



GLOBAL SPECIALISTS IN  
HIGH PERFORMANCE  
VISION SYSTEMS

Easy-to-use, flexible vision systems and machines for  
quality control, guidance, identification and inspection

## Introduction

Industrial Vision Systems Ltd. (IVS®) is a major supplier of machine vision solutions to industry. Our vision systems are used all over the world in automated production processes for inspection, guidance, identification, measurement, tracking and counting - in many diverse industries.

### Our specialist capabilities include:

- Single and multi-camera off-the-shelf vision systems for automated inspection
- Complete ready-to-run inspection machines for quality control
- Retrofit vision system solutions to already established lines and cells
- Special purpose vision machines for automated inspection or quality control
- Supply of vision system components, software, cameras, lenses and associated peripherals
- Custom development of specialist machine vision projects
- Machine vision training and support

Working with us means drawing on the experience of our large team of vision engineering specialists who together offer an extraordinary range of expertise in machine vision technology, industrial automation and control.

We have experts in industrial image processing, 3D CAD design, PLC control, electrical design, factory automation and project management. This allows us to deliver a complete scale of projects from the supply of vision peripherals and components through to fully integrated complete vision machines and production lines.

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*Industrial Vision Systems Ltd headquarters are located at the prestigious Harwell Science and Innovation Campus. The campus is one of the most advanced and active innovation communities in Europe, located just South of Oxford and only forty-five minutes from Heathrow Airport. We operate from a custom designed 10,000 sq ft facility which features state of the art engineering offices, research and development areas, dedicated sales office and training rooms - in addition to the production floor, breakout areas and administration.*





# IVS Vision Systems & Peripherals



Improve production quality and ensure every one of your components, sub-assemblies or products are 100% inspected using IVS® machine vision cameras.

Our cameras provide immediate improvements to manufacturing quality allowing you to deliver superior products to your customers. Products can be produced at much higher speeds, defect-free and at a lower cost. Our machine vision cameras work continuously, all day,

every day, making sure your customers and consumers receive products from you which have eliminated quality issue.



## MACHINE VISION CAMERAS & SYSTEMS:

- Enabling faster, more efficient, production – increasing quality
- Protecting customer reputation with customers and consumers
- Reducing ppm quality rates
- Increasing yield, enabling automation
- Providing peace of mind

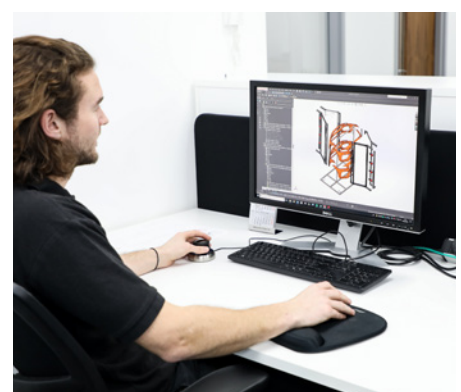
# IVS Retrofit Vision Systems

Industrial Vision Systems (IVS®) provide full integration services comprising mechanical, electrical, control and commissioning of quality control vision systems.

IVS install vision systems “right first time” enabling quicker return on investment, minimising production downtime and increasing quality. Our clients don’t need to have any working knowledge of machine vision or vision systems, they just need to tell us what they wish to achieve and where the system needs to be installed, and we’ll take care of the rest.

## ACCURATE, EFFICIENT AND RIGHT FIRST TIME VISION INTEGRATION AND COMMISSIONING BY OUR ENGINEERS:

- Enabling faster, more efficient, vision systems – deployed by our IVS engineers
- Minimising production downtime
- Protecting your reputation with customers and consumers
- Reducing development risk
- Shrinking quality concerns, increasing production quality



# IVS Special Purpose Vision Machines

IVS® manufacture special purpose machines for quality control, vision ID, robot control and product verification. Your complete solution for machine vision integration & industrial automation.

We design and manufacture leading-edge quality control inspection machines that enable high-precision machine vision inspection, verification and analysis across a variety of industries including automotive, medical device, pharmaceutical, electronics, packaging, food and drink.

**WE CREATE CUSTOM VISION INSPECTION SYSTEMS, CELLS AND LINES TAILORED TO YOUR EXACT NEEDS:**

- Faster development, based on over 18 years of extensive machine vision expertise
- Precision design and development using industry standard CAD tools
- Minimising project lifecycles
- Custom built to your exact quality requirements
- Reducing development risk



See our systems in action  
[www.youtube.com/user/industrialvision](http://www.youtube.com/user/industrialvision)

# IVS Vision Systems for Machine Builders

IVS® understand that machine builders and systems integrators often face tight deadlines when delivering complex industrial automation and factory solutions.

We provide a second tier of engineering support and integration, our specialist vision engineers allow you to focus on the key feeding and assembly parts of your special purpose machine builds, while we take care of the tricky vision elements of the project.



**WE CREATE ADDED VALUE AND PROVIDE OPERATIONAL EXCELLENCE FOR MACHINE BUILDERS BY:**

- Enabling the vision system to be specified and integrated "right first time", saving you money
- Protecting your reputation with end customers
- Minimising project lifecycles & lead times
- Supplying comprehensive pre-sales vision tests and reports
- Reducing development risk





## Vision Systems and Sensors

General purpose, powerful vision systems, sensors, cameras and components for machine vision inspection.



