SURFACEVISION

The leading automated surface inspection partner for fast and accurate materials checking.



METALS
SURFACE INSPECTION

DELIVERED THROUGH

SMARTVIEW®
Online detection, classification and visualization of surface defects

AMETEK®
SURFACE VISION

SURFACEVISION



Metal manufacturers face ever-increasing demands to improve quality, increase productivity and create certified defect-free products, especially from end-user markets such as the automotive and aerospace industries. This makes a flexible, customizable surface inspection solution essential when optimizing quality and yield.

Setting the bar for the metals industry, SmartView® is one of the most trusted and valued automatic surface inspection solutions in the world.

Powerful software, state-of-the-art camera technology, high-intensity lighting and unparalleled application engineering services combine to give the high-performance, automated solution that detects, classifies and visualizes your surface defects to the highest standards.

The benefits are immediately visible: SmartView provides unsurpassed image quality, reducing your camera count, improving defect detection and simplifying your system installation and maintenance.

Our approach is simple: to provide the latest and best inspection solution for each application, delivered with the highest consistency and without compromise.

No other solution has the flexibility and ease-of-use that SmartView delivers. Over three decades, we have been the industry leader in reliable inspection software, while we offer the most comprehensive selection of lighting solutions and high-definition options to ensure ultimate process optimization.

It's why more companies trust their surface inspection solutions to AMETEK Surface Vision than anyone else.

MARKETS AND APPLICATIONS

STEEL

- Caster
- Hot mill
- Pickling line
- Cold rolling mill
- Annealing line
- Temper mill
- Electro galvanizing line
- Hot dip galvanizing line
- Tin line
- Coating line
- Inspection line
- Slitter

ALUMINUM

- Scalper
- Hot mill
- Cleaning
- Cold rolling mill
- Annealing line
- Foil mill
- Tension leveling line
- Coating line
- Inspection line
- Slitter
- Litho line

COPPER/BRASS

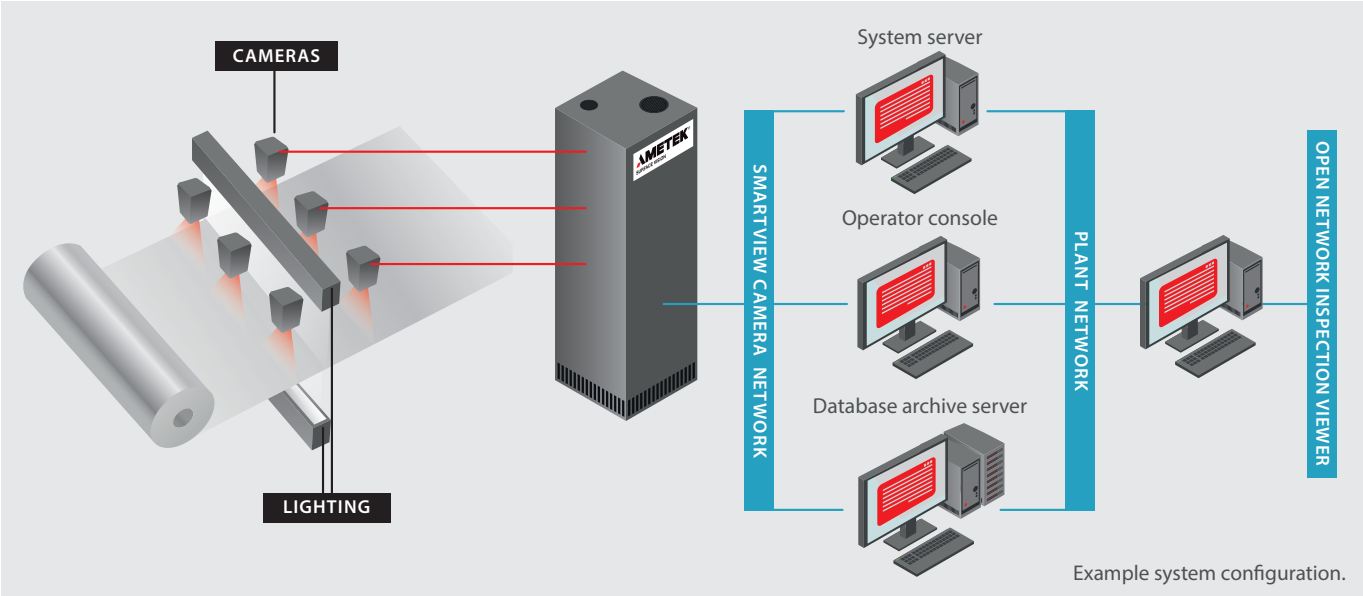
- Milling
- Pickling line
- Cold rolling mill
- Annealing line
- Stretch bend leveler line
- Coating line
- Foil treatment line
- Inspection line
- Slitter

