AUTOMOTIVE SOLUTIONS GUIDE

Achieve Exceptional Quality, Safety, and Speed With Machine Vision

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 2 million systems installed in facilities around the world and over thirty seven 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.™**

$806 MILLION
2018 REVENUE

OVER 37
YEARS IN THE BUSINESS

500+
CHANNEL PARTNERS

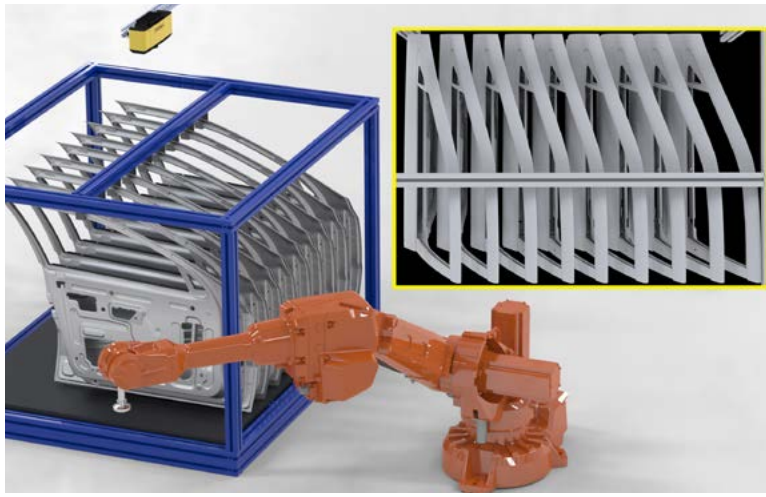
GLOBAL OFFICES IN
20+ COUNTRIES

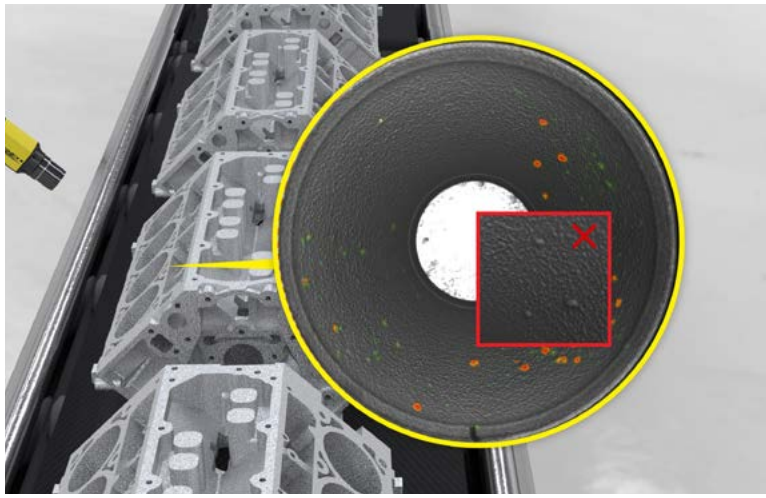
2,000,000+
SYSTEMS SHIPPED

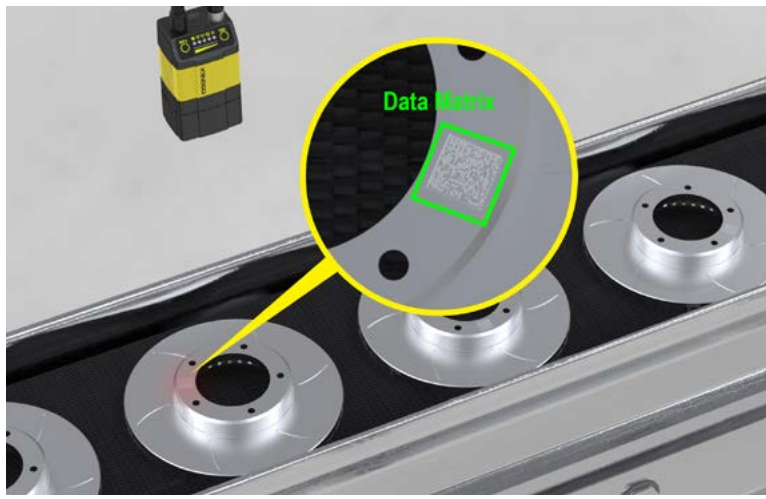
THE RIGHT CHOICE
FOR AUTOMOTIVE APPLICATIONS

MACHINE VISION AND BARCODE READING SOLUTIONS THAT GO THE DISTANCE

From assembly to final inspection, nearly every system and component within a gas-powered, hybrid, or electric vehicle is manufactured with machine vision and barcode reading technology. With advancements in artificial intelligence, many manufacturers are also leveraging deep learning vision software to solve complicated part location, cosmetic inspection, and classification challenges. Cognex machine vision systems, barcode readers, and deep learning software enable automotive part manufacturers and vehicle assembly plants to achieve exceptional quality, safety, and production goals.







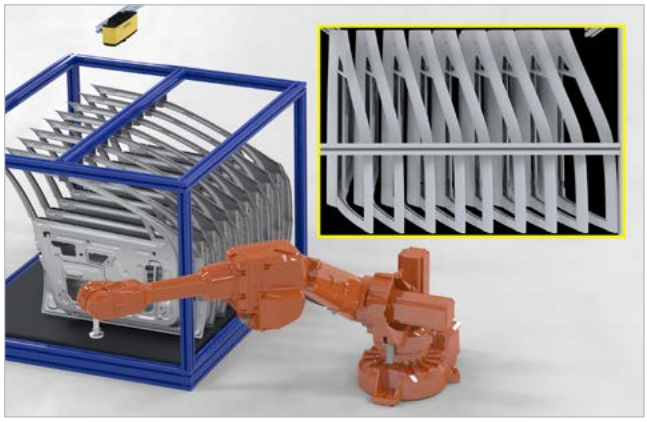
STAMPING

Cognex's industry-leading machine vision technology calculates the coordinates and rotational offsets of multiple blanks traveling on a conveyor simultaneously, so that a robot can accurately place it into a staging machine or directly into a metal stamping machine. This allows manufacturers to work with different patterns and edge finishes and pick up parts at a repeatable offset during high-speed production runs.

Splits Inspection

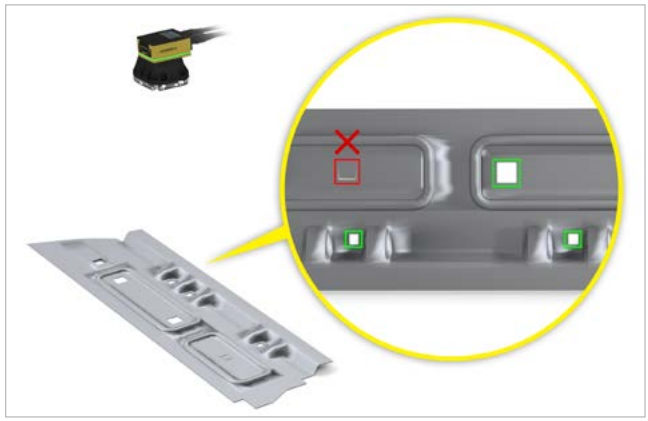
Detect the presence and gauge the width of an opening within a stamped piece of metal.

Racking and Deracking Identification



Vision-guided robotics helps move stamped parts from the line to a rack for inspection and identification.

Stamped Pattern Inspection

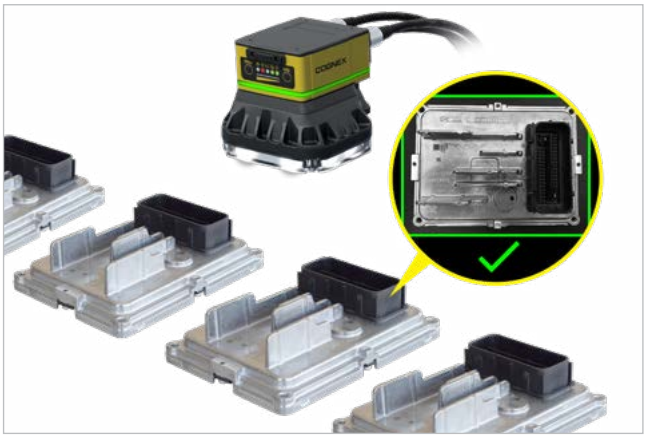


Detect the presence and measure the location of a stamped pattern.

POWERTRAIN

Machine vision confirms the presence of critical powertrain components such as clutch packs, carriers, constant velocity joints, valve bodies, pistons, seals, and snap rings to maximize quality and minimize recalls. Manufacturers use Cognex vision technology to ensure parts are assembled correctly, conform to strict tolerances, and are traced throughout the supply chain.

Transmission Module Identification

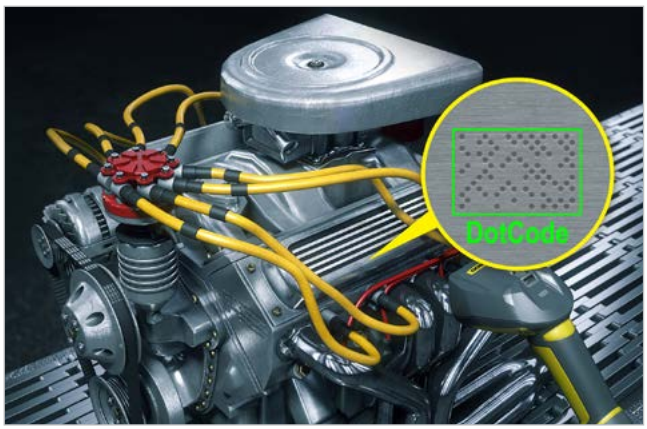


Vision systems identify transmission module components prior to assembly.

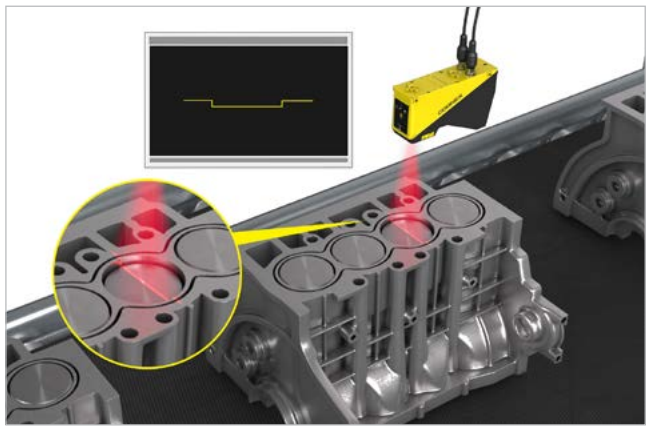
Transmission Assembly Verification

Vision systems inspect that the transmission has been assembled correctly.

Engine Component Identification and Matching



Barcode readers identify components used in the engine assembly.

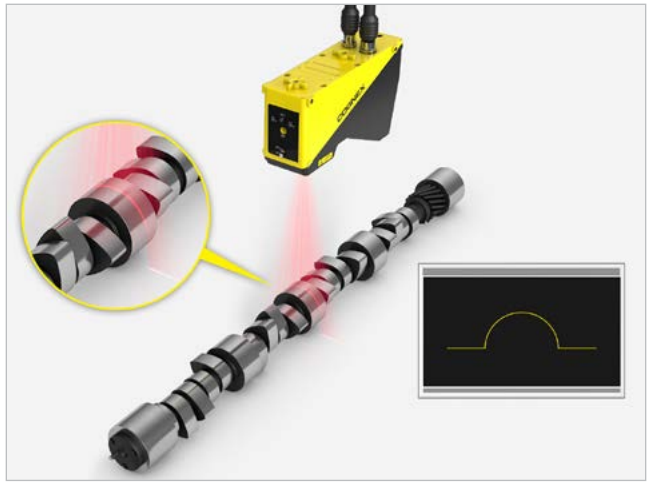


Laser profilers gauge whether pistons are seated properly in a cylinder block.

RTV Silicone Bead Seal Inspection

The BeadInspect™ vision tool inspects the critical dimensions and placement of glue beads.

Cam Shaft Inspection

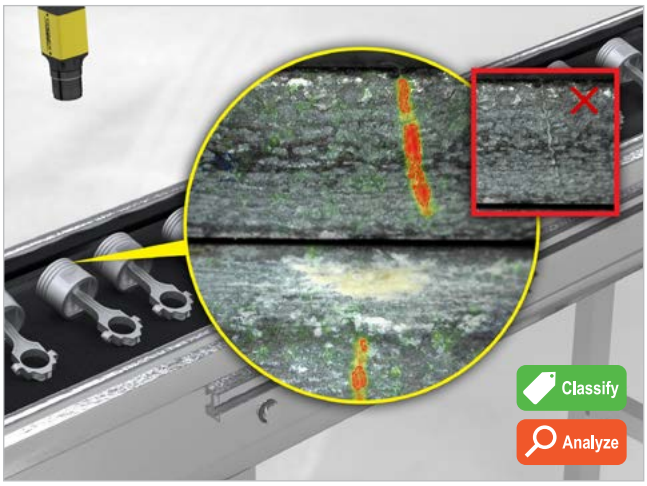


Laser profilers verify that the dimensions of cast parts are manufactured within tolerance.

