VACCINE SOLUTIONS

Machine vision, deep learning, and barcode reading systems for vial, ampoule, and pre-filled syringe inspection, packaging, and traceability

COGNEX

THE GLOBAL LEADER

IN MACHINE VISION AND INDUSTRIAL BARCODE READING

Cognex,® the leading supplier of machine vision and industrial barcode reading solutions.

With over 3.5 million systems installed in facilities around the world and over forty one years of experience, Cognex is focused on industrial machine vision and image-based barcode reading technology. Deployed by the world's top manufacturers, suppliers and machine builders, Cognex products ensure that manufactured items meet the stringent quality requirements of each industry.

Cognex solutions help customers improve manufacturing quality and performance by eliminating defects, verifying assembly and tracking information at every stage of the production process. Smarter automation using Cognex vision and barcode reading systems means fewer production errors, which equates to lower manufacturing costs and higher customer satisfaction. With the widest range of solutions and largest network of global vision experts, Cognex is the best choice to help you **Build Your Vision.™**

$1.04 BILLION
2021 REVENUE

OVER 41
YEARS IN THE BUSINESS

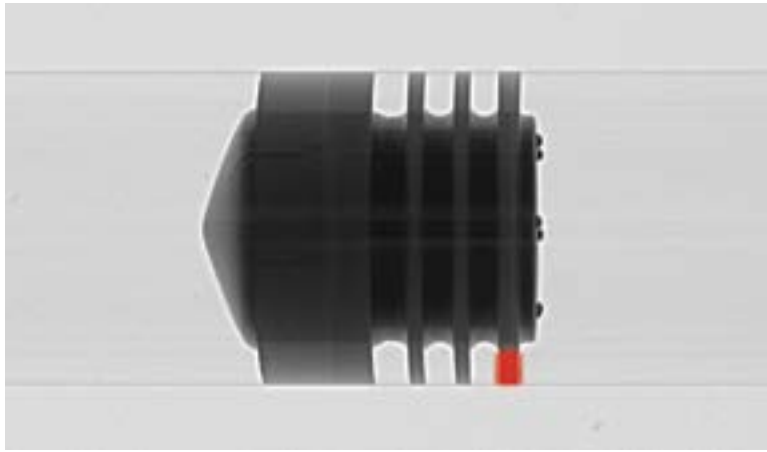
500+
CHANNEL PARTNERS

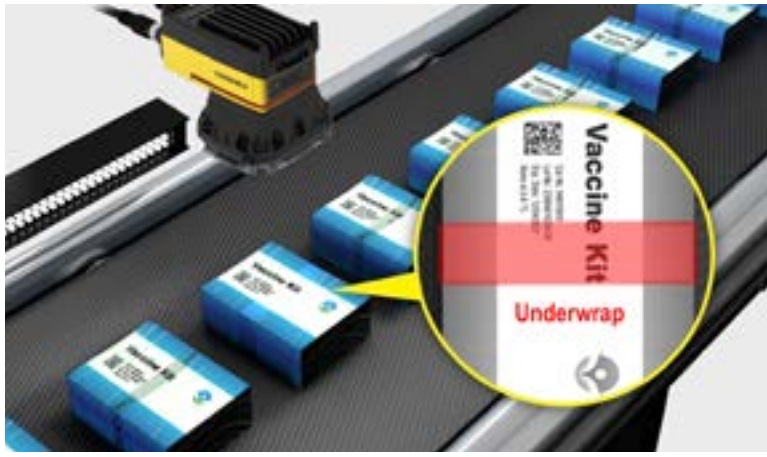
GLOBAL OFFICES IN
20+ COUNTRIES

3,500,000+
SYSTEMS SHIPPED

THE RIGHT CHOICE
FOR VACCINE APPLICATIONS

Pharmaceutical manufacturers are under intense pressure to produce and distribute large quantities of vaccines in vials, ampoules, and pre-filled syringes. To keep pace with rising demand, manufacturers are relying on machine vision, deep learning, and industrial barcode reading systems to automate vaccine packaging inspection, tracking, and distribution. Whether supplying vaccinations for standard immunizations or to combat widespread pandemics Cognex solutions help providers comply with strict regulations while ensuring safe, fast, and reliable delivery.