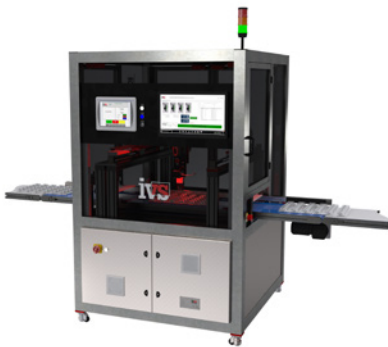
## Robot Inspection Cells

Highly flexible complete vision inspection cells utilizing state-of-the-art robotics and machine vision systems for quality control checks.



## Device Quality Inspection Machines

High speed quality control, inspection and dimensional checks of small devices, components and parts.



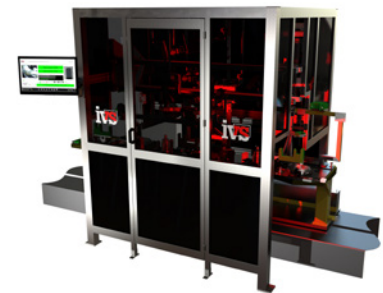
## In-Process Inspection Machines

State-of-the-art dynamic vision systems for quality control in all industry sectors.



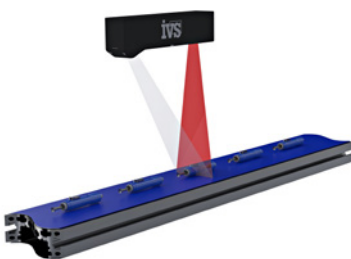
## Food, Drink and Packaging Inspection Machines

Super intelligent vision sensors and machines for quality control in food, drink, printing and packaging industries.



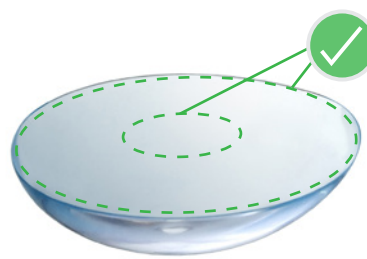
## Sub-Assembly Vision Inspection

Fully automated complete sub-assembly inspection and conformance inspection machines cells, providing 100% quality control checks using machine vision.



## 3D Vision Systems

Our 3D machine vision solutions provide high-speed measurement and results data in 3D at full production speed. Simultaneously capturing 3D, scatter, and grayscale, allowing more reliable quality control.



## Contact Lens Inspection

Ideal for automated quality checking of contact lens manufacture, including edge checks, internal flaws, surface inspection, internal bubble checks, contact lens ovality checks and size deviation of lenses.



## Automated Vision Inspection Benches

Manual or auto load inspection benches with integrated fixtures and vision system cameras for fully automated quality control and poka-yoke inspection of products following assembly operations.

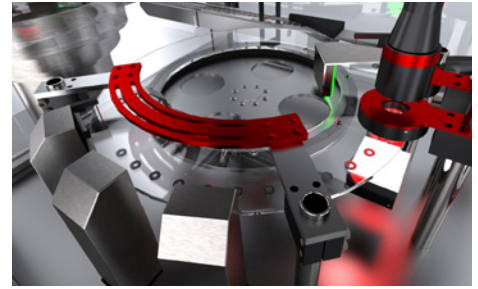
See our complete product range at [www.industrialvision.co.uk/products](http://www.industrialvision.co.uk/products)

# IVS Latest Developments



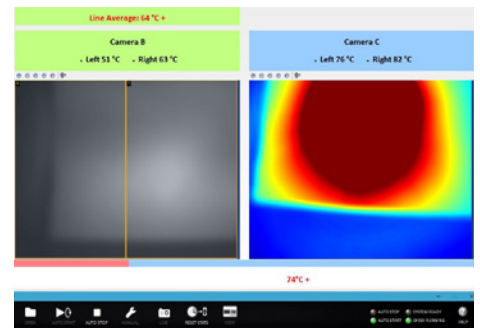
## Powerful 3D Vision Systems

IVS® systems are now enabled for advanced 3D vision applications. Measure complex shapes and products in three dimensions with a single camera. Powerful height and profile evaluations in real-time. New 3D technology, easily deployed.



## Sorting Machines

New high speed sorting machines for small products - washers, rubber seals, glands, nuts, munitions. Unique glass dial plate concept for checking both sides of products.



## Thermal Imaging Inspection

Development of thermal imaging integration into inspection machines. No other vision supplier has integrated thermal inspection into main stream inspection machines.

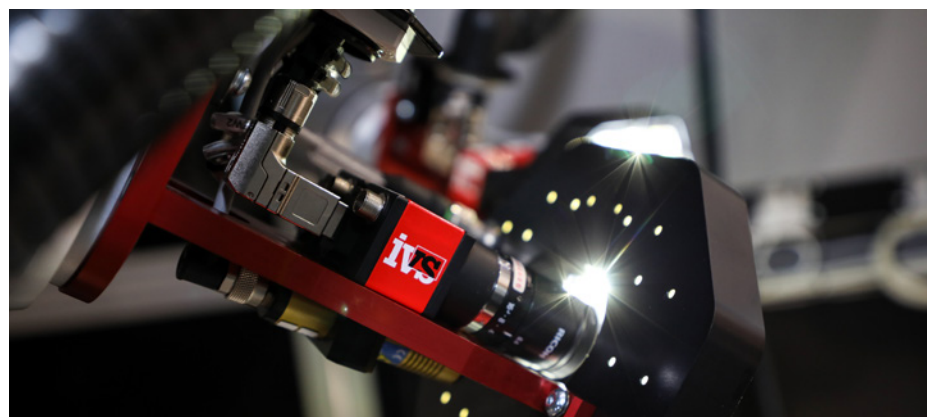
## New Industrial Ethernet Communication

Communicate with all the latest Industrial Ethernet protocols. Effortless integration allows IVS vision systems to communicate with all PLCs, master controllers and factory automation out of the box.