SMARTVIEW® METALS SURFACE INSPECTION SYSTEM OVERVIEW

AMETEK Surface Vision's SmartView metals inspection system is a robust, flexible surface inspection solution that accurately detects, classifies, visualizes and reports defects and process conditions across metal processing lines. Combining our leading-edge software with rugged, proven hardware, SmartView delivers the most precise real-time detection and classification possible.

Within a SmartView system, synchronized camera technology is supported by powerful LED lighting arrays for high-quality defect image capture across multiple inspection angles. With your inspection data processed through high-performance servers, SmartView software combines sophisticated control tools and detailed analytical real-time reporting into a simple-to-operate package. As a fully customizable, modular solution, SmartView is designed for expansion to meet your changing operational requirements.

Designed with ease of operation and future-proofing in mind, all our inspection systems are supported by AMETEK Surface Vision's unmatched applications experience and technical expertise, for solutions that are trusted by metal producers the world over.



Example system configuration.

SOFTWARE

SmartView's Windows®-based software integrates seamlessly with system hardware to provide continuous detection, classification and visualization, accessible across the network.

CAMERAS

High-precision, continuous-operation cameras are located across the process, using resolutions and optical technologies best suited to each specific application.

LIGHTING

Powerful, long-life LED lights brightly illuminate the surface for inspection, delivering uniform lighting levels.

DATA CAPTURE & ANALYSIS

Our computer systems store and analyze data from the cameras, supporting video streaming and defect classification capabilities.

APPLICATION SUPPORT

Our expert applications knowledge helps you to run your SmartView system more easily, providing the optimal solution for your process.

SMARTVIEW®



The SmartView solution is operator-friendly and delivers detection benefits within hours of installation and set-up. Long-term use will maximize your results from the factory floor to the front office, with customizable user interfaces and reports.

It provides total control over the process, allowing accurate identification of defects of interest. This means worsening conditions are detected quickly, supporting action to reduce scrap product and increase productivity.

The modular concept of SmartView makes it possible to start with a basic system and expand it later on with more sophisticated inspection capabilities. Our powerful Windows-based software suite is flexible and adaptable, integrating seamlessly with whichever SmartView hardware you wish to add.

A range of additions and extensions to SmartView software platforms allow users to customize solutions to their precise requirements. These additions enable intuitive, configurable reporting that provides rapid understanding and control of product issues – further supporting quality throughout the process.

SmartView software unites our cutting-edge hardware and decades of applications experience, creating a comprehensive surface inspection solution that delivers the automated, real-time results your process requires, and the product quality assurance your customers demand.

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KEY FEATURES

Defect libraries

We use our application experience to customize your defect library when we commission your system, providing a reference structure that is quickly filled with data relevant to your process. This forms a library of detection thresholds and inspection parameters that is easily configurable, delivering unparalleled detection, classification and visualization of surface defects.

Detection and thresholding

To ensure accurate detection of target defects and minimize false detection, AMETEK Surface Vision utilizes a combination of basic, advanced, and application specific thresholding technologies. Thresholding algorithms are optimized for continuous processes and enable the system to filter non-defects/pseudo-defects and ensure best-in-class detection rates. All changes can be made using a graphical user interface (GUI) designed to suit the customer, not software engineers.