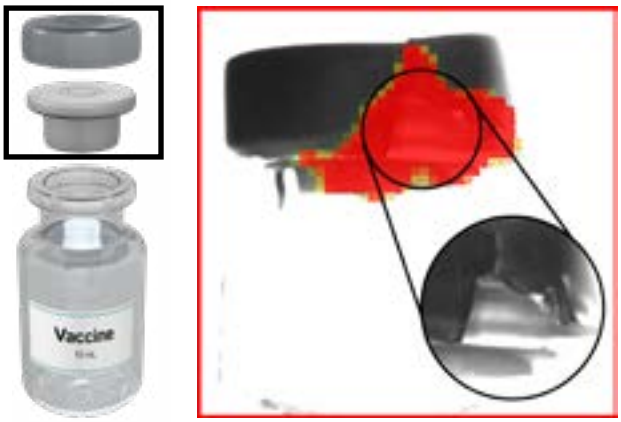




PRIMARY PACKAGING

Vaccine manufacturers must meticulously check dosage containers to avoid defective products reaching consumers. Machine vision and deep learning systems inspect for cracks, particulates, proper assembly, and other potential defects during primary packaging. Identifying problems upstream helps keep patients safe and avoid costly recalls and returns.

Vial Cap, Crimp, and Plug Inspection

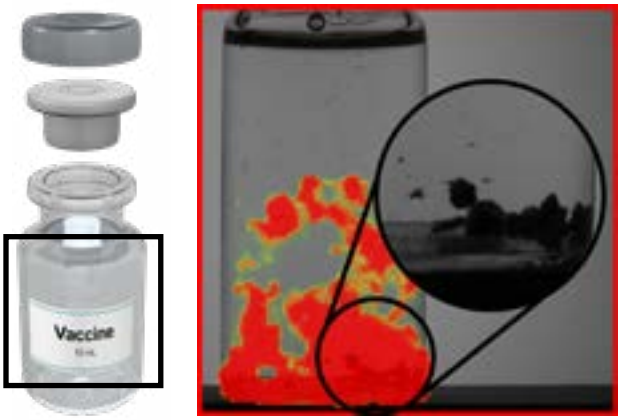


Machine vision and deep learning systems inspect vial caps for scratches, punctures, and other defects to improve quality, minimize scrap, and increase throughput.

Vial and Ampoule Body Inspection

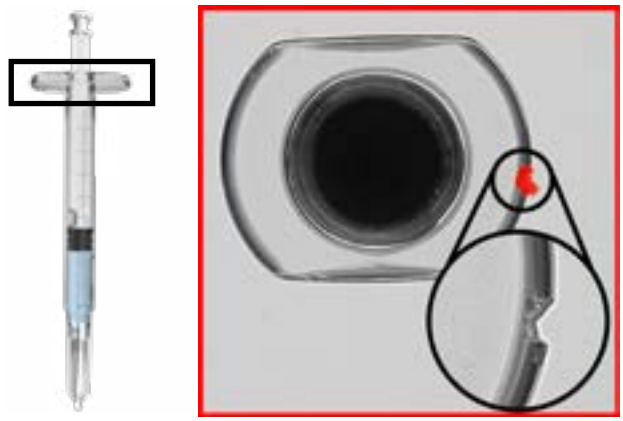
Cognex Deep Learning inspects the body of vials and ampoules for defects such as scratches, bubbles, and inclusions, that could cause contamination or breach of sterility.

Particulate Matter Inspection



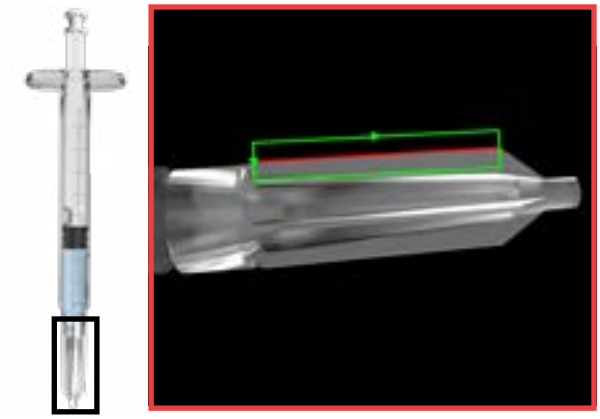
Cognex Deep Learning identifies unwanted particulate matter in glass vials and ampoules to prevent contaminated products from reaching consumers.