## Dynamic Focus with New Liquid Lens Technology

Evaluate differing focus elements from the same camera in milliseconds. Saves re-tooling for different parts and fields of view requiring inspection.





We provide comprehensive training relating to our full range of IVS machine vision solutions. As part of our comprehensive after-sales service offering, IVS provides a choice of training courses in the operation and maintenance of the complete range of vision systems. Courses are practical, with a hands-on approach and all delegates are awarded certificates on successfully completing a course.

Our courses range from one-day operator courses, covering basic day-to-day use and general operation of the vision system, to four-day in-depth maintenance courses that cover more complex applications.

#### Courses can be:

- Tailored to suit your individual requirements
- Delivered on site if you require, on mutually agreed dates
- Standard courses (as listed below)
- Based at IVS Harwell Campus
- On dates selected from our full Programme

#### All courses are:

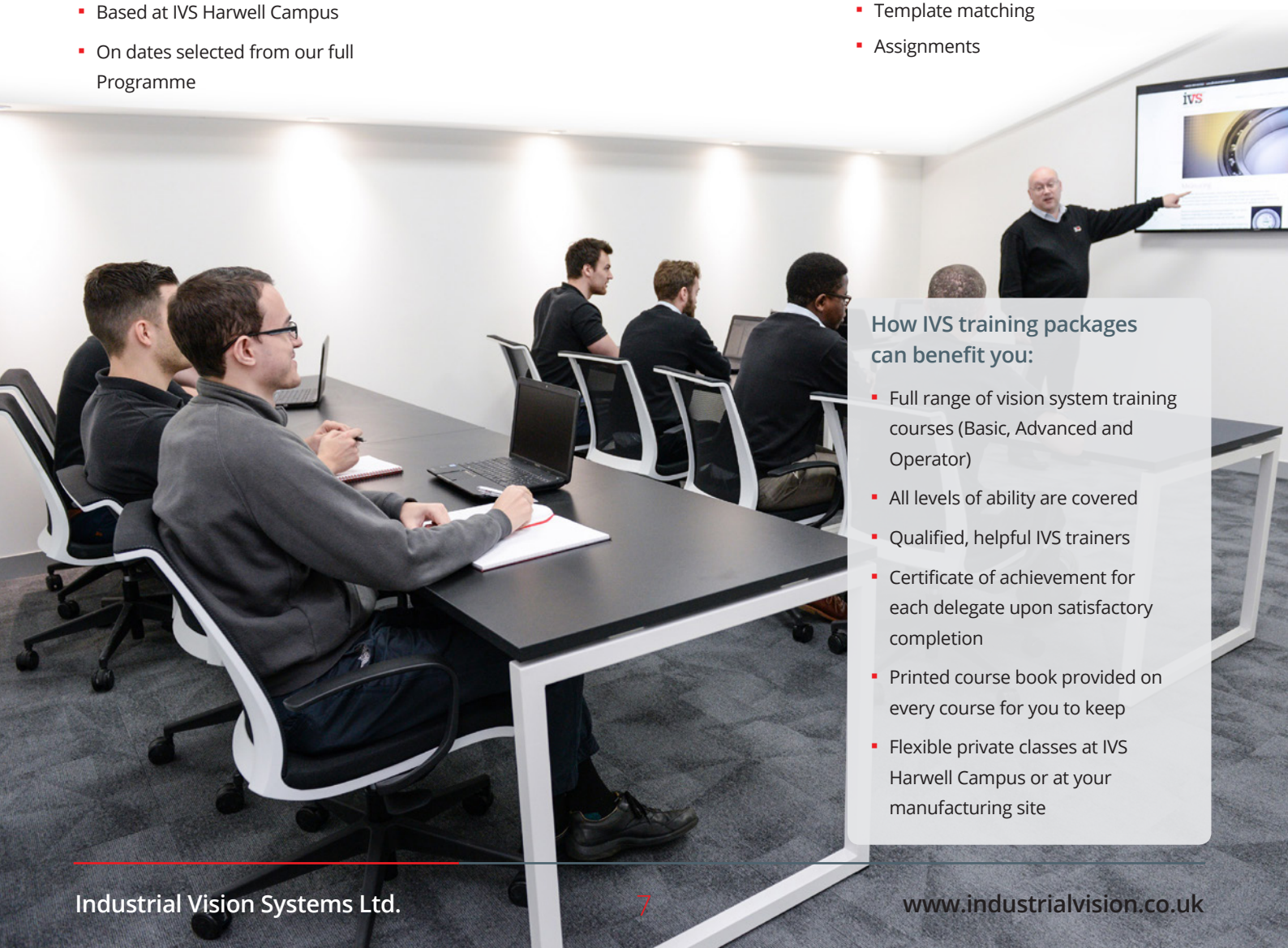
- Delivered by our team of experienced Professional Technical Instructors
- A combination of practical workshop exercises and classroom based learning
- Fully documented with printed Training Manuals for each delegate
- Certificated

#### Basic Training

The two-day basic training course gives an overview of all the typical application areas of machine vision. You will be introduced to the full range of image processing functionality as well as to the various ways of integrating our vision systems into production processes and quality management systems.

