

ENSURING STEEL QUALITY

### Automated surface inspection for the skin pass mill in steel cold rolling



Figure 1: ARANIA S.A. production process: pickling line, cold rolling mills, batch annealing, skin pass mill, slitting lines



aranja

KEY FACTS



120.000 m<sup>3</sup>/year  
Production



+190 people  
Employees



28.000 m<sup>2</sup>  
Plant



65%  
Export

SMART  
VIEW®

DEFECT DETECTION & IDENTIFICATION

SmartView® Surface Inspection Systems  
on Cold Rolling Lines.

### Experts in cold rolled steel products

Based in Southern Europe, ARANIA S.A. is a leading manufacturer of cold-rolled steel with high and low carbon content. It also offers high-strength alloyed and micro-alloyed steel.

The thicknesses of the steel products range between 0.2 mm and 8 mm, with coil widths from 14 mm to 800 mm and external diameters between 850 mm and 2000 mm, with different surface finishes.

Most of ARANIA's products are used in the manufacture of components for the automotive industry, with approximately 65% of production going to exports.

ARANIA is an expert in integrating the needs of its customers into production and management processes, aiming to achieve maximum quality and reliability. Its goal is to use the most advanced technology currently available on the market to provide a competitive product adapted to its customers' needs.

### MEETING EXPECTATIONS IN A DEMANDING INDUSTRY

ARANIA's production process consists of pickling line, cold rolling mills, annealing furnace, skin pass mill and multiple slitting lines. The standards and certifications are maintained by the internal laboratory.

The laboratory is focused on the needs of the customers: the different product analyses that guarantee the highest quality and, of course, the fulfillment in design specification.

**Rafael Mendoza, ARANIA S.A. IDQ Product Development Manager, said:**

*"The sophisticated inspection systems in steel industries were historically reserved for big size steel producers. There are numerous companies of ARANIA's size which have never considered inspection systems. Today, however, our*

*customers are expecting the highest quality and flexible small volume deliveries."*

To meet these expectations, ARANIA was looking to implement an automated inspection system, with the primary goal of assuring automotive customers that the delivered material met top quality requirements.

Nearly 70% of the steel production goes through the skin pass mill. This is a quarto mill workspace with a radio-isotope gauge for thickness measuring, using antioxidant thixotropic oils and precision surface finish work rolls to deliver a high-quality final product.

The skin pass process only modifies the material thickness by 0.5 to 1.5%, but significantly increases the surface smoothness

of the coils, unifies the thickness and improves their mechanical properties.

This made the skin pass mill the selected site for the installation of the inspection system.



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**AMETEK®**  
SURFACE VISION

### A PROVEN, LABORATORY-TESTED SOLUTION

A SmartView® surface inspection system was installed on the skin pass mill. This is equipped with high-intensity compact LED beam, high-speed 4K 160MHz linescan camera technology, the latest SmartView SPU sensor processing units hardware, and SmartView 7.2 software.

The optical configuration provides 0.2 mm x 0.2 mm pixel resolution, constantly recorded as streaming video on two 3TB hard disk drives that ensure 30 hours of video buffer. The system is managed by Premium System Server, and the inspection results are presented on Operator Station. Finally, the AMETEK Surface Vision air knife was applied to ensure camera optics were kept free of contamination.

**Greg Natanek, AMETEK Surface Vision Key Account Manager EMEA,** said:

*"The installation on a skin pass mill is challenging, due to different material grades and oiled surface. As with every complex project, AMETEK Surface Vision's pre-sales team performed a sample study in our Karlsruhe laboratory.*

*"To evaluate the performance of the existing oiler, the demo equipment was temporarily installed on the customer's skin pass mill. The trial confirmed the performance of the system and assured the customer that laboratory results can be successfully reproduced in the production environment. The positive results gave us a green light to launch the project."*



Figure 2 The SmartView® system installed on the skin pass mill

### SUCCESS THAT DELIVERS A CLEAR ADVANTAGE

The project had a challenging schedule but the time from the first contact to the system's delivery did not exceed six months. The joint efforts put in by both AMETEK Surface Vision and ARANIA were rewarded and system was fully commissioned in agreed timeframe.

The successful implementation of the automated surface inspection system was a key element in ARANIA's full traceability program, which is crucial for the assurance of its automotive industry customers.

**Asier Ibañez de Maeztu, ARANIA S.A. Process Engineer** said:

*"The AMETEK Surface Vision system has changed our insights about steel inspection, giving us a clear advantage and consolidating our position in the market. We can now ensure that our inspected products will achieve the highest standards for our customers, who have already given us excellent feedback about the system.*

*"In only nine months we have been able to reduce the customers' potential claims by 12%, which gave us a new standard in surface quality. Being able to find the root cause and investigate with visual data provided by AMETEK Surface*

*Vision has also improved our processes and quality standards.*

*"The support received from both sales and engineering from AMETEK Surface Vision has been excellent and flexible with an expertise only expected by the very best.*

*"From the beginning, AMETEK Surface Vision made clear that their objective was to implement a system to improve our company. They would have preferred to not install the system if the test results were not good enough, which is the confidence you want from your technology supplier."*

### PROCESS LOCATIONS

Skin pass mill

### ABOUT AMETEK SURFACE VISION

AMETEK Surface Vision is a world leader in automated online surface inspection solutions, with a broad product portfolio optimized for web and surface inspection and monitoring and process surveillance applications.

Its product portfolio includes two distinct product lines: SmartView® systems and SmartAdvisor® systems. Each product line uniquely enables customers to inspect the surfaces of materials processed in a continuous fashion across the metals, paper, plastics, nonwovens, and glass industries. Learn more by visiting [ameteksurfacevision.com](http://ameteksurfacevision.com).

AMETEK Surface Vision is a unit of AMETEK Process and Analytical Instruments, a division of AMETEK, Inc., a global manufacturer of electronic instruments and electromechanical devices with annual sales of approximately \$5 billion.



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