Syringe Flange Inspection



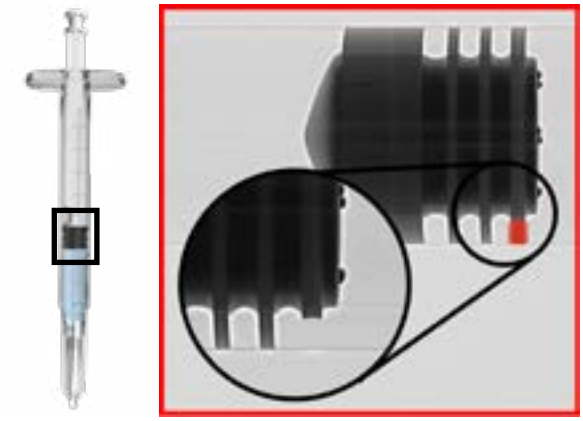
Cognex Deep Learning identifies defects such as cracks and chips on syringe flanges despite the variability, transparency, and geometric complexity.

Syringe Needle Shield Inspection



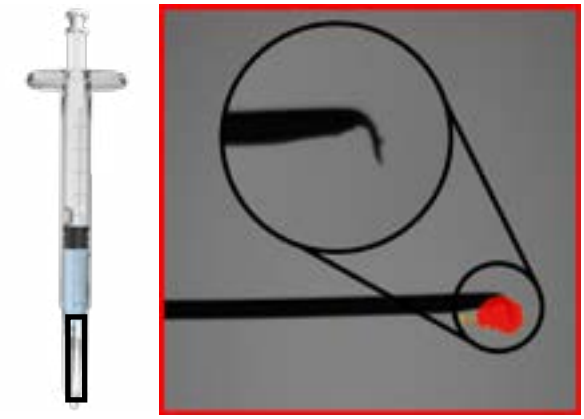
In-Sight® 8502P/5P vision systems inspect and measure needle safety guard location, straightness, and other features to ensure syringes are assembled correctly.

Syringe Plunger Stopper Inspection



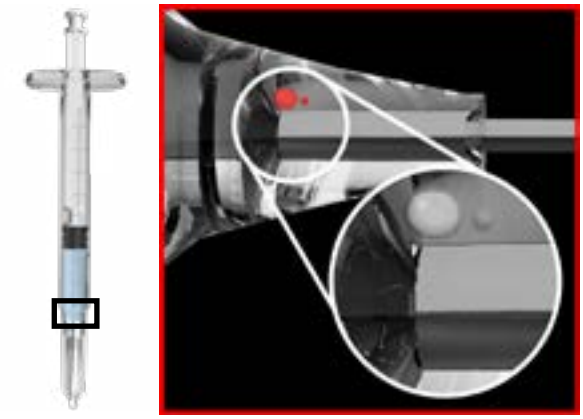
Cognex Deep Learning inspects stoppers for torn ribs, liquid between the ribs, and creases from the stopper's insertion into the syringe barrel.

Syringe Needle Inspection



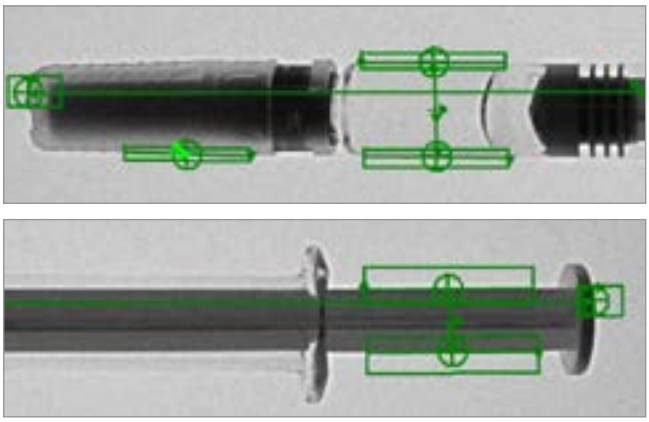
Cognex Deep Learning detects subtle defects in the beveled tip of syringe needles to protect patient safety and ensure the proper administration of vaccines.