#### Topics

- How to set-up a machine vision system
- On-going maintenance of the system
- Automatic operation and results
- Measuring using machine vision
- Assembly control and verification
- PLC, serial and I/O control
- Debug facilities
- Camera and lighting technology
- Optics and filters
- Machine vision project control
- Manual operation
- Live mode
- Automatic mode
- Bar code recognition
- Presence verification
- Gauging
- Positioning
- Character and pattern recognition
- Template matching
- Assignments



#### How IVS training packages can benefit you:

- Full range of vision system training courses (Basic, Advanced and Operator)
- All levels of ability are covered
- Qualified, helpful IVS trainers
- Certificate of achievement for each delegate upon satisfactory completion
- Printed course book provided on every course for you to keep
- Flexible private classes at IVS Harwell Campus or at your manufacturing site

## High Performance Professional Machine Vision Solutions

Our solutions can be used in hundreds of application areas including:

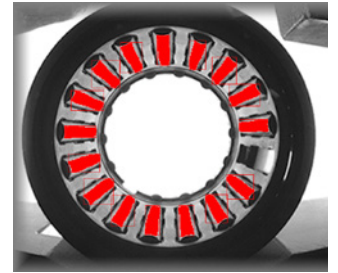
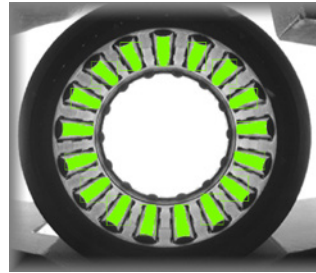
- Presence Verification
- Gauging and Measurement
- Character and Pattern Recognition
- Print Inspection
- Robot Control
- Barcode and 2D Code Verification
- Surface Inspection
- Color Analysis & Recognition

Our vision solutions can be deployed for almost any inspection requirement. With leading-edge technology and high performance image processing, your IVS® vision system can be set-up, deployed and running within a matter of minutes.

- Instant production line integration
- State-of-the-art 64-bit system architecture
- Latest generation machine vision processing
- High speed inspection and quality control
- Real-time data and image saving capability



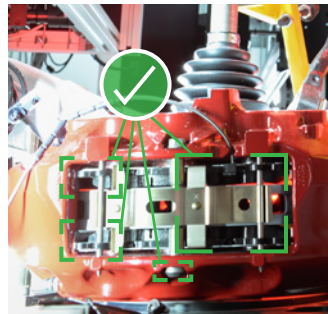
### Presence Verification



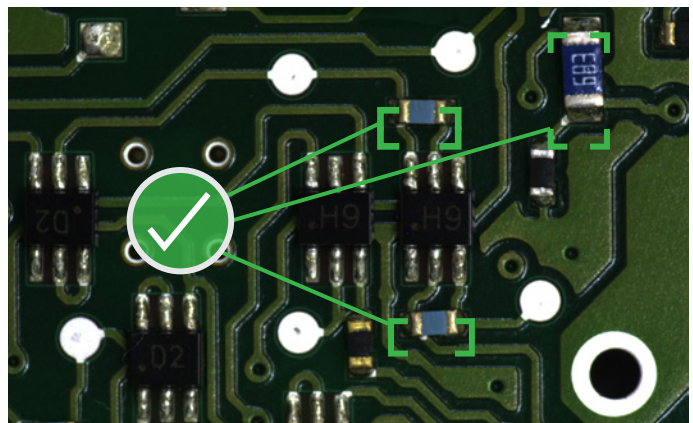
Check the presence, size, position, shape and complete features of parts to confirm their presence.



Confirm that clips, screws, springs, components and parts are in place.



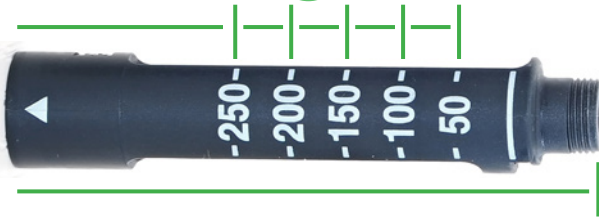
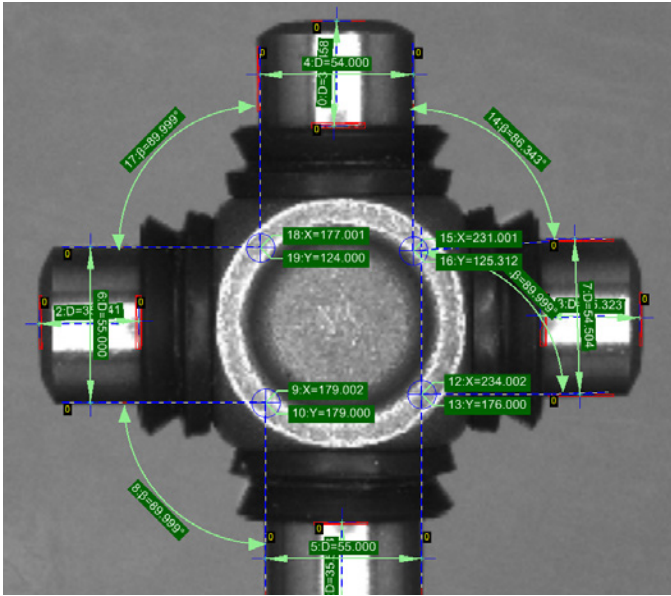
Check sub-assemblies are complete and to customer specifications.