Engine Block Traceability

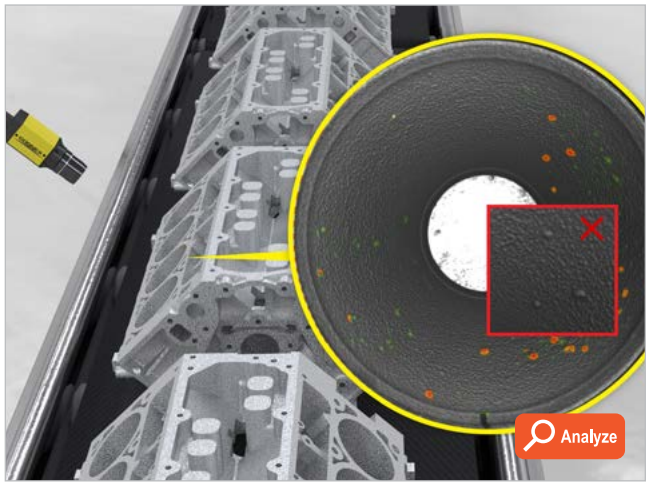
Vision systems with optical character recognition (OCR) read codes to track and trace engine blocks.

Piston Ring Inspection



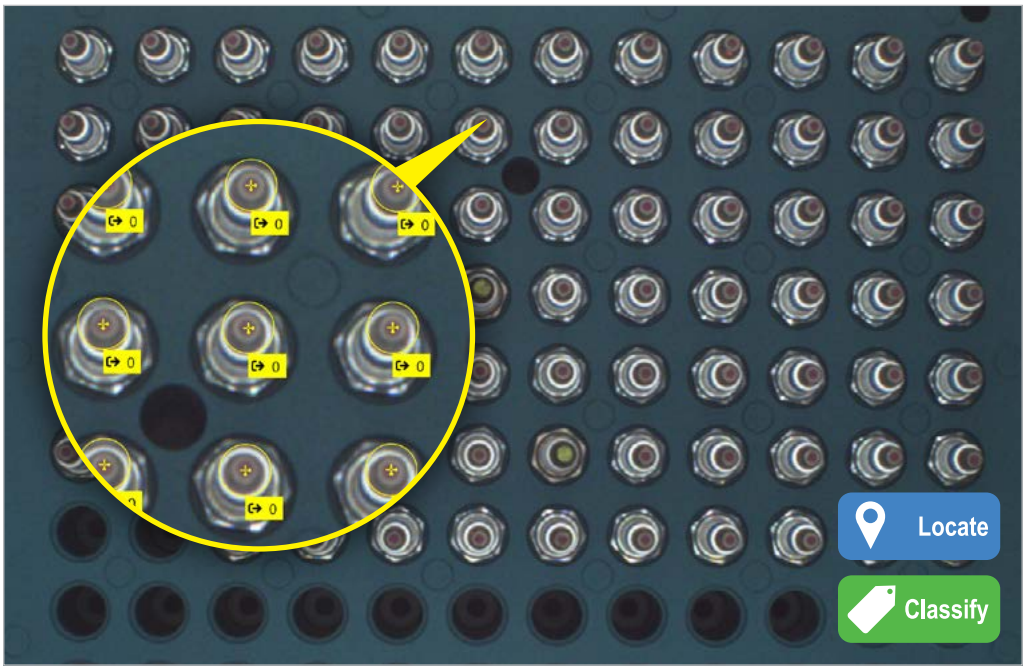
Deep learning vision software detects and classifies anomalies on compression rings.

Cylinder Inspection



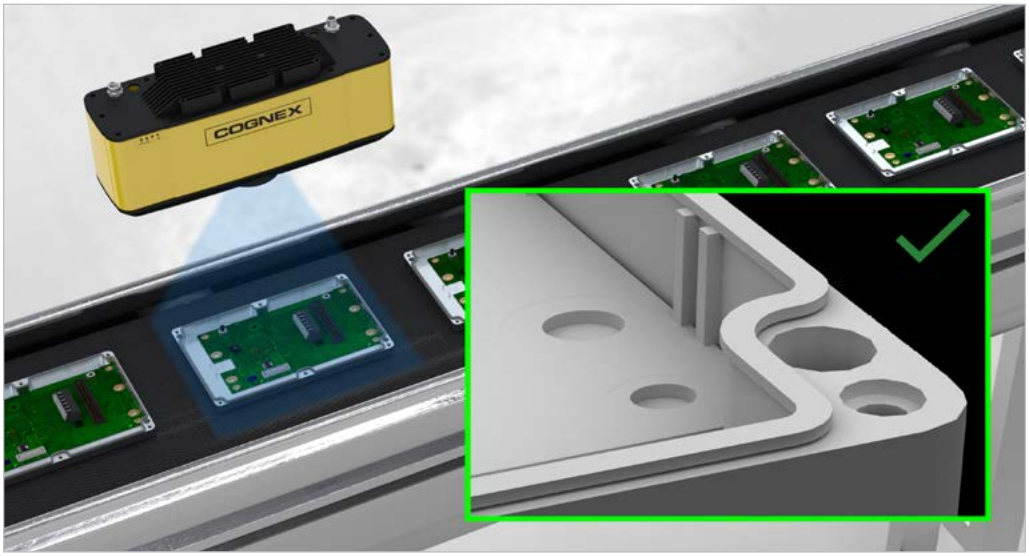
Deep learning vision software detects casting errors early in production.

Spark Plug Identification and Classification



Deep learning vision software identifies, counts, and classifies plugs based on their appearance.

Oil Seal and O-Ring Assembly Inspection

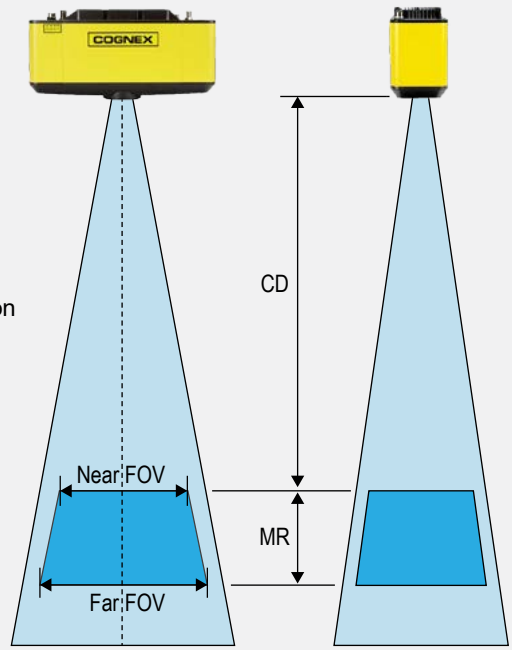


3D vision systems perform in-line inspection of oil seals and o-rings, confirming they are set in the correct position in order to prevent water and oil leakage.

3D-A5000 SERIES AREA SCAN 3D SYSTEM

Cognex's state-of-the-art area scan 3D camera captures high-resolution 3D point cloud images in a fraction of the time of current methods. Using unique 3D imaging technology, the 3D-A5000 solves challenging assembly verification, in-line metrology, and robotic guidance applications.

- Patent-pending 3D LightBurst™ technology enables rapid image acquisition
- More than 1.5 million 3D data points detect fine features on parts
- HDR mode captures scenes with high contrast
- Powerful, industry proven VisionPro® 3D tools solve challenging 3D applications
- Factory calibration delivers accurate measurement results in real-world units
- Rugged IP65-rated housing provides protection in harsh factory environments

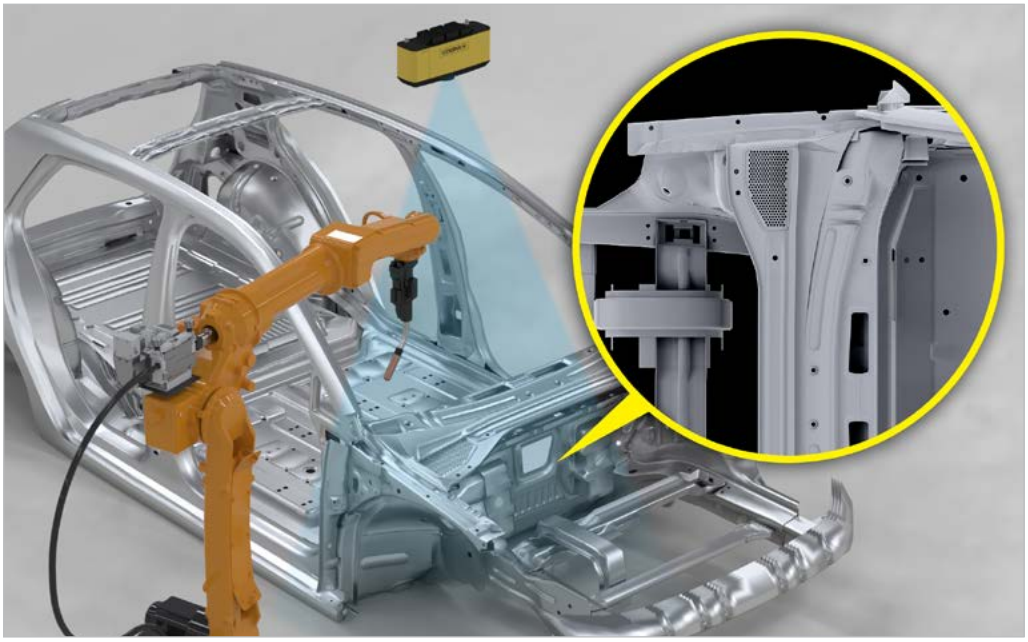


	3D-A5120	3D-A5060	3D-A5030	3D-A5005
3D Technology	3D LightBurst Area Scan			
Clearance Distance (CD)	1000.0 mm (39.4 in)	1400.0 mm (55.1 in)	1465.0 mm (57.7 in)	299.3 mm (11.8 in)
Measurement Range (MR)	1000.0 mm (39.4 in)	400.0 mm (15.7 in)	80.0 mm (3.1 in)	12.0 mm (0.5 in)
Near FOV	900 x 675 mm (35.4 x 26.6 in)	520 x 390 mm (20.1 x 15.4 in)	280 x 210 mm (11.0 x 8.3 in)	60 x 44 mm (2.4 x 1.7 in)
Far FOV	1760 x 1320 mm (69.3 x 52 in)	645 x 490 mm (25.4 x 19.3 in)	285 x 216 mm (11.2 x 8.5 in)	65 x 46 mm (2.6 x 1.8 in)
Resolution XY	626–1223 µm	361–454 µm	195–200 µm	42–44 µm
Acquisition Time	200 msec			
Protection	IP65			
Software	VisionPro & Cognex Designer			

BODY IN WHITE

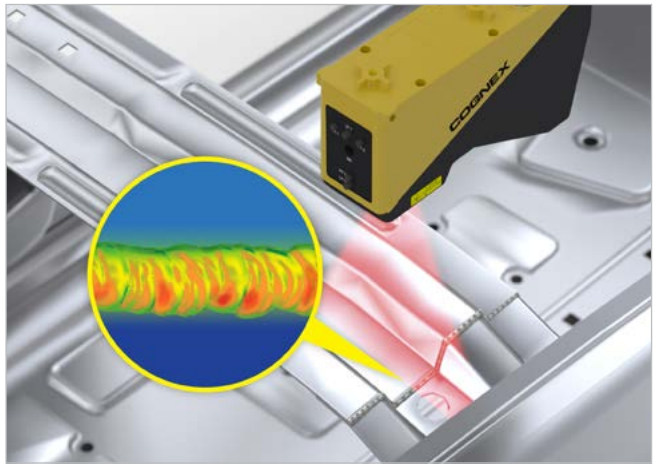
Cognex machine vision solutions are designed to gauge, identify, guide, and inspect to ensure a car's body frame components have been properly and securely joined together via welding, brazing, bonding, riveting, or other means.