Classification tools

SmartLearn® is our patented multi-step classification tool set, supplied with every AMETEK Surface Vision inspection solution. Combining self-learning classification with expert knowledge, a selection of multiple classification engines can be tailored to your process and requirements. With this flexible approach, SmartLearn maximizes the potential of your inspection system for improved product quality, higher production yields and decreased customer returns.

Streaming video

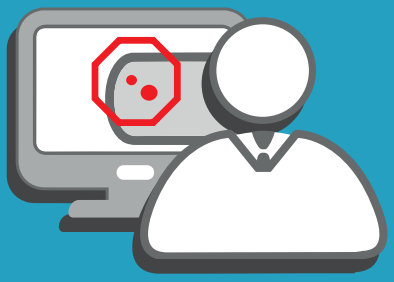
Powerful streaming video functionality takes defect inspection to a new level. All image data for the inspected metal is captured and saved at the full resolution of the system's cameras, using memory-based or disk-based image capture and display. This means operators can view and review a continuous, real-time video display of the metal surface, using standard SmartView cameras and lighting, without having to unwind, re-roll or unroll the coil.

SUPERIOR DETECTION, CLASSIFICATION AND VISUALIZATION OF METAL SURFACE DEFECTS

END USER BENEFITS

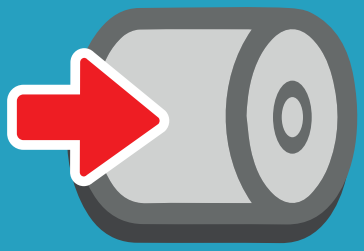
Control your process

With SmartView, the user has total control of the interface, and can reassign colors to different defect classes. Using the intuitive drop-down menus and customizable windows, users can narrow down results with precision, identifying only defects of interest. By providing knowledge of even the smallest defects, SmartView allows an immediate response to worsening conditions, reducing scrap and increasing yield.



Seamless integration

As a Windows-based solution, SmartView integrates easily into your existing systems, ensuring straightforward system start-up and operational flexibility. The software employs algorithms that can be optimized for your particular surface and process requirements, all performing on-line in real-time. As part of our modular solution, it's simple to add or remove hardware and retain seamless software control.



Intuitive reporting

SmartView is intuitive and highly configurable, enabling users to rapidly identify product and process issues. The Production Quality Advisor software suite utilizes the Open SQL server database to generate custom reports for viewing or comparison. Data from one production line or an entire mill can be processed, including coil grading and map stacking solutions for easy understanding and control of product quality.



Through-process visibility

SmartView's Windows-based software, connected to your network, provides information for all users, ensuring that operators, inspectors, process engineers and managers have all the data they need at their fingertips. The Open Network Inspection Viewer, distributed across the network, allows any user to view any current or historical inspection results remotely, from any stage of production.



STEEL

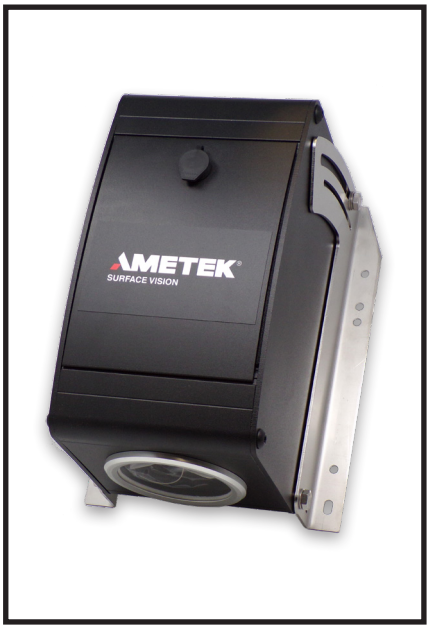
ALUMINUM

COPPER/BRASS

CAMERAS

SmartView supports a suite of cameras that use a wide range of resolutions, differing sensor sizes and black & white or color outputs, to deliver a 'best fit' solution for any application. We provide the architecture for quick, seamless addition of cameras from any provider to your system, allowing you to take advantage of advances in camera technology. Charge coupled devices (CCDs) and complementary metal oxide semiconductor (CMOS) cameras are both accommodated by SmartView, offering the flexible solution best suited to your process.