Inspect for incomplete or excess solder, missing components or misaligned/rotated parts.

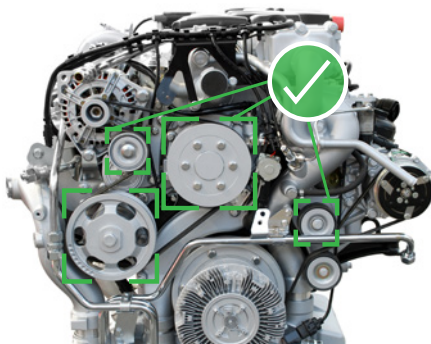


## Measuring



Powerful gauging tools allow complex measuring to be completed to sub-pixel accuracy at very high speeds. Real-time calibration provides high performance measuring which is easy and quick to set-up.

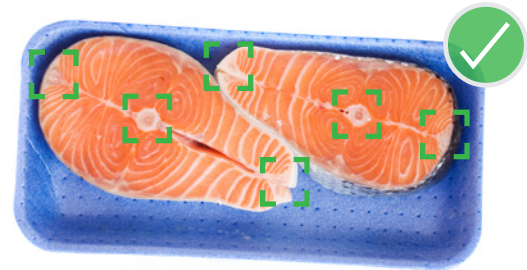
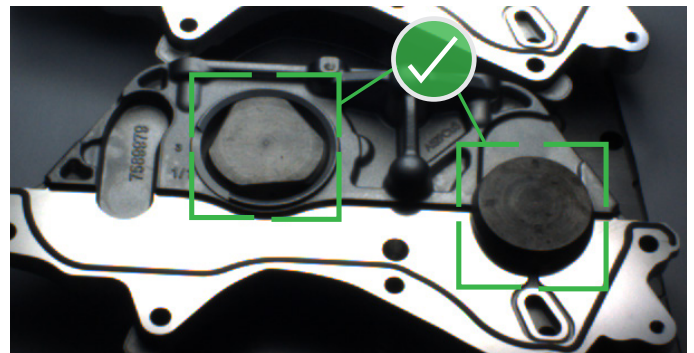
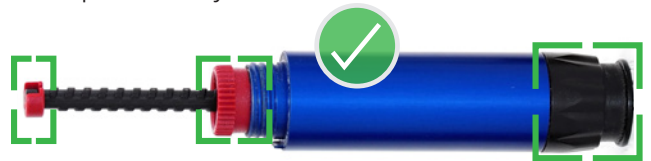
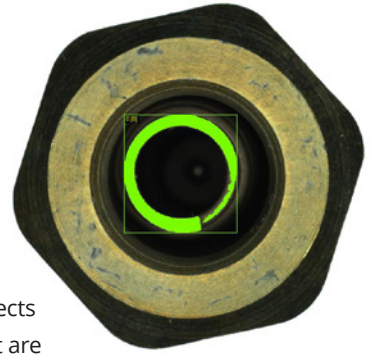
Edge detection and precision contour analysis provide precise matching and measuring capabilities.



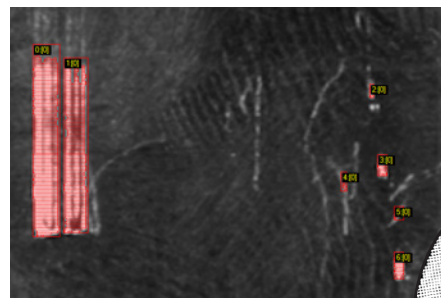
Inspect injection moulded parts and components for flash, shorts, inserts and dimensional accuracy.

## Pattern Recognition

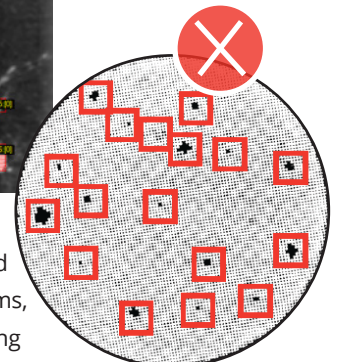
Next generation pattern matching can learn to recognise arbitrary patterns, shapes, logos etc. Compare trained features and patterns in fractions of a second. Use geometric features to find objects and easily identify models that are translated, rotated and scaled to sub-pixel accuracy.