Welding and Brazing



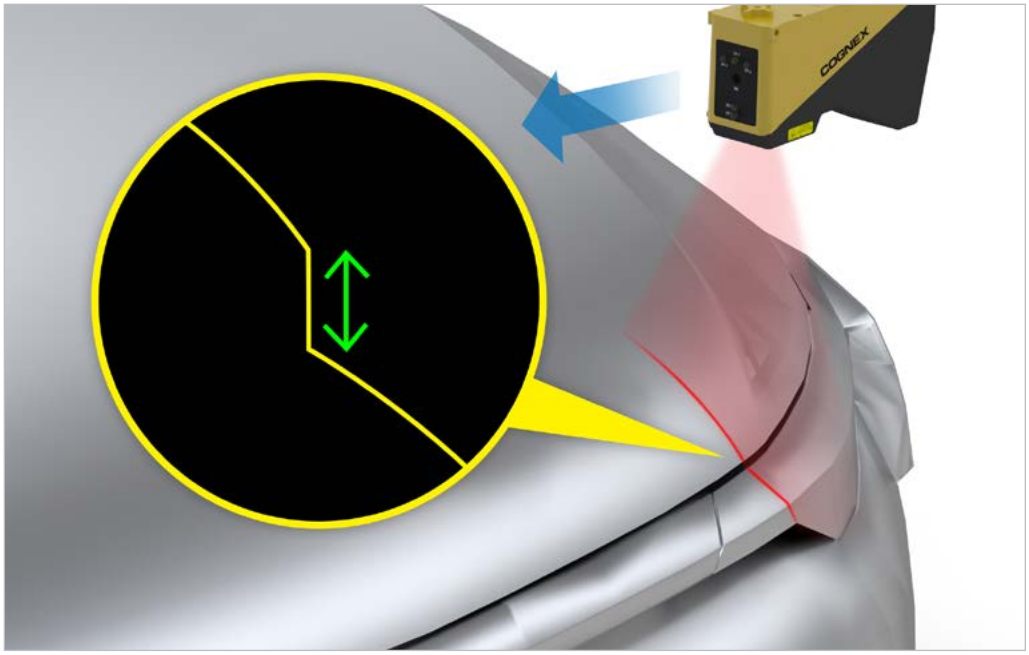
3D vision systems guide welding robots to correct location in order to weld the chassis together.

After welding is complete, the number of welds, their location, and absence/presence is verified with visual 2D inspection.

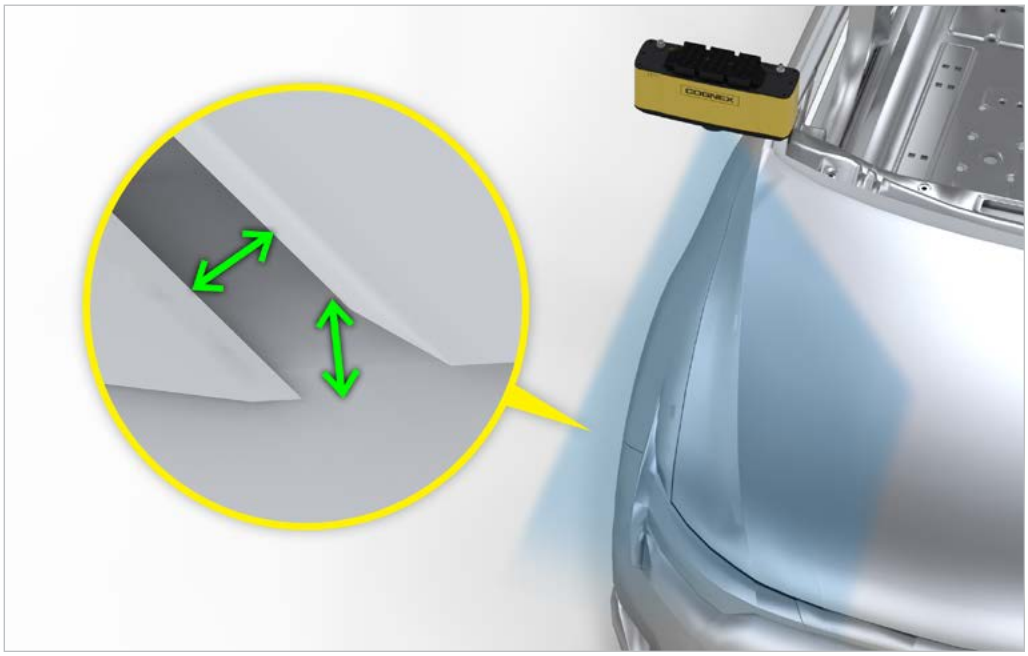


Weld seams are inspected with 3D vision systems to ensure they are complete and the proper thickness.

Gap and Flush Inspection



Laser profilers assess the height and alignment of assembled vehicle doors and bodies.

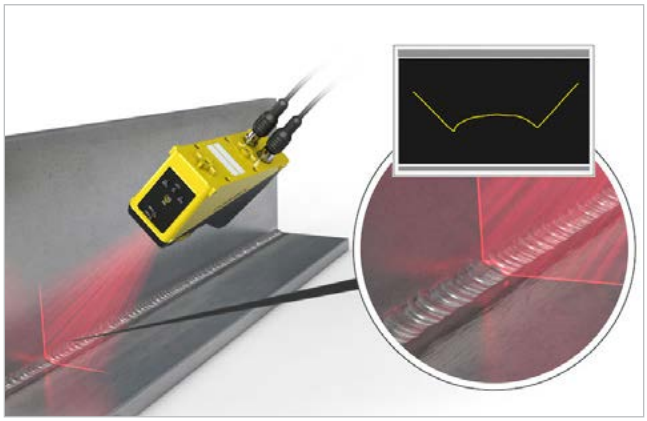


3D vision systems generates an area scan image in x and z dimensions to detect any difference in the height or gap between the two doors.

CHASSIS

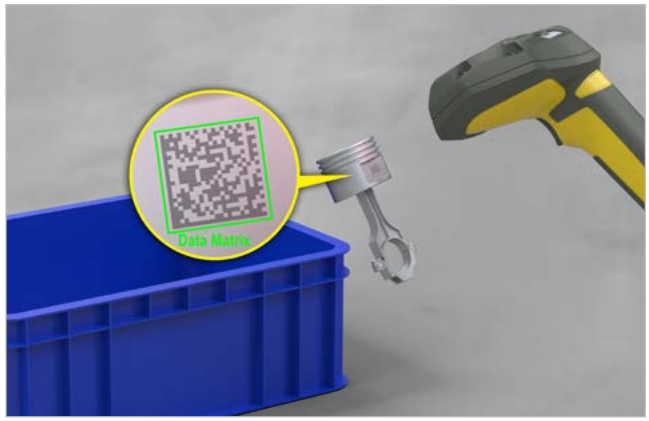
2D and 3D machine vision systems gauge chassis parts with high accuracy and inspect and verify assembled vehicle doors, trim, and bodies. 3D vision systems also help chassis manufacturers automate racking and inspect body panels in order to detect defects prior to welding.

Weld Seam Inspection



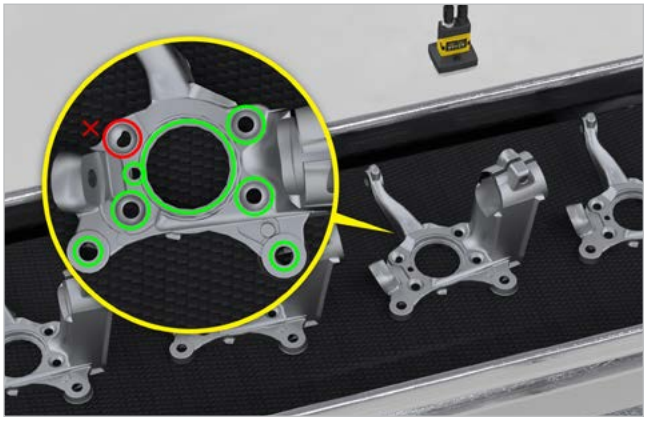
Laser displacement sensors inspect the welding seams of metal components before they are painted.

Kitting Process Improvement



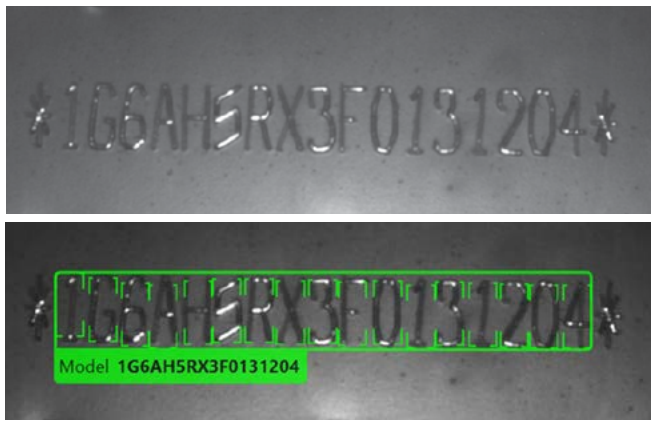
Barcode readers verify that a kit contains the correct parts so vehicles spend less time at each assembly station. This results in more vehicles produced each day.

Steering Wheel Pre-Assembly Inspection



Vision sensors inspect steering wheel knuckles prior to module assembly.

VIN Code Inspection



Deep learning vision software reads the deformed characters marked on a VIN code for traceability.

Read

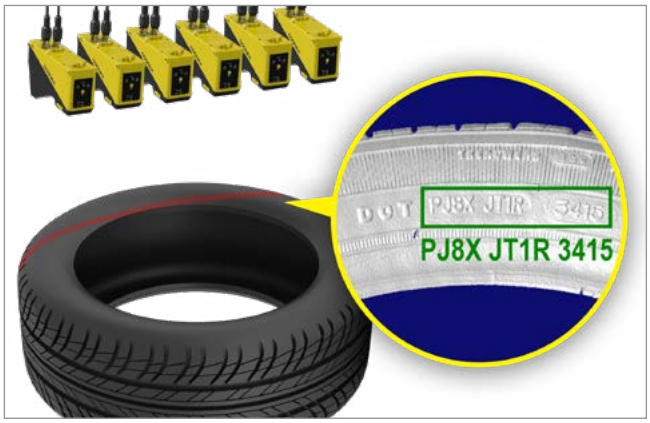
GENERAL ASSEMBLY

Almost every system and component in a vehicle can be made better using machine vision. 2D and 3D machine vision systems gauge chassis parts with high accuracy and inspect and verify assembled vehicle doors, trim, and bodies. 3D vision systems also help chassis manufacturers automate racking and inspect body panels in order to detect defects prior to welding.

TIRE AND WHEEL SYSTEMS

Deliver robust, high-speed wheel identification using propriety code-reading algorithms that can reliably locate codes despite random placement and orientation of wheels on a conveyor. Alphanumeric character reading vision tools enable tire manufacturers to read codes in the most challenging conditions with very high accuracy. PatMax®, a geometric pattern matching tool, learns tire tread patterns and has the flexibility to adapt to the positional variation of tires on a conveyor, ensuring that manufacturers assemble the correct wheel to a vehicle.

Tire Identification and Sorting



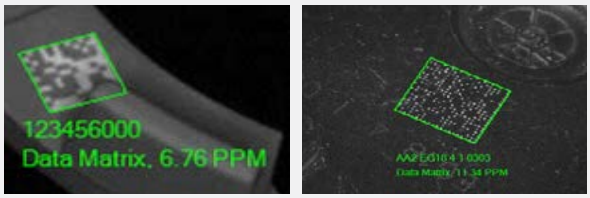
3D laser displacement sensors identify tires by DOT code.

Tire Identification

Image-based barcode readers with high speed liquid lenses rapidly read codes at different heights on tires, regardless of orientation.

ANY CODE, EVERY TIME

2DMax® with PowerGrid® reads 2D codes with significant damage to or complete elimination of a code's finder or clocking pattern, or quiet zone.



1DMax™ with Hotbars® is an algorithm and technology optimized for omnidirectional 1D barcode reading, decoding up to 10X the speed of a conventional barcode reader.

OCRMax™, a font-trainable optical character recognition and verification (OCR and OCV) tool, has set industry records for ease of use, read rates and speed in complex images. This powerful algorithm prevents misreads, handles process variations, and provides easy font management.

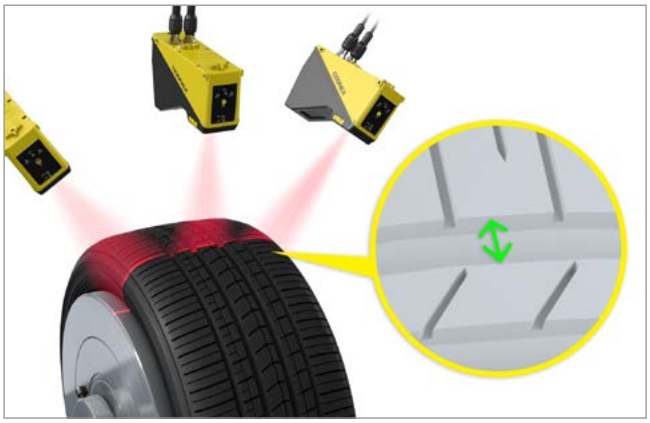
Wheel and Tire Assembly

Machine vision systems identify wheels by pattern and match them to tires.

Wheel Lug Nut Torquing

Machine vision systems guide robotic arms to help locate and properly torque a wheel's lug nuts.

