

# Duferdofin-Nucor, Italy

## Manufacturing (steel tagging)

### Case study



## Extreme Labelling for Extreme Industry: Zebra Technologies labelling to track semi-finished industrial steel products at Duferdofin-Nucor.

Based on the strategic alliance between two major global players in the steel industry, Nucor Corporation and Duferco Group, Duferdofin-Nucor is now the primary manufacturer of beams, long rolled sections, merchant bars and rounds in Italy, Europe and North Africa. The skilful combination of know-how, technology and human resources has given rise to a cohesive, robust and integrated network of companies, able to achieve maximum synergies in production, at competitive costs and with minimal environmental impact. The company, based in San Zeno Naviglio in the province of Brescia, Italy and with 4 production units in this same location, controls the entire production chain, from liquid steel to end product.

### The Challenge

For more than a decade, Duferdofin-Nucor marked semi-finished products (dog-bone, blooms and billets) by applying paint manually and writing a casting number on each piece of steel for reference. This manual system limited data completeness and was also subject to a high level of human error.

Over time, this system proved to be inadequate, inefficient and incapable of guaranteeing the transparency and traceability of the entire production process. Duferdofin-Nucor required a durable label that would ensure reliable grip on uneven surfaces and provide resistance to the dust and soil that characterise steel warehouses. The labels would also be required to withstand temperatures of approximately 100°C as well as long journeys on open railcars and therefore variable weather conditions.

Consequently, the company started to explore alternative solutions offered by the market and used by other manufacturers, testing different labelling systems, such as metal labels applied with silicone, plastic tags applied by nail gun and various types of adhesive labels.

### The Solution

A Zebra channel partner worked closely with Duferdofin-Nucor to identify a solution that met the end user's requirements. Zebra® 8000T Ultra High-Tack Matte labels were chosen for their superior adhesive power and their resistance to extreme temperatures (-40° to 150°C), ensuring the steel blooms' traceability from the very beginning of the manufacturing process in the steel mill. The channel partner implemented this solution because the Zebra® labels are manufactured using high performance film coating made of heat resistant polyester, combined with ultra-strong special adhesive. This works on difficult-to-label surfaces, making them effective under extreme heat and in the event of exposure to chemicals and other hostile substances common in steel production facilities.

The early stage of the identification process involved labelling the semi-finished products with information about section, length, quality and casting bloom number, and a bar code that enables the loading and unloading of stock



### Solution Technology

- Zebra® Z4Mplus™ printers
- Zebra® 8000T Ultra High-Tack Matte labels



by using handheld optical character readers. The company used Zebra® Z Series® mid-range printers to print these bar code labels. These printers are made of die-cast metal with a broad range of features and options, capable of fast production speeds and designed to ensure high performance for the most challenging processes and environments, such as heavy industry. Between 500 and 1200 labels are printed daily on-demand and then applied manually to the semi-finished products.

### The Benefits

The use of bar code labels means that products can be identified early on in the manufacturing process and easily tracked. The Zebra channel partner also developed a specialised portal reader with an industrial scanner that automatically identified the end products. The use of this auto-ID technology solution has helped eliminate errors and verify the materials being used.

This solution ensures complete traceability of materials as well as allowing for significant time and cost savings. Furthermore, the transition to this process required minimal upheaval as the staff only needed a quick training session to become familiar with using Zebra® printers and the hand-held optical scanners deployed in this solution.

“Finding a solution capable of withstanding the extreme conditions of industrial environments has been very challenging, but we have finally found the right product for our needs”, said Sergio Bassano, Head of Programming at Duferdofin-Nucor, Italy. “In future we plan to implement this auto-ID technology solution, so that the identification of the blooms at defined production stages is completely automated.”

### Quote

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Sergio Bassano  
Head of Programming  
Duferdofin-Nucor, Italy