Needle and Syringe Assembly Verification



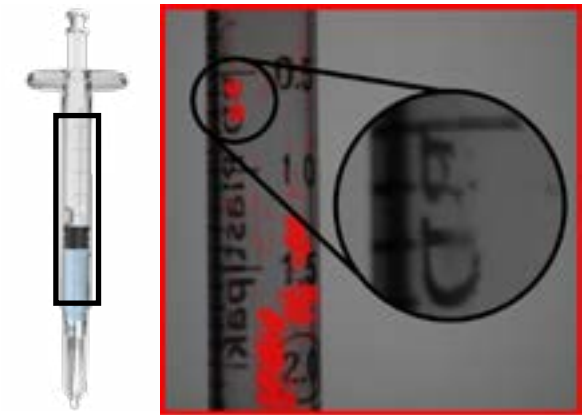
Cognex Deep Learning inspects needle syringe assemblies for bubbles, cracks, inadequate needle bonding adhesive, cone problems, or other inclusions.

Prefilled Syringe Dimensional Inspection



In-Sight 8502P/5P vision systems measure barrel length, plunger length, flange thickness, and inside and outside barrel diameter to ensure syringes meet specifications.

Prefilled Syringe Pad Printing Inspection

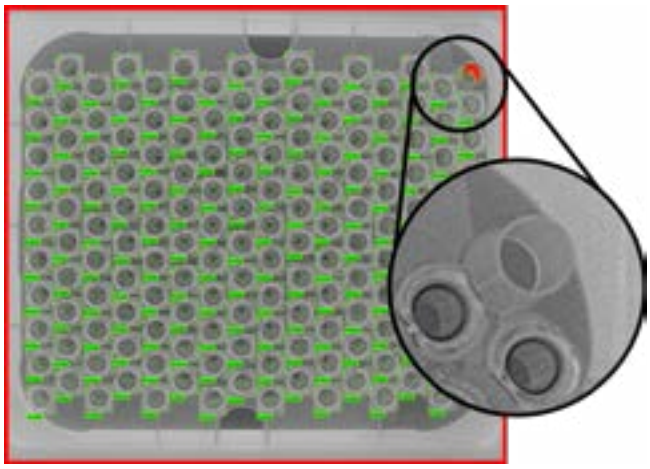


Cognex Deep Learning inspects printing on the curved and reflective surface of the syringe barrel and identifies any places where ink is too thick, too thin, or smeared.

SECONDARY PACKAGING

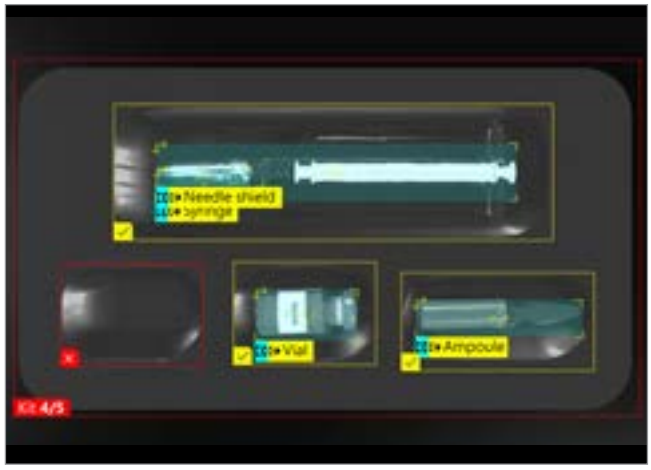
Pharmaceutical manufacturers must inspect vial, ampoule, and pre-filled syringe packaging for accuracy prior to distribution. Missing components or packaging defects can affect patient safety, brand reputation, and result in heavy fines, unwanted waste, and costly recalls. Cognex technology confirms vaccine boxes and kits are correctly packaged, comply with strict regulations, and help track and trace suppliers to ensure machine up-time, high read rates, and fast delivery.