Tire Assembly Inspection

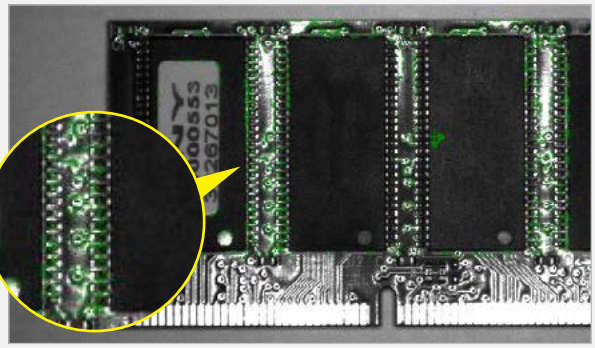


3D laser displacement sensors verify treads' critical dimensions.

INDUSTRY LEADING OBJECT LOCATION

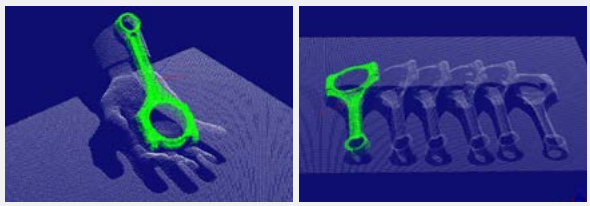
PatMax RedLine

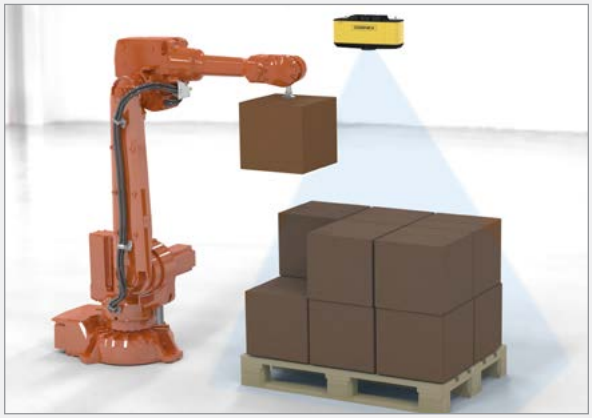
PatMax RedLine™ is an accurate, highly repeatable tool that locates trained patterns no matter the size, rotation, or location of the target part. It is ideal for industries and applications that require large fields of view, high accuracy, large angle and scale tolerances, and multiple targets.



PatMax 3D

PatMax 3D is an accurate 3D vision tool that locates trained patterns based on its 3D geometry under 6 degrees of freedom (X, Y, Z, Rx, Ry, Rz). It finds 3D objects within a 3D point cloud image and is ideal for locating and identifying objects which are tilted, stacked or not properly seated with a fixture.

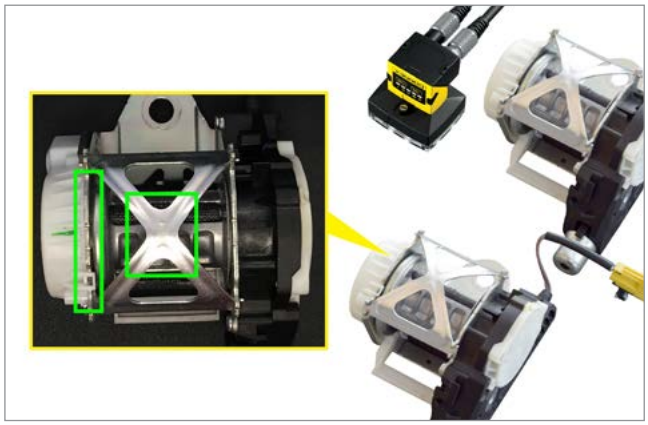




SAFETY SYSTEMS

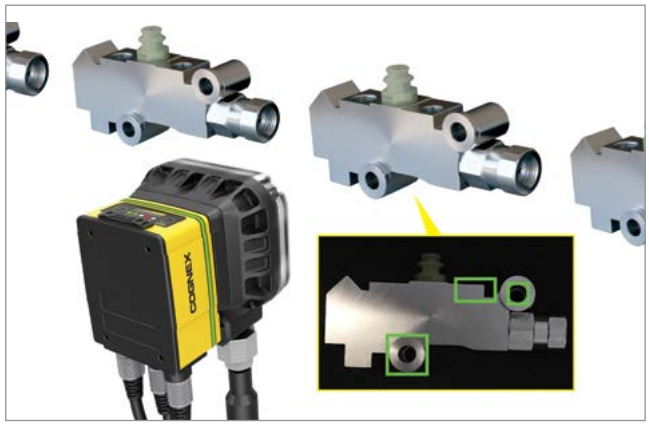
Image-based barcode readers and machine vision systems help automotive manufacturers control traceability of final assemblies, improve product quality by performing automated component inspections to meet strict quality standards, and measure critical dimensions and part locations with high accuracy to verify that all of the correct components have been properly assembled. This mitigates, for example, the risk of defective braking systems reaching the vehicle assembly plant and minimizes the chance of part recalls.

Seatbelt Component Inspection



Vision sensors confirm the presence of critical features and dimensions of seatbelt components prior to assembly.

Brake Valve Inspection

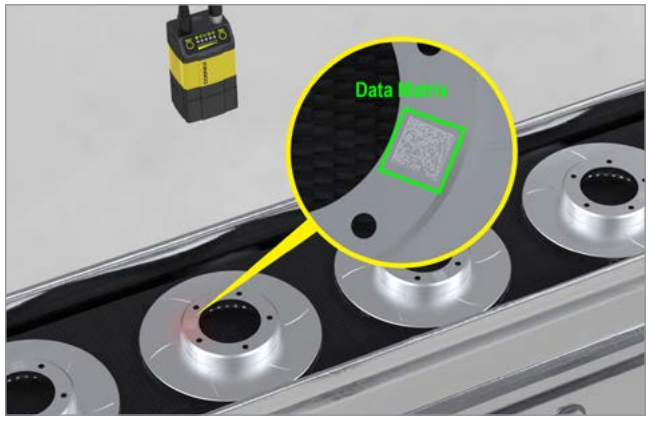


Machine vision systems inspect threads, features, length, and surface finish to verify that valves are made correctly.

Brake Pad Inspection

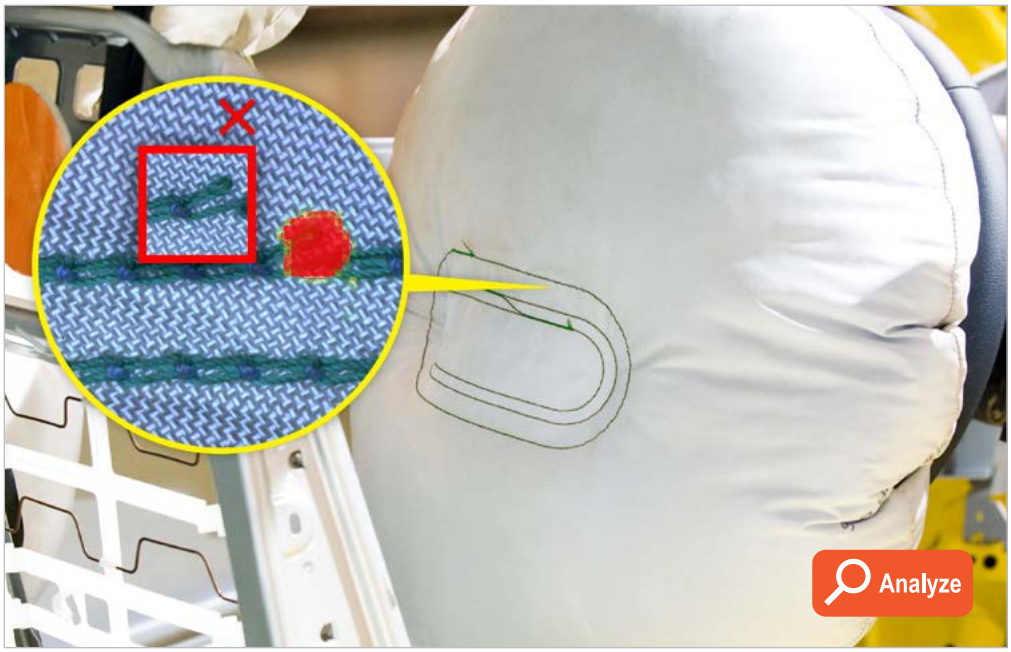
3D displacement sensors inspect brake pad rivets and verify dimensions.

Brake Module Identification



Barcode readers identify components for the brake assembly, even on highly reflective surfaces.

Airbag Fabric Stitching Inspection

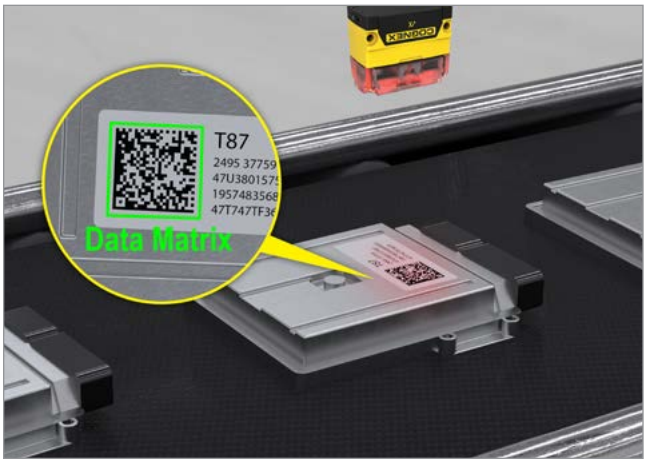


Deep learning vision software inspects the stitching on airbag fabric and stitching for defects.

ELECTRONIC SYSTEMS

Across a range of applications, Cognex vision tools provide micron-level accuracy to ensure reliable electronics performance in automobiles and increase inspection speed for greater scale. For instance, speed up and error proof the component sorting process through vision tools with color and shape recognition and pattern matching tools; inspect for defects including damaged parts and missing features; automatically inspect solder joint connections and analyze the shape of the solder to ensure it meets rigorous tolerances; measure glue bead width and volume to detect any bead gaps in sealing gaskets on electrical modules.

Printed Circuit Board Inspection

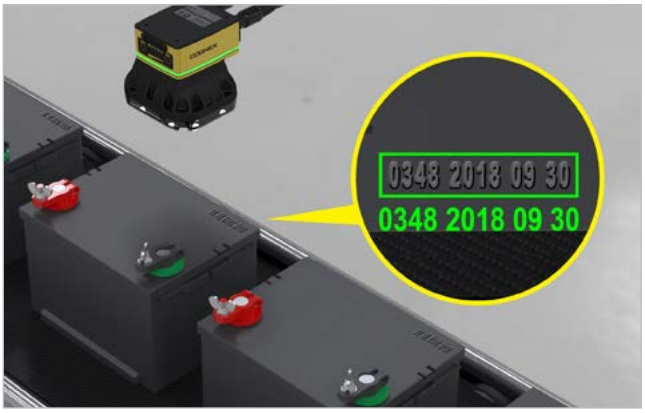


Barcode readers identify and sort electrical components.

Electrical Module Inspection

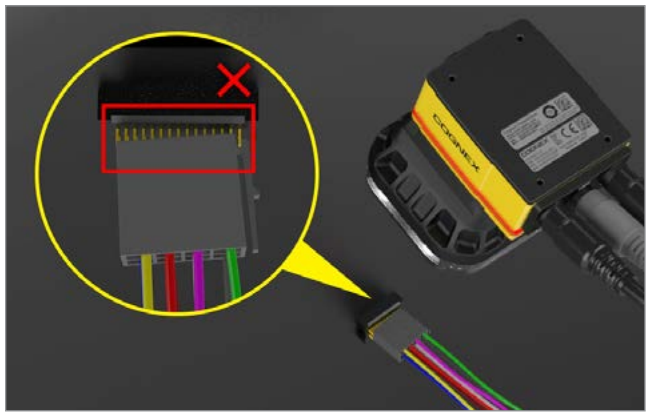
Machine vision systems inspect electrical modules for color and quality prior to assembly.

Battery Inspection and Identification



Machine vision systems verify the presence and placement of battery terminals and identify them by their alphanumeric codes.

Wiring Harness Inspection



Machine vision systems confirm that wiring harnesses are properly seated.

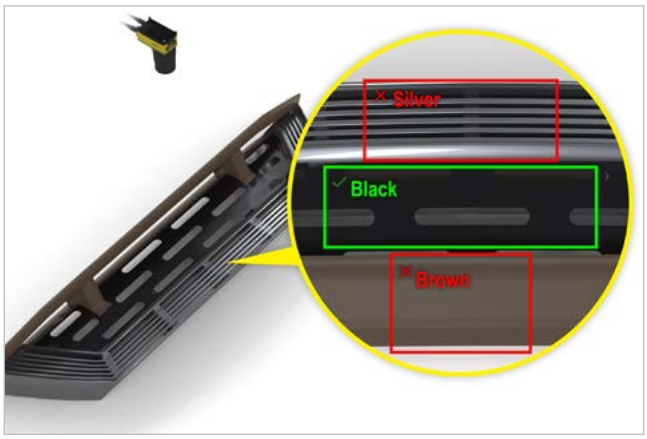
Transmission Gear Inspection

Machine vision systems gauge the dimensions of transmission gears and inspect for damage.

