high process speeds of up to 500 m/min on the longitudinal slitting machines combined with excellent code legibility, even in the high speed range, are impressive.“

The result: All marking requirements were met 100%

By using coilDNA technology, AMAG can now offer its customers new services. “By using close to 30 LEIBINGER printers on a variety of systems in the AMAG rolling mills, the wide-ranging marking requirements of our customers from different industries are met to the fullest – and with an exceptional degree of flexibility.“ says Dr. Werner Aumayr, Head of AMAG IT. coilDNA-marked strips allow seamless traceability of the delivered strips and sheets, as well as the parts created from them through further processing, including their properties and manufacturing parameters. Specially developed coilDNA apps enable AMAG customers to communicate and coordinate quickly, easily and by product once the coilDNA code has been scanned. Achieving this was only possible with LEIBINGER‘s highly reliable coding & marking technology.

Conclusion and recommendation

“The key finding from the project was that, using standard LEIBINGER printing protocols, even markings not provided for in the standard, such as the coilDNA code, can also be applied at high speeds,” says Dr. Werner Aumayr, Head of AMAG IT.

“I recommend that, before using CIJ printers in the metal producing industry, it makes sense to carry out extensive tests in terms of the material surface, marking resistance, process speed, ambient conditions and code legibility.

LEIBINGER and its partner carried out extremely valuable preliminary work and provided comprehensive advice. We would be happy to recommend working with them to other companies requiring this expertise."

Image captions:

	The coilDNA code consists of 14 clear alphanumeric characters that are strung together in the code track – and which are never repeated. Source: Paul Leibinger GmbH & Co. KG
	LEIBINGER JET3up printers mark the coilDNA code to rolled products at process speeds of up to 500 m/min. Source: Paul Leibinger GmbH & Co. KG

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About Paul Leibinger GmbH & Co. KG (LEIBINGER)
LEIBINGER is a globally operating specialist in coding & marking systems with headquarters in Tuttlingen, Baden-Württemberg (Germany). The third-generation family-run company, founded in 1948, develops and produces industrial inkjet printers as well as inks for various applications – with a workforce of close to 300. Innovative technologies and an exceptionally high standard of quality are what distinguish LEIBINGER's advanced coding & marking solutions. As the inventor of a disruptive nozzle sealing technology LEIBINGER is transforming the industry's experience working with Continuous Ink Jet (CIJ), leading to greater productivity in the manufacturing of food and industrial products – with tens of thousands of successful installations worldwide. A global network with some 150 distribution partners and subsidiaries in the US and China ensures that LEIBINGER is ideally positioned to maintain close relationships with its many customers worldwide.