Vial and Ampoule Counting



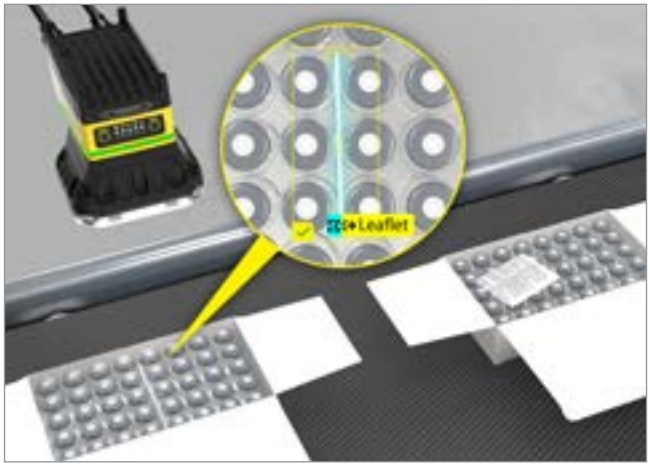
Cognex Deep learning eliminates count-related deviations preventing time-consuming and expensive rework that can result from miscounts.

Vaccine Kit Assembly Verification



Cognex Deep Learning inspects vaccine kits for overlapping or missing parts and ensures the correct parts are present and in the right orientation.

Patient Information Leaflet Confirmation



Cognex Deep Learning reliably locates and identifies the insert in vaccine boxes regardless of orientation and lighting conditions to prevent recalls and ensure patient safety.

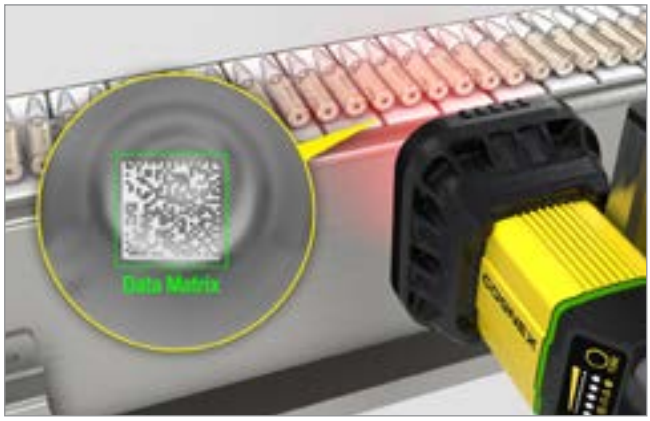
Package Integrity Inspection

Cognex Deep Learning finds, captures, and classifies broken or voided seals, underseals, and other anomalies, at various orientations to prevent contamination.

Vaccine Kit Package Printing Inspection

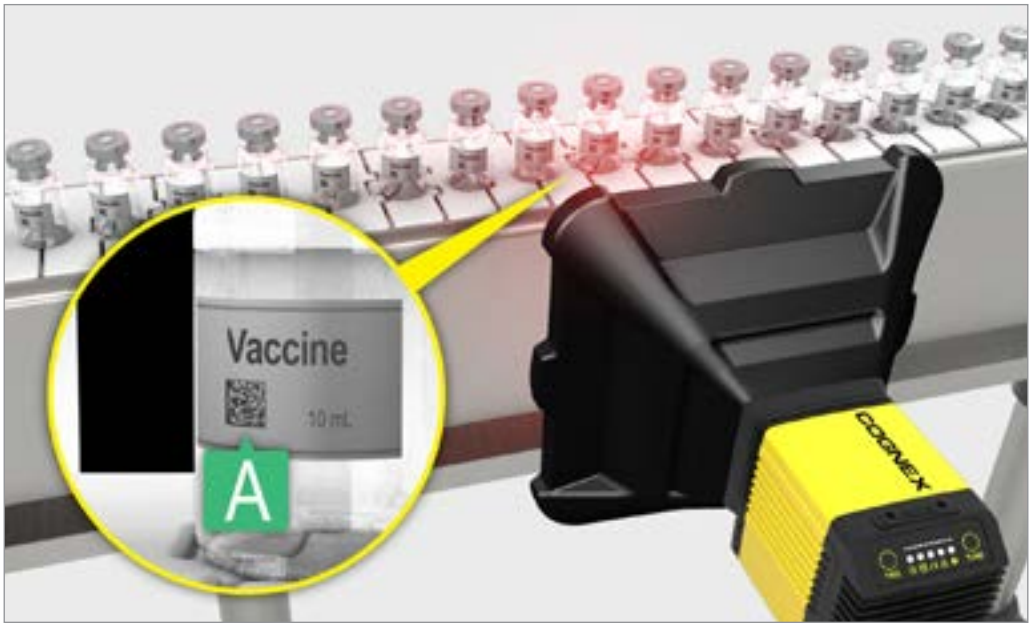
Cognex Deep Learning reads printed information on packaging and verifies the quality of required elements such as logos, date/lot information, and other graphics.