TRIM

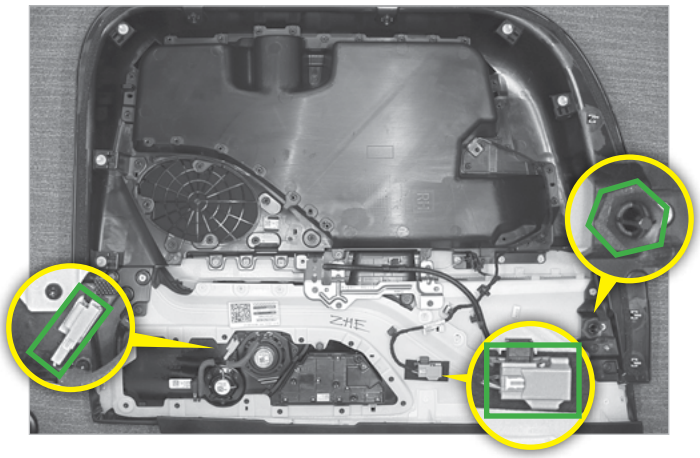
Trim assembly is when a vehicle begins to resemble its final form on the line. All of the finer details must be inspected with high accuracy. Deep learning technology helps identify anomalies, find defects, and ensure the correct parts are in the correct location.

Grill Trim Inspection



Inspect the absence/presence of the correct trim style on a plastic grill. If all trim pieces are present and match, the entire group will pass.

A-Side Component Classification

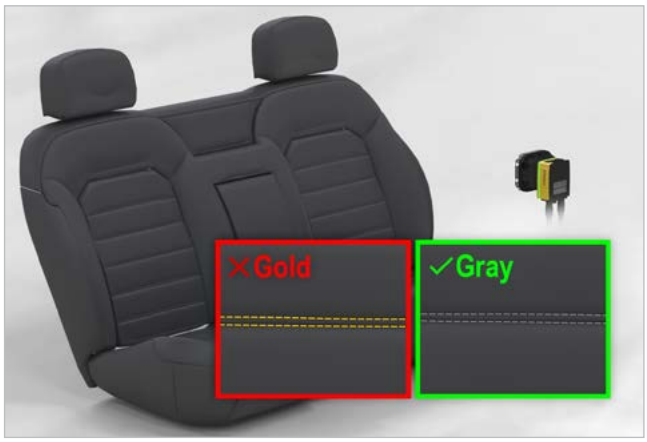


Detect the various door component types, “birds-beak” clip presence, and proper seating, as well as reading most of the barcode labels (flat surface).

Door Panel A-Side Surface Defect Inspection

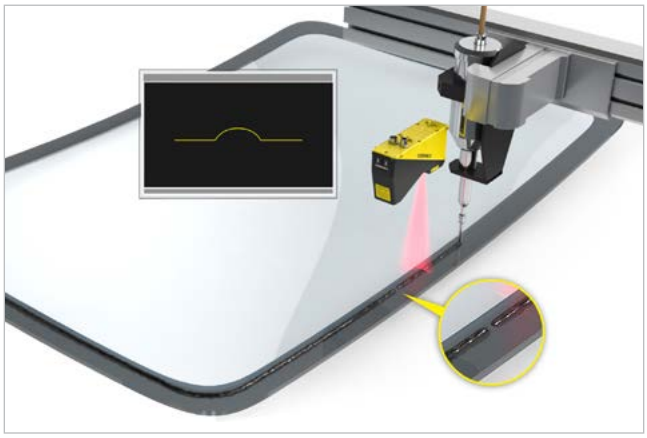
Deep learning, diffused direct light, and HDR+ image formation technology helps separate and identify defects from the normal surface area of the inside door material.

Vinyl and Stitching Color Verification



Detect and verify the correct color of vinyl and stitching for interior components such as seats, headrests, and doors.

Sun Roof Glue Bead Inspection



Laser profilers measure glue bead volume to ensure the correct amount of glue has been dispensed.

FPA Color Classification

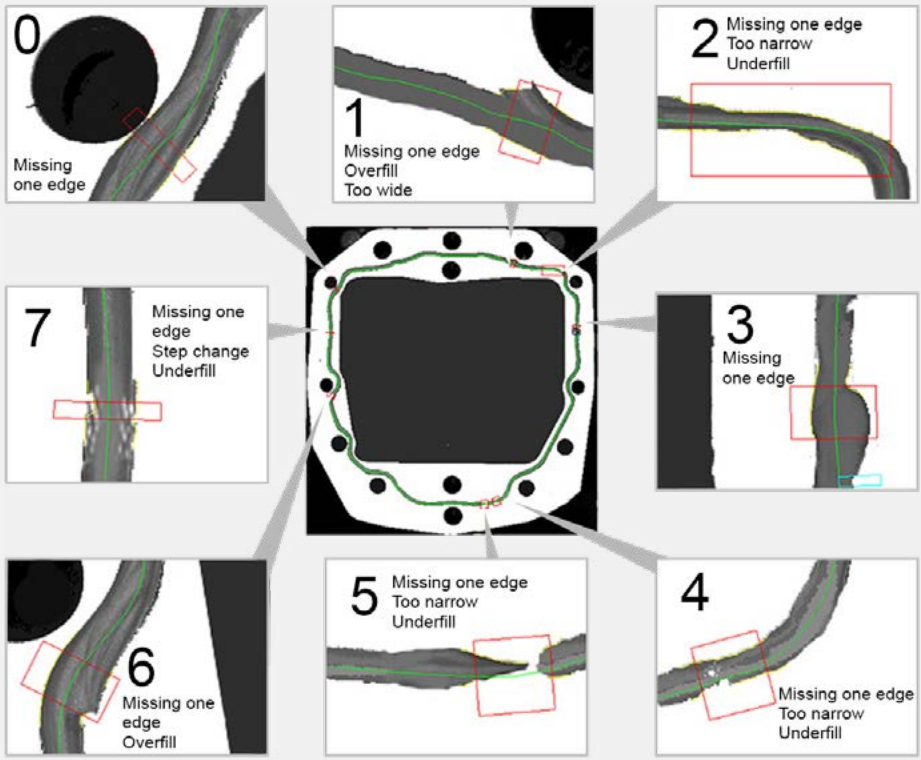
Deep learning vision technology inspects the presence of the proper FPA by color as well as the FPA seal presence and proper insertion.

BEAD INSPECTION

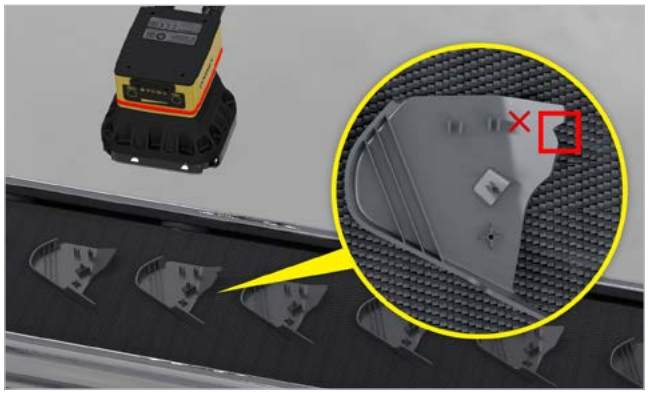
BeadInspect is an all-in-one bead width and position inspection tool used to detect anomalies. BeadInspect offers a robust inspection of the bead line—even if bead size, shape, and appearance change over time. This is important when inspecting a freshly applied, wet, or shiny RTV bead, or when beads vary in location from part to part.

Bead inspection with the Cognex BeadInspect tool helps guarantee that glue beads have been dispensed to the correct volume and precise placement. For 2D inspections, the tool locates the position of a glue bead on a part surface and detects gaps. For 3D inspections, it calculates glue bead volume to ensure that the correct amount of glue has been dispensed.

- Easily train the bead path with just a few clicks, using the PolyLine function
- Find defects in beads that change or differ in shape
- Determine width based on defects and gaps
- Remove noise for increased robustness



Short Shot Inspection

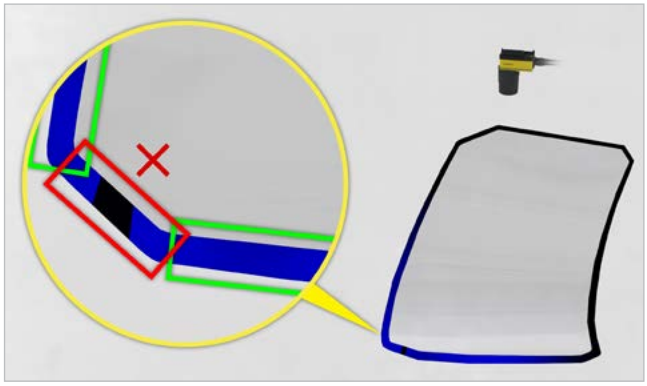


Machine vision systems detect the presence of a short shot, the production of an incomplete part, within 0.5mm.

Seat Connector Inspection

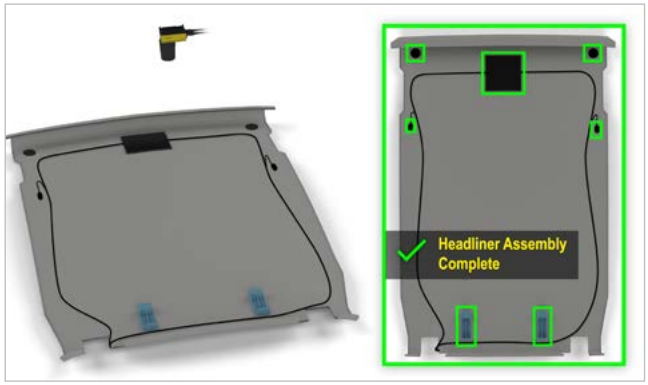
Detect the proper insertion of the seat connector by detecting the red clip presence via PatMax.

Primer Detection



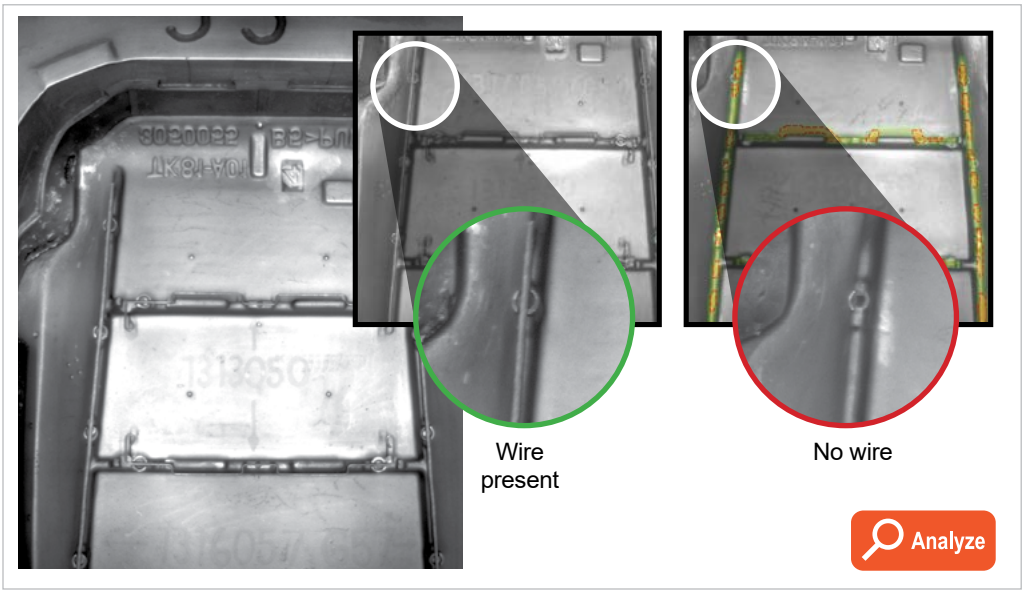
Detect the presence of primer via a UV tracer mixed into the primer; a Pixel Tool along with a measurement tool detects the presence along with the width of the primer area.

Headliner Assembly



Machine vision systems detect the presence and absence of headliner components and verify the part has been assembled correctly.