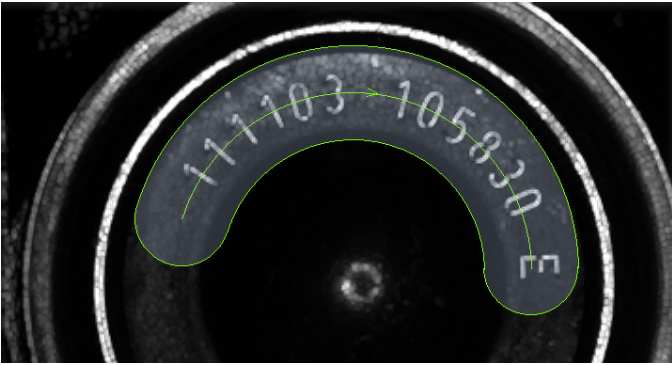
## Surface Inspection



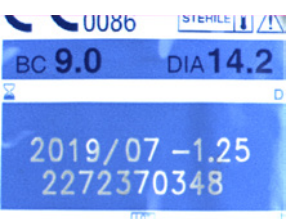
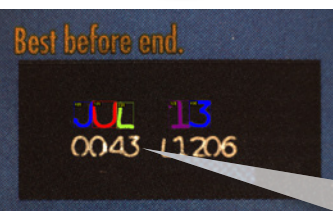
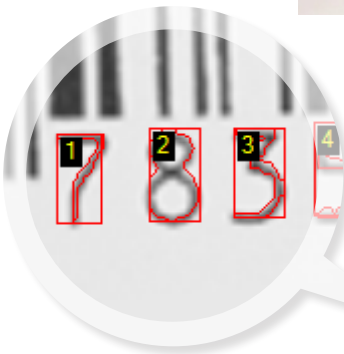
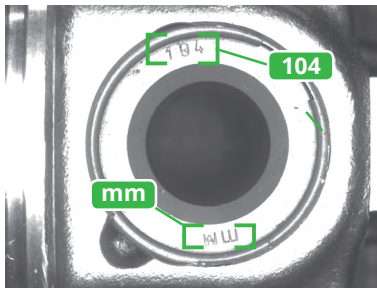
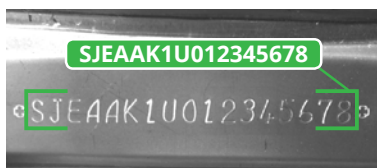
Find cracks, dents, wrinkles, flaws, scratches, inclusion, contaminants and surface defects using proven algorithms, combined with advanced preprocessing filtering.



## Optical Character Recognition/Verification/Identification



Train, classify and verify character sets. Our systems can accurately determine shape, size, consistency and verification of numbers, letters, logos and signs. Check scribed, stamped, printed or preprinted text in all languages, fonts, sizes and styles.

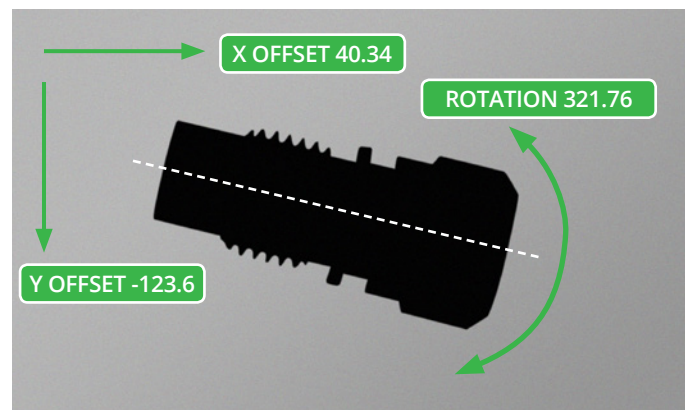


## Print Quality Inspection

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Direct thermal, ink marked and pad printed products, forms, labels on paper, metal or plastic can all be robustly inspected using the latest Print Quality Inspection functionality. Check for alignment, measurement, streaks, voids, pin-holes, scratches on continuous printing and off-set printing equipment, digital printing and web inspection. Print Quality Inspection can be combined with OCR, batch reconciliation and barcode verification to provide complete track and trace verification.

## Robot Control/Position Adjustment



Accurately determine the position of parts to direct robots, find fiducials, align products and provide positional adjustment feedback. Precise alignment and 360 degree rotational and pivotal offset provide reliable process control. Integration with all major robot manufacturers and control systems.

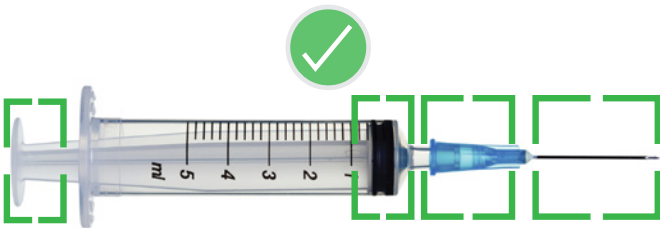
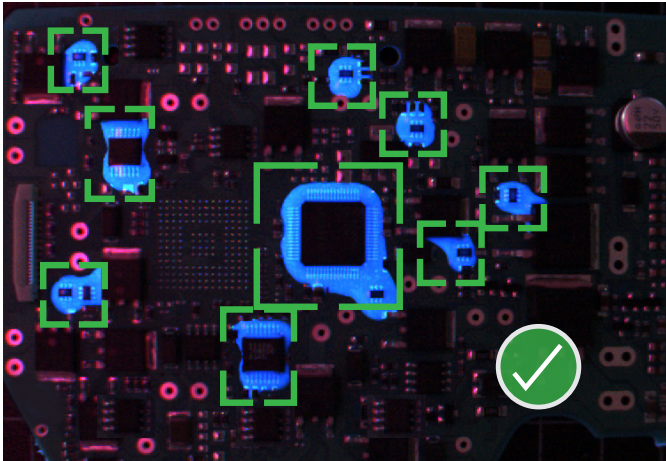




## Color Matching & Verification

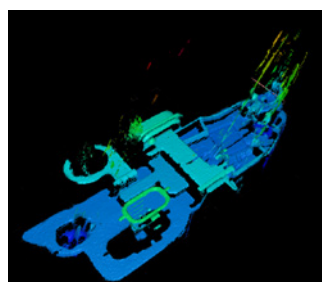
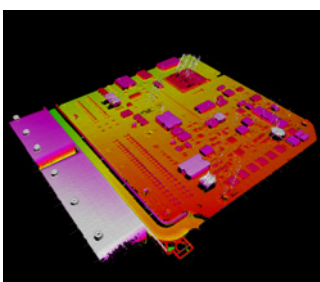
Color matching can be used for segmentation and analysis of products operating in RGB and HSI. Precise inspection confirms adherence to color bands and tolerances.