Vaccine Barcode Reading



Cognex DataMan® fixed-mount barcode readers decipher 1D and 2D codes as small as 3 mil on medical devices to track and trace the product and help combat counterfeits.

Vaccine Barcode Verification



DataMan barcode verifiers offer true ISO-compliant, inline or offline barcode verification and generate detailed reports for traceability, compliance, and preventive maintenance.

WAREHOUSING AND DISTRIBUTION

Vaccine distributors rely on image-based barcode readers to track and trace products across the supply chain and ensure vaccine orders quickly and efficiently reach their intended destination. Missing, wrongly delivered, or delayed orders can affect vaccine efficacy and can result in returns and wasted product. Cognex barcode readers track vaccines from manufacturer to point of care to ensure accurate, on time delivery and help prevent counterfeit products from reaching consumers.

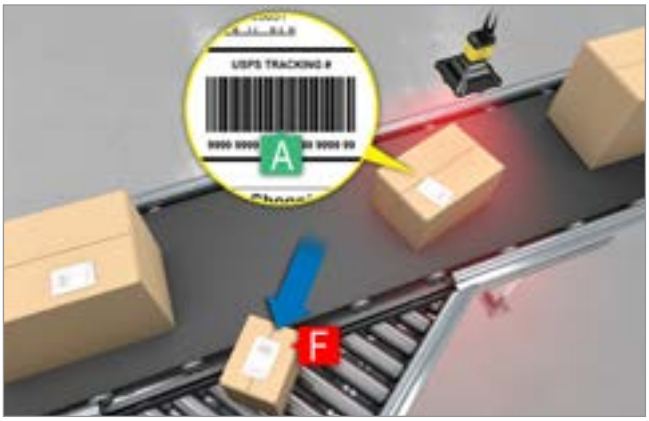
Cold Chain Storage and Distribution

Cognex image-based, fixed-mount barcode readers minimize package contact while rapidly routing perishable vaccines and medications.

Tote Routing

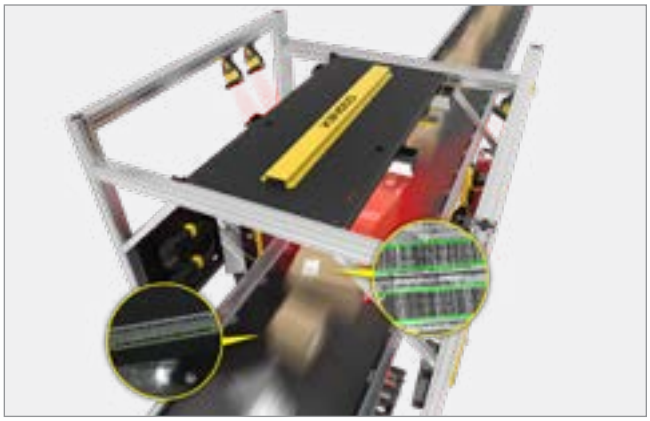
DataMan fixed-mount barcode readers reliably divert totes to the correct lane or zone despite barcode wear, damage, position, or orientation.

Label Verification



DataMan barcode readers and verifiers ensure that each shipping label is printed and applied correctly with full information for end-to-end traceability.