Trim Final Assembly Verification



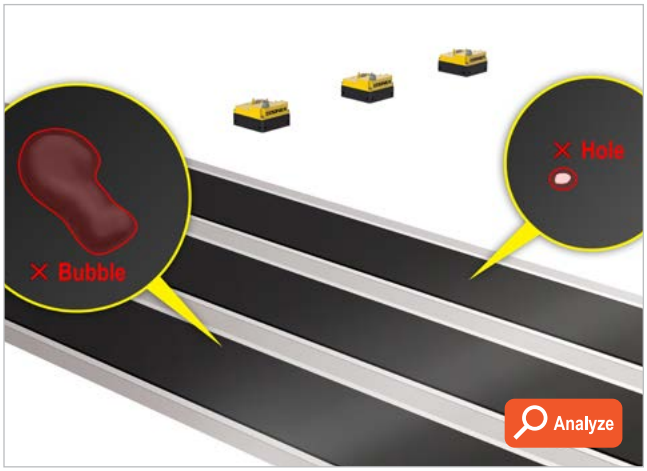
Deep learning vision software verifies the presence of components on a confusing surface during final assembly.

ELECTRIC VEHICLE

ELECTRODE

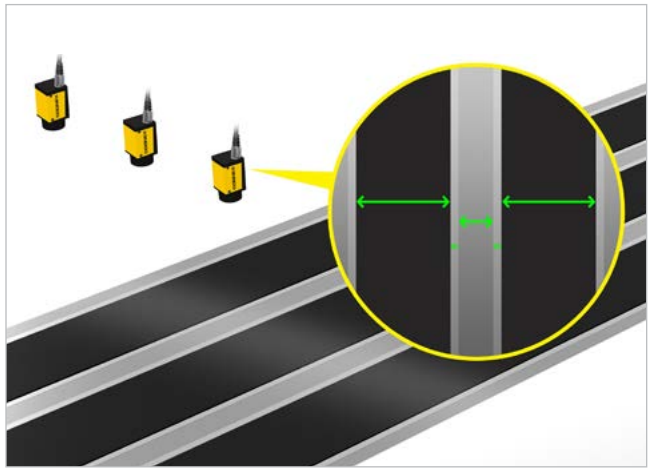
During the electrode manufacturing process, electrode material is coated onto copper and aluminum foil for electric flow. It is essential to check the metal surface, separator, and coating for any surface or edge defects as well as uniform shape and thickness. Cognex provides quality inspection and gauging solutions to ensure that electrode sheets meet exacting specifications before they are separated by an insulator and—depending on manufacturer and form type—rolled, wound, or stacked into a lithium-ion cell.

Coating Quality Inspection



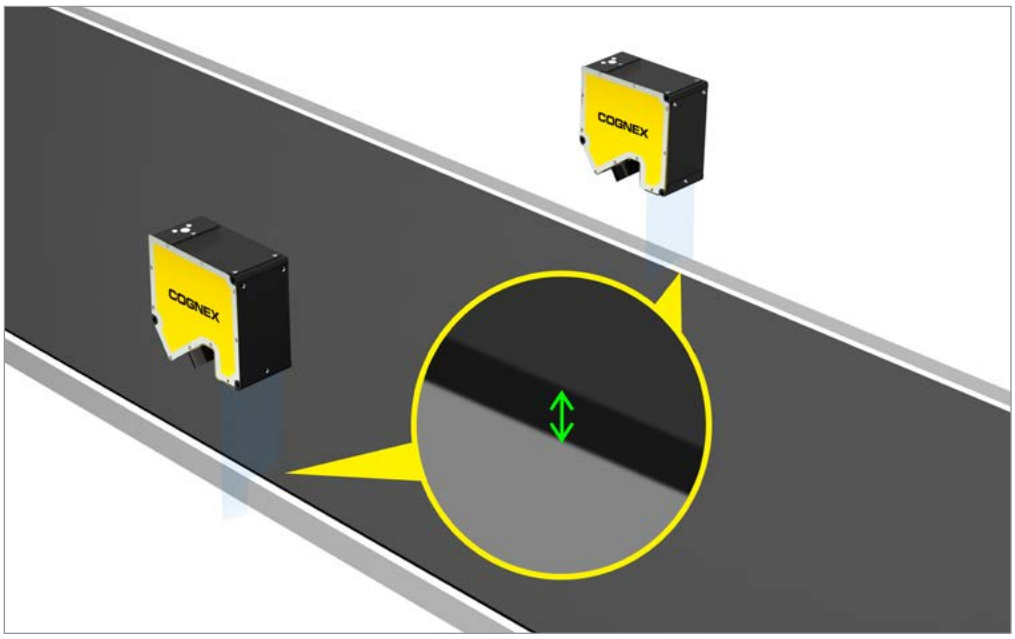
Cognex industrial line scan cameras and Cognex ViDi deep learning vision software detect defects such as craters, bubbles, and holes on electrode sheets.

Coating Width Gauging



Cognex industrial area scan cameras and VisionPro software gauge the dimensions of the separator and electrode.

End Face Profile Measurement

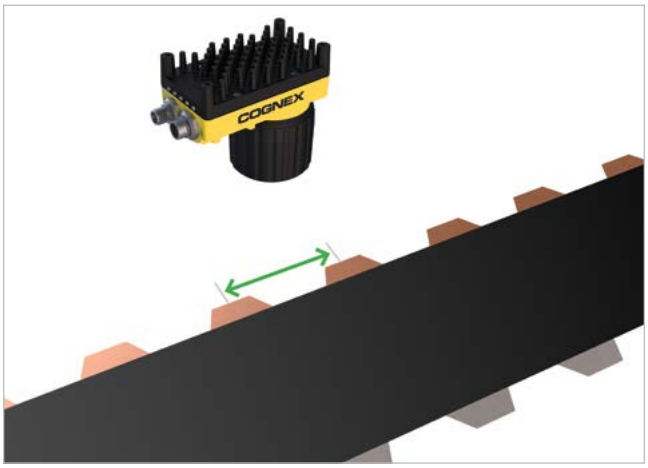


3D laser displacement sensors offer the speed and accuracy necessary to measure the profiles of electrode-coated end faces. They can continuously measure black electrode coatings, even when wet, to detect any waviness in real time.

ASSEMBLY

In cell assembly, a separator and electrode are joined together during vacuum drying. The joined cell of cathode and anode is either wound, rolled, or stacked. Lead tabs are attached to the folded cells. The process is complete when the cells are filled with electrolytes, vacuum-sealed, and dried. Cognex offers gauging, 2D code reading, alignment, guidance, and inspection solutions to ensure that lithium-ion cells can meet high energy density and performance demands. Cylinder-, pouch-, and prismatic- or can-type cells manufactured with Cognex technology are well-suited to mobile energy storage applications, including as automotive batteries for electric vehicles.

Electrode Tab Distance Gauging



Machine vision systems measure the distance between poles on a cell sheet.

2D Code Reading

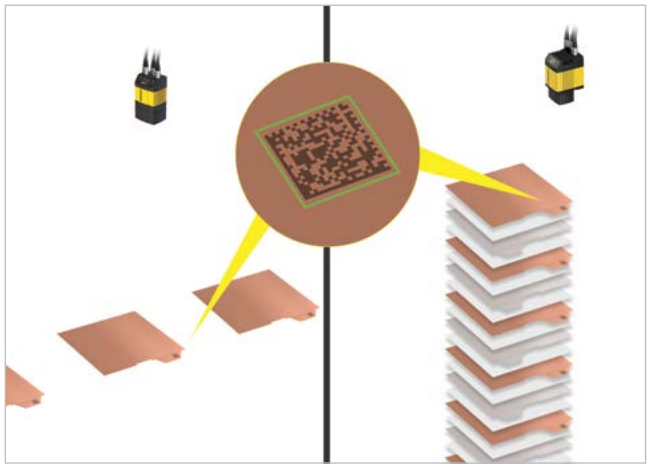
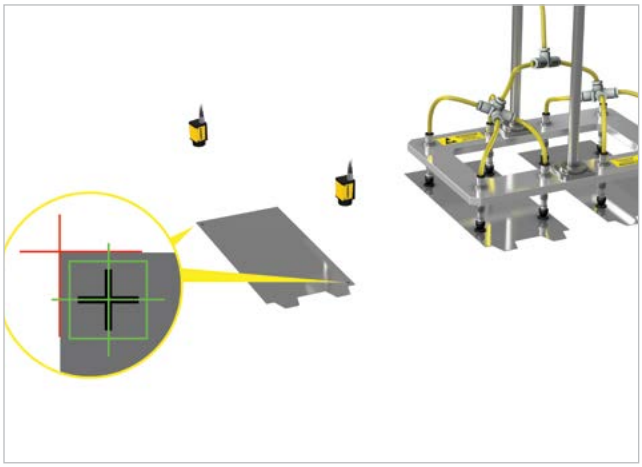


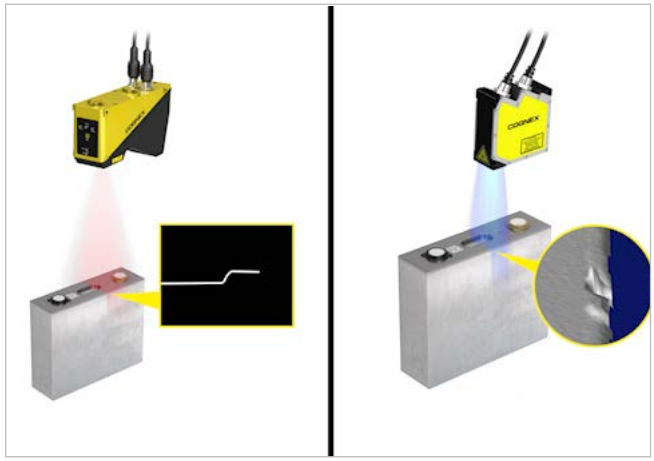
Image-based barcode readers read laser-etched Data Matrix codes on the copper sides of cell sheets and the top of stacked electrodes.

Stacking Alignment



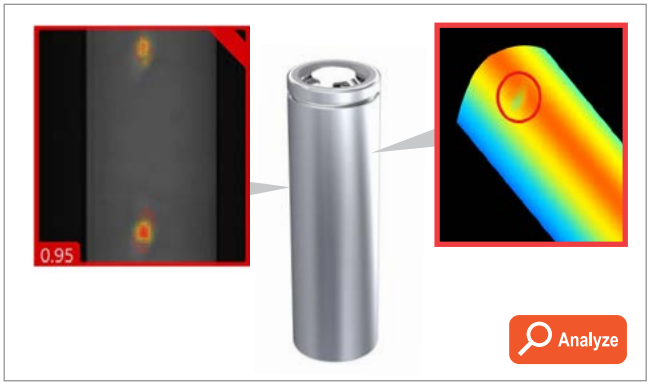
Cognex industrial cameras and VisionPro software align cell sheets for stacking.

Cap Welding Guidance and Inspection



3D laser displacement sensors measure the height difference between the cap and battery case prior to welding. Afterwards, they inspect the welded seams to ensure they are fully sealed and free of defects.

Battery Surface Inspection

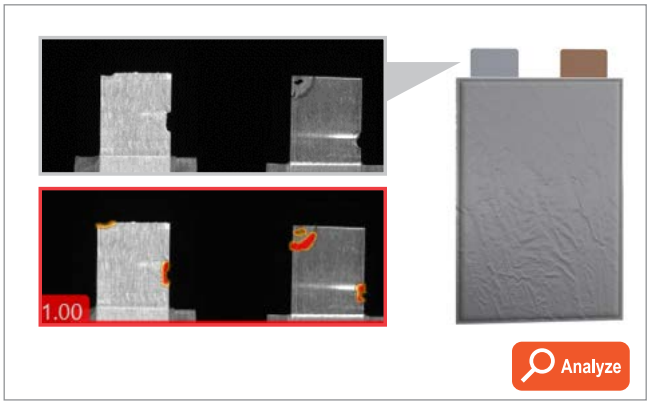


Cognex deep learning vision software detects unpredictable cosmetic defects like dents, scratches, or stains on a cylindrical battery can. Users can stack 2D and 3D images of cells to analyze them simultaneously.

Battery Seal Inspection

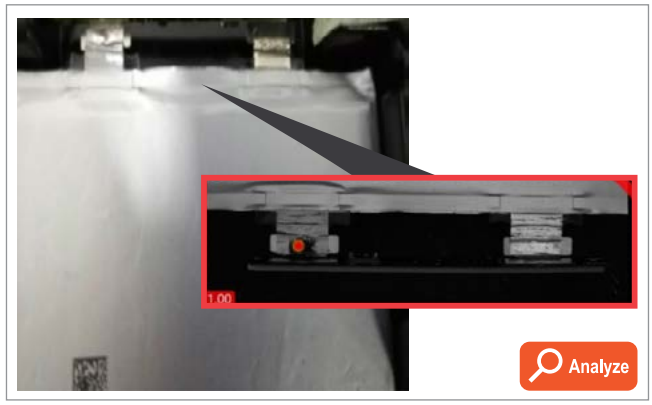
3D laser displacement sensors inspect the dimensions of battery caps to ensure they are fully sealed and free of defects. They use a highly accurate telecentric lens to accurately capture grooves and any defects like tilting or uneven height, regardless of the can's color.