LIGHTING

Optimum lighting conditions are integral to high perfomance surface inspection, and SmartView integrates designed lighting solutions that specifically complement each AMETEK Surface Vision system. Our consultative approach ensures the precise lighting solution is selected for your system, with illuminative accuracy delivered by lighting technologies that include diffuse or collimated lighting options, both available in various geometries. The LEDs have a service life of approximately 50,000 hours (5.6 years), environmental enclosures to protect against water intrusion and contamination, and a safety circuit for over-temperature monitoring.





DATA CAPTURE & ANALYSIS

Our fully scalable systems generate the data, images and videos you need for accurate inspection and reporting. To maintain this information, we provide server systems, fully compatible with SmartView products, able to cope with the demands of storing and processing your data. These servers integrate seamlessly with SmartView's wide range of software packages to deliver a powerful suite of data analysis and visualization tools.





APPLICATION SUPPORT

AMETEK Surface Vision has more metals customers worldwide than anyone else in the industry – more companies choose to guarantee their product quality with us than with any other surface inspection system.

As a consequence, our high-precision systems are relied upon every day by almost every major flat-rolled metals producer.

And when you purchase a SmartView system, you're not just buying our patented software and advanced hardware – you also get our deep applications knowledge and support.

This unmatched depth of expertise has ensured our engineers continue to stay one step ahead, creating the highest quality, most cost-effective solutions for your process. In-depth engineering know-how helps ensure you get a system perfectly optimized for your specific goals. Our experience allows us to deliver the correct combination of lighting, cameras and additional support hardware to suit your unique situation.

Product requirements, technology and customer demands are constantly changing. That's why we developed SmartView as a modular solution that can grow and build over time. Our expert support teams will advise you on initial set-up for your system, and we'll help you improve it over time, as process conditions change, and budgetary considerations allow.

A global team, supporting you

We offer worldwide technical support via phone, email and direct remote access, along with options for on-site engineering visits and training courses, ensuring you always have access to our extensive technical expertise and applications knowledge.

Let us provide the support you need to meet your goals, with a solution that grows alongside your process and continues to deliver the maximum return on investment for many years post-installation.



SURFACE VISION



ABOUT AMETEK SURFACE VISION

AMETEK Surface Vision is the world leader in automated online surface inspection solutions. Our broad product range is optimized for the consistent monitoring and inspection of webs and surfaces, and for process surveillance applications.

The SmartView and SmartAdvisor® product lines deliver robust, flexible solutions to continuous production processes across a number of industries, with hundreds of customers and more than 3,000 installations worldwide.

Our systems have become vital to increasing efficiency, streamlining operations, improving product quality and reducing costs and waste in industrial processes. Manufacturers in the metals, paper, plastics and non-woven industries rely on our solutions to detect surface flaws or defects at their production facilities across the globe.

We continue to innovate, providing cutting-edge technologies and world-class technical support that delivers highly accurate defect data, high-definition video, intelligent grading, archiving and detailed reporting. Customers who use AMETEK Surface Vision's services get the benefits of:

- **Reduced operational costs**
- **Process optimization**
- **Improved product quality**
- **Maximized yield**
- **More thorough and objective grading of material**
- **Detection, classification and visualization of defects**
- **Minimized need for manual inspections**
- **Inspection reports you need, in a form you can use**

Headquartered in Hayward, California, we support customers worldwide through our network of regional centers offering expert services including application laboratories, technical support, service teams and training. We are part of the Process and Analytical Instruments Division of AMETEK Inc., a leading global manufacturer of electronic instruments and electromechanical devices.

SURFACE VISION WORLDWIDE

USA: +1 510 431 6767

CHINA: +86 215868 5111 EXT 172

EUROPE: +49 721 627267-0

JAPAN: +81 3 4400 2350

INDIA, KOREA, TAIWAN: +82 31 888 5225

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ameteksurfacevision.com or contact us at:
surfacevision.info@ametek.com

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