Check labels, features, conformal coats, beads, glue, food products, organic products and parts for detailed color analysis.

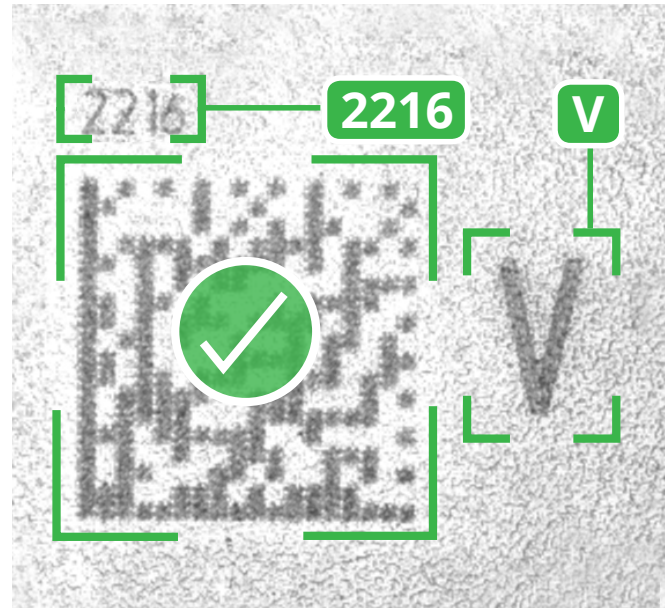


## 3D Vision

Fast 3D measurements at high speed. Intelligent 3D shape, contrast, color and volume checks. Pick and place 3D solutions. 3D surface inspection.



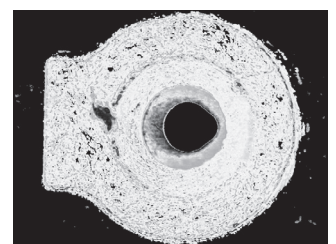
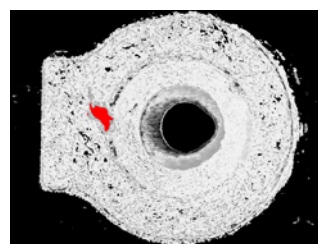
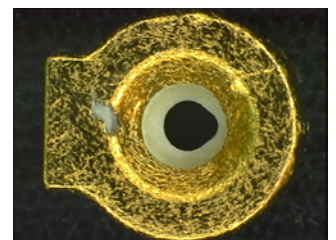
## Barcode and Data Matrix Reading



All of the most common barcodes and Data Matrix codes can be read in any orientation at high speeds.

## Preprocessing

Our systems offer you the very best in image quality with one of the largest range of filter options in the machine vision industry for extensive preprocessing of images.



# Industry Sectors Automotive

We are proud to provide vision solutions to many of the top automotive and tier one & two suppliers in industry. As a result, our machine vision systems are used to inspect almost every type of part, component and sub-assembly in automotive production lines - from interior cloth checks to complete final car inspection.

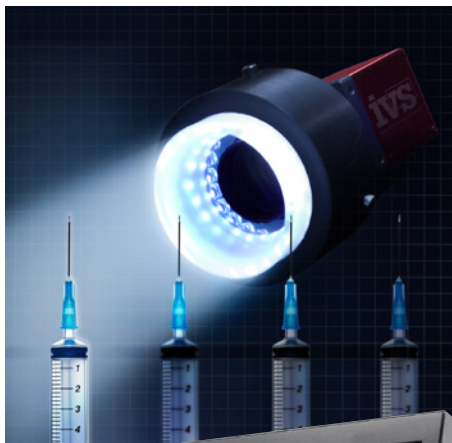
## Applications

- Presence verification of components
- Verification of sub-assemblies
- ID, barcode and data matrix code reading
- Gauging and measurement of automotive components
- Automotive electronics inspection
- Body in white inspection cells
- Bead and seal verification
- Component code verification
- Character and pattern recognition
- Bent pin/connector inspection
- Label reading and checking
- Glass/window inspection
- Robot guidance
- Type verification
- Surface inspection
- Color analysis
- Product traceability
- Product defect detection
- Error proofing component assembly
- Print and text inspection
- VIN inspection
- Shorts and flash detection



[www.industrialvision.co.uk/industries/automotive](http://www.industrialvision.co.uk/industries/automotive)

# Medical Devices & Pharmaceuticals



IVS quality control vision systems are used in all areas of medical device and pharmaceutical manufacturing. By inspecting and rejecting parts at the point of manufacture our vision systems improve quality and increase line efficiency. From gauging complex medical devices in real-time through to multi-camera blister inspection machines.

## Applications

- Medical device dimensional inspection
- Code reading and verification
- Label placement confirmation and alignment checks
- Needle point quality
- Feature presence verification
- Particle and cosmetic inspection
- Primary packaging inspection
- Ampule, vials, cartridges, syringes or infusion bag inspection
- Line monitoring systems
- Product defect detection
- Blister pack inspection machines
- Contact lens inspection
- Tablet inspection systems

## Validation Services

We provide full validation packages for our vision systems which follow the standard International Society of Pharmaceutical Engineering (ISPE) and Good Automated Manufacturing Practice (GAMP5) guidelines as well as assessment of validation requirements for 21 CFR 11/210/211.