Tab Inspection



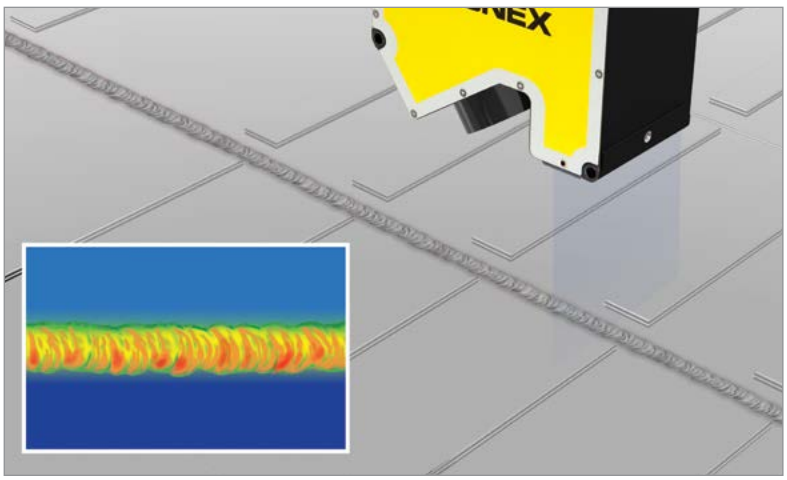
Cognex deep learning vision software identifies defects, such as broken edges, holes, or scratches on the tab's surface.

Tab Welding Inspection



Cognex ViDi deep learning vision software checks welding quality and finds defects like over-welding, missing welds, or burns on tabs.

Battery Pack Welding Inspection



3D laser displacement sensors perform surface measurement of the welds on battery packs. Cognex deep learning vision software helps detect unpredictable weld defects, despite specular glare on challenging metal surfaces.

FORMATION

Lithium-ion cells are activated, packaged, and tested during the formation process. During this process, individual cells are charged to become EV batteries and tested for voltage, current, and cosmetic appearance. Completed EV cells are graded and tracked using barcodes before they are shipped to EV module and pack manufacturers. Cognex offers code reading, pouch surface inspection, cell stacking height measurement, and OCR solutions to help manufacturers ensure their lithium-ion cells can meet the demands of large-format battery pack manufacturers and energy storage system developers.

Code Reading

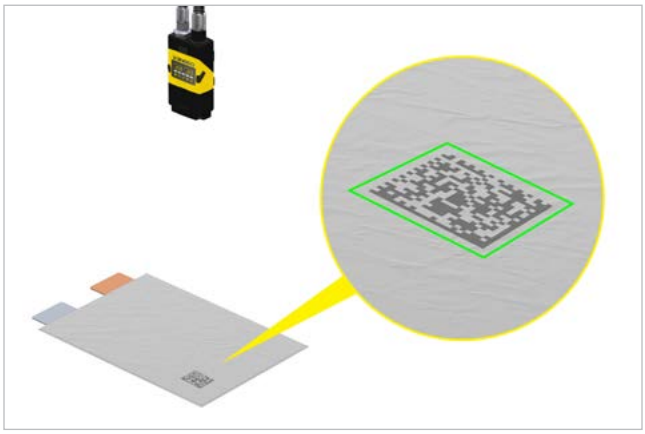
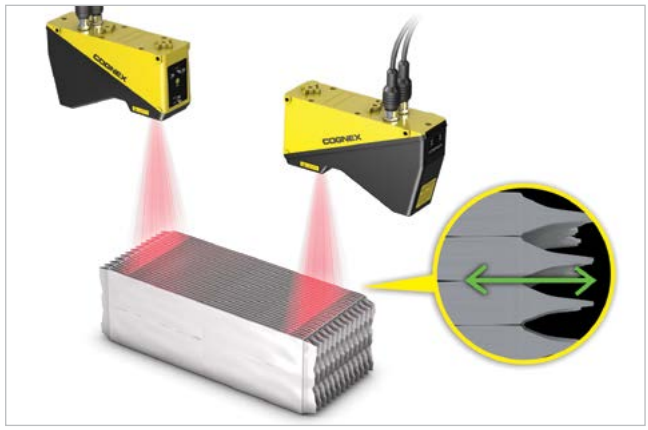


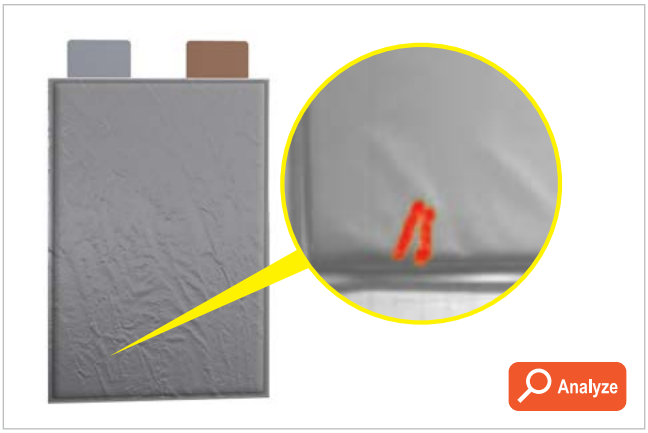
Image-based barcode readers read stretched DataMatrix codes on a pouch's surface.

Cell Stacking Height Measurement



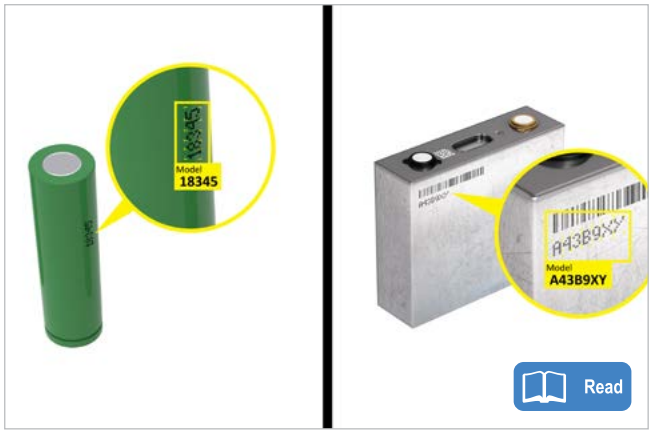
3D laser displacement sensors measure the profile of cell batteries stacked inside a module.

Pouch Surface Inspection



Cognex deep learning vision software identifies surface defects, like bubbles and wrinkles, on a pouch's surface.

Battery Optical Character Recognition



Cognex deep learning software locates and reads the alphanumeric codes on batteries using a pre-trained font library.

MODULE AND PACK SYSTEM

Electric vehicle (EV) module and pack (M&P) systems are assembled by both OEMs and automotive makers. A module is composed of multiple battery cells welded or otherwise physically assembled to each other, wrapped in steel plates, and then its poles welded together to produce the correct voltage. Inspection during the assembly process verifies that both cells and packs are in the correct position, have strong contact, and are properly welded. Cognex offers machine vision solutions for module inspection, busbar welding inspection, M&P assembly, cable connector guidance, and code reading to guarantee proper function before EV modules and packs flow into general assembly.

Code Reading

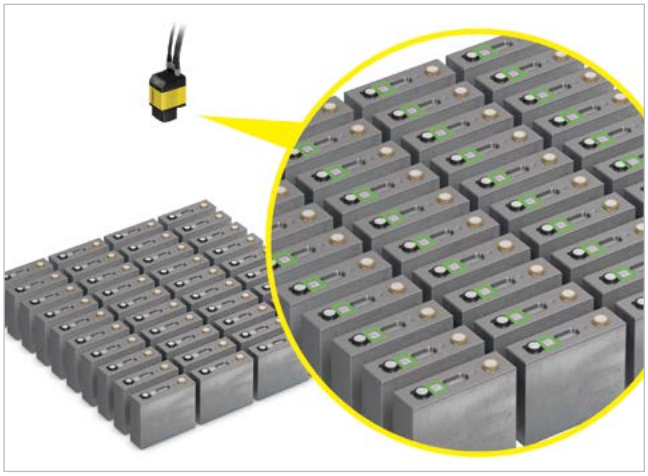
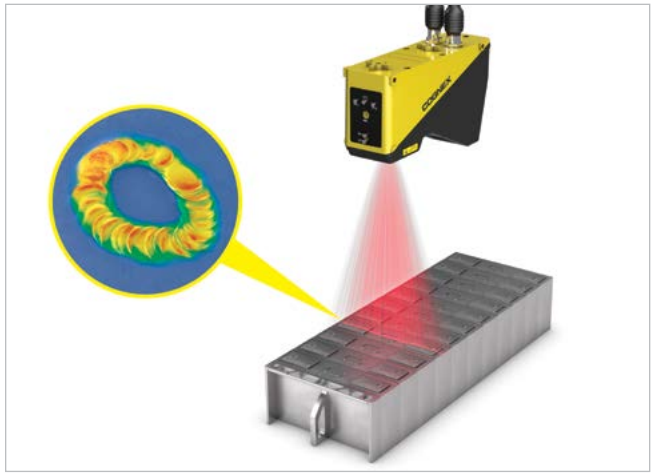


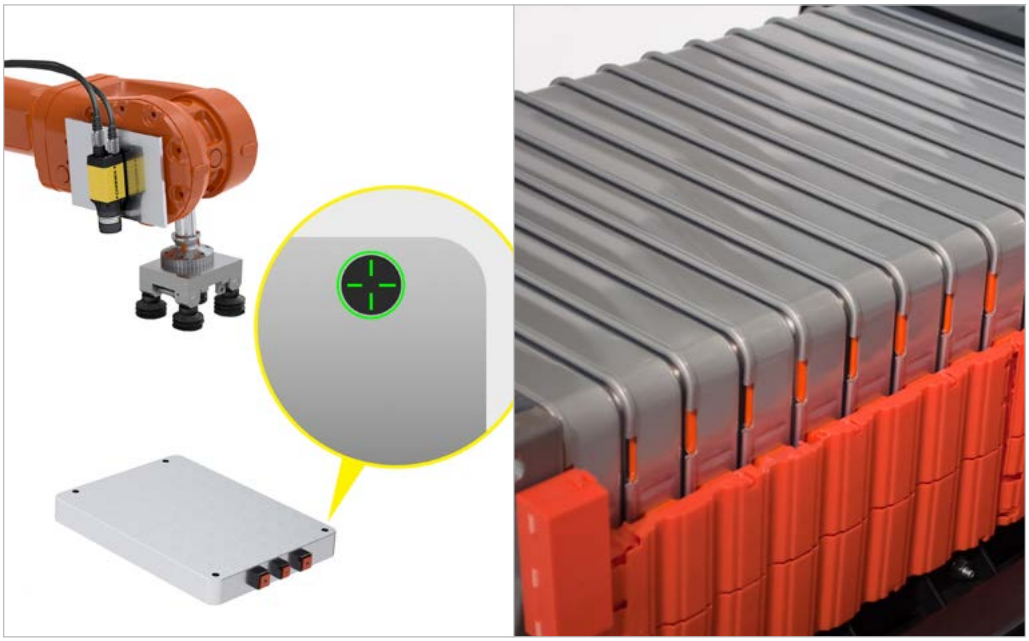
Image-based barcode readers read a large array of codes on battery modules during testing.

Module and Busbar Welding Inspection



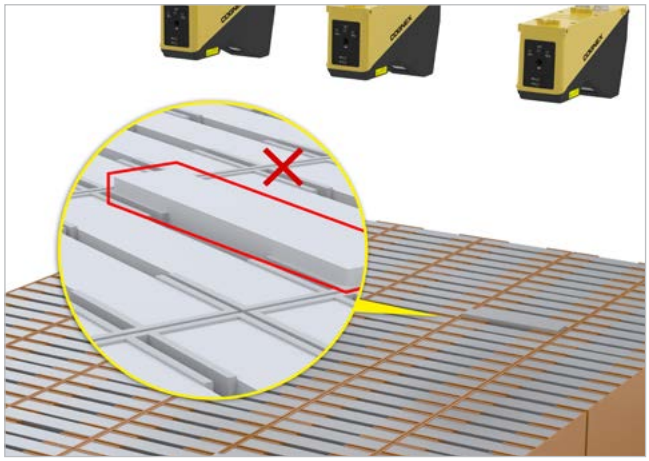
3D laser displacement sensors and Cognex deep learning vision software inspect the welds on a battery pack's modules and busbars.