Parcel Sorting



Cognex 5-sided barcode reading tunnels accurately sort and ship packages to their final destination with minimum delay.

Inbound Processing

DataMan 370 series image-based barcode readers reliably decipher codes on packages to efficiently receive, unpack, and route incoming shipments.

COGNEX DEEP LEARNING SOLUTIONS

Cognex Deep Learning is the first set of deep learning-based vision solutions designed specifically for factory automation. The field-tested, optimized and proven technology is based on state-of-the-art machine learning algorithms.

Rather than following a rule-based approach to solving inspection challenges, like traditional machine vision applications, Cognex's deep learning solutions learn to spot patterns and anomalies from reference image examples. Deep learning automates and scales complex inspection applications that until now still required human inspectors such as defect detection and final assembly verification.

In-Sight ViDi

In-Sight ViDi™ deep learning applications are deployed on the In-Sight D900 smart camera without the need for a PC, making deep learning technology accessible to non-programmers. It uses the familiar and easy-to-use In-Sight software platform which simplifies application development and factory integration.

VisionPro Deep Learning

VisionPro® Deep Learning software combines a comprehensive machine vision tool library with advanced deep learning tools inside a common development and deployment framework. It simplifies the development of highly variable vision applications and allows engineers to build flexible, highly customized deep learning solutions tailored to their specific needs.

COGNEX SOLUTIONS

2D Vision Systems

Cognex In-Sight 2D vision systems are unmatched in their ability to inspect, identify, and guide parts. These self-contained, industrial-grade vision systems combine a library of advanced vision tools with high-speed image acquisition and processing.

Fixed-Mount Barcode Readers

Compact but powerful DataMan® barcode readers offer unmatched code reading performance with patented 1D and 2D code reading algorithms. The flexible options, easy setup, and quick deployment make them ideal for the most demanding industrial applications.

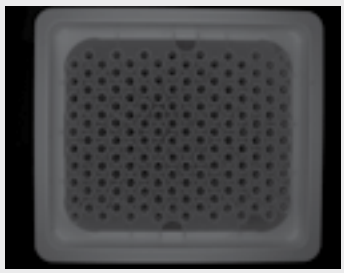
Mobile Terminals

The MX series of vision-enabled mobile terminals leverage the latest iOS® and Android® smartphones in a rugged housing, tough enough to stand up to the most challenging environments—all while providing superior 1D, 2D, and DPM code read rates.

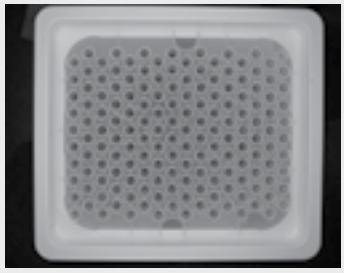
Advanced Image Formation Technology

High Dynamic Range Plus (HDR+) is a patent-pending technology that delivers a high-contrast, uniform image in a single acquisition for multi-point inspections of parts with varying depths of field and lighting conditions.

Conventional Sensor



HDR+



Conventional Sensor

HDR+

BUILD YOUR VISION

2D VISION SYSTEMS

Cognex machine vision systems are unmatched in their ability to inspect, identify and guide parts. They are easy to deploy and provide reliable, repeatable performance for common to complex tasks.

www.cognex.com/machine-vision

3D VISION SYSTEMS

Cognex laser profilers and area scan 3D vision systems provide ultimate ease of use, power and flexibility to achieve reliable and accurate measurement results for the most challenging 3D applications.

www.cognex.com/3D-vision-systems

VISION SOFTWARE

Cognex vision software provides industry leading vision technologies, from traditional machine vision to deep learning-based image analysis, to meet any development needs.

www.cognex.com/vision-software

BARCODE READERS

Cognex industrial barcode readers and mobile terminals with patented algorithms provide the highest read rates for 1D, 2D and DPM codes regardless of the barcode symbology, size, quality, printing method or surface.

www.cognex.com/barcodereaders

COGNEX

Companies around the world rely on Cognex vision and barcode reading solutions to optimize quality, drive down costs and control traceability.

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Netherlands	+31 207 941 398
Poland	+48 717 121 086
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