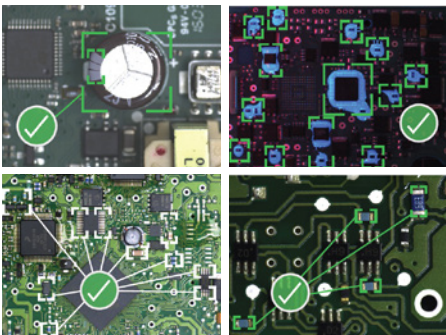
Our engineers understand the specific needs of the medical, healthcare and biotechnology industries and can identify and deliver fully validated vision solutions tailored to customers' precise needs.

[www.industrialvision.co.uk/industries/medical-devices-pharmaceuticals](http://www.industrialvision.co.uk/industries/medical-devices-pharmaceuticals)



# Electronics

Manufacturers in both the consumer and industrial electronics markets rely on IVS machine vision solutions for quality control to meet stringent safety and quality standards. Our systems are used across the complete supply chain - from electronic materials, components and passive components through to finished PCB and electronic equipment. We supply vision systems, smart cameras and AOI inspection machines for quality control inspection, part ID and control.



[www.industrialvision.co.uk/industries/electronics](http://www.industrialvision.co.uk/industries/electronics)

## Applications

- Automated Optical Inspection (AOI) solutions
- Fiducial finding
- Surface mount placement and alignment
- Bent pin inspection
- Component verification – missing, incorrect or reversed
- Solder inspection and solder integrity
- PCB shorts, PCB voids, opens & misalignments
- Conformal coat and color inspection
- Product defect detection
- Print and text quality inspection
- Feature presence verification
- Component code verification
- Surface inspection for contamination
- Product traceability
- Barcode and Data Matrix code reading



*“Utilising our vision solutions allows electronics manufacturers to meet tough quality challenges relating to product quality and safety across the complete supply chain”*

# Printing, Packaging and Food

IVS have developed a suite of vision system solutions specifically for the food processing and printing & packaging markets offering high speed inspection solutions with regulatory compliance.



[www.industrialvision.co.uk/industries/print-packaging](http://www.industrialvision.co.uk/industries/print-packaging)

## Applications

- Rigid plastic container inspection
- Carton and box inspection
- Date, lot and part number verification
- Print quality inspection
- Content verification
- Bottle fill level inspection
- Damaged carton inspection
- Packaging measurements
- Tray and flat package inspection
- Color inspection and processing
- Product inspection
- Label inspection and verification to standards

## IVS vision inspection systems can be used in many industries:

- Solar Cell (Photovoltaic)
- Glass Production
- Cosmetics, Household Goods
- Steel
- Recycling
- Ceramics
- Paper Production
- Security Printing
- Aerospace, General Engineering
- Military
- Life Science
- Nuclear
- Precision Engineering
- Machine Tool Engineering
- Tobacco
- Timber, Foil, Plastics

# Service Excellence



Thanks to our unparalleled expertise and experience in vision technology for automated quality control, we hold an enviable position at the forefront of machine vision development.

Our extensive range of vision and ID products for all applications is backed by a unerring commitment to quality and adherence to Good Automated Manufacturing Practice (GAMP) guidelines. We operate a complete in-house mechanical, electrical and control design

service providing customers with full project management and feedback.

We operate under the concepts and philosophies of Total Quality Management and are dedicated to continual improvement in all phases of our business to better serve our customers, employees and the community in which we live and work. We are a British Standard Institute (BSI) and CE Marking Association registered company. We are also proud to have accreditation from SafeContractor® due to

our commitment to achieving excellence in health and safety management across all areas of our business.





IVS vision systems are used by blue-chip manufacturing companies throughout the UK, Europe and across the globe. We are happy to offer detailed references and example site visits for new clients. Shown below are some of the prestigious customers using IVS solutions.

**AB Automotive**

**ABB Aerocan**

**Aerogen**

**Barden**

**Bespak**

**BD**

**Bluestar Fibres**

**Bob Martin**

**Catalent**

**Coba Automotive**

**Continental**

**Crown Pet Foods**

**Cumbrian Seafoods**

**Decoma**

**Delphi**

**Denso**

**DS Smith**

**Eaton Automotive**

**Edwards**

**Element Six**

**Elring Klinger**

**Fisher & Paykel**

**Ford**

**Fritolay**

**GE Healthcare**

**Getrag**

**Glaxo Smith Kline**

**Grupo Antolin**

**Gyrus Medical**

**Hider Foods**

**Honeywell**

**Huegli**

**Huf**

**IAC**

**Intier**

**Jaguar Land Rover**

**John Guest**

**Johnson Controls**

**Johnson & Johnson**

**Johnson Matthey**

**Kawasaki**

**Kingspan**

**Lander Automotive**

**Lifescan**

**Magna**

**Mission Foods**

**Nissan**

**NSK**

**Ortho-Clinical Diagnostics**

**Owen Mumford**

**PepsiCo**

**Polypipe**

**Polytec**

**Powergen**

**Qioptiq**

**QV Foods**

**Refresco Gerber**

**Sapa Components**

**Stoddard**

**Systagenix**

**Tridonic**

**TRW Automotive**

**Unifrax**

**United Springs**

**UTC Aerospace**

**Vernacare**

**Vertu**

**Walkers Snackfoods**

**Wrights Food**

**Wrigley**

**ZF Lemforder**

**ZF TRW**



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