M&P Assembly and Cable Connector Guidance



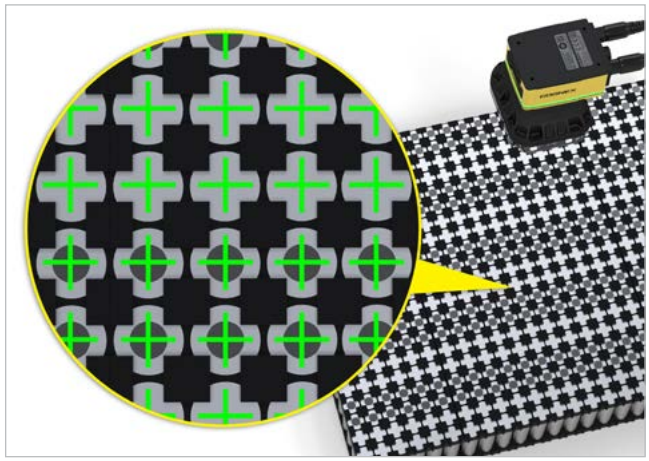
Machine vision systems guide the final assembly of modules and cable connectors into a pack.

Electric Vehicle Battery Module Inspection



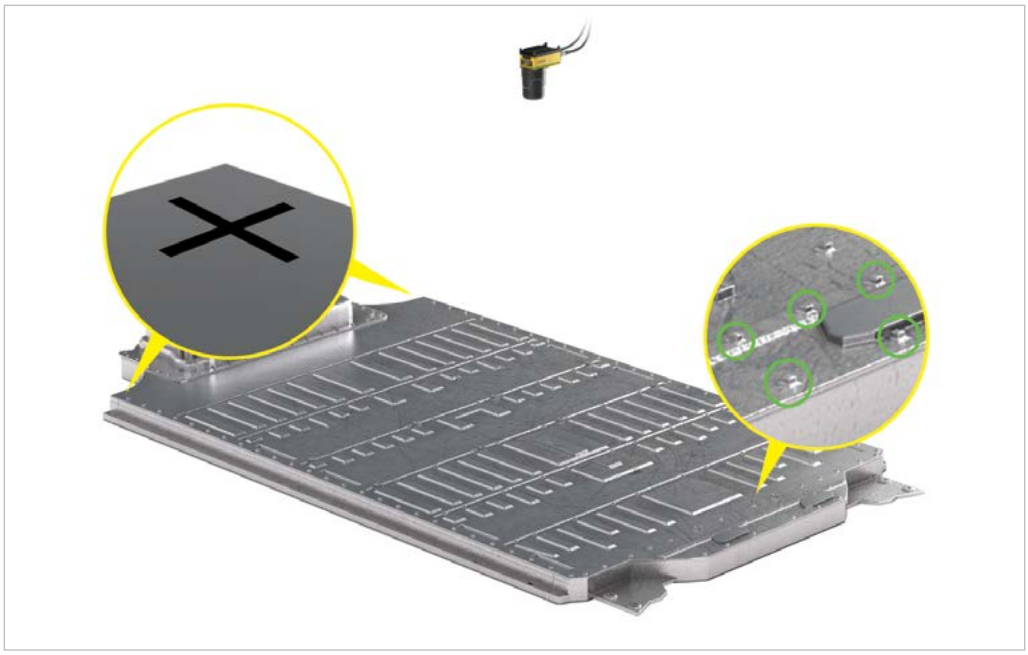
Laser displacement sensors inspect the seating of EV battery modules.

Electric Vehicle Battery Assembly Verification



Machine vision systems use geometric pattern-matching to verify battery pack modules are aligned.

Final Assembly Verification

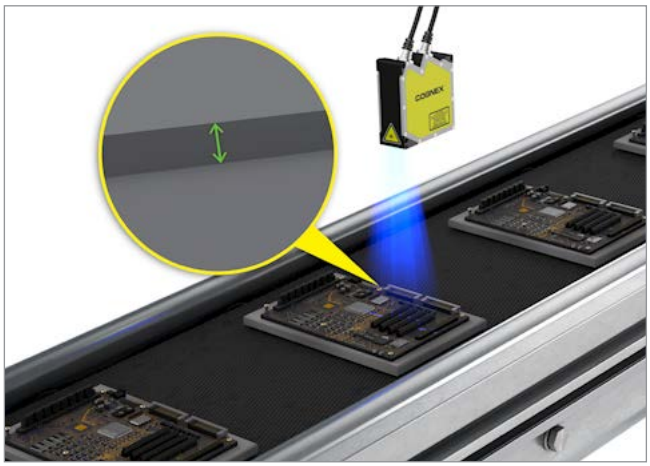


Machine vision systems inspect the final battery pack for completeness and fixtures it for robotic placement.

MOTOR AND INVERTER

The motor is the heart of every electric vehicle. The power of this motor depends on the magnetic field that is generated between the rotor and the stator. EVs use three-phase brushless motors for electric propulsion. But, the vehicle drive battery supplies a direct current (DC) so it needs to be converted to a three-phase alternating current (AC) using an inverter. A threephase inverter, which is composed of power devices, converts DC to AC during acceleration (powering) and converts AC to DC during braking (regeneration). Cognex machine vision solutions and 3D sensors help monitor the thickness of the threads and motor windings, inspect properly sealed seams on the motor, measure PCB warpage and terminal height, and perform oil seal and o-ring assembly verification.

PCB Warpage Measurement

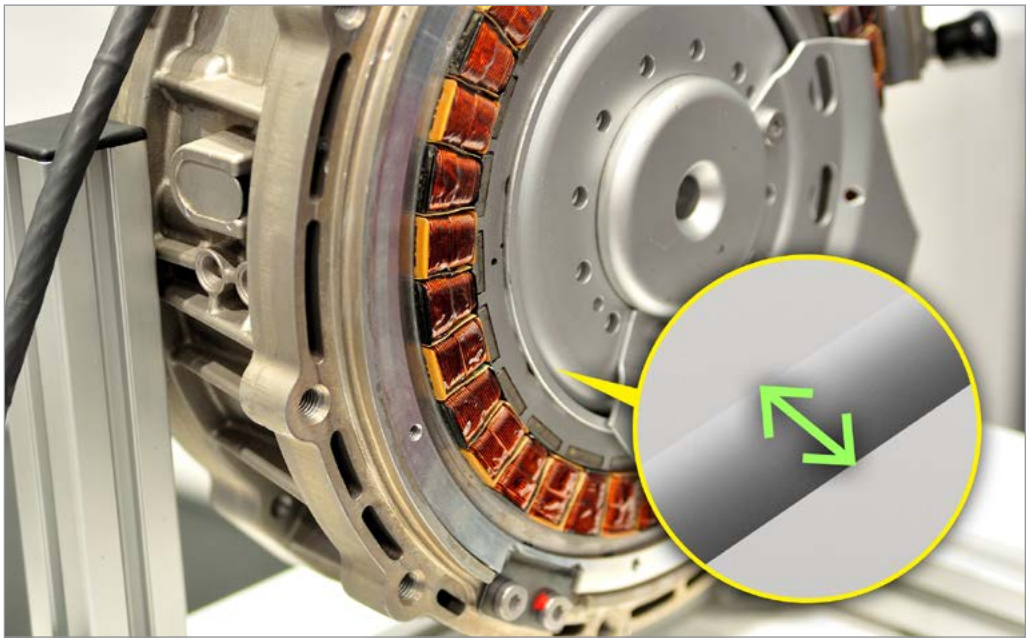


Laser displacement sensors measures the height difference between the carrier and the printed circuit board (PCB) to inspect for warpage. The sensor does this while in continuous motion, speeding inspection.

Terminal Height Measurement

Inverter terminals have very complex terminals, which require 3D inspection. Laser displacement sensors measure the height profiles of connectors to make sure they are coplanar.

Rotor/Stator Inspection



3D laser displacement sensors perform in-line inspection of the narrow gap between rotor and stator, and assesses wedge tightness for the magnetic field.

MACHINE VISION SYSTEMS

VISION SENSORS

In-Sight® 2000 vision sensors perform simple pass/fail applications that help ensure products and packaging manufactured on an automated production line are error-free and meet stringent quality standards.

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.

3D VISION SYSTEMS

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

IMAGE-BASED BARCODE READERS

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.

HANDHELD BARCODE READERS

Versatile DataMan barcode readers provide best-in-class performance for 1D, 2D, and DPM codes, where ruggedness and speed are critical to success. A range of field-changeable communication options ensure these readers are ready to meet your application requirements.

MOBILE TERMINALS

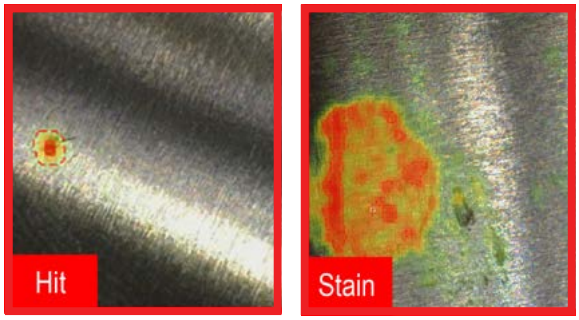
The MX series of vision-enabled mobile terminals leverage the latest iOS® and Android® smartphones in a rugged housing, tough enough to stand up to the most challenging environments—all while providing superior 1D, 2D, and DPM code read rates.

DEEP LEARNING VISION SOFTWARE

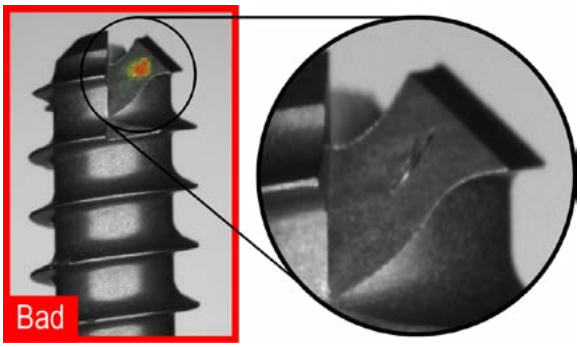
Deep learning technology uses neural networks that mimic human intelligence to distinguish anomalies, locate deformed parts, and read challenging characters while tolerating natural variations in complex patterns. Deep learning complements traditional machine vision approaches, which struggle to appreciate variability and deviation between visually similar parts. In factory automation, Cognex ViDi can now perform judgment-based part location, inspection, classification, and character recognition more effectively than humans or traditional machine vision solutions.

Locate Finds and counts complex features and objects

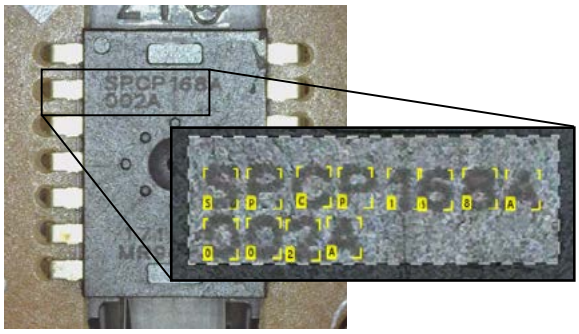
Classify Classifies and sorts objects and complete scenes



Analyze Detects anomalies and cosmetic defects



Read Reads challenging, deformed characters



COGNEX GLOBAL SERVICES

Customers get more than software when they purchase from Cognex. They get a company focused exclusively on machine vision, with the most comprehensive application experience. Add direct, high-quality worldwide service and support, and it's easy to see why Cognex is the machine vision company that industries rely on.

Technical Support
Product Training
Hardware Programs
Product Lifecycle

When it comes to protecting your machine vision investment, Cognex understands that responsive, expert service is an expectation all customers should have. Cognex serves an international customer base from offices located throughout the Americas, Europe, and Asia and through a global network of highly-trained partners, system integrators, and distributors.

From development to deployment, Cognex is there to help you get your vision systems up and running as fast as possible. Whether you're considering machine vision for the first time or are already an expert user, Cognex global services provide the expertise to help your organization succeed.

cognex.com/support/cognex-services

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COGNEX TRAINING

We want to make YOU the most effective vision professional at your organization. Cognex offers a variety of training options dedicated to optimizing manufacturing processes and increasing organizational expertise. Through its global training organization, Cognex operates classroom facilities that deliver a variety of courses lasting 1–4 days for beginners to advanced users. Topics include the fundamentals of machine vision to real-world applications for complex tools.

Customized, Anytime

For groups of six or more, all Cognex classes are available at YOUR FACILITY so that your team can work and learn together in your own real-world environment. For on-demand convenience, the Cognex online training portal lets you access on-demand training videos of many Cognex courses, participate in online courses, view tutorials, examine application examples, and watch lighting and optics videos.

By combining key training classes and system integration services into training service packages, Cognex can help focus and accelerate your learning.

Our three most popular packages—Building Vision Competence, Upgrading Vision System, and Factory Level Service Program (FLSP)—address common customer challenges and can be customized to suit your specific needs.

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1040
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17
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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 the most challenging applications.

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3D VISION SYSTEMS

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

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VISION SOFTWARE

Cognex vision software provides industry leading vision technologies, from traditional machine vision to Deep learning vision software, to meet any development needs.

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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